GTHT - 001

DRILLER REPORTS

2010

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Wednesday, February 16, 2011 9:26 AM
To: Chavez, Carl J, EMNRD; delfortner@charter.net; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov
Subject: Report for LDG 45-07
Attachments: Morning report for LDG 45 3.docx

Thank you
Steve Summitt

Morning report for LDG 45-07

24 hour report.

Rig on stand by Prep for demob Lay down 29 joints of 2 7/8" tubing nipple down flow-T remove rain rent test lines clean mud pits and location release rig at 00:00.

Current Operation

Demob rig

Planned Operation.

Determined rig requires additional equipment and repairs before continuing to drill. Released rig to stand by. Presently securing location against forecast gale-force winds. Reports will resume when ready to go back to drilling."

Steve Summit

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, February 09, 2011 4:54 PM
To: 'Jamie Robinson'
Cc: Del Fortner (External); Ben Barker; Roger Bowers (External); VonGonten, Glenn, EMNRD
Subject: RE: Turner report 11A0692

Ms. Robinson, Ben Barker, et al.:

First, the OCD has reviewed the credentials of the Turner Laboratories, Inc. submitted at the request of the OCD from Ms. Nancy Turner on February 8, 2011. The OCD was looking for laboratory associations, affiliations, etc. that the lab meets some type of national standard(s). The OCD received the following: 1) a proficiency certificate from a corporation presented to the laboratory that was not received from a Governmental agency, i.e., EPA; 2) Environmental Laboratory License from the Arizona Department of Health Services; and 3) certification of the test analytes and methods used by the laboratory. While the lab may be acceptable, the OCD notices that there was no Laboratory QA/QC Summary Sheets that accompanied the analytical data to verify the accuracy of the laboratory's lab equipment capabilities. Environmental laboratories know that QA/QC data sheets must accompany environmental data to satisfy the Data Quality Objectives of the State.

Second, the OCD reviewed the data absent the radiochemistry that is named "DRAFT: LDG 45-7" in both the preliminary submittal by Ben Barker and in Raser's most recent submittal by Jamie Robinson. The OCD notices that Fluorides and pH are significantly elevated to be of concern and forms a basis for the OCD permit and G-101 approval conditions. A point of confusion in New Mexico's State Environmental Regulations may be cleanup of ground water to the water quality standards or background, whichever is greater. In this case, the question is does the state allow discharges to the environment greater of the aforementioned. Since this is not remediation, this is not the case. In fact, Raser will need to perform rigorous testing even after OCD has reviewed the proper form documentation of its field work in order to verify that water quality is adequate without treatment, which was a major issue of contention during the hearings associated with the permit application.

Third, Raser is aware of the OCD discharge permit (GTHT-1) conditions for installation of temporary and permanent pits for well testing required under the permit, but has now proposed to discharge to the farm field that the OCD had temporarily allowed a lesser volume of well test water from Well 55-07 to be discharged based on water quality information that the OCD reviewed for approving that discharge into a farm field during the growing season.

One reason in addition to water quality that the OCD requires pits for this project is due to the tremendous volumes of fluids that would be brought to surface during initial well testing of every well that is drilled and for future well testing if the project ever reaches authorization to produce from each well. The demonstration required and record keeping of all information is a major task that will eventually need to be proven to the OCD before it can authorize any well for production and/or injection. The volumes of fluids involved and the clear language of the permit to NOT allow any discharge to "waters of the state" i.e., creeks, arroyos, etc. without an NPDES Discharge Permit from the EPA (Region 6 Office) should also point out why the OCD was able to approve the discharge permit application in the first place without any treatment, etc. of water before final disposition. The sampling and frequency requirements are also specified in the discharge permit for proving that once the facility is in operation that it meets WQ Standards through rigorous testing requirement to prove that no treatment is needed.

Consequently, the **OCD hereby disapproves** Raser's request to discharge effluent from any project wells into the farm field on location. The OCD could work with Raser if it wishes to construct a properly designed pit that may handle the fluid volumes from testing of all wells drilled at the facility if it is feasible.

Thank you for the opportunity to consider your request. The OCD hopes that Raser will follow its approved discharge permit requirements that forms the basis for approval of the project in the first place.

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

Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Jamie Robinson [mailto:Jamie.Robinson@rasertech.com]
Sent: Monday, February 07, 2011 4:50 PM
To: Chavez, Carl J, EMNRD
Cc: Del Fortner (External); Ben Barker; Roger Bowers (External)
Subject: FW: Turner report 11A0692

Hi Carl,

Here is the final analysis report for 45-7 from the lab. We expect radiochemistry to be in by the end of the week. If you have any questions please feel free to contact me,

Sincerely,

Jamie

Jamie Robinson
Geologist
Raser Technologies, Inc.
5152 N. Edgewood Drive, Provo UT. 84604
Office: 801.765.1200
Cell: 801.717.5563

From: Terri Garcia [mailto:tgarcia@turnerlabs.com]
Sent: Monday, February 07, 2011 3:22 PM
To: Jamie Robinson
Subject: Turner report 11A0692

Hello Jamie,

Attached is the last draft report for this work order. All of the Turner Laboratories analyses have been reviewed and validated. The only addition to this report will be that of the radiochemistry from Radiation Safety, which I believe Dawn told you would be available at the end of this week.

Please feel free to contact me if you have any questions or if I can be of further assistance to you in any way.

Sincerely,

Terri Garcia
tgarcia@turnerlabs.com
Technical Director
Turner Laboratories, Inc.
Tucson, Arizona
520.882.5880

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Thursday, February 03, 2011 9:21 AM
To: mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; Chavez, Carl J, EMNRD; delfortner@charter.net
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thanks
Steve Summitt
(530)304-5590

Morning report for LDG 45-07

24 hour report.

Circulate and pump sweeps to clean hole at 2900'.POOH close master valve. Nipple down BOPs and load pipe trailers. Load up truck with subs monel spools hole opener and well head unload 2 7/8" EUE 8 rd tubing. Nipple down BOPs. Set in flow tee and work with welder to fab flow line in to baker tanks

Current Operation

Strap 2 7/8" tubing clean threads open master valve RIH with tubing change out rig gen set RIH to 974'.

Planned Operation.

Hang 2 7/8" tubing on top of flow tee move rasar drill bit to office clean location get sample from baker tank #1 release crews.

Steve Summit

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Wednesday, February 02, 2011 7:26 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mikesmit@blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG45-07
Attachments: Morning report for LDG 45.docx

Thanks
Steve

Morning report for LDG 45-07

24 hour report.

Wait on loggers HSM rig up loggers run logs rig down loggers RIH to 800'. HSM. Airlift well peak temp 230* F POOH. Make up 12 1/4" bit RIH to 2734; tag fill. Clean out fill to 2900'

Current Operation

Circulate sweeps to clean hole POOH f/2900'

Planned Operation.

Close master valve Nipple down BOPs install flow-tee rig up to flow well load out rental equipment.

Steve Summit

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Tuesday, February 01, 2011 8:37 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve.

Morning report for LDG 45-07

24 hour report.

RIH tag fill at 2804' Run kuster temp survey 500' wait 10 min run in to 1200' wait 10 min, run in to 1700' wait 10 min, 1800' 10 min 1900' 10 min 2000' 10 min 2100 10 min 2200' 10 min 2300' 10 min, 2400' 10 min 2500' 10 min 2600' 10 min 2700' 10 min 2800' 10 min. pull wire line out at 40' per min. POOH. Make up 12 1/4" bit RIH to 1627' Adjust breaks and service rig. RIH tag fill at 2758' POOH to shoe. Rig up 3" trash pump to baker tanks to mud pits. POOH. Pump lease water down back side clean rig floor for loggers.

Current Operation

Wait on loggers rig up logger run logs

Planned Operation.

Run logs make up bit RIH clean out to TD. POOH test well

Steve Summit

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Monday, January 31, 2011 7:27 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt

Morning report for LDG 45-07

24 hour report.

Run Kuster temp logs 500' 5 min, 1185' 10 min, 1700' 10 min, 2100' 10 min, 2250' 10 min, 2848' 60 min. Clean out fill from 2848' to 2900' Pump sweeps to clean hole. Cut core at 2900' POOH. Clean rig floor clear walk Chain down blooie line. RIH to 803' Rig up to flow well. Unload well rotating head leaking change head unload well with air shut off air after 5 min well flowing on its own at 750 GPMs at 245* F. Kill well. POOH. Make up bit sub with totco ring RIH

Current Operation

RIH run kuster temp surveys.

Planned Operation.

Run kuster temp surveys POOH make up 12 1/4" bit RIH check for fill.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Sunday, January 30, 2011 6:25 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt

Morning report for LDG 45-07

24 hour report.

Drill from _2849 ft to 2863_ ft with no returns. Survey @ 2800' 0* 45 min azm 216. Pump sweep to clean hole. Drill from _2863 ft to 2900_ ft with no returns Pump sweep to clean hole POOH. Remove BHA from walk Fabricate junk sub/ core tool.RIH to 2853' tagged fill. Run kuster temp tools. Circulate out fill and sweep hole.

Current Operation

Run kuster temp logs from 1700' to 2853' circulate and clean out fill to 2900'

Planned Operation.

Attempt to cut core POOH unload well

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Saturday, January 29, 2011 6:11 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt

Morning report for LDG 45-07

24 hour report.

Drill from _2583 ft to _2639 ft w/ no returns sweeps when needed. Survey at 2600' 2*azm 190 circulate sweeps to clean 6' of fill. Drill from _2639 ft to _2849 ft w/ no returns.

Current Operation

Drill ahead w/ no returns from 2849' to 2900' survey 0* 45 min pump sweep POOH.

Planned Operation.

POOH RIH open ended run temp surveys rig up and unload well.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Friday, January 28, 2011 6:07 AM
To: glen_garnand@nm.blm.gov; restabro@ca.blm.gov; Dade, Randy, EMNRD; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
(530)304-5590

Morning report for LDG 45-07

24 hour report.

Drill from 2252_ ft to 2448_ ft with no returns sweep when needed. Run wire line survey at 2400' 3* 30 min AZM 170 Drill from _2448 ft to _2480 ft no returns Wiper Trip to _2007 ft 3' of fill Drill from _2480 ft to 2583_ ft no returns

Current Operation

Drill 12 1/4" hole from 2583' to 2640' with no returns survey at 2600 2* AZM 190.

