GT - _____1_____

GENERAL CORRESPONDENCE

YEAR(S):

10.18.10-07.02.12

Chavez, Carl J, EMNRD

From: Tim McCants <dunjabp@yahoo.com>
Sent: Monday, July 02, 2012 3:11 PM
To: Chavez, Carl J, EMNRD
Subject: G-112

Greetings Carl,

I wanted to bring attention to the recent request and approval regarding the G-112 application for an injection well (LDG-63-7) by Los Lobos Renewable Power (Cyrq Energy). My question is, as an operator within the 1/2 mile radius, why did we not receive notice from Cyrq Energy regarding their intent as did Rosette and Americulture?

As land owners and operators having significant interest within the Lightning Dock Resource Area, I am concerned this was not just an oversight on the behalf of Cyrq Energy, as the proposed well location is within 700 feet of our present irrigation/domestic wells A-45-S and A-323. Please advise on necessary steps that can be taken to resolve this issue.

Regards,

Timothy McCants
361-877-3528

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, June 27, 2012 4:26 PM
To: 'Michelle Henrie'; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: 'Cotter, Jeff'; 'Michael Hayter'; 'Janney, David'; 'Ben Barker'; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7

Ms. Henrie:

Good afternoon. The OCD is in receipt of your Well 63-7 G-112 letter dated June 20, 2012.

I review the letter with the "big picture" of a fully operational 10 – 12 Megawatt Geothermal Power Production Plant in operation someday.

While the letter is informative, there are some misstatements that OCD mentions because the public should not be misinformed based on certain statements in your letter.

The injection of produced fluids into an open formation is not considered a closed-loop type system; thus, the reason why the OCD permits injection wells under its UIC Program. Any injection into an open formation or in this case thermal reservoir, is considered an open-system and not a closed-loop pipe scenario. The OCD notes that there may be significant volumes of produced water produced from 5 production wells, some of which may require storage at surface before reinjection into the reservoir. Therefore, there will be some evaporation loss, which will be more significant during warm periods.

The statement or implication that there will be no net loss of the water resource(s) in the project area seems incorrect because of what has been mentioned above under operational conditions and even the fresh makeup water for cooling towers will experience evaporation losses.

As an example, if you are producing 10 million gallons per day and there is an evaporation loss rate of 5%, there may be up to 500,000 gallons per day lost to evaporation, which may be considered a loss of the natural water resource. The issue will be whether the losses will be offset by the availability of water resources in the area.

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

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From: Michelle Henrie [mailto:michelle@mhenrie.com]
Sent: Wednesday, June 20, 2012 4:45 PM
To: Chavez, Carl J, EMNRD; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: 'Cotter, Jeff'; 'Michael Hayter'; 'Janney, David'; 'Ben Barker'; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7

Thanks Carl. I will take a look at your responses in a second.
Relating to item "C" under the G-112 category, attached is a letter. I will put hard copies in the mail to both you and David Brooks tonight.
Thanks!
Michelle

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, June 20, 2012 4:40 PM
To: Michelle Henrie; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7

Michelle:

Good afternoon. Please see the OCD responses to Los Lobos inquiries below in red text.

Please contact me if you have questions. 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/
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From: Michelle Henrie [mailto:michelle@mhenrie.com]
Sent: Tuesday, June 19, 2012 11:10 AM
To: Brooks, David K., EMNRD; Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker
Subject: Lightning Dock/Los Lobos Well 63-7

Good morning everyone,

I wanted to regroup on Well 63-7 and make sure we are all in the loop.

G-101.

A. We all discussed the 6/6/12 Conditions of Approval for Form G-101 via teleconference 6/8/12. After that call, David Janney forwarded by email on 6/11/12 follow-up information relating to Condition 2(a) (depth of casing). OCD received OSE drill permit and is currently working to verify and confirm the actual total depth (TD) of the well from the well owner and the OSE, while reviewing OCD well files. The TD will help to finalize the OCD's G-112 review. In addition, it may also apply to the more recent G-112 for Well 45-7, for which the OCD has recently received G-104 and other associated forms from Los Lobos. Los Lobos should realize that similar to Injection Well 63-7 where public notice was required, Well 45-7 will also require public notice and Los Lobos needs to evaluate the deepest fresh water supply well TD within ½ mile from Well 45-7 and provide the information, logs, etc. to the OCD to confirm similar to the Injection Well 63-7.
B. My "to do" list shows that you still need information relating to Condition 4 (the timing of MIT testing). Our team is working on this and I will try to get you something by the end of the day. Contrary to the last telephone

discussion of deferral of the MIT procedure to another date, the OCD now requests the procedure ASAP is Los Lobos is seeking an alternative MIT method than the standard EPA 5-Year MIT. This issue was raised by Ben Barker in the past and after discussion with the OCD UIC Director and Engineering Bureau Staff was rejected. Therefore, the OCD requests the alternative MIT procedure up front in order to avoid any confusion on the MIT process for any/all injection wells in the future. The OCD requires the MIT within a specified time-frame from well completion.

C. Our understanding is that Amended Conditions of Approval would be considered after your office received the items mentioned above. Yes, the OCD can amend the COAs and/or proceed with a G-112 approval that could modify conditions of the G-101. Either way, the OCD will communicate with Los Lobos to resolve this.

G-112.

A. The 20-day waiting period for Form G-112 closed on 6/14/12. Did your office receive any requests for hearing? No.
B. Last week my office hand delivered to your office (addressed to Carl) a rider changing the coverage of Los Lobos' bond to include 63-7. Yes, the OCD received it and is currently processing the bond rider.
C. Also on my "to do" list, I will send you a letter today stating how the application meets the requirements of NMAC 19.14.93.8(C). Ok, David Brooks is the lead on this.
D. Do you need anything more before you can issue the G-112? We are planning to provide Forms G-104 through -107 for 63-7 after the well has been drilled. Yes, this makes sense and the G-104 with associated G-Forms must be approved by the OCD before any injection can occur into the well.

What am I missing? We are looking forward to getting everything finalized so we can move forward with this well. I can't think of anything right now, but public notices for any injection wells should be completed similar to well 63-7. Los Lobos should research well logs for deepest fresh water supply well TDs for the ½ mile AOR associated with any/all injection well applications. The OCD is tasked with "Due Diligence" to ensure that any/all injection wells meet the 100 ft. deeper than the deepest fresh water well TD within ½ mile from an injection well is accordance with the OCD Discharge Permit (GTHT-001). If well 45-7 G-112 satisfies the above TD condition, then there should not be an issue similar to well 63-7 near AmeriCulture's State Well No. 2.

Thank you.

Thanks! Michelle

mH **Michelle Henrie** | **Attorney** · LEED AP

MHenrie | Land · Water · Law
P.O. Box 7035 . Albuquerque, New Mexico . 87194-7035
~~126~~ E. DeVargas . Santa Fe, New Mexico . 87501 . ***Please note new street address effective June 1, 2012: 225 E. DeVargas . Santa Fe, New Mexico . 87501***
505-842-1800 | fax 505-842-0033
michelle@mhenrie.com

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, June 27, 2012 10:31 AM
To: CarlJ.Chavez@state.nm.us
Subject: Lighting Dock Geothermal Project Update Note to File

The New Mexico Oil Conservation Division (OCD) met with Los Lobos Renewable Power, LLC (Los Lobos) on May 8, 2012 (meeting) regarding Water Quality Control Commission (WQCC) regulations and their applicability to recent operator requested location changes for 3 UIC Class V (Geothermal) Injection Wells.

The OCD presented options at the meeting for proceeding under WQCC vs. Geothermal Regulations. WQCC regulations require a "Modification" with public notice requirements to the discharge permit. The OCD Geothermal regulatory requirements were discussed as an alternative during the exploration phase of the project, which require less cumbersome public notice procedures with a well testing process that would allow for continued exploration of the geothermal resource(s). However, the OCD permit shall continue to apply where applicable, and after exploration determines that there is a viable geothermal resource that will sustain geothermal power production, Los Lobos shall meet the OCD WQCC permit requirements.

A new designated agent and attorney were hired by Los Lobos to interface with the OCD on the project.

The OCD Geothermal regulations and permit process appeared to be more appealing to Los Lobos. Henceforth, the OCD is providing communication to Los Lobos to proceed under the Geothermal regulations with G-Form submittals for production, injection and other geothermal type wells with bonding, etc. in order to drill and complete construction of the 3 injection wells.

********** END **********

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

MHenrie | Land ▫ Water ▫ Law

RECEIVED OCD
2012 JUN 25 P 2:40

June 20, 2012

David Brooks
Carl Chavez
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Los Lobos Renewable Power, LLC/ Lightning Dock Geothermal HI-01, LLC
Well 63-7
Form G-112

Dear Mr. Brooks and Mr. Chavez:

In connection with the Lightning Dock Geothermal project located in Hidalgo County, New Mexico, my client filed a Form G-112 with the Oil Conservation Division on or about May 24, 2012. This Form G-112 requests authority to inject fluids into a geothermal reservoir via well LDG 63-7.

Pursuant to NMAC 19.14.93.8(A) the following were included with Form G-112:

(1) An aerial photo-style plat showing all of the operators and wells within a 1 mile radius of the proposed LDG 63-7 well, a table showing the completion details for the wells within the 1 mile radius, and the owners of the surrounding geothermal leases, pursuant to NMAC 19.14.93.8(A)(1).