Planned Operation.

Drill 12 1/4" hole survey every 200' pump sweep as needed.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Thursday, January 27, 2011 6:18 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
(530)304-5590

Morning report for LDG 45-07

24 hour report.

Drill from _2063 ft to _2103 ft lost returns at 2089' Pump sweep to clean hole. POOH for bit. Make up bit RIH to 1680' Work on centrifcal pump.RIH from 1680' to 2007' Safety ream from 2007' to 2103'.Drill from _2103 ft to 2208_ ft with no circulation pumping sweep when needed. Fix packing on swivel. Run wire line survey at 2180' 3* 30min. S-38-E Drill from _2208 ft to 2252 ft with no returns.

Current Operation

Drill 12 1/4" hole from 2252' to 2360' with no returns pump sweeps when needed.

Planned Operation.

Drill 12 1/4" hole from 2360' survey every 200'

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Wednesday, January 26, 2011 6:34 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; aristefans@gmail.com
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
(530)304-5590

Morning report for LDG 45-07

24 hour report.

RIH to 1716' Drill from _1716 ft to _1729 ft. Circulate and condition mud. Drill from _1729 ft to _1875 ft. Survey at 1830' (no good) Drill from _1875 ft to _1961 ft. Survey at 1900' 2* 45 min. Drill from _1961 ft to _2065 ft with full returns.

Current Operation

Drill 12 1/4" hole from 2065' to 2103' at 01:15 lost circulation regain circulation at 02:00 clean hole lost circulation 02:30 POOH for bit

Planned Operation.

Change bit RIH safety to ream from 2000' to 2103' drill 12 1/4" from 2103'

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Tuesday, January 25, 2011 6:36 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; aristefans@gmail.com
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve

Morning report for LDG 45-07

24 hour report.

Clean out mud pits. Mix polyviz and change over from gel base mud to polyviz. Drill from _1708 ft to 1711_ ft with full returns. Circulate and condition mud. Drill from _1711 ft to _1716 ft with full returns. POOH for mud motor. Make up new BHA and run in to 520'

Current Operation

RIH to 1716' Drill from 1716' to 1729' Circulate and condition mud drill from 1729' to 1754' 06:00 am depth

Planned Operation.

Drill 12 1/4" hole from 1754'

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Monday, January 24, 2011 7:04 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; aristefans@gmail.com
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Morning report for LDG 45-07

24 hour report.

Nipple up BOPE and weld up flow line. Function test BOPE and change rollers in kelly. Make up BHA and run in hole to 1505' Circulate. Test BOPE to 600 PSI (no good).Circulate and cool well down. Test BOPE to 600 PSI for 60 min.RIH to 1610'. Clean out cement float and shoe from 1610' to 1703' Drill from _1703 ft to 1708_ ft. Circulate hole clean for fit test. Run Fit test well held a minimum well head pressure of 145 PSIG. Clean mud tanks and drain sump.

Current Operation

Clean mud tanks and drain sump.

Planned Operation.

change over from gel base mud system to Polymer base system Drill 12 1/4" hole from 1708'

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Sunday, January 23, 2011 5:47 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; aristefans@gmail.com
Subject: Morning report for 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
(530) 304-5590

Morning report for LDG 45-07

24 hour report.

Clean mud pits clean cellar for welder clean location go through pump #2 WOC Rig up TRB and pump 22 bbls of class G cement 15# top job CIP 12:00 hrs. Weld tabs on 20" to center 13 3/8" cut 13 3/8" casing of set cut offs out pre heat and. Weld 13 3/8" casing head on. Nipple up BOPs

Current Operation

Nipple up BOPs and cut and fab flow line install choke and kill line

Planned Operation.

Finish with flow line test BOPE make up BHA run in hole pressure test BOPE drill out float and shoe make 5 foot of hole and fit test drill 12 1/4" hole from 1703'

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Saturday, January 22, 2011 6:54 PM
To: mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; Chavez, Carl J, EMNRD; restabro@ca.blm.gov
Subject: BOP testing

We are nippling up the BOPs we should be ready to test around 06:00 AM. on LDG 45-07

Thank you
Steve Summitt

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Saturday, January 22, 2011 6:33 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; aristefans@gmail.com
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
Phone # (530) 304-5590

Morning report for LDG 45-07

24 hour report.

Clean floor off adjust walk rig up B&L casing crew. Run 13 3/8" casing tack weld the first 5 joints 0f 62# then run 38 joints of 54.5#.Rig down B&L casing tongs. Rig up to run in hole with stab in.RIH with 4 1/2" stab in stab into float @ 1620' Pump 20 bbls H2O ahead at 4 bbls per min at 200 PSI pump 15# G cement 327 bbls 1027 sacks at 6 bbls per min 250 PSI drop dart displace with 23 bbls H2O bump dart 16:00 hrs CIP 16:00 hrs. POOH with stab in rig down cementer WOC. Note we had cement to surface.

Current Operation

Clean out seller WOC.

Planned Operation.

WOC cut and weld casing head on nipple up BOPs test run in hole with 12 1/4" bit drill out float and shoe run fit test.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Ben Barker [Ben.Barker@rasertech.com]
Sent: Friday, January 21, 2011 10:40 AM
To: Jackson, Charles L., OSE; Chavez, Carl J, EMNRD; Dade, Randy, EMNRD; Phillips, Haddy L., OSE
Subject: LDG 45-7 casing sundry notice
Attachments: BLM_3260-3_8-20071 Sundry Notice20Jan11.pdf

Folks,

For your information and files, the attached file is the sundry notice we filed yesterday with BLM to adjust the casing depth on well 45-7.
Casing is now in the ground and we are running in with the cementing string.

Thanks,
Ben

VP Resource Management
Raser Technologies
5152 N. Edgewood Drive
Provo, UT 84604
801-765-1200 office
801-850-5904 direct
801-857-5301 mobile1
707-508-9963 mobile2

Form 3260-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0132
Expires: July 31, 2010

GEOTHERMAL SUNDRY NOTICE

The Bureau of Land Management (BLM) requires this form or other BLM approved forms to be prepared and filed in triplicate with requisite attachments. The BLM must approve this permit prior to any lease operations.

6. Lease Serial No.
NM 34790

7. Surface Manager: ☐ BLM ☐ FS ☑ Other Private

8. Unit Agreement Name
N/A

1a. Well Type: ☑ Production ☐ Injection ☐ Heat Exchange ☐ Observation ☐ Other

9. Well No.
LDG 45-7

10. Permit No.
08

1b. Well Status:
New Well

11. Field or Area
Wildcat

2. Name of Lessee/Operator
Lightning Dock Geothermal HI-01, LLC

12. Sec., T., R., B. & M.
Sec.7, T25S, R19W NMBM

3. Address of Lessee/Operator
5152 N. Edgewood Drive, Suite 200
Provo, Utah 84604

13. County
Hidalgo

4. Location of Well or Facility
2360.0 ft north of the South Line and 2278.3 ft east the West line of Sec.7, T25S, R19W NMBM

14. State
NM

5. Type of Work

- ☑ Change Plans
- ☐ Site and Road Construction
- ☐ Construct New Production Facilities
- ☐ Alter Existing Production Facilities
- ☐ Convert to Injection
- ☐ Fracture Test
- ☐ Shoot or Acidize
- ☐ Repair Well
- ☐ Pull or Alter Casing
- ☐ Multiple Complete
- ☐ Abandon
- ☐ Other

15. Describe Proposed Operations *(Use this space for well activities only. See instructions for current well conditions on page 2.)*

Approved GDP proposed cementing 13.375" - 61 lb/ft J-55 casing from surface to 1500' and hanging a 9.625" - 36 lb/ft K-55 liner from 1500' to 3400'. Operator proposes to amend approved GDP casing program to (1) substitute 13.375" - 61 and 54.5 lb/ft, K-55 from surface to 1680' +/-, and (2) make the proposed liner optional at the discretion of the operator.

Drilling shows gravel formations extend deeper than expected in this location. Operator wishes to case off all unconsolidated formations and avoid using a liner unless it is required by unstable hole conditions below. Hard volcanic rocks are first encountered at 1650' and predominate by 1670'. The proposed casing depth of 1680' provides for 20' of competent rock above and below the casing shoe. The use of 54.5 lb/ft casing in the upper hole where a vertical shaft pump will be installed will allow more pump clearance with no practical reduction in safety. Experience in offset well TDF 55-7 shows a liner is probably not required for hole stability, but Operator is prepared to install one if hole conditions require one for economic production.

16. Describe Proposed Operations *(Use this space for activities other than well work.)*

17. I hereby certify that the foregoing is true and correct.

Signed _____ Title Vice President, Resource Management Date 01/20/2011

(This space for Federal use)

Approved by _____ Title _____ Date _____
Conditions of Approval, if any:

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212 make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

Form 3260-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

GEOTHERMAL SUNDRY NOTICE

FORM APPROVED
OMB NO. 1004-0132
Expires: July 31, 2010

The Bureau of Land Management (BLM) requires this form or other BLM approved forms to be prepared and filed in triplicate with requisite attachments. The BLM must approve this permit prior to any lease operations.

6. Lease Serial No.
NM 34790

7. Surface Manager: ☐ BLM ☐ FS ☑ Other Private

8. Unit Agreement Name
N/A

1a. Well Type: ☑ Production ☐ Injection ☐ Heat Exchange ☐ Observation ☐ Other

9. Well No.
LDG 45-7

10. Permit No.
08

1b. Well Status:
New Well

11. Field or Area
Wildcat

2. Name of Lessee/Operator
Lightning Dock Geothermal HI-01, LLC

12. Sec., T., R., B. & M.
Sec.7, T25S, R19W NMBM

3. Address of Lessee/Operator
5152 N. Edgewood Drive, Suite 200
Provo, Utah 84604

13. County
Hidalgo

4. Location of Well or Facility
2360.0 ft north of the South Line and 2278.3 ft east the West line of Sec.7, T25S, R19W NMBM

14. State
NM

5. Type of Work

☑ Change Plans	☐ Convert to Injection	☐ Pull or Alter Casing
☐ Site and Road Construction	☐ Fracture Test	☐ Multiple Complete
☐ Construct New Production Facilities	☐ Shoot or Acidize	☐ Abandon
☐ Alter Existing Production Facilities	☐ Repair Well	☐ Other

15. Describe Proposed Operations *(Use this space for well activities only. See instructions for current well conditions on page 2.)*

Approved GDP proposed cementing 13.375" - 61 lb/ft J-55 casing from surface to 1500' and hanging a 9.625" - 36 lb/ft K-55 liner from 1500' to 3400'. Operator proposes to amend approved GDP casing program to (1) substitute 13.375" - 61 and 54.5 lb/ft, K-55 from surface to 1680' +/-, and (2) make the proposed liner optional at the discretion of the operator.