(2) A schematic depicting the proposed well design to show that the well is cased, cemented, and equipped in such a manner that there will be no danger to any natural resource pursuant to NMAC 19.14.93.8(A)(3). We note that no well log is available because the well has not yet been drilled, which is allowable per NMAC 19.14.93.8(A)(2). After the well is drilled, the well log and Form G-104 (with attachments) will be submitted to the Oil Conservation Division.

Pursuant to NMAC 19.14.93.8(B), copies of the Form G-112 (without the above attachments) were sent to all other geothermal lease owners within a 1/2 mile radius of well LDG 63-7. These geothermal lease owners are: Rosette, Inc. and AmeriCulture Inc. The Certified Mail receipts were submitted to the Oil Conservation Division to verify the date of mailing as May 23, 2012, which was more than 20 days ago.

michelle@mhenrie.com
505-842-1800
P.O. Box 7035 ▫ Albuquerque, New Mexico ▫ 87194-7035
126 E. DeVargas ▫ Santa Fe, New Mexico ▫ 87501

As you are aware, Well LDG 63-7 is proposed as one of several injection wells within the Lightning Dock Geothermal project. This project uses geothermal fluids to generate electricity on a utility (public use) scale. This project is in the public interest because geothermal heat is a renewable source of energy. In addition, geothermal heat is constant. Therefore it provides baseload (i.e., 24/7) power—unlike wind and solar. And unlike other base-load sources of energy such as coal and gas, geothermal electricity is produced with no emissions.

Furthermore, the project's binary-cycle technology does not require steam (water vapor) to turn a turbine. Instead, geothermal heat warms a working fluid, which vaporizes at a lower temperature than water, and the working fluid turns the turbine to generate electricity. The technology involves two closed loops.

The first closed loop pumps geothermal fluid to the surface. The hot geothermal fluid—contained in a pipeline—passes through a heat exchanger. Cooled slightly, it is then reinjected into the same geothermal source so that it can reheat and be used again and again. From the point where the geothermal fluid leaves the geothermal reservoir to the point where it returns, it remains in a pipe, under pressure and in the fluid phase. It does not comingle with the working fluid, shallow freshwater aquifers, or air. It never sees the light of day. Reinjected fluid will be slightly cooled, but will otherwise be chemically unaltered from its original state.

The second closed loop involves the working fluid. The working fluid, too, never leaves its pipe. This fluid gathers heat from the heat exchanger, vaporizes, turns the turbine, becomes cooled, and then is circulated drops down back into the heat exchanger.

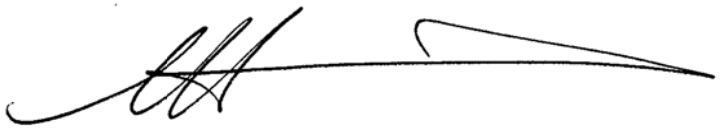
Because the project relies on a geothermal closed loop system resulting in no net depletion of the geothermal reservoir, and because the project will be constantly returning thermally depleted fluids to the geothermal reservoir for reheating, the project is in the interest of conservation, is a highly efficient use of this geothermal resource, and prevents waste of the resource by non-use or inefficient use. The project further prevents waste and promotes economic recovery of the geothermal resource because the geothermal fluids will be beneficially used to generate electricity, which will be sold to PNM.

I also note the importance of Well LDG 63-7. This well was sited by my client's technical team after analysis of geophysical and seismic data, test results, and spacing and setback requirements. The technical team includes Cyrq's Vice President of Resource Management, Ben Barker, a Reservoir Engineer (Ph.D. Petroleum Engineering), Roger Bowers, Senior Consulting Geologist (M.Sc. Geology), and Professor Joe Moore, Consulting Geologist / Geochemistry (Ph.D. Geology), as well as collaborating university and independent experts with world-wide reputations in seismology, geochemistry, structural geology and geothermal exploration Our team believes that the thermal, chemical, operational, and geological factors favor the proposed injection site location.

Well LDG 63-7 protects correlative rights because it is farther from the AmeriCulture facility than the project's earlier proposed injection well LDG 51-7. This added buffer is intended to ensure that all rights to produce a just and equitable share of the geothermal resources are honored in accordance with statutory and regulatory requirements. These requirements recognize a "just and equitable share" to be proportional, i.e., the amount of rights owned substantially in the proportion that the quantity of recoverable geothermal resources. NMAC 19.14.1.7(C). Existing leases in the resource area are held by my client (3,140.96 acres of geothermal resources leased from BLM), Rosette, Inc. (313.59 acres of geothermal resources leased from NM State Land Office) and AmeriCulture, Inc. (10 acres of geothermal resources leased from NM State Land Office).

Pursuant to NMAC 19.14.93.8(C), my client hereby requests the Oil Conservation Division's approval of Form G-112 for Well LDG 63-7.

Yours sincerely,



Michelle Henrie
Attorney for Lightning Dock Geothermal HI-01, LLC and Los Lobos Renewable Power, LLC

Chavez, Carl J, EMNRD

From: Phillips, Haddy L., OSE
Sent: Friday, June 22, 2012 10:04 AM
To: Chavez, Carl J, EMNRD; Jackson, Charles L., OSE
Cc: Brooks, David K., EMNRD; dseawright@gmail.com
Subject: RE: AmeriCulture State Well No. 2 Total Depth (TD) Verification Request
Attachments: A-45-A-S2_WELL_LOG.pdf

Carl,

Attached is the OSE date stamped and accepted well log for A-45-A-S2.

Let me know if you have any questions.

Thanks
Haddy Phillips

Water Resource Specialist
Office of State Engineer
District 3 Office
P.O. Box 844
Deming, NM 88031
phone :575-546-2851 Fax: 575-546-2290
haddy.phillips@state.nm.us

From: Chavez, Carl J, EMNRD
Sent: Thursday, June 21, 2012 11:05 AM
To: Phillips, Haddy L., OSE; Jackson, Charles L., OSE
Cc: Brooks, David K., EMNRD; dseawright@gmail.com
Subject: AmeriCulture State Well No. 2 Total Depth (TD) Verification Request

Haddy and Tink:

I spoke with Mr. Damon Seawright today at around 10:45 a.m. He is on the road today, but will be back in his office tomorrow and will check his well records for the final well completion report that should help to verify his 2,100 ft. well TD claim.

He is aware that OSE is checking files or records for any subject well misfiled well completion reports and he recommended that OSE check for the following drillers: Lang Drilling (Subsidiary of Boart Longyear) and or Boart Longyear for the final well completion record submitted by well drillers. He knows that McBee Drilling drilled to the 910 ft TD, but did not perform the well deepening to 2,100 ft. final well work.

He recalls coring the well to 2,000 ft.; then drilling to 2,000 ft. to set casing; and then drilling open hole to 2,100 ft. for final well completion, which the driller should have filed with the agencies. He was involved in all aspects of drilling of AmeriCulture's water supply wells in the area.

He requested until 3:00 p.m. tomorrow 6/22/2012 to provide a pdf of the final well completion report via e-mail to the OCD and OSE. The OCD approved.

Please contact me if you have questions. Thanks in advance for your assistance in this matter.

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

File Number: A-45-S-2

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

1. OWNER OF WELL

Name: AmeriCulture Work Phone: 505-548-2328
Contact: Damon Seawright Home Phone: _____
Address: HC 65 Box 260C
City: Animas State: NM Zip: 88020

2. LOCATION OF WELL (A, B, C, or D required, E or F if known)

A. ~~NW~~ 1/4 NE 1/4 NE 1/4 Section: 7 Township: 25S Range: 19W N.M.P.M. in Hidalgo County.

B. X = _____ feet, Y = _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant. U.S.G.S. Quad Map SWALLOW FORK PEAK 7.5 MIN.

C. Latitude: 32 d 9 m 4.6 s Longitude: 108 d 49 m 48.4 s

D. East 704650 (m), North 3559080 (m), UTM Zone 12, NAD 27 (27 or 83)

E. Tract No. _____, Map No. _____ of the _____ Hydrographic Survey

F. Lot No. _____, Block No. _____ of Unit/Tract _____ of the _____ Subdivision recorded in _____ County.

G. Other: approximately 420 ft NSL and 825 ft ESL and 4217 ft elevation

H. Give State Engineer File Number if existing well: A-45-S-2

I. On land owned by(required): AmeriCulture

3. DRILLING CONTRACTOR

License Number: WD-1161
Name: LANG EXPLORATORY DRILLING Work Phone: 801-973-6667
Agent: Alan F. Lang Home Phone: _____
Mailing Address: 2745 W. California Ave
City: Salt Lake City State: UT Zip: 84104

4. DRILLING RECORD

Drilling began: 10/20/2001; Completed: 9/30/2003; Type tools: rotary
Size of hole: 7 7/8 in.; Total depth of well: 2,100 ft.;
Completed well is: geothermal exploration (shallow, artesian);
Depth to water upon completion of well: 54 ft.