Drilling shows gravel formations extend deeper than expected in this location. Operator wishes to case off all unconsolidated formations and avoid using a liner unless it is required by unstable hole conditions below. Hard volcanic rocks are first encountered at 1650' and predominate by 1670'. The proposed casing depth of 1680' provides for 20' of competent rock above and below the casing shoe. The use of 54.5 lb/ft casing in the upper hole where a vertical shaft pump will be installed will allow more pump clearance with no practical reduction in safety. Experience in offset well TDF 55-7 shows a liner is probably not required for hole stability, but Operator is prepared to install one if hole conditions require one for economic production.

16. Describe Proposed Operations *(Use this space for activities other than well work.)*

17. I hereby certify that the foregoing is true and correct.

Signed _____ Title Vice President, Resource Management Date 01/20/2011

(This space for Federal use)

Approved by _____ Title _____ Date _____
Conditions of Approval, if any:

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212 make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Friday, January 21, 2011 6:00 AM
To: glen_garnand@nm.blm.gov; Dade, Randy, EMNRD; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; aristefans@gmail.com
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
Phone # 530 304-5590

Morning report for LDG 45-07

24 hour report.

Ream out underguage hole from 1545' to 1586'.Open hole from 1586' to 1624' Circulate hole clean pull up to shoe change oil seal in gear box RIH to 1624'.Open hole from 1624' to 1700'.Circulate and condition mud for casing. Wiper Trip to _410' ft. Circulate and cool well down for cement job no fill on wiper run. POOH cut strap off of hole opener break 12 1/4" off of hole opener.

Current Operation

Clear walk and pipe rack of drill pipe and DC adjust walk for running casing rig up B&L casing tongs and power unit run 13 3/8" casing tack weld 1st 5 joints centralizers every other joint.

Planned Operation.

Finish running 13 3/8" casing RIH with drill pipe stab into float cement casing POOH w/drill pipe WOC.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Thursday, January 20, 2011 6:23 AM
To: mike_smith@nm.blm.gov; delfortner@charter.net; Dade, Randy, EMNRD; Chavez, Carl J, EMNRD; restabro@ca.blm.gov; aristefans@gmail.com; glen_garnand@nm.blm.gov
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Morning report for LDG 45-07

24 hour report.

RIH to 545'POOH to shoe. Work on rig change seal in transfer case POOH Make up hole opener #2 RIH with BHA.RIH to 1538.Run Kuster temp survey Ream underguage hole from 1530' to 1586'.
Current Operation
Ream underguage hole from 1545' to 1586' open 12 1/4" hole to 17 1/2" from 1586'
to 1624' circulate hole clean pull to shoe to repair rig.
Planned Operation.
Pull to shoe repair rig RIH to 1624' open hole to 1703' circulate clean wipe hole POOH and run 13 3/8" casing.
Steve Summitt
Phone # (530) 304-5590

Morning report for LDG 45-07

24 hour report.

RIH to 545'POOH to shoe. Work on rig change seal in transfer case POOH Make up hole opener #2 RIH with BHA.RIH to 1538.Run Kuster temp survey Ream underguage hole from 1530' to 1586'.

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Planned Operation.

Pull to shoe repair rig RIH to 1624' open hole to 1703' circulate clean wipe hole POOH and run 13 3/8" casing.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: mikesmit@blm.gov
Sent: Wednesday, January 19, 2011 8:12 AM
To: Rappuhn, Doug H., OSE; Chavez, Carl J, EMNRD
Subject: RE: Well 45-7 casing point mud log

Hello Doug and Carl:

I have forwarded this e-mail chain to the BLM's petroleum/geothermal drilling engineer (Rich Estabrook) for his guidance. What the Federal Geothermal Drilling Permit (Additional condition #17) states is:

"After drilling 3-5' of new formation below the 13 3/8" casing shoe, drilling shall stop and the casing shoe and formation shall be tested to a minimum of a 0.6 psi/ft gradient for 30 minutes. If a successful test cannot be obtained, drilling shall not continue until verbal approval is granted by Richard Estabrook".

Regards,

Michael Smith
Geologist - BLM
Las Cruces District Office
1800 Marquess Street
Las Cruces, NM 88005
575-525-4421
Mike_Smith@blm.gov

"Rappuhn, Doug H., OSE" <doug.rappuhn@state.nm.us>
01/18/2011 06:13 PM

To: "Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us>, Ben Barker <Ben.Barker@rasertech.com>, "'Mike_Smith@blm.gov'" <Mike_Smith@blm.gov>, "Jackson, Charles L., OSE" <charles.jackson@state.nm.us>, "Phillips, Haddy L., OSE" <haddy.phillips@state.nm.us>, "Johnson, Mike S., OSE" <mike.johnson@state.nm.us>, "Del Fortner (External)" <delfortner@charter.net>

cc: "Dade, Randy, EMNRD" <Randy.Dade@state.nm.us>

Subject: RE: Well 45-7 casing point mud log

Hi Ben –

As noted in my e-mail to Carl Chavez below, the casing set depth of 1680'
for well OCD-45-7 looks good from a NMOSE perspective.
I understand you hope to finish reaming the hole with a 17.5" bit tonight and would then prepare to set casing. Please forward me a copy of the bill of lading for the casing, and manufacturer paperwork identifying the grade of casing, preferably with confirmation of wall thickness, composition, threading, and any other spec material on the casing. Essentially in the absence of a physical inspection of the casing, we need verification that the casing proposed on the NMOSE Artesian Well Plan of Operations is what was delivered for installation.

You can catch me in the morning after 7:00 or call me right away now.
We'll resolve (tomorrow)the MIT differences and whether our Deming staff will be conducting other inspections.

Douglas H. Rappuhn
Hydrology Bureau / New Mexico Office of the State Engineer 5550 San Antonio Drive NE Albuquerque, NM 87109-4127
Phone: 505-383-4000; Fax: 505-383-4030
e-mail: doug.rappuhn@state.nm.us

From: Chavez, Carl J, EMNRD
Sent: Tuesday, January 18, 2011 5:09 PM
To: Ben Barker; Rappuhn, Doug H., OSE; 'Mike_Smith@blm.gov'; Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Johnson, Mike S., OSE; Del Fortner (External)
Cc: Dade, Randy, EMNRD
Subject: FW: Well 45-7 casing point mud log

Ladies and Gentlemen:

Please see Randy Dade's message below based on your e-mails.

If anyone can copy or forward this msg. to Ed Griffin, I received a voicemail msg. from him concerning the drilling and witnessing of the MIT.

Unfortunately, due to travel restrictions and budget issues, OCD staff will not be able to witness the MIT for the drilling event; however, OSE and/or BLM Inspectors are welcome to witness the test for the OCD.

Please contact Randy Dade at the contact information below if you have questions.

District 2 - ARTESIA

1301 W. Grand Avenue
Artesia, NM 88210

OFFICE: (575) 748-1283 FAX: (575) 748-9720 Business Hours:
7:00 AM-12:00 PM and 1:00 - 4:00 PM
Monday through Friday

Randy Dade - District Supervisor
Phone extension: 102
Mobile (575) 626-1372
I am also available to assist if you have questions and can work with Randy to make sure we respond in a timely manner. By receipt of this message, Raser please copy Mr. Dade on all future drilling activities and inquiries going forward.

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
(Pollution Prevention Guidance is under "Publications")

From: Dade, Randy, EMNRD
Sent: Tuesday, January 18, 2011 4:58 PM
To: Chavez, Carl J, EMNRD
Subject: RE: Well 45-7 casing point mud log

District II requires all cementing in our Potash area to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating any tests. I would like a chart recorder to be in place when the cement is pumped and shut in. Sign and date the chart and mail it to the Artesia OCD office @ 1301 W. Grand, Artesia, NM. 88210

Casing tests shall be made before and after drilling the plug and below the casing. The mud shall be displaced with water and a hydraulic pressure of 600 PSI shall be applied. If a drop of 100 PSI occurs within 30 minutes, corrective action shall be applied

From: Chavez, Carl J, EMNRD
Sent: Tuesday, January 18, 2011 4:17 PM
To: Dade, Randy, EMNRD
Subject: FW: Well 45-7 casing point mud log

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

From: Rappuhn, Doug H., OSE
Sent: Tuesday, January 18, 2011 3:13 PM
To: Chavez, Carl J, EMNRD; 'Mike_Smith@blm.gov'
Cc: Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Johnson, Mike S., OSE
Subject: FW: Well 45-7 casing point mud log

Hi Carl, Mike –
Based on the information presented in the diagram, I'm ok with the planned 13.38" OD casing depth of 1680'. The annular seal should lock the volcanic aquifer water/head into the casing, and not allow inter-aquifer loss up the annular space. Choosing a competent casing set-point should limit the wallow in the vicinity of the casing depth as deeper drilling occurs. The current borehole is being reamed to 17.5" diameter to accept the 13.38" OD casing. How does the proposed set depth sound to you / other reviewers?

If this were a simple deep artesian water well, the OSE would:

1. Evaluate the casing for spec by either physically checking the dimensions (wall thickness, OD) onsite or virtually (RASER must provide bill of lading and billing from manufacturer identifying specs)
2. Attend the grouting of the casing to ensure the cement mix agreed to was pumped and circulation to the surface was established. Density of pumped cement and cement displaced at surface would be checked with mud balance against spec. If a cementing service is

used (this is the plan), we require a copy of the cementing report. If OSE personnel is not available to witness the cementing, submittal of a cementing report may suffice (virtual inspection). Will OCD staff be witnessing the cementing?