OFFICE OF THE STATE ENGINEER DEMING, NM
2012 JUN 22 AM 9:59

25S. 19W. 07. 22

File Number: A-45-S-2

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

5. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	To	Thickness in feet	Description of water-bearing formation	Estimated Yield (GPM)
280	420	140	fractured conglomerate	>1000 gpm airlift

6. RECORD OF CASING

Diameter (inches)	Pounds per ft.	Threads per in.	Depth in Feet Top	Bottom	Length (feet)	Type of Shoe	Perforations From	To
16	42	welded	0	280	280	casing	N/A	
12 3/4	36	welded	0	580	580	casing	N/A	
8 5/8	29	welded	470	1455	985	cement float	N/A	

7. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	To	Hole Diameter	Sacks of mud	Cubic Feet of Cement	Method of Placement
0	280	20 in	N/A	192	through casing, cement head
520	580	14 3/4 in	N/A	33	through casing, Haliburton
1355	1355	10 5/8 in	N/A	40	through casing, tremie stab
492	753	10 5/8 in	N/A	134	annulus, tremie cement basket

8. PLUGGING RECORD

Plugging Contractor: _____

Address: _____

Plugging Method: _____

Date Well Plugged: _____

Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Bottom	Cubic Feet of Cement
1			
2			
3			
4			
5			

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

9. LOG OF HOLE

Depth in Feet From	To	Thickness in feet	Color and Type of Material Encountered
0	270	270	Basin fill alluvium
270	645	375	Indurated conglomerate
645	1105	460	Rhyolite
1105	1326	221	Volcaniclastic sediments
1326	1334	8	Andesite
1334	1653	319	Sandstone, shale, and conglomerate
1653	1850	197	Limestone
1850	1990	140	Dacite
1990	2030	40	Limestone
2030	2100	70	Sandstone and siltstone

File Number: A-45-S-2

NEW MEXICO OFFICE OF THE STATE ENGINEER
WELL RECORD

10. ADDITIONAL STATEMENTS OR EXPLANATIONS:

OCD NAME - AmeriCulture State #2 Well
NM State Geothermal Lease GTR-304-1

Under NMSEO permit A-601-EXPL this hole was drilled from 0-910 ft by
Ken McBee, McBee Drilling
P.O Box 1153
Willcox, AZ 85644
520-384-4570
NMSEO License WD-3

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller [signature] 5/28/04 (mm/dd/year)

FOR STATE ENGINEER USE ONLY

Quad _____; FWL _____; FSL _____; Use _____; Location No. _____

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, June 22, 2012 9:46 AM
To: 'Damon Seawright'
Cc: Phillips, Haddy L., OSE; Brooks, David K., EMNRD; Shapard, Craig, EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: AmeriCulture State Well No. 2 Total Depth (TD) Verification Request

Damon:

Good morning. Yes, I just spoke with Ms. Phillips to confirm OSE's acceptance of the final well completion record. She indicated that it would be stamped by the OSE for acceptance into their filing system today and she will resend the OSE stamped version of the well completion record to the OCD today. You also requested that OSE send you a copy for your records.

Therefore, the OCD will need to ensure that any injection wells within ½ mile of your AmeriCulture State Well No. 2 has casing and cement set to at least 2,200 ft.

Please contact me if you have questions. 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/
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---

From: Damon Seawright [mailto:dseawright@gmail.com]
Sent: Friday, June 22, 2012 9:19 AM
To: Chavez, Carl J, EMNRD
Subject: FW: AmeriCulture State Well No. 2 Total Depth (TD) Verification Request

Dear Carl,

Please verify that the attached Well Log satisfies your request for documentation for depth of well A-45-A-S-2.

Regards,

Damon Seawright
AmeriCulture, Inc.

From: Phillips, Haddy L., OSE [mailto:haddy.phillips@state.nm.us]
Sent: Friday, June 22, 2012 8:43 AM
To: Chavez, Carl J, EMNRD; Jackson, Charles L., OSE
Cc: Brooks, David K., EMNRD; dseawright@gmail.com
Subject: RE: AmeriCulture State Well No. 2 Total Depth (TD) Verification Request

Carl,

Our office obtained the well log for OSE well A-45-A-S2. See attached

Haddy Phillips

Water Resource Specialist
Office of State Engineer
District 3 Office
P.O. Box 844
Deming, NM 88031
phone :575-546-2851 Fax: 575-546-2290
haddy.phillips@state.nm.us

From: Chavez, Carl J, EMNRD
Sent: Thursday, June 21, 2012 11:05 AM
To: Phillips, Haddy L., OSE; Jackson, Charles L., OSE
Cc: Brooks, David K., EMNRD; dseawright@gmail.com
Subject: AmeriCulture State Well No. 2 Total Depth (TD) Verification Request

Haddy and Tink:

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He is aware that OSE is checking files or records for any subject well misfiled well completion reports and he recommended that OSE check for the following drillers: Lang Drilling (Subsidiary of Boart Longyear) and or Boart Longyear for the final well completion record submitted by well drillers. He knows that McBee Drilling drilled to the 910 ft TD, but did not perform the well deepening to 2,100 ft. final well work.

He recalls coring the well to 2,000 ft.; then drilling to 2,000 ft. to set casing; and then drilling open hole to 2,100 ft. for final well completion, which the driller should have filed with the agencies. He was involved in all aspects of drilling of AmeriCulture's water supply wells in the area.

He requested until 3:00 p.m. tomorrow 6/22/2012 to provide a pdf of the final well completion report via e-mail to the OCD and OSE. The OCD approved.

Please contact me if you have questions. Thanks in advance for your assistance in this matter.

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, June 21, 2012 11:05 AM
To: Phillips, Haddy L., OSE; Jackson, Charles L., OSE
Cc: Brooks, David K., EMNRD; dseawright@gmail.com
Subject: AmeriCulture State Well No. 2 Total Depth (TD) Verification Request

Haddy and Tink:

I spoke with Mr. Damon Seawright today at around 10:45 a.m. He is on the road today, but will be back in his office tomorrow and will check his well records for the final well completion report that should help to verify his 2,100 ft. well TD claim.

He is aware that OSE is checking files or records for any subject well misfiled well completion reports and he recommended that OSE check for the following drillers: Lang Drilling (Subsidiary of Boart Longyear) and or Boart Longyear for the final well completion record submitted by well drillers. He knows that McBee Drilling drilled to the 910 ft TD, but did not perform the well deepening to 2,100 ft. final well work.

He recalls coring the well to 2,000 ft.; then drilling to 2,000 ft. to set casing; and then drilling open hole to 2,100 ft. for final well completion, which the driller should have filed with the agencies. He was involved in all aspects of drilling of AmeriCulture's water supply wells in the area.

He requested until 3:00 p.m. tomorrow 6/22/2012 to provide a pdf of the final well completion report via e-mail to the OCD and OSE. The OCD approved.

Please contact me if you have questions. Thanks in advance for your assistance in this matter.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
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1220 South St. Francis Drive, Santa Fe, New Mexico 87505
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, June 21, 2012 9:42 AM
To: dseawright@gmail.com
Cc: Brooks, David K., EMNRD; Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Shapard, Craig, EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD
Subject: AmeriCulture State Well No. 2 Total Depth (TD) Confirmation Request Follow-up

Mr. Seawright:

The OCD is contacting you today (via e-mail and follow-up phone call this morning) because the OCD did not receive a response to yesterday's OCD established deadline for AmeriCulture, Inc. to provide either an OCD and/or OSE final well completion record for the above subject well supporting AmeriCulture Inc.'s e-mail claim to the OCD that the above subject well TD is 2,100 ft.

The 2,100 ft. TD does not equate to the well records that are currently on file with the involved agencies. The OSE is checking for misfiled records after it and the OCD both have located approved agency well deepening records (allowed up to 3,000 ft.) from 2003, but no final well completion record currently can be located for the subject well.

The OCD permitting agency is now in a position where it must make a decision on any injection well minimum casing depths drilled within ½ mile from AmeriCulture Inc.'s apparent deepest fresh water supply well or subject well. The OCD is exercising "Due Diligence" by its actions to date based on this issue and is requesting a final response in order to move forward with the geothermal project in the area.

Please respond to this e-mail message and/or via telephone this morning indicating whether a final well completion report was submitted to the OCD and/or OSE that supports the 2,100 TD claim by AmeriCulture, Inc. If no record can be found, the OCD may establish that all injection well casings depths with cement near the subject well must be at least 1,010 ft. in order to satisfy the OCD discharge permit casing depth requirement. I will now attempt to contact you by telephone.

Thank you in advance for your cooperation in this matter.

Sincerely,

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: Damon Seawright <dseawright@gmail.com>
Sent: Thursday, June 14, 2012 12:15 PM
To: Chavez, Carl J, EMNRD
Subject: RE: AmeriCulture Deepest Total Well Depth Inquiry

Good morning Carl.

A-45-A-S-2 was drilled to 2,100' by Lang Drilling.

All the best,

Damon

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, June 14, 2012 11:00 AM
To: dseawright@gmail.com
Cc: Brooks, David K., EMNRD
Subject: AmeriCulture Deepest Total Well Depth Inquiry

Damon:

Good morning. After an OCD review of the AmeriCulture well files to determine the deepest total depth (TD) of your wells, it appears that the deepest total depth (TD) is 910 feet and is associated with the AmeriCulture State Well No. 2.

Could you please confirm the deepest TD and associated AmeriCulture well depth(s). The OCD observes that there was a G-103 submitted for an allowable TD from between 2000 to 3000 feet; however, a perceived final well record (see attachments) indicates 910 feet may be the deepest depth.

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

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, June 14, 2012 11:00 AM
To: 'dseawright@gmail.com'
Cc: Brooks, David K., EMNRD
Subject: AmeriCulture Deepest Total Well Depth Inquiry
Attachments: Americulture No. 2 Well G-101 and 102.pdf; Americulture No. 2 Well G-103 Deepened.pdf; A-601 Americulture SW#2 log.pdf; AmeriCulture A 45 S 6 SW#2.pdf

Damon:

Good morning. After an OCD review of the AmeriCulture well files to determine the deepest total depth (TD) of your wells, it appears that the deepest total depth (TD) is 910 feet and is associated with the AmeriCulture State Well No. 2.

Could you please confirm the deepest TD and associated AmeriCulture well depth(s). The OCD observes that there was a G-103 submitted for an allowable TD from between 2000 to 3000 feet; however, a perceived final well record (see attachments) indicates 910 feet may be the deepest depth.

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

Chavez, Carl J, EMNRD

From: Michelle Henrie <michelle@mhenrie.com>
Sent: Wednesday, June 20, 2012 6:20 PM
To: Chavez, Carl J, EMNRD; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: 'Cotter, Jeff'; 'Michael Hayter'; 'Janney, David'; 'Ben Barker'; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7
Attachments: AmeriCulture State Well No 2.pdf

Carl,

Regarding the G-101, issue A below, please see attached well logs and records that were filed with OCD regarding AmeriCulture's State Well #2—the well that you are concerned about. The attachment contains a cover page and pages 40-48 of the file. They logs and records verify that the depth of this well is 910'.

I think OCD needs to rely on the records that operators file with OCD. I do not understand why OCD would put aside these records and embark on "due diligence", potentially delaying the processing of this paperwork. Please, let's get this done.

Michelle

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, June 20, 2012 4:40 PM
To: Michelle Henrie; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7

Michelle:

Good afternoon. Please see the OCD responses to Los Lobos inquiries below in red text.

Please contact me if you have questions. 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/
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From: Michelle Henrie [mailto:michelle@mhenrie.com]
Sent: Tuesday, June 19, 2012 11:10 AM
To: Brooks, David K., EMNRD; Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker
Subject: Lightning Dock/Los Lobos Well 63-7

Good morning everyone,

I wanted to regroup on Well 63-7 and make sure we are all in the loop.

G-101.

A. We all discussed the 6/6/12 Conditions of Approval for Form G-101 via teleconference 6/8/12. After that call, David Janney forwarded by email on 6/11/12 follow-up information relating to Condition 2(a) (depth of casing). OCD received OSE drill permit and is currently working to verify and confirm the actual total depth (TD) of the well from the well owner and the OSE, while reviewing OCD well files. The TD will help to finalize the OCD's G-112 review. In addition, it may also apply to the more recent G-112 for Well 45-7, for which the OCD has recently received G-104 and other associated forms from Los Lobos. Los Lobos should realize that similar to Injection Well 63-7 where public notice was required, Well 45-7 will also require public notice and Los Lobos needs to evaluate the deepest fresh water supply well TD within ½ mile from Well 45-7 and provide the information, logs, etc. to the OCD to confirm similar to the Injection Well 63-7.
B. My "to do" list shows that you still need information relating to Condition 4 (the timing of MIT testing). Our team is working on this and I will try to get you something by the end of the day. Contrary to the last telephone discussion of deferral of the MIT procedure to another date, the OCD now requests the procedure ASAP is Los Lobos is seeking an alternative MIT method than the standard EPA 5-Year MIT. This issue was raised by Ben Barker in the past and after discussion with the OCD UIC Director and Engineering Bureau Staff was rejected. Therefore, the OCD requests the alternative MIT procedure up front in order to avoid any confusion on the MIT process for any/all injection wells in the future. The OCD requires the MIT within a specified time-frame from well completion.
C. Our understanding is that Amended Conditions of Approval would be considered after your office received the items mentioned above. Yes, the OCD can amend the COAs and/or proceed with a G-112 approval that could modify conditions of the G-101. Either way, the OCD will communicate with Los Lobos to resolve this.

G-112.

A. The 20-day waiting period for Form G-112 closed on 6/14/12. Did your office receive any requests for hearing? No.
B. Last week my office hand delivered to your office (addressed to Carl) a rider changing the coverage of Los Lobos' bond to include 63-7. Yes, the OCD received it and is currently processing the bond rider.
C. Also on my "to do" list, I will send you a letter today stating how the application meets the requirements of NMAC 19.14.93.8(C). Ok, David Brooks is the lead on this.
D. Do you need anything more before you can issue the G-112? We are planning to provide Forms G-104 through -107 for 63-7 after the well has been drilled. Yes, this makes sense and the G-104 with associated G-Forms must be approved by the OCD before any injection can occur into the well.

What am I missing? We are looking forward to getting everything finalized so we can move forward with this well. I can't think of anything right now, but public notices for any injection wells should be completed similar to well 63-7. Los Lobos should research well logs for deepest fresh water supply well TDs for the ½ mile AOR associated with any/all injection well applications. The OCD is tasked with "Due Diligence" to ensure that any/all injection wells meet the 100 ft. deeper than the deepest fresh water well TD within ½ mile from an injection well is accordance with the OCD Discharge Permit (GTHT-001). If well 45-7 G-112 satisfies the above TD condition, then there should not be an issue similar to well 63-7 near AmeriCulture's State Well No. 2.

Thank you.

Thanks! Michelle

mH **Michelle Henrie** | **Attorney** · LEED AP

MHenrie | Land · Water · Law
P.O. Box 7035 . Albuquerque, New Mexico . 87194-7035
~~126~~ E. DeVargas . Santa Fe, New Mexico . 87501 . ***Please note new street address effective June 1, 2012: 225 E. DeVargas . Santa Fe, New Mexico . 87501***
505-842-1800 | fax 505-842-0033
michelle@mhenrie.com

GTLT - 4

AmeriCulture
Nos. 3 & SEA-1
ULs: G&A
6&7-25S-19W
Hidalgo County

DRILLED: 2002 & 1996

ok

Form G-107
Adopted 10-1-74
Revised 10-1-78

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Div.
2040 Pacheco St.
Santa Fe, NM 87505

GEOTHERMAL RESOURCES WELL HISTORY

Operator AmeriCulture, Inc. Address HC 65 Box 260C, Animas, NM 88020

Lease Name AmeriCulture, Inc. Well No.

Unit Letter B Sec. 7 Twp. 25S Rge. 19W

Reservoir Lightning Dock County Hidalgo

It is of the greatest importance to have a complete history of the well. Use this form to report a full account of all important operations during the drilling and testing of the well or during re-drilling, altering of casing, plugging, or abandonment with the dates thereof. Be sure to include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests, shooting, and initial production data and zone temperature. (Attach additional sheets if necessary.)

Date	
10/20/01 thru 10/23/01	Spudded well using 20" bit. Drilled to 270' in alluvium, to 284 in Gila Conglomerate transitional unit; and to 292' in Gila Conglomerate using 20" bit using bentonite mud. Set 16" casing to 1 ft off bottom. Circulated cement (160? sacks) in annulus, and verified top of cement by circulation returns
10/24/01 thru 10/30/01	Waited on cement set.
10/31/01 thru 11/13/01	Resumed drilling to 581' using 14-3/4" bit and air/foam as circulation fluid at 1,350 cfm and 350 psi. First major fracture confirmed by surface water returns at 293'. Very slow penetration rate to 370', moderate to 417', and fast to 581'. Major fractures at 370' and 393' with fault zone at 379' to 382'. Set 12-3/4" casing to 581'. Flow steady but not measured. Spot temperature measurements ranged from 195-210 F
11/14/01 thru 11/19/01	Cementing preparation and Halliburton mobilization.
11/20/01	Casing spot cemented by Halliburton (30 sacks) approximately 100' between calculated depth of 481' and borehole TD of 581'.
11/21/01 thru 11/23/01	Waited on cement set.
11/24/01 thru 11/29/01	Drilling commenced on November 24, 2001 to 910' with bentonite mud and 11-7/8" bit through conglomerate/fill to 645', rhyolite to 860', and welded tuff to bottom. Lost circulation at 745' to 755', 785' to 805', and 830' to 860' requiring LCM. Borehole left full of heavy mud enriched with drispac to stabilize hole until drilling resumed in future, and to facilitate future logging efforts.

CERTIFICATION

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed _____ Position Vice President Date 2-05-02

ok

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Div.
2040 Pacheco St.
Santa Fe, NM 87505

Form G-106
Adopted 10-1-74
Revised 10-1-78

GEOTHERMAL RESOURCES WELL SUMMARY REPORT

Operator: AmeriCulture, Inc. Address: HC 65 Box 260C, Animas, NM 88020
Lease Name: AmeriCulture, Inc. Well No: A-601-EXPL
Unit Letter: B Sec: 7 Twp: 25S Rge: 19W
Reservoir: Lightning Dock County: Hidalgo

Commenced drilling: October 20, 2001
Completed drilling: November 29, 2001
Total depth: 910' Plugged depth:
Junk:

GEOLOGICAL MARKERS	DEPTH
Red Gila Conglomerate	284'
Grey Rhyolite	645'

Commenced producing: (Date) Geologic age at total depth: unknown

Date	Static test Shut-in well head		Production Test Data							
			Total Mass Flow Data					Separator Data		
	Temp. °F	Pres. Psig.	Lbs/Hr	Temp. °F	Pres. Psig.	Enthalpy	Orifice	Water cuft/Hr	Steam Lbs/Hr	Pres. Psig.	Temp. °F
11/13/01			500,000	205							

CASING RECORD (Present Hole)

Size of Hole	Size of Casing	Weight of Csg/Ft.	Grade of Casing	New or Used	Seamless or Lapweld	Depth of Shoe	Top of Casing	Number of Sacks Cement	Top of Cement	Cement Top Determined By
20"	16"	82.8 lb.		new	lapweld	292'	1' AGL	160?	GL	Circulation
14-3/4"	12-3/4"	53.6 lb.		new	seamless	581'	1' AGL	30	481-581' spot	Volumetric est

PERFORATED CASING

(Size, top, bottom, perforated intervals, size and spacing of perforation and method.)