3. Attend testing of the production well cement job in the form of a casing pressure test is required prior to drilling out the cementing shoe. The test would not be conducted until laboratory cementing charts indicate a cement compressive strength of at least 500 psi has been attained; set times longer than that to reach 500 psi strength are recommended. Our standard production well test would be holding a minimum 300 psi internal casing pressure with no less than 5% leakdown over the course of an hour. The test may be conducted at a pressure higher than 300 psi at the discretion of the applicant, subject to a 5% maximum leakdown based on the higher pressure. Will OCD staff be witnessing a pressure test of the casing?

Additional testing of the casing may be required if there is any reason we are unsure of the competency of the cement job. The Initial additional test would consist of the applicant running and our evaluation of a cement bond log prior to the installation of any other string of casing or liner pipe. We have at times initially used a temperature log run within 48 hours of the cementing, but will avoid that option given the nature of the project!

In the event OCD or other regulatory agencies require more stringent testing or requirements, the OSE concedes to that process and inspection.
If you or other agencies will be providing inspection services similar/more extensive in nature to those listed above, could you please provide detail and contact information? It may be that your staff is more adjusted to accommodating the schedule of a 24-hour drilling operation than the OSE. I will call you about 3:30 and see if you're in to discuss.

Douglas H. Rappuhn
Hydrology Bureau / New Mexico Office of the State Engineer 5550 San Antonio Drive NE Albuquerque, NM 87109-4127
Phone: 505-383-4000; Fax: 505-383-4030
e-mail: doug.rappuhn@state.nm.us

From: Ben Barker [mailto:Ben.Barker@rasertech.com]
Sent: Tuesday, January 18, 2011 1:25 PM
To: Jackson, Charles L., OSE; Rappuhn, Doug H., OSE; Phillips, Haddy L., OSE
Cc: Chavez, Carl J, EMNRD; mikesmit@blm.gov; Del Fortner (External)
Subject: Well 45-7 casing point mud log

Dear NMOSE Folks,

Condition #9 of the NMOSE Exploratory Artesian Well permit states "...Due to the exploratory nature of this well, final artesian / production casing depth setting shall be reviewed with the NMOSE upon adequate drilling and logging of the well bore." This note is to provide you with the well data for you review of our intended 13-3/8" casing point. We hope to complete the 17-1/2" hole some time tonight and begin to run casing early Wednesday.

Our original permit called for a 1500 ft casing depth but the attached log clearly shows why we were not satisfied with the formation at that depth.
Until 1640 ft we encountered only gravels with traces of clay. At 1650 ft we first saw hard tuffs and we continued drilling in them for another 60 ft. We believe the best depth for the casing shoe is 1680 ft. That will leave us with a known 20 ft of good rock below the shoe for a formation integrity test. Please advise me if you need any additional information

Thanks,
Ben

VP Resource Management
Raser Technologies
5152 N. Edgewood Drive

Provo, UT 84604
801-765-1200 office
801-850-5904 direct
801-857-5301 mobile1
707-508-9963 mobile2

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, January 19, 2011 8:22 AM
To: 'mikesmit@blm.gov'; Rappuhn, Doug H., OSE; 'Ben Barker'; Del Fortner (External)
Cc: Dade, Randy, EMNRD
Subject: RE: Well 45-7 casing point mud log

Ben:

Please find the link to OCD Geothermal Regulations (regulations) at
http://www.nmcpr.state.nm.us/nmac/_title19/T19C014.htm
for state subreferenced regulations below. OCD cementing provisions under State Geothermal Regulations are cited below.

This rule was filed as Rule G-108.

TITLE 19 NATURAL RESOURCES AND WILDLIFE

CHAPTER 14 GEOTHERMAL POWER

PART 27 CASING AND CEMENTING REQUIREMENTS

19.14.27.1 ISSUING AGENCY: Energy and Minerals Department, Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico.

[Recompiled 12/31/01]

19.14.27.2 SCOPE: [RESERVED]

[Recompiled 12/31/01]

19.14.27.3 STATUTORY AUTHORITY: [RESERVED]

[Recompiled 12/31/01]

19.14.27.4 DURATION: [RESERVED]

[Recompiled 12/31/01]

19.14.27.5 EFFECTIVE DATE: [November 15, 1983]

[Recompiled 12/31/01]

19.14.27.6 OBJECTIVE: [RESERVED]

[Recompiled 12/31/01]

19.14.27.7 DEFINITIONS: [RESERVED]

[Recompiled 12/31/01]

19.14.27.8 CASING AND CEMENTING REQUIREMENTS:

A. All wells drilled for the production of geothermal resources, including low-temperature thermal wells, and all specialty wells, including injection and disposal wells, shall be cased and cemented in such manner as to protect surface waters, if any, useable ground waters, geothermal resources, and life, health and property. Thermal gradient wells shall be drilled, completed and plugged in such a manner as to protect surface waters, in any, and useable ground waters. The division may require casing and cementing as is deemed necessary for such wells.

B. All casing strings reaching the surface shall provide adequate anchorage for blowout prevention equipment, hole pressure control, and protection for all natural resources. Although specifications for casing programs shall be determined on a well-to-well basis, the following general casing requirements should be used as guidelines in submitting form G-101, application for permit to drill, deepen, or plug back-geothermal resources well.

(1) Conductor Pipe: A minimum of 90 feet and a maximum of 200 feet. In special cases the division may allow conductor pipe to be run and cemented at deeper depths. Annular space is to be cemented solid to the surface. An annular blowout-preventer or equivalent approved by the division shall be installed on conductor pipe on exploratory wells and on development wells when deemed necessary by the division. Note: For thermal gradient wells and low-temperature thermal wells the conductor pipe requirement may be reduced or waived by the division. The above conductor pipe requirements are not meant to be applicable to the single or double joint of large diameter pipe often run to keep mud out of the cellar.

(2) Surface Casing: Except in the case of thermal gradient wells and low-temperature thermal wells, the surface casing hole shall be logged with an electrical or radioactivity log, or equivalent, before running casing. Note: This requirement may vary from area to area, depending upon the amount of subsurface data available, and may be waived under certain conditions. Requests for exceptions to the logging requirement should be noted on form G-101 when applying for a drilling permit. Surface casing shall provide for control of formation fluids, for protection of useable ground water and for adequate anchorage for blowout-prevention equipment. All surface casing shall be, if possible, cemented solid to the surface.

(a) Length of Surface Casing:

(i) In areas where subsurface geological conditions are variable or unknown, surface casing in general shall be set at a depth equalling or exceeding 10 percent of the proposed total depth of the well. A minimum of 200 feet and a maximum of 1,500 feet of surface casing shall be set.

(ii) In areas of known high formation pressure, surface casing shall be set at a depth determined by the division after a careful study of geological conditions. The division will make such a determination within 30 days. Drilling shall not commence until such determination has been made.

(iii) Within the confines of designated geothermal fields, the depth at which surface casing shall be set shall be determined by the division on the basis of known field conditions. Requirements (a)(1) and (a)(2) [now (i) and (ii) of Subparagraph (a) and (b)of Paragraph (2) of Subsection B of 19.14.27.8 NMAC] above may be waived for low-temperature thermal wells.

(b) Cementing Point for Surface Casing:

(i) In areas where subsurface geological conditions are variable or unknown, surface casing shall be set in accordance with (a) (1) [now (i) Subparagraph (a) of Paragraph (2) of Subsection B of 19.14.27.8 NMAC] above and through a sufficient series of low permeability, competent lithologic units (such as claystone or siltstone) to ensure a solid anchor for blowout-prevention equipment and to protect useable ground water and surface water from

contamination. A second string of surface casing may be required if the first string has not been cemented through a sufficient series of low permeability, competent lithologic units and either a rapidly increasing thermal gradient or rapidly increasing formation pressures are encounted.

(ii) In areas of known high formation pressure, surface casing shall be set in accordance with (a) (2) [now (ii) Subparagraph (a) of Paragraph (2) of Subsection B of 19.14.27.8 NMAC] above and through a sufficient series of low permeability, competent lithologic units (such as claystone, siltstone or basalt) to ensure a solid anchor for blowout-prevention equipment and to protect useable ground water and surface water from contamination. A second string of surface casing may be required, before drilling into the known high pressure zone is permitted, if the first string of surface casing has not been cemented through a sufficient series of low-permeability, competent lithologic units.

(iii) Within the confines of designated geothermal fields, cementing point shall be determined by the division on the basis of known field conditions. Requirements (b)(1) and (b)(2) [now (i) and (ii) of Subparagraph (b) of Paragraph (2) of Subsection B of 19.14.27.8 NMAC] above may be waived for low-temperature thermal wells.

(c) Return mud temperatures: Return mud temperatures shall be entered into the log book after each joint of pipe has been drilled down. See Rule G-106(b) [now Subsection B of 19.14.25.8 NMAC].

(d) Blowout-prevention equipment (BOPE): BOPE capable of shutting in the well during any operation shall be installed on the surface casing and maintained ready for use at all time (see Section H) [see compiler's note].

(3) Intermediate casing: Intermediate casing shall be required for protection against anomalous pressure zones, caveins, washouts, abnormal temperature zones, uncontrollable lost circulation zones or other drilling hazards. Intermediate casing strings shall be, if possible, cemented solid to the surface. This requirement (to circulate cement) may be waived if the production casing will be cemented to the surface.

(4) Production casing: Production casing may be set above or through the producing or injection zone and cemented above the objective zones. Sufficient cement shall be used to exclude overlying formation fluids from the zone, to segregate zones and to prevent movement of fluids behind the casing into zones that contain useable ground water. Production casing shall either be cemented solid to the surface or lapped into intermediate casing, if run. If the 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 its integrity. In order to reduce casing corrosion, production casing used to produce corrosive brine reservoirs shall be of the same nominal inside diameter from the shoe of the casing to the ground surface.

(5) Casing and Cement Tests: All casing strings shall be tested after cementing and before commencing any other operations on the well. Form G-103 shall be filed for each casing string reporting the grade and weight of pipe used. In the case of combination strings utilizing pipe of varied grades or weights, the footage of each grade and weight used shall be reported. The results of the casing test, including actual pressure held on the pipe and the pressure drop observed, shall also be reported on the form G-103. See Rule G-203C(2) [now Paragraph (2) of Subsection C of 19.14.54.8 NMAC].

(a) Casing strings in wells drilled with rotary tools shall be pressure-tested. Minimum casing test pressure shall be approximately one-third of the manufacturer's rated internal yield pressure except that the test pressure shall not be less than 600 pounds per square inch and need not be greater than 1,500 pounds per square inch. In cases where combination strings are involved, the above test pressures shall apply to the lowest pressure-rated casing used. Test pressures shall be applied for a period of 30 minutes. If a drop of more than ten percent of the test pressure should occur, the casing or cement job shall be considered defective and corrective measures shall be taken before commencing any further operations on the well.