Was analysis of effluent made? No Electrical log depths: N/A Temperature log depths: 0-910'

CERTIFICATION

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed: Position: Vice President Date: 2-05-02

4!

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Div.
2040 Pacheco St.
Santa Fe, NM 87505

Form C-105
Adopted 10-1-74
Revised 10-1-78

GEOTHERMAL RESOURCES WELL LOG

Operator AmeriCulture, Inc.
Address HC 65 Box 260C, Animas, NM 88020
Reservoir Lightning Dock
Lease Name AmeriCulture, Inc. Well No A-601-EXPL Unit Letter B
Location 825 feet from the east line and
319 feet from the north line Section 7
Township 25S Range 19W County Hidalgo

FORMATIONS PENETRATED BY WELL

DEPTH TO Top of Formation	DEPTH TO Bottom of Formation	Thickness	Drilled or Cored	Recovery	DESCRIPTION
0'	270'	270'	Drilled	cuttings	Tert. Quat. Alluvium.
270'	284'	14'	Drilled	cuttings	Tert. Gila Conglomerate transitional unit
284'	645'	361'	Drilled	cuttings	Tert. Gila Conglomerate. Very slow penetration rate to 370', moderate to 417', and fast to 581'. Numerous lost circulation zones.
645'	860'	215'	Drilled	cuttings	Rhyolite, fast penetraton compared to conglomerate', numerous lost circulation zones
860'	910'	50'	Drilled	cuttings	Welded tuff

Attach Additional Sheets if Necessary

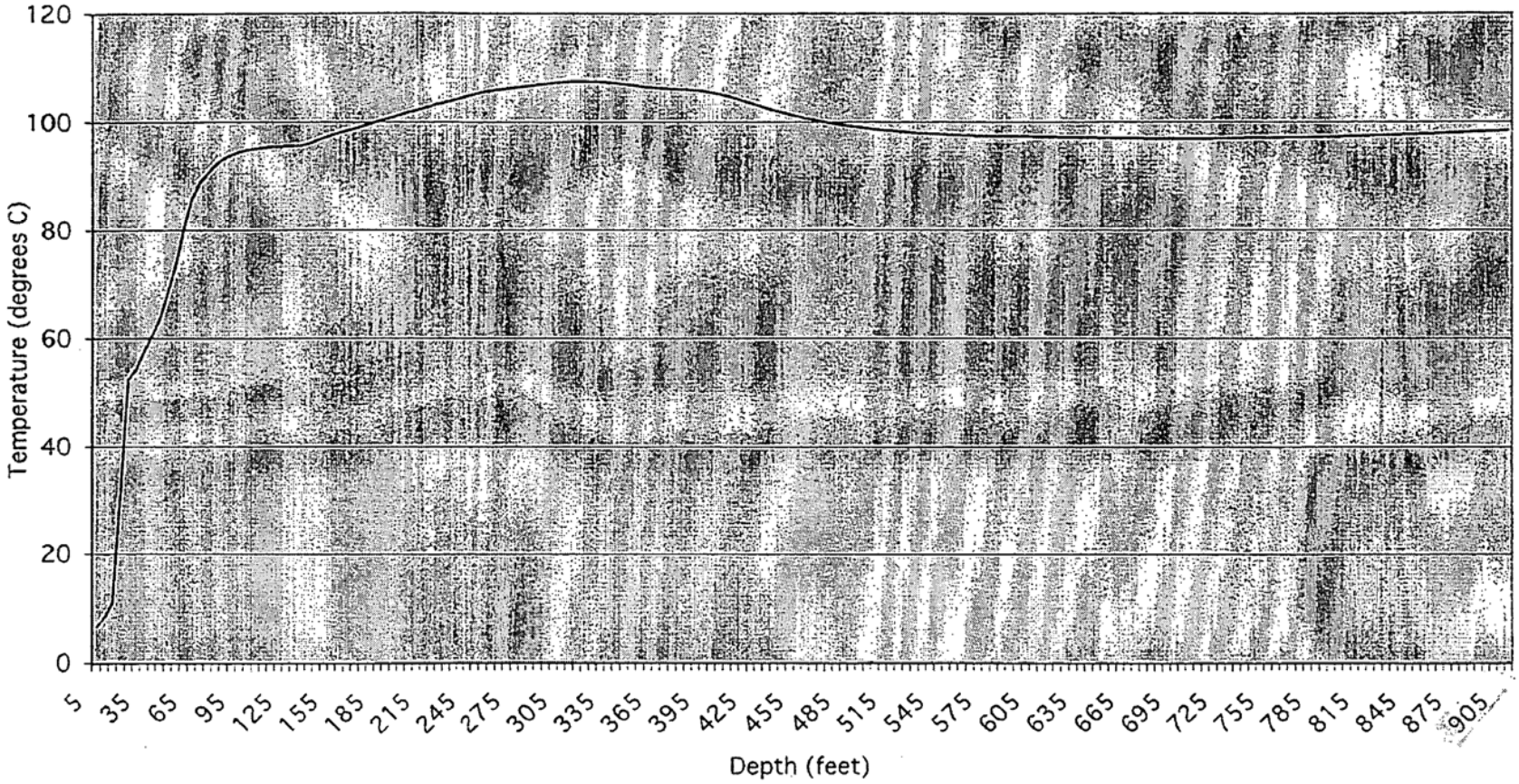
This form must be accompanied by copies of electric logs, directional surveys, physical or chemical logs, water analyses, tests, and temperature surveys (See Rule 205)

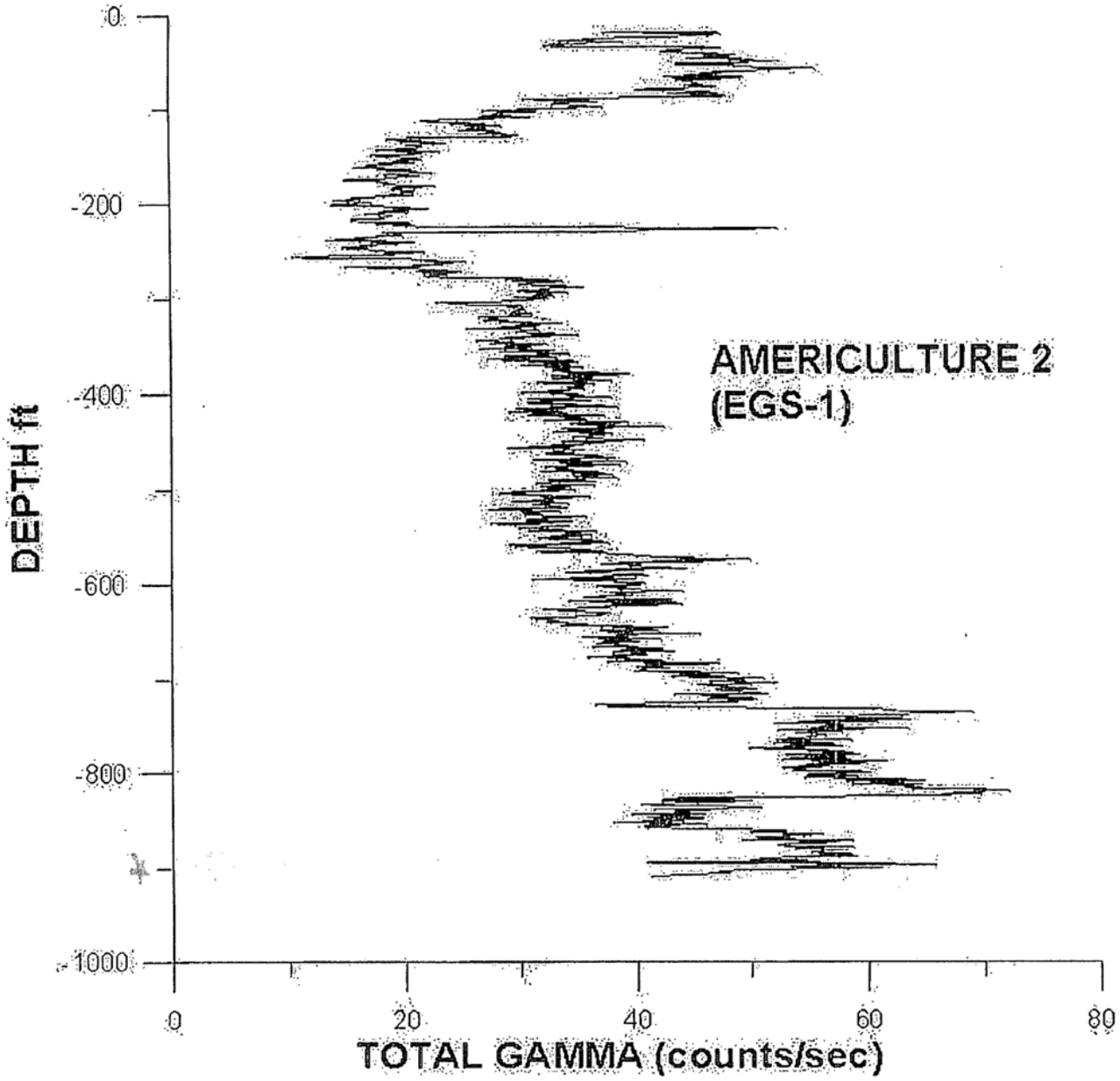
CERTIFICATION

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed _____ Position Vice President Date February 5, 2002

Temperature Log for AmeriCulture A-601-EXPL




0
-200
-400
-600
-800
-1000
DEPTH ft
AMERICULTURE 2
(EGS-1)
0
20
40
60
80
TOTAL GAMMA (counts/sec)

Oil Conservation Div.
2040 Pacheco St.
Santa Fe, NM 87505

Form C-104
Adopted 10-1-74
Revised 10-1-78

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

CERTIFICATE OF COMPLIANCE AND AUTHORIZATION TO PRODUCE GEOTHERMAL RESOURCES

OWNER OR OPERATOR
Name AmeriCulture, Inc.
Address HC 65 Box 260C, Animas, NM 88020

TYPE OF WELL
Geothermal Producer [ ] Low-Temperature Thermal [X] Injection/Disposal [ ]

REASON FOR FILING
New Well [X] Recompletion [ ]
Change in Ownership [ ] Designation of Purchaser [ ]
Other (Please Explain) [ ]

10

DESCRIPTION OF WELL
Lease Name AmeriCulture, Inc. Well No A-601-EXPL Name of Reservoir Lightning Dock
Kind of Lease (Fee, Fed or State) State Lease Number GTR-304-1

LOCATION
Unit Letter B, 825 feet from the east line and 319 feet from the north line of
Section 7 Township 25S Range 19W
County Hidalgo

TYPE OF PRODUCT
Dry Steam Steam and Water Low Temp. Thermal Water X

DESIGNATION OF PURCHASER OF PRODUCT
Name of Purchaser
Address of Purchaser
Product Will Be Used For

CERTIFICATE OF COMPLIANCE

I hereby certify that all rules and regulations concerning geothermal resources wells in the State of New Mexico, as promulgated by the Oil Conservation Division of New Mexico, have been complied with with respect to the subject well and that the information given above is true and complete to the best of my knowledge and belief.

Signed [signature] Position Vice President Date 2/05/02

Approved [signature] Position DISTRICT SUPERVISOR Date 3/22/02

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-103
Adopted 10-1-7
Revised 10-1-7

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U. S. G. S.		
Operator		
Land Office		

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State [X] Fee [ ]

5.a State Lease No.: GTR-304-1

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit" (Form C-101) for Such Proposals.

1. Type of well: Geothermal Producer [ ] Temp. Observation [ ] Low Temp. Thermal [X] Injection/Disposal [ ]

7. Unit Agreement Name:

2. Name of Operator: AmeriCulture, Inc.

8. Farm or Lease Name: AmeriCulture

3. Address of Operator: HC 65 Box 260C, Animas, NM 88020

9. Well No.: ~~3~~ 4 A-601-EXPL

4. Location of Well: Unit Letter B, 319 Feet From The north Line and 825 Feet From The east Line, Section 7, Township 25S, Range 19W, NMPM.

10. Field and Pool, or Wildcat: Lightning Dock

15. Elevation (Show whether DF, RT, GR, etc.): 4265' RT

12. County: Hidalgo

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [X]	PLUG AND ABANDON [ ]	REMEDIAL WORK [X]	ALTERING CASING
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [X]	PLUG & ABANDONMENT
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [X]	
OTHER [ ]		OTHER	

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 203.

Well spudded on October 20, 2001. Drilled to 270' in alluvium, to 284 in Gila Conglomerate transitional unit; and to 292' in Gila Conglomerate using 20" bit using bentonite mud. Set 16" casing to 1 ft off bottom. Circulated cement in annulus, and verified top of cement by circulation returns. Resumed drilling on October 31, 2001 to 581' using 14-3/4" bit and air/foam as circulation fluid. First major fracture confirmed by surface water returns at 293'. Very slow penetration rate to 370', moderate to 417', and fast to 581'. Major fractures at 370' and 393' with fault zone at 379' to 382'. Set 12-3/4" casing to 581'. On November 20, 2001 casing spot cemented approximately 100' by Halliburton to isolate shallow reservoir. Drilling commenced on November 24, 2001 to 910' with bentonite mud and 11-7/8" bit through conglomerate/fill to 645', rhyolite to 860', and welded tuff to bottom. Lost circulation at 745' to 755', 785' to 805', and 830' to 860' requiring LCM. Borehole left full of 50 viscosity mud enriched with drispac to preserve formation and stabilize hole for future entrance, and to facilitate future logging efforts.

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

SIGNED [signature] TITLE Vice President DATE February 5, 2002

APPROVED BY [signature] TITLE DISTRICT SUPERVISOR DATE 5/22/02

3-15-02

Dear Roy,

Thanks for your time a few weeks ago. Jim is working on the location plat with well construction for all the regional wells. Hope all is well ~~with~~ with you.

Damon S.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL
SA
SUN
GEO

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Operator		
Land Office		

Form G-103
Adopted 10-1
Revised 10-1

Lease
Fee

Name

me
re

-601-EXPL
-A-S-2 304

r Wildcat
ock

CASING
ANDONME

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. For Permit — (Form C-101) for Such Proposals.

1. Type of well: Geothermal Producer [ ] Temp
Low Temp Thermal [X] Injecti

2. Name of Operator: AmeriCulture, Inc.

3. Address of Operator: HC 65 Box 260C Ani

4. Location of Well: Unit Letter B, 319 Feet From
The East Line, Section 7 To

15. Elevatio

16. Check Appropriate Box
NOTICE OF INTENTION TO:
PERFORM REMEDIAL WORK [ ] PLUG AND ABANI
TEMPORARILY ABANDON [ ]
PULL OR ALTER CASING [ ] CHANGE PLANS
OTHER

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting a proposed work) SEE RULE 203.

304

Drilling on well A-601-EXPL (to be renumbered A-45-A-S-2) was terminated November 29, 2001 at a total depth of 910' and left full of a 50 viscosity mud enriched with drispac to stabilize the hole for future drilling and facilitate future logging efforts. AmeriCulture may or may not choose not to resume drilling. In either case AmeriCulture desires to pump geothermal fluids from said geothermal well for its operational requirements. Any disposal of spent geothermal fluids will be done according to the terms specified in our recently renewed discharge permit from New Mexico ENMRD or future terms approved of by ENMRD, and as allowed under the pertinent stipulations placed upon AmeriCulture by the New Mexico Office of the State Engineer regarding the quantity, place, and purpose of use of water rights of AmeriCulture. Although some surface discharge is possible, as outlined under our current discharge permit, AmeriCulture intends to use reinjection, whenever practicable, in deference to geothermal resource conservation. AmeriCulture is applying to the New Mexico Office of the State Engineer to permit well A-601-EXPL (to be renamed A-45-A-S-2) as a supplemental well. Such designation would serve to include said well to the group of fresh and geothermal wells from which AmeriCulture is permitted to produce annually water up to its current water rights holdings (1,567.8 acre feet). Approval of this sundry notice will evidence, to the State Engineer, that the OCD approves of directly producing geothermal fluids from well A-601-EXPL according to the terms stated herein.

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

SIGNED _____ TITLE Vice-President DATE March 15, 200

APPROVED BY _____ TITLE DISTRICT SUPERVISOR DATE 5/22/02

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-103
Adopted 10-1
Revised 10-1

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File		
N. M. O. C. C.		
U.S.G.S.		
Operator		
Land Office		

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State [X] Fee [ ]
5.a State Lease No.: GTR-304-1

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit – " (Form C-101) for Such Proposals.

1. Type of well: Geothermal Producer [ ] Low Temp Thermal [X] Temp. Observation [ ] Injection/Disposal [ ]
7. Unit Agreement Name:
2. Name of Operator: AmeriCulture, Inc.
8. Farm or Lease Name: AmeriCulture
3. Address of Operator: HC 65 Box 260C Animas, NM 88020
9. Well No.: ~~A-601-EXPL~~ renumbered ~~A-45-A-S-2~~ 304
4. Location of Well: (Unit Letter) B, 319 Feet From The North Line and 825 Feet From The East Line Section 7 Township 25S Range 19W NMPM
10. Field and Pool, or Wildcat: Lightning Dock
15. Elevation (Show whether DF, RT, GR, etc.): 4256' RT
12. County: Hidalgo

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [ ]	PLUG & ABANDONME [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [X]	CASING TEST AND CEMENT JOB [ ]	
OTHER [ ]		OTHER	

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 203. 304

Drilling on well ~~A-601-EXPL~~ (to be renumbered A-45-A-S-2) was terminated November 29, 2001 at a total depth of 910' and left full of a 50 viscosity mud enriched with drispac to stabilize the hole for future drilling and facilitate future logging efforts. AmeriCulture may or may not choose not to resume drilling. In either case AmeriCulture desires to pump geothermal fluids from said geothermal well for its operational requirements. Any disposal of spent geothermal fluids will be done according to the terms specified in our recently renewed discharge permit from New Mexico ENMRD or future terms approved of by ENMRD, and as allowed under the pertinent stipulations placed upon AmeriCulture by the New Mexico Office of the State Engineer regarding the quantity, place, and purpose of use of water rights of AmeriCulture. Although some surface discharge is possible, as outlined under our current discharge permit, AmeriCulture intends to use reinjection, whenever practicable, in deference to geothermal resource conservation. AmeriCulture is applying to the New Mexico Office of the State Engineer to permit well A-601-EXPL (to be renamed A-45-A-S-2) as a supplemental well. Such designation would serve to include said well to the group of fresh and geothermal wells from which AmeriCulture is permitted to produce annually water up to its current water rights holdings (1,567.8 acre feet). Approval of this sundry notice will evidence, to the State Engineer, that the OCD approves of directly producing geothermal fluids from well A-601-EXPL according to the terms stated herein.