(b) Casing strings in wells drilled with cable tools may be tested as outlined in Rule 5(a) [now Subparagraph (a) of Paragraph (5) of Subsection B of 19.14.27.8 NMAC] above, or by bailing the well dry, in which case the well must remain satisfactorily dry for a period of at least one hour before commencing any further operations on the well.

(6) Defective casing or cementing: If the cementing of any casing appears to be defective, or if the casing in any well appears to be defective or corroded or parted, or if there appears to be any underground leakage for whatever other reason, which may cause or permit underground waste, the operator shall proceed with diligence to use the appropriate method or methods to eliminate such hazard. If such hazard of waste cannot be eliminated, the well shall be plugged and abandoned in accordance with a division approved plugging program.

(7) Logging: All wells, except thermal gradient wells and low-temperature thermal wells, shall be logged with an electrical or radioactivity log, or equivalent, from total depth to the surface casing shoe. This requirement may be waived by the division depending upon geological or engineering conditions.

[Recompiled 12/31/01]

HISTORY OF 19.14.27 NMAC:

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

Rule G-108, Casing and Cementing Requirements, 11/1/83.

History of Repealed Material: [RESERVED]

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

-----Original Message-----
From: mikesmit@blm.gov [mailto:mikesmit@blm.gov]
Sent: Wednesday, January 19, 2011 8:12 AM
To: Rappuhn, Doug H., OSE; Chavez, Carl J, EMNRD
Subject: RE: Well 45-7 casing point mud log

Hello Doug and Carl:

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"After drilling 3-5' of new formation below the 13 3/8" casing shoe, drilling shall stop and the casing shoe and formation shall be tested to a minimum of a 0.6 psi/ft gradient for 30 minutes. If a successful test cannot be obtained, drilling shall not continue until verbal approval is granted by Richard Estabrook".

Regards,

Michael Smith
Geologist - BLM
Las Cruces District Office
1800 Marquess Street
Las Cruces, NM 88005
575-525-4421
Mike_Smith@blm.gov

"Rappuhn, Doug H., OSE" <doug.rappuhn@sta To

te.nm.us> "Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us>, Ben
01/18/2011 06:13 Barker <Ben.Barker@rasertech.com>,
PM "'Mike_Smith@blm.gov'" <Mike_Smith@blm.gov>, "Jackson, Charles L., OSE" <charles.jackson@state.nm.us>, "Phillips, Haddy L., OSE" <haddy.phillips@state.nm.us>, "Johnson, Mike S., OSE" <mike.johnson@state.nm.us>, "Del Fortner (External)" <delfortner@charter.net>

cc

"Dade, Randy, EMNRD" <Randy.Dade@state.nm.us>

Subject

RE: Well 45-7 casing point mud log

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for well OCD-45-7 looks good from a NMOSE perspective.
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Douglas H. Rappuhn
Hydrology Bureau / New Mexico Office of the State Engineer 5550 San Antonio Drive NE Albuquerque, NM 87109-4127
Phone: 505-383-4000; Fax: 505-383-4030
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Please contact Randy Dade at the contact information below if you have questions.

District 2 - ARTESIA

1301 W. Grand Avenue
Artesia, NM 88210

OFFICE: (575) 748-1283 FAX: (575) 748-9720 Business Hours:
7:00 AM-12:00 PM and 1:00 - 4:00 PM
Monday through Friday

Randy Dade - District Supervisor
Phone extension: 102
Mobile (575) 626-1372
I am also available to assist if you have questions and can work with Randy to make sure we respond in a timely manner. By receipt of this message, Raser please copy Mr. Dade on all future drilling activities and inquiries going forward.

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
(Pollution Prevention Guidance is under "Publications")

From: Dade, Randy, EMNRD
Sent: Tuesday, January 18, 2011 4:58 PM
To: Chavez, Carl J, EMNRD
Subject: RE: Well 45-7 casing point mud log

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Phone: 505-383-4000; Fax: 505-383-4030

e-mail: doug.rappuhn@state.nm.us

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801-765-1200 office
801-850-5904 direct
801-857-5301 mobile1
707-508-9963 mobile2

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Wednesday, January 19, 2011 6:15 AM
To: glen_garnand@nm.blm.gov; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; Israel Hinojosa; randydade@statenm.us
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
Phone (530)304-5590

Morning report for LDG 45-07

24 hour report.

Open 12 1/4" hole to 17 1/2" from 1407' to 1587' POOH break and lay down hole opener. Make up 12 1/4" bit RIH with BHA. RIH.

Current Operation

Service rig RIH Pull up to shoe Repair Rig (Gear Box)

Planned Operation.

Repair rig RIH run Kuster temp logs POOH rig up and run casing.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, January 19, 2011 7:09 AM
To: Rappuhn, Doug H., OSE; Ben Barker; 'Mike_Smith@blm.gov'; Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Johnson, Mike S., OSE; Del Fortner (External)
Cc: Dade, Randy, EMNRD
Subject: RE: Well 45-7 casing point mud log

The casing depth of 1680 ft. looks good to OCD. Sorry, I thought Randy was going to comment yesterday on this. Thanks.

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Subject: RE: Well 45-7 casing point mud log

Hi Ben –

As noted in my e-mail to Carl Chavez below, the casing set depth of 1680' for well OCD-45-7 looks good from a NMOSE perspective.
I understand you hope to finish reaming the hole with a 17.5" bit tonight and would then prepare to set casing. Please forward me a copy of the bill of lading for the casing, and manufacturer paperwork identifying the grade of casing, preferably with confirmation of wall thickness, composition, threading, and any other spec material on the casing. Essentially in the absence of a physical inspection of the casing, we need verification that the casing proposed on the NMOSE Artesian Well Plan of Operations is what was delivered for installation.

You can catch me in the morning after 7:00 or call me right away now. We'll resolve (tomorrow)the MIT differences and whether our Deming staff will be conducting other inspections.

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Ladies and Gentlemen:

Please see Randy Dade's message below based on your e-mails.

If anyone can copy or forward this msg. to Ed Griffin, I received a voicemail msg. from him concerning the drilling and witnessing of the MIT.

Unfortunately, due to travel restrictions and budget issues, OCD staff will not be able to witness the MIT for the drilling event; however, OSE and/or BLM Inspectors are welcome to witness the test for the OCD.

Please contact Randy Dade at the contact information below if you have questions.

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Monday through Friday

Randy Dade - District Supervisor
Phone extension: 102
Mobile (575) 626-1372

I am also available to assist if you have questions and can work with Randy to make sure we respond in a timely manner. By receipt of this message, Raser please copy Mr. Dade on all future drilling activities and inquiries going forward.

Thank you.

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Lightning Dock 45-07

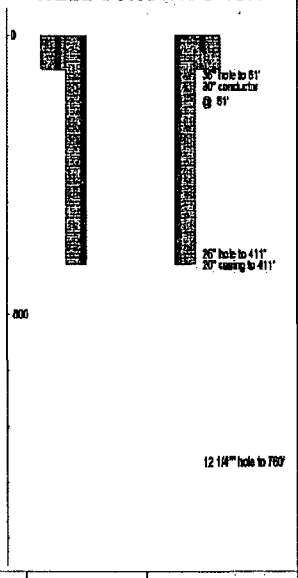
ABBREVIATIONS

NB	New Bit
RRB	Re-run Bit
CB	Core Bit
WOB	Weight on Bit
RPM	Revolutions per Minute
PP	Pump Pressure
SPM	Strokes per Minute
POOH	Pull Out of Hole
WR	Wiper Run
LAT	Logged After Trip
LC	Lost Circulation
NR	No Returns

Lithology Symbols

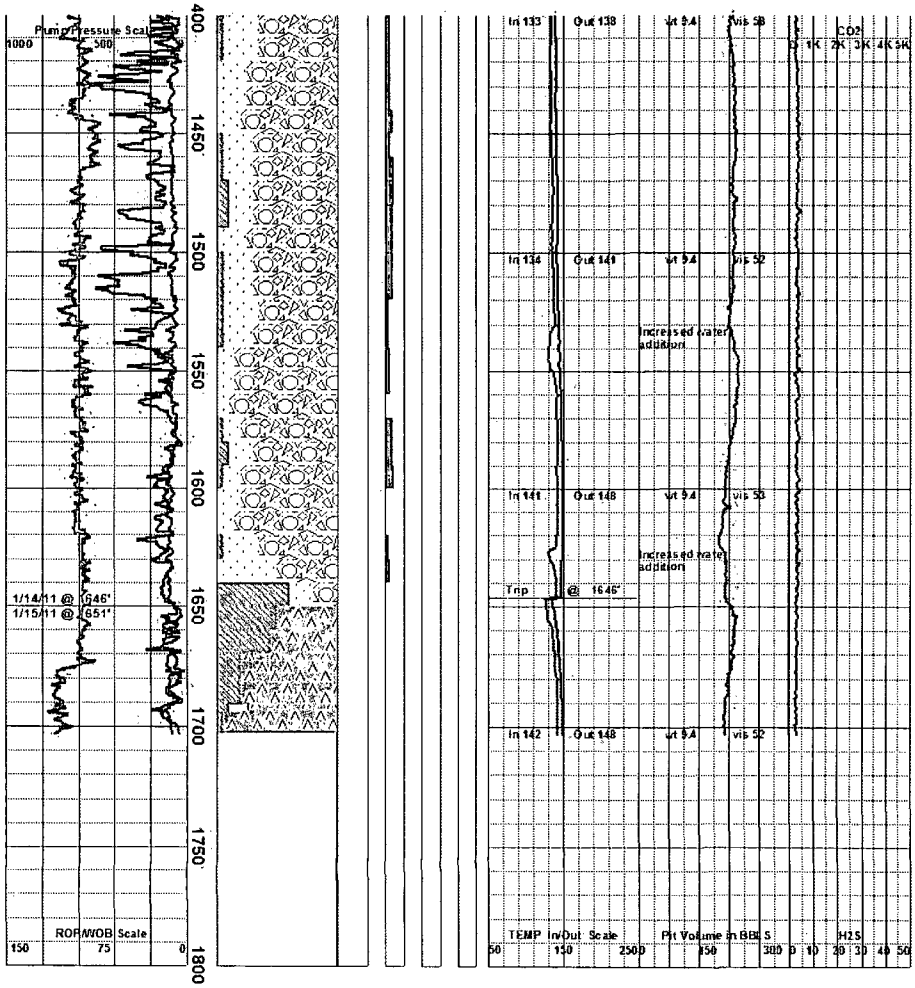
Clay, Limestone, Claystone, Andesite, Sand, Tuff, Conglomerate or Gravel, Chert, Silt, Quartz Monzonite