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

SIGNED [signature] TITLE Vice-President DATE March 15, 200

APPROVED BY [signature] TITLE DISTRICT SUPERVISOR DATE 5/22/02

Chavez, Carl J, EMNRD

From: Michelle Henrie <michelle@mhenrie.com>
Sent: Wednesday, June 20, 2012 4:45 PM
To: Chavez, Carl J, EMNRD; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: 'Cotter, Jeff'; 'Michael Hayter'; 'Janney, David'; 'Ben Barker'; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7
Attachments: G-112 summary for Well LDG 63-7.pdf

Thanks Carl. I will take a look at your responses in a second.
Relating to item "C" under the G-112 category, attached is a letter. I will put hard copies in the mail to both you and David Brooks tonight.
Thanks!
Michelle

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, June 20, 2012 4:40 PM
To: Michelle Henrie; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7

Michelle:

Good afternoon. Please see the OCD responses to Los Lobos inquiries below in red text.

Please contact me if you have questions. 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

---

From: Michelle Henrie [mailto:michelle@mhenrie.com]
Sent: Tuesday, June 19, 2012 11:10 AM
To: Brooks, David K., EMNRD; Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker
Subject: Lightning Dock/Los Lobos Well 63-7

Good morning everyone,

I wanted to regroup on Well 63-7 and make sure we are all in the loop.

G-101.

A. We all discussed the 6/6/12 Conditions of Approval for Form G-101 via teleconference 6/8/12. After that call, David Janney forwarded by email on 6/11/12 follow-up information relating to Condition 2(a) (depth of casing). OCD received OSE drill permit and is currently working to verify and confirm the actual total depth (TD) of the well from the well owner and the OSE, while reviewing OCD well files. The TD will help to finalize the OCD's G-112 review. In addition, it may also apply to the more recent G-112 for Well 45-7, for which the OCD has recently received G-104 and other associated forms from Los Lobos. Los Lobos should realize that similar to Injection Well 63-7 where public notice was required, Well 45-7 will also require public notice and Los Lobos needs to evaluate the deepest fresh water supply well TD within ½ mile from Well 45-7 and provide the information, logs, etc. to the OCD to confirm similar to the Injection Well 63-7.
B. My "to do" list shows that you still need information relating to Condition 4 (the timing of MIT testing). Our team is working on this and I will try to get you something by the end of the day. Contrary to the last telephone discussion of deferral of the MIT procedure to another date, the OCD now requests the procedure ASAP is Los Lobos is seeking an alternative MIT method than the standard EPA 5-Year MIT. This issue was raised by Ben Barker in the past and after discussion with the OCD UIC Director and Engineering Bureau Staff was rejected. Therefore, the OCD requests the alternative MIT procedure up front in order to avoid any confusion on the MIT process for any/all injection wells in the future. The OCD requires the MIT within a specified time-frame from well completion.
C. Our understanding is that Amended Conditions of Approval would be considered after your office received the items mentioned above. Yes, the OCD can amend the COAs and/or proceed with a G-112 approval that could modify conditions of the G-101. Either way, the OCD will communicate with Los Lobos to resolve this.

G-112.

A. The 20-day waiting period for Form G-112 closed on 6/14/12. Did your office receive any requests for hearing? No.
B. Last week my office hand delivered to your office (addressed to Carl) a rider changing the coverage of Los Lobos' bond to include 63-7. Yes, the OCD received it and is currently processing the bond rider.
C. Also on my "to do" list, I will send you a letter today stating how the application meets the requirements of NMAC 19.14.93.8(C). Ok, David Brooks is the lead on this.
D. Do you need anything more before you can issue the G-112? We are planning to provide Forms G-104 through -107 for 63-7 after the well has been drilled. Yes, this makes sense and the G-104 with associated G-Forms must be approved by the OCD before any injection can occur into the well.

What am I missing? We are looking forward to getting everything finalized so we can move forward with this well. I can't think of anything right now, but public notices for any injection wells should be completed similar to well 63-7. Los Lobos should research well logs for deepest fresh water supply well TDs for the ½ mile AOR associated with any/all injection well applications. The OCD is tasked with "Due Diligence" to ensure that any/all injection wells meet the 100 ft. deeper than the deepest fresh water well TD within ½ mile from an injection well is accordance with the OCD Discharge Permit (GTHT-001). If well 45-7 G-112 satisfies the above TD condition, then there should not be an issue similar to well 63-7 near AmeriCulture's State Well No. 2.

Thank you.

Thanks! Michelle

mH **Michelle Henrie** | **Attorney** · LEED AP

MHenrie | Land · Water · Law
P.O. Box 7035 . Albuquerque, New Mexico . 87194-7035
~~126~~ E. DeVargas . Santa Fe, New Mexico . 87501 . ***Please note new street address effective June 1, 2012: 225 E. DeVargas . Santa Fe, New Mexico . 87501***
505-842-1800 | fax 505-842-0033
michelle@mhenrie.com

MHenrie | Land ▫ Water ▫ Law

June 20, 2012

David Brooks
Carl Chavez
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Los Lobos Renewable Power, LLC/ Lightning Dock Geothermal HI-01, LLC
Well 63-7
Form G-112

Dear Mr. Brooks and Mr. Chavez:

In connection with the Lightning Dock Geothermal project located in Hidalgo County, New Mexico, my client filed a Form G-112 with the Oil Conservation Division on or about May 24, 2012. This Form G-112 requests authority to inject fluids into a geothermal reservoir via well LDG 63-7.

Pursuant to NMAC 19.14.93.8(A) the following were included with Form G-112:

(1) An aerial photo-style plat showing all of the operators and wells within a 1 mile radius of the proposed LDG 63-7 well, a table showing the completion details for the wells within the 1 mile radius, and the owners of the surrounding geothermal leases, pursuant to NMAC 19.14.93.8(A)(1).

(2) A schematic depicting the proposed well design to show that the well is cased, cemented, and equipped in such a manner that there will be no danger to any natural resource pursuant to NMAC 19.14.93.8(A)(3). We note that no well log is available because the well has not yet been drilled, which is allowable per NMAC 19.14.93.8(A)(2). After the well is drilled, the well log and Form G-104 (with attachments) will be submitted to the Oil Conservation Division.

Pursuant to NMAC 19.14.93.8(B), copies of the Form G-112 (without the above attachments) were sent to all other geothermal lease owners within a 1/2 mile radius of well LDG 63-7. These geothermal lease owners are: Rosette, Inc. and AmeriCulture Inc. The Certified Mail receipts were submitted to the Oil Conservation Division to verify the date of mailing as May 23, 2012, which was more than 20 days ago.

michelle@mhenrie.com
505-842-1800
P.O. Box 7035 ▫ Albuquerque, New Mexico ▫ 87194-7035
126 E. DeVargas ▫ Santa Fe, New Mexico ▫ 87501

As you are aware, Well LDG 63-7 is proposed as one of several injection wells within the Lightning Dock Geothermal project. This project uses geothermal fluids to generate electricity on a utility (public use) scale. This project is in the public interest because geothermal heat is a renewable source of energy. In addition, geothermal heat is constant. Therefore it provides baseload (i.e., 24/7) power—unlike wind and solar. And unlike other base-load sources of energy such as coal and gas, geothermal electricity is produced with no emissions.

Furthermore, the project's binary-cycle technology does not require steam (water vapor) to turn a turbine. Instead, geothermal heat warms a working fluid, which vaporizes at a lower temperature than water, and the working fluid turns the turbine to generate electricity. The technology involves two closed loops.

The first closed loop pumps geothermal fluid to the surface. The hot geothermal fluid—contained in a pipeline—passes through a heat exchanger. Cooled slightly, it is then reinjected into the same geothermal source so that it can reheat and be used again and again. From the point where the geothermal fluid leaves the geothermal reservoir to the point where it returns, it remains in a pipe, under pressure and in the fluid phase. It does not comingle with the working fluid, shallow freshwater aquifers, or air. It never sees the light of day. Reinjected fluid will be slightly cooled, but will otherwise be chemically unaltered from its original state.

The second closed loop involves the working fluid. The working fluid, too, never leaves its pipe. This fluid gathers heat from the heat exchanger, vaporizes, turns the turbine, becomes cooled, and then is circulated drops down back into the heat exchanger.

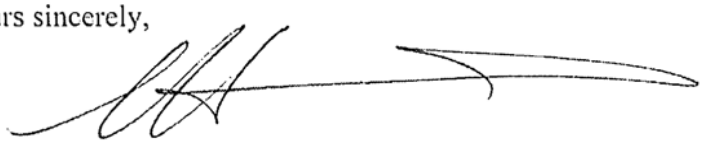
Because the project relies on a geothermal closed loop system resulting in no net depletion of the geothermal reservoir, and because the project will be constantly returning thermally depleted fluids to the geothermal reservoir for reheating, the project is in the interest of conservation, is a highly efficient use of this geothermal resource, and prevents waste of the resource by non-use or inefficient use. The project further prevents waste and promotes economic recovery of the geothermal resource because the geothermal fluids will be beneficially used to generate electricity, which will be sold to PNM.