WELL CONSTRUCTION



COMPANY:	Lightning Dock No. H1-01 LLC
WELL NAME:	Lightning Dock 45-07
FIELD:	
COUNTY/STATE:	Hidalgo, New Mexico
COORDINATES:	Lat 32.144426 Long -108.837599
ELEVATION/KB:	GL 4197' + KB 15' = 4212'
API NUMBER:	
COMPANY REP:	Steve Summitt
CO. GEOLOGIST:	Roger Bowers
CONTRACTOR/RIG:	Barbour Drilling Rig #77
SPUD DATE:	12/10/10
LOGGING DATES:	12/10/10 to xx/xx/xx
LOGGED DEPTHS:	61' to xxxx'
LOGGING GEOLOGISTS:	Jim Hill, Blake Bundy
MUDLOGGERS:	Richard Taylor

DRILL RATE / WOB / PUMP PRESSURE | Depth | LITHOLOGY | Fractures | SECONDARY MINERALS (Calcite, Pyrite, Epidote, Chlorite, Hematite, Clay) | TEMPERATURE IN & OUT / PRESSURE OUT | PIT TOTAL | GASES | DESCRIPTIONS



Conglomerate/Sand/Clay: red, tan, gry, blk, pink, tr wht, tr clr, dom ang-subang, gd tr subrnd, dom coarse size sand, occ pebbles, unconsol, occ tr silicified sandstone, dom multicolored tuffs w occ sanidine xls within, slt tr calcite xtls, tan brn clay possible uphole wall cake?

Conglomerate/Sand: brn orng, red, tan, wht, gry, lt redish yel, ang-subang, cont clasts of rhyodacite, incr'd muddy tuff%, sl calcic overall w/ tr loose calcite xtls.

Conglomerate/Sand: red, pl yel, brn, tan, drk grn, blk; subang-ang, occ subrnded, @ 1520'-1530' red rytholitic tuff w hematite alt incr, . weakly calcareous, cont tr clay thought to have come from uphole, rr tr black sbhedral hematitie and tr blk sheet biotite between 1550' and 1560'.

SURVEY @ 1623' = 1 3/4°

Conglomerate/Sand: color change @ 1570' to pred m-dk brn w/ marked decr in orng/red hem coatings, wl clr, pink, tan, wht, ang-sbang, mod srtd, unconsol, incr % of brn muddy/ashy sandy clast (agglomerate/debris flow?), brn clasts are densely welded tuff, sl calc.

Tuff: m-dk red/brown to brown, mnr lt-dk tan & durky red, aphanitic, tr phaneritic, loc tr porphyritic, pred rd/brn ashy matri w/ xtl and lithic clasts of welded tuff and rhyodacite, com microlites in grdms, loc brt rd/orge hem altn, loc rare spec hem, sl calcic thru out, mod-abdt lt orng intrbdd ash/clays.

Chavez, Carl J, EMNRD

From: Rappuhn, Doug H., OSE
Sent: Tuesday, January 18, 2011 6:13 PM
To: Chavez, Carl J, EMNRD; Ben Barker; 'Mike_Smith@blm.gov'; Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Johnson, Mike S., OSE; Del Fortner (External)
Cc: Dade, Randy, EMNRD
Subject: RE: Well 45-7 casing point mud log

Hi Ben –

As noted in my e-mail to Carl Chavez below, the casing set depth of 1680' for well OCD-45-7 looks good from a NMOSE perspective.
I understand you hope to finish reaming the hole with a 17.5" bit tonight and would then prepare to set casing. Please forward me a copy of the bill of lading for the casing, and manufacturer paperwork identifying the grade of casing, preferably with confirmation of wall thickness, composition, threading, and any other spec material on the casing. Essentially in the absence of a physical inspection of the casing, we need verification that the casing proposed on the NMOSE Artesian Well Plan of Operations is what was delivered for installation.

You can catch me in the morning after 7:00 or call me right away now. We'll resolve (tomorrow)the MIT differences and whether our Deming staff will be conducting other inspections.

Douglas H. Rappuhn
Hydrology Bureau / New Mexico Office of the State Engineer
5550 San Antonio Drive NE
Albuquerque, NM 87109-4127
Phone: 505-383-4000; Fax: 505-383-4030
e-mail: doug.rappuhn@state.nm.us

From: Chavez, Carl J, EMNRD
Sent: Tuesday, January 18, 2011 5:09 PM
To: Ben Barker; Rappuhn, Doug H., OSE; 'Mike_Smith@blm.gov'; Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Johnson, Mike S., OSE; Del Fortner (External)
Cc: Dade, Randy, EMNRD
Subject: FW: Well 45-7 casing point mud log

Ladies and Gentlemen:

Please see Randy Dade's message below based on your e-mails.

If anyone can copy or forward this msg. to Ed Griffin, I received a voicemail msg. from him concerning the drilling and witnessing of the MIT.

Unfortunately, due to travel restrictions and budget issues, OCD staff will not be able to witness the MIT for the drilling event; however, OSE and/or BLM Inspectors are welcome to witness the test for the OCD.

Please contact Randy Dade at the contact information below if you have questions.

District 2 - ARTESIA

1301 W. Grand Avenue
Artesia, NM 88210

OFFICE: (575) 748-1283 FAX: (575) 748-9720

Business Hours:
7:00 AM-12:00 PM and 1:00 - 4:00 PM
Monday through Friday

Randy Dade - District Supervisor
Phone extension: 102
Mobile (575) 626-1372

I am also available to assist if you have questions and can work with Randy to make sure we respond in a timely manner. By receipt of this message, Raser please copy Mr. Dade on all future drilling activities and inquiries going forward.

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
(Pollution Prevention Guidance is under "Publications")

From: Dade, Randy, EMNRD
Sent: Tuesday, January 18, 2011 4:58 PM
To: Chavez, Carl J, EMNRD
Subject: RE: Well 45-7 casing point mud log

District II requires all cementing in our Potash area to stand a minimum of twelve (12) hours under pressure and a total of twenty-four (24) hours before drilling the plug or initiating any tests. I would like a chart recorder to be in place when the cement is pumped and shut in. Sign and date the chart and mail it to the Artesia OCD office @ 1301 W. Grand, Artesia, NM. 88210

Casing tests shall be made before and after drilling the plug and below the casing. The mud shall be displaced with water and a hydraulic pressure of 600 PSI shall be applied. If a drop of 100 PSI occurs within 30 minutes, corrective action shall be applied

---

From: Chavez, Carl J, EMNRD
Sent: Tuesday, January 18, 2011 4:17 PM
To: Dade, Randy, EMNRD
Subject: FW: Well 45-7 casing point mud log

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

From: Rappuhn, Doug H., OSE
Sent: Tuesday, January 18, 2011 3:13 PM
To: Chavez, Carl J, EMNRD; 'Mike_Smith@blm.gov'

Cc: Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Johnson, Mike S., OSE
Subject: FW: Well 45-7 casing point mud log

Hi Carl, Mike –
Based on the information presented in the diagram, I'm ok with the planned 13.38" OD casing depth of 1680'. The annular seal should lock the volcanic aquifer water/head into the casing, and not allow inter-aquifer loss up the annular space. Choosing a competent casing set-point should limit the wallow in the vicinity of the casing depth as deeper drilling occurs. The current borehole is being reamed to 17.5" diameter to accept the 13.38" OD casing. How does the proposed set depth sound to you / other reviewers?

If this were a simple deep artesian water well, the OSE would:

1. Evaluate the casing for spec by either physically checking the dimensions (wall thickness, OD) onsite or virtually (RASER must provide bill of lading and billing from manufacturer identifying specs)
2. Attend the grouting of the casing to ensure the cement mix agreed to was pumped and circulation to the surface was established. Density of pumped cement and cement displaced at surface would be checked with mud balance against spec. If a cementing service is used (this is the plan), we require a copy of the cementing report. If OSE personnel is not available to witness the cementing, submittal of a cementing report may suffice (virtual inspection). Will OCD staff be witnessing the cementing?
3. Attend testing of the production well cement job in the form of a casing pressure test is required prior to drilling out the cementing shoe. The test would not be conducted until laboratory cementing charts indicate a cement compressive strength of at least 500 psi has been attained; set times longer than that to reach 500 psi strength are recommended. Our standard production well test would be holding a minimum 300 psi internal casing pressure with no less than 5% leakdown over the course of an hour. The test may be conducted at a pressure higher than 300 psi at the discretion of the applicant, subject to a 5% maximum leakdown based on the higher pressure. Will OCD staff be witnessing a pressure test of the casing?

   Additional testing of the casing may be required if there is any reason we are unsure of the competency of the cement job. The Initial additional test would consist of the applicant running and our evaluation of a cement bond log prior to the installation of any other string of casing or liner pipe. We have at times initially used a temperature log run within 48 hours of the cementing, but will avoid that option given the nature of the project!

In the event OCD or other regulatory agencies require more stringent testing or requirements, the OSE concedes to that process and inspection. If you or other agencies will be providing inspection services similar/more extensive in nature to those listed above, could you please provide detail and contact information? It may be that your staff is more adjusted to accommodating the schedule of a 24-hour drilling operation than the OSE. I will call you about 3:30 and see if you're in to discuss.

Douglas H. Rappuhn
Hydrology Bureau / New Mexico Office of the State Engineer
5550 San Antonio Drive NE
Albuquerque, NM 87109-4127
Phone: 505-383-4000; Fax: 505-383-4030
e-mail: doug.rappuhn@state.nm.us

From: Ben Barker [mailto:Ben.Barker@rasertech.com]
Sent: Tuesday, January 18, 2011 1:25 PM
To: Jackson, Charles L., OSE; Rappuhn, Doug H., OSE; Phillips, Haddy L., OSE
Cc: Chavez, Carl J, EMNRD; mikesmit@blm.gov; Del Fortner (External)
Subject: Well 45-7 casing point mud log

Dear NMOSE Folks,

Condition #9 of the NMOSE Exploratory Artesian Well permit states "...Due to the exploratory nature of this well, final artesian / production casing depth setting shall be reviewed with the NMOSE upon adequate drilling and logging of the

well bore." This note is to provide you with the well data for you review of our intended 13-3/8" casing point. We hope to complete the 17-1/2" hole some time tonight and begin to run casing early Wednesday.

Our original permit called for a 1500 ft casing depth but the attached log clearly shows why we were not satisfied with the formation at that depth. Until 1640 ft we encountered only gravels with traces of clay. At 1650 ft we first saw hard tuffs and we continued drilling in them for another 60 ft. We believe the best depth for the casing shoe is 1680 ft. That will leave us with a known 20 ft of good rock below the shoe for a formation integrity test. Please advise me if you need any additional information

Thanks,
Ben

VP Resource Management
Raser Technologies
5152 N. Edgewood Drive
Provo, UT 84604
801-765-1200 office
801-850-5904 direct
801-857-5301 mobile1
707-508-9963 mobile2

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Saturday, January 15, 2011 6:26 AM
To: glen_garnand@nm.blm.gov; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report For LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve Summitt
(530)304-5590

Morning report for LDG 45-07

24 hour report.

Drill from _1638 ft to _1646 ft with full returns Temp out 141* deg F. Circulate bottoms up. Run Wire line survey at 1623' 1* 45 Min. POOH BRK down BHA. Nipple down and set out BOPs. Clean cellur and prep for welder. Cut well head off install riser. Nipple up flow line. Pick up hole opener attempt to break off bull nose and install 12 1/4" bit on hole opener Failed. Lay down hole opener make up 12 1/4" bit RIH with BHA.RIH to 1646' no fill. Build volume and condition mud. Drill from _1646 ft to _1651 ft with full returns Temp out 138* deg F.

Current Operation

Drill 12 1/2" hole from 1651' to 1702' with full returns Temp out 147* deg F.

Planned Operation.

Circulate hole clean POOH make up 17 1/2" hole opener RIH to 421' open hole.

Steve Summitt Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Sunday, January 16, 2011 6:16 AM
To: glen_garnand@nm.blm.gov; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07

24 hour report.

Drill from _1651 ft to _1703 ft with full returns. Circulate hole clean. POOH laying down.RIH picking up new BHA tag cement at 367'Clean out cement from 367'
to 421'.Circulate and condition mud Due to cement. Open hole with 12 1/4" x 17 1/2" hole opener from 421' to 554'.Circulate hole clean. Open hole with 12 1/4"
x 17 1/2" hole opener from 554' to 617'.Circulate hole clean. POOH lay down hole opener.
Current Operation
Make up 12 1/4" bit RIH to 617' wash out bridge. Had to rotate but passed through bridge easily. Wash down 7 joints, then put in 3 more with no resistance, circulated briefly, then POOH to get 17 1/2" hole opener.
Planned Operation.
RIH with hole opener open 12 1/4" to 17 1/2" from 617'
Steve Summitt
Phone # (530) 304-5590
Morning report for LDG 45-07

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Monday, January 17, 2011 7:15 AM
To: glen_garnand@nm.blm.gov; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report fr LDG 45-07
Attachments: Morning report for LDG 45.docx

Morning report for LDG 45-07

24 hour report.

Service Rig. Make up 12 1/4" bit and RIH to 600'. Circulate and wash out from 600 to 930' POOH. Make up hole opener RIH to 613' Open hole from 613' to 838'Circulate bottoms up. Open hole from 838' to 902'.Circulate and unload casing truck. Open hole from 902' to 934'. Circulate sweep around. POOH from 934'.Heat up and break bull nose off. Make up 12 1/4" bit and weld tags f/ bit t/ hole opener.RIH with hole opener 17 1/2" X 12 1/4"

Current Operation

RIH to 932' Open hole from 932' to 1024' circ bottom up open hole from 1024; to 1056' 06:00 AM

Planned Operation.

Open hole from 12 1/4" to 17 1/2" to casing point 1703'

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Tuesday, January 18, 2011 6:22 AM
To: glen_garnand@nm.blm.gov; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD; Israel Hinojosa
Subject: Morning report for LDG 45-07
Attachments: Morning report for LDG 45.docx

Thank you
Steve.

Morning report for LDG 45-07

24 hour report.

RIH to 932'.Open hole 12 1/4" to 17 1/2" from 932' to 1024'Circulate hole clean. Open hole 12 1/4" to 17 1/2" from 1024' to 1122'.Cirrculate sweeps around to clean hole. Open hole 12 1/4" to 17 1/2" from 1122' to 1183'.Circulate sweeps to clean hole. Open hole 12 1/4" to 17 1/2" from 1183' to 1279'Circulate and pump sweeps,. Open hole 12 1/4" to 17 1/2" from 1279' to 1407'.

Current Operation

Open hole to 17 1/2" from 12 1/4" from 1407' to 1482' run sweeps to keep hole clean.

Planned Operation.

Open hole from 1482' to 1703' circulate hole clean wipe hole 600' if any fill circulate clean POOH lay down BHA RIH with totco ring to 1700'and run Kuster temp logs on Barbour wire line POOH run in with 17 1/2" hole opener check for fill POOH rig to run casing.

Steve Summitt

Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, January 14, 2011 4:45 PM
To: 'Ben Barker'; mikesmit@blm.gov; Jackson, Charles L., OSE; Dade, Randy, EMNRD
Cc: Rappuhn, Doug H., OSE; Phillips, Haddy L., OSE; VonGonten, Glenn, EMNRD; Del Fortner (External); Roger Bowers (External)
Subject: RE: Lightning Dock 45-07 casing update, Friday 1-14

Ben, et al.:

Please continue to send the usual daily reports and make notifications to the OCD as previously specified. 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
(Pollution Prevention Guidance is under "Publications")

From: Ben Barker [mailto:Ben.Barker@rasertech.com]
Sent: Friday, January 14, 2011 4:35 PM
To: mikesmit@blm.gov; Chavez, Carl J, EMNRD; Jackson, Charles L., OSE; Dade, Randy, EMNRD
Cc: Rappuhn, Doug H., OSE; Phillips, Haddy L., OSE; VonGonten, Glenn, EMNRD; Del Fortner (External); Roger Bowers (External)
Subject: Lightning Dock 45-07 casing update, Friday 1-14

Folks,

As you know we are drilling exploratory well 45-07 at Lightning Dock, Animas. As is the nature of exploratory wells, it has delivered our first geologic surprise with an impact on the casing program. Based on the lithology of nearby offset wells, we proposed and received approval for a 1500 ft setting depth for the 13-3/8" production casing.

Late last night we reached 1500 ft and it was apparent from the high penetration rate and the cuttings that we had not yet encountered satisfactory rock for cementing the casing shoe. The formation hardened enough between 1550 and 1580 ft to provide a safe anchor for the casing but we continued drilling to 1646 ft to ensure it would stay hard. We want to avoid setting casing in a thin hard section that could be underlain by softer strata.

We are now making up tools to open the hole to 17-1/2" and deepen it at that diameter. Our preference is to reach a superior casing point in a competent volcanic rock if we can reach it within a couple of hundred feet. We plan to continue drilling to that depth or until we find a better casing point (than 1550-1580 ft).

Please advise us if you would like any special weekend notifications. Otherwise, we will continue to send the usual daily reports and make notifications as previously specified.

Thanks,
Ben

VP Resource Management
Raser Technologies
5152 N. Edgewood Drive

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Friday, January 14, 2011 5:49 AM
To: glen_garnand@nm.blm.gov; restabro@ca.blm.gov; mike_smith@nm.blm.gov; delfortner@charter.net; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morn Report.doc

Thank you
Steve Summitt
Phone # (530)304-5590

Operations last 24 hours: Drill from 1305_ ft to _1328 ft with full returns. Run wire line survey @ 1320' 1* 30 min. Circulate hole clean. Wiper Trip to 884 ft Free. Drill from _1328 ft to _1638 ft with full returns.

Current Operations: 00:00-06:00 –Drill from 1638' to 1646' with full returns Circulate hole clean survey at 1223' 1* 45 min POOH laying down BHA and pipe nipple down Hydril.

Planned Operation **Nipple down 12" 900 Hydril cut off well head install 20" pitcher nipple make up 17 1/2" hole opener RIH to 421' open hole.**

Steve Summitt

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Thursday, January 13, 2011 6:10 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; restabro@ca.blm.gov; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morn Report.doc

Thank you
Steve Summitt

Operations last 24 hours: Drill from _777 ft to _988 ft with full returns 12 1/4" hole. Run wire line survey at 973' no good. Drill from _988 ft to _1017 ft with full returns. Run wire line survey at 1002' Inclination 1*.Drill from _1017 ft to _1220 ft with full returns Run wire line survey at 1205' inclination 1* 45 min. Drill from _1220 ft to _1305 ft with full returns Temp out 138* deg F.

Current Operations: 00:00-06:00 –Drill 12 1/4" hole from 1305' to 1368' Survey at 1320' 1* 30 min circulate hole clean wipe hole.

Planned Operation Drill to casing point POOH make up 11" x 17 1/2" under reamer RIH star under reaming from 421'.

Steve Summitt

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, January 13, 2011 8:16 AM
To: 'Steve Summitt'; delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; restabro@ca.blm.gov
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: Morning report for LDG 45-07

Steve:

APD casing depth is 1500 ft. I believe. Please be sure to adhere to the OCD approved APDs or G-101 Forms with depth settings for the wells.

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
(Pollution Prevention Guidance is under "Publications")

-----Original Message-----
From: Steve Summitt [mailto:steve.summitt@yahoo.com]
Sent: Thursday, January 13, 2011 6:10 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; restabro@ca.blm.gov; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07

Thank you
Steve Summitt

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Thursday, January 13, 2011 6:10 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; restabro@ca.blm.gov; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morn Report.doc

Thank you
Steve Summitt

Operations last 24 hours: Drill from _777 ft to _988 ft with full returns 12 1/4" hole. Run wire line survey at 973' no good. Drill from _988 ft to _1017 ft with full returns. Run wire line survey at 1002' Inclination 1*.Drill from _1017 ft to _1220 ft with full returns Run wire line survey at 1205' inclination 1* 45 min. Drill from _1220 ft to _1305 ft with full returns Temp out 138* deg F.
Current Operations: 00:00-06:00 –Drill 12 1/4" hole from 1305' to 1368' Survey at 1320' 1* 30 min circulate hole clean wipe hole.
Planned Operation Drill to casing point POOH make up 11" x 17 1/2" under reamer RIH star under reaming from 421'.
Steve Summitt

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Wednesday, January 12, 2011 5:45 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07
Attachments: Morn Report.doc

Thank you
Steve Summitt

Operations last 24 hours: Let well heat up and run MRTs as directed.Service rig and start all motors.Hold spud meeting with rig crews mud logger mud man.Thaw out water lines pump lines and rod oilers run pumps 1 and 2 OK.Strap drill pipe and run in open ended tag bridge at 450' POOH laying down drill pipe' strap and make up BHA run to 390'Run Dual MRTs Temp reading on #1 was 180* F MRT #2 no reading it was a 200* to 500* .Circulate and condition mud bring Vis to a 55.RIH cleaning out tight spots and clay Bridge. Circulate bottoms up. Drill from _760 ft to _777 ft with 12 1/4" bit with full returns.

Current Operations: 00:00-06:00 –Drill 12 1/4" hole from 777' to 924' with full returns temp out 124* deg F.

Planned Operation: Drill 12 1/4" hole survey every 200' to casing point.

Thank you,

Steve Summitt

Chavez, Carl J, EMNRD

From: Del Fortner [delfortner@charter.net]
Sent: Tuesday, January 11, 2011 3:04 PM
To: 'Steve Summitt'; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; Chavez, Carl J, EMNRD; restabro@ca.blm.gov; Phillips, Haddy L., OSE; Jackson, Charles L., OSE
Subject: RE: Morning report for LDG 45-07

Gentlemen, the last daily report for the drilling of 45-7 was filed by Steve Summitt on 12/17. The drilling operations have been idle and the equipment was secure over the holiday. The crew has returned to the location and they have de-winterized the rig. The crew will re-start drilling operations this afternoon. I reported the start-up by phone to Mr. Smith last Friday and I understand that Mr. Barker has communicated directly to Mr. Chavez at OCD.
Mr. Summitt will begin sending the dailies starting tomorrow. If you have any questions, please let me know.

Regards, Del

Del Fortner
775.530.8803

-----Original Message-----
From: Steve Summitt [mailto:steve.summitt@yahoo.com]
Sent: Friday, December 17, 2010 6:50 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; CarlJ.Chavez@state.nm.us; restabro@ca.blm.gov
Subject: Morning report for LDG 45-07

Morning report for LDG 45-07

24 hour report.

Remove gravel from pumps and change seat and valves in pump #1.RIH to 760'.Attempt to circulate no good go thru mud pumps remove gravel. POOH.
Transfer mud from #1 tank to tank #2 clean sand and gravel from tank #1and unload 13 3/8" casing. Clean out mud tank #1 sand trap shaker clean out suction lines for pump #1 and #2 clean out discharge lines unload 13 3/8" casing.
Current Operation
Work on mud pumps.
Planned Operation.
RIH and Evaluate well run MRT at 730' let well heat up.

Steve Summitt Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Ben Barker [Ben.Barker@rasertech.com]
Sent: Sunday, December 19, 2010 11:58 PM
To: Chavez, Carl J, EMNRD; Dade, Randy, EMNRD; Mike_Smith@blm.gov; Richard Estabrook
Cc: Del Fortner (External); Michael Hayter
Subject: Lightning Dock holiday break

Gentlemen,

Operations by Lightning Dock Geothermal have been put on hold until January so the crews may enjoy the holidays. Regular reporting will resume at that time. I will be checking the outgoing files and looking for any missing or incorrectly formatted items in the next couple of days. Please feel free to let me know of any reporting improvements you'd like.

Happy Holidays,
Ben

VP Resource Management
Raser Technologies
5152 N. Edgewood Drive
Provo, UT 84604
801-765-1200 office
801-850-5904 direct
801-857-5301 mobile1
707-508-9963 mobile2

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Friday, December 17, 2010 7:50 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; Chavez, Carl J, EMNRD; restabro@ca.blm.gov
Subject: Morning report for LDG 45-07

Morning report for LDG 45-07

24 hour report.

Remove gravel from pumps and change seat and valves in pump #1.RIH to 760'.Attempt to circulate no good go thru mud pumps remove gravel. POOH.
Transfer mud from #1 tank to tank #2 clean sand and gravel from tank #1and unload 13 3/8" casing. Clean out mud tank #1 sand trap shaker clean out suction lines for pump #1 and #2 clean out discharge lines unload 13 3/8" casing.
Current Operation
Work on mud pumps.
Planned Operation.
RIH and Evaluate well run MRT at 730' let well heat up.

Steve Summitt Phone # (530) 304-5590

Chavez, Carl J, EMNRD

From: Steve Summitt [steve.summitt@yahoo.com]
Sent: Tuesday, December 14, 2010 2:13 PM
To: Chavez, Carl J, EMNRD
Subject: Re: Morning report for LDG 45-07

It is at the bottom of the morning report Thanks Steve.

----- Original Message ----
From: "Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us>
To: Steve Summitt <steve.summitt@yahoo.com>
Cc: "Dade, Randy, EMNRD" <Randy.Dade@state.nm.us>; "VonGonten, Glenn, EMNRD" <Glenn.VonGonten@state.nm.us>
Sent: Tue, December 14, 2010 9:55:04 AM
Subject: RE: Morning report for LDG 45-07

FYI. Steve could you please give OCD your contact phone number in case we need to call you? 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
(Pollution Prevention Guidance is under "Publications")

-----Original Message-----
From: Steve Summitt [mailto:steve.summitt@yahoo.com]
Sent: Monday, December 13, 2010 3:49 PM
To: Chavez, Carl J, EMNRD
Subject: Morning report for LDG 45-07

24 hour report.

Drill from 342_ ft to 391_ ft.Circulate and condition mud. Drill from _391 ft to

_421 ft. Circulate and conition mud. Wiper Trip to _60 ft.Circulate and conditio mud for casing job. POOH. Rig down rig floor and remove walk.Rig up B&L

casing crew. Run 20" 94# BT&C casing.
Current Operation
00;00 to 06;00 Run 20" 94# BT&C casing rig down casing crew rig up wrangler and floor make up stab in and centralizer on 4 1/2" XH pipe run in to float callor.
Planned Operation.
Circulate and center casing for cement job cement 20" 94# BT&C casing unsting from float callor POOH with drill pipe dran raiser flush flow line WOC cut raiser and casing off weld 20" head on nipple up BOPs Thank you Steve Summitt Phone # (530) 304-5590 Morning report for LDG 45-07

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, December 14, 2010 11:04 AM
To: 'Steve Summitt'; delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; restabro@ca.blm.gov; steve.harman@rasertech.com; Ben Barker
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: Moring report for LDG 45-07

Steve:

Please be sure to document the drilling of each well using the applicable OCD "G-Forms", i.e., G-106. 107....

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
(Pollution Prevention Guidance is under "Publications")

-----Original Message-----
From: Steve Summitt [mailto:steve.summitt@yahoo.com]
Sent: Tuesday, December 14, 2010 8:27 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; restabro@ca.blm.gov; Chavez, Carl J, EMNRD; steve.harman@rasertech.com; Ben Barker
Subject: Moring report for LDG 45-07

24 hour report.

Run 20" 94# BT&C casing. Rig down casing crew. Spot wrangler strap drill pipe rig up rig floor. Make up cement stab-in run in hole stab in at 369'.thaw out water lines. Circulate cool well down for cement job center 20" casing. Pump 20 BBLs H2O ahesd @ 5 BPM @ 200 PSI mix and pump cement @ 15 PPG @ 5 BPM @ 200 PSI
605 SKS 1046 FT.3 186 BBLs drop dart and dissplace with 5.5 BBLs H2O @ 2 BPM had cement to surface 48 BBLs CIP 12;00.WOC.Cut off conductor and rough cut 20"
casing.
Current Operation
00;00 to 06;00 Weld on 20" well head and fab choke and kill lines.
Planned Operation.
Nipple up BOPs test BOPs make up drilling assembly run in hole to float callor drill out float cement and shoe drill 12 1/4" hole survey every 250' from 421'
Steve Summitt Phone # (530) 304-5590
Morning report for LDG 45-07

Chavez, Carl J, EMNRD

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Sent: Tuesday, December 14, 2010 8:27 AM
To: delfortner@charter.net; mike_smith@nm.blm.gov; glen_garnand@nm.blm.gov; restabro@ca.blm.gov; Chavez, Carl J, EMNRD; steve.harman@rasertech.com; Ben Barker
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Phone # (530) 304-5590 Morning report for LDG 45-07

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, December 09, 2010 8:39 AM
To: Dade, Randy, EMNRD
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD
Subject: Lightning Dock Geothermal Update (GTHT-1) 12/9/2010

Randy, et al.:

- On 12/9 received phone call from Del Fortner of Raser that they will begin pre-spud meeting this morning and plan to work on Well 45-7 this afternoon. Del's phone number is 775-530-8803. He will keep OCD of the cc list to BLM on reporting to keep OCD in the loop. Requested that he notify OCD of any environmental problems that develop ASAP- through OCD-EB (they have a Blackberry communication device in the field).

  He indicated that there was some tension with BLM on Well 55-7 as BLM is requesting PA work plan, but Raser does not want to PA well until exploration and data gathering is complete with evaluation for project thermal and economic decision making. In addition, OCD forms need to be completed to document field exploration work. To date, geophysical data from 55-7 was impressive, but need flexibility to explore the resource and document findings on OCD Geothermal Forms and Regulations. Steve Summit will be responsible for compliance and enforcement from Raser and keeping BLM and OCD informed. Del indicated that Raser wants to give a presentation in Santa Fe on the project that should include both OCD and BLM. Told Del OCD would be glad to host the meeting at Wendell Chino. OCD- EB could place presentation materials on the OCD Training Folder for District Staff who want to participate in presentation if it happens.

I will keep you posted on developments and work to scan received update info. into the GTHT-1 file. Please contact me if you have questions. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
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Office: (505) 476-3490
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