I also note the importance of Well LDG 63-7. This well was sited by my client's technical team after analysis of geophysical and seismic data, test results, and spacing and setback requirements. The technical team includes Cyrq's Vice President of Resource Management, Ben Barker, a Reservoir Engineer (Ph.D. Petroleum Engineering), Roger Bowers, Senior Consulting Geologist (M.Sc. Geology), and Professor Joe Moore, Consulting Geologist / Geochemistry (Ph.D. Geology), as well as collaborating university and independent experts with world-wide reputations in seismology, geochemistry, structural geology and geothermal exploration Our team believes that the thermal, chemical, operational, and geological factors favor the proposed injection site location.

Well LDG 63-7 protects correlative rights because it is farther from the AmeriCulture facility than the project's earlier proposed injection well LDG 51-7. This added buffer is intended to ensure that all rights to produce a just and equitable share of the geothermal resources are honored in accordance with statutory and regulatory requirements. These requirements recognize a "just and equitable share" to be proportional, i.e., the amount of rights owned substantially in the proportion that the quantity of recoverable geothermal resources. NMAC 19.14.1.7(C). Existing leases in the resource area are held by my client (3,140.96 acres of geothermal resources leased from BLM), Rosette, Inc. (313.59 acres of geothermal resources leased from NM State Land Office) and AmeriCulture, Inc. (10 acres of geothermal resources leased from NM State Land Office).

Pursuant to NMAC 19.14.93.8(C), my client hereby requests the Oil Conservation Division's approval of Form G-112 for Well LDG 63-7.

Yours sincerely,



Michelle Henrie
Attorney for Lightning Dock Geothermal HI-01, LLC and Los Lobos Renewable Power, LLC

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, June 20, 2012 4:40 PM
To: 'Michelle Henrie'; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock/Los Lobos Well 63-7

Michelle:

Good afternoon. Please see the OCD responses to Los Lobos inquiries below in red text.

Please contact me if you have questions. 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

---

From: Michelle Henrie [mailto:michelle@mhenrie.com]
Sent: Tuesday, June 19, 2012 11:10 AM
To: Brooks, David K., EMNRD; Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Cc: Cotter, Jeff; Michael Hayter; Janney, David; Ben Barker
Subject: Lightning Dock/Los Lobos Well 63-7

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I wanted to regroup on Well 63-7 and make sure we are all in the loop.

G-101.

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B. My "to do" list shows that you still need information relating to Condition 4 (the timing of MIT testing). Our team is working on this and I will try to get you something by the end of the day. Contrary to the last telephone discussion of deferral of the MIT procedure to another date, the OCD now requests the procedure ASAP is Los Lobos is seeking an alternative MIT method than the standard EPA 5-Year MIT. This issue was raised by Ben

Barker in the past and after discussion with the OCD UIC Director and Engineering Bureau Staff was rejected. Therefore, the OCD requests the alternative MIT procedure up front in order to avoid any confusion on the MIT process for any/all injection wells in the future. The OCD requires the MIT within a specified time-frame from well completion.

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Thank you.

Thanks! Michelle

Michelle Henrie | Attorney · LEED AP

MHenrie | Land · Water · Law
P.O. Box 7035 . Albuquerque, New Mexico . 87194-7035
~~126~~ E. DeVargas . Santa Fe, New Mexico . 87501 . ***Please note new street address effective June 1, 2012: 225 E. DeVargas . Santa Fe, New Mexico . 87501***
505-842-1800 | fax 505-842-0033
michelle@mhenrie.com

Chavez, Carl J, EMNRD

From: Phillips, Haddy L., OSE
Sent: Wednesday, June 20, 2012 8:39 AM
To: Chavez, Carl J, EMNRD
Cc: Jackson, Charles L., OSE
Subject: RE: Final Completion Report for POD A 00601

Carl,

AmeriCulture filed on June 26, 2003 a permit with OSE District III office a permit to deepen well A-45-A-S2 from 910 feet to 3000 feet, this permit was approved on July 2, 2003. There is currently no log on file with the OSE District III office for the deepening of A-45-A-S2. We will review our records again to see if this log was filed or misfiled.

Haddy Phillips

Water Resource Specialist
Office of State Engineer
District 3 Office
P.O. Box 844
Deming, NM 88031
phone :575-546-2851 Fax: 575-546-2290
haddy.phillips@state.nm.us

From: Chavez, Carl J, EMNRD
Sent: Tuesday, June 19, 2012 2:03 PM
To: Jackson, Charles L., OSE
Cc: Phillips, Haddy L., OSE; Brooks, David K., EMNRD; Shapard, Craig, EMNRD
Subject: Final Completion Report for POD A 00601

Tink:

Good afternoon. The OCD is looking for a final well completion report after Feb. 15, 2002 that may indicate a deeper depth than 910 ft TD.

The well owner is indicating that the well is actually 2,100 ft. TD and the OCD has requested a well record by COB tomorrow that supports the actual TD of the well. The OCD approved a "GTR-304-1" (OSE: A-45-A-S-2) G-101 to deepen the well from 2000 to 3000 ft., but cannot find the final OCD well completion record. The OCD thinks that the final well record may be in the OSE files?

Appreciate any assistance OSE may provide in this matter. Thank you in advance.

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: Friday, June 15, 2012 8:25 AM
To: 'Damon Seawright'
Cc: Brooks, David K., EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Shapard, Craig, EMNRD; Phillips, Haddy L., OSE; Jackson, Charles L., OSE
Subject: RE: AmeriCulture Deepest Total Well Depth Inquiry

Damon:

Good morning.

Los Lobos Renewable Power, LLC has provided the OCD with an A-601-EXPL well record received by OSE dated 2/15/2002 with an OSE cover letter dated 2/20/2002 from R.Q. Rogers and copy of this well record to you accepted for filing by the OSE. The well record indicates a well total depth (TD) of 910 feet.

Based on your response below, I believe you are indicating that the well was ultimately drilled to 2,100 feet? Is this correct? If so, could you please forward the well record(s) that documents the 2,100 feet?

This record may help to prevent a dispute over the actual well depth, which would include any open borehole and/or liner below the well casing shoe. In the absence of any record, and if AmeriCulture, Inc. is adamant about the actual well depth of the AmeriCulture State Well No. 2 TD, a physical sounding may be required to verify the actual TD of the well.

The OCD needs this information in order to properly administer the injection well construction conditions of the Los Lobos Renewable Power, LLC. discharge permit (GTHT-001), which requires all injection wells to be constructed with casing at least 100 feet below the deepest fresh water supply wells within ½ mile of said well.

The OCD would appreciate a response with any well records on/or before COB next Wednesday, June 20, 2012.

I have copied OCD staff and OSE- Deming Office in this communique in the event a well sounding may be required. Your cooperation is appreciated in this matter.

Sincerely,

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

---

From: Damon Seawright [mailto:dseawright@gmail.com]
Sent: Thursday, June 14, 2012 12:15 PM
To: Chavez, Carl J, EMNRD
Subject: RE: AmeriCulture Deepest Total Well Depth Inquiry

Good morning Carl.

A-45-A-S-2 was drilled to 2,100' by Lang Drilling.

All the best,

Damon

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, June 14, 2012 11:00 AM
To: dseawright@gmail.com
Cc: Brooks, David K., EMNRD
Subject: AmeriCulture Deepest Total Well Depth Inquiry

Damon:

Good morning. After an OCD review of the AmeriCulture well files to determine the deepest total depth (TD) of your wells, it appears that the deepest total depth (TD) is 910 feet and is associated with the AmeriCulture State Well No. 2.

Could you please confirm the deepest TD and associated AmeriCulture well depth(s). The OCD observes that there was a G-103 submitted for an allowable TD from between 2000 to 3000 feet; however, a perceived final well record (see attachments) indicates 910 feet may be the deepest depth.

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

STATE OF NEW MEXICO
STATE ENGINEER OFFICE
DEMING

THOMAS C. TURNEY
State Engineer

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
FAX: (505) 546-2290

February 20, 2002

FILE: A-601-EXPL

Americulture, Inc.
Attn: Damon E. Seawright
HC65 Box 260 C
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of well record for well A-601-EXPL, which has been accepted for filing.

This is the final filing under permit for Exploratory Well A-601-EXPL.

Sincerely,

R. Q. Rogers
Professional Engineer
District 3 Supervisor

By: Charles Jackson
Charles L. Jackson
Animas Basin Supervisor

CLJ:dh
Encl: Well Records
cc: State Engineer
002

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well AMERICULTURE, INC Owner's Well No. A-601-EXPL

Street or Post Office Address 190 Central Park Square

City and State Los Alamos, New Mexico

Well was drilled under Permit No. A-601-EXPL and is located in the:

a. NW ¼ NE ¼ NE ¼ ¼ of Section 7 Township 25S Range 19W N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor McBee Drilling License No. WD 3

Address P.O. Box 1153; Willcox, Az 85644

Drilling Began Nov 2001 Completed Dec 2001 Type tools Rotory Size of hole 20"-16"-12" in.

Elevation of land surface or 4,265 at well is 0 ft. Total depth of well 910 ft.

Completed well is [X] shallow [ ] artesian. Depth to water upon completion of well 75 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
645	910	265	White to gray ryholite, several lost circulation zones in lower 100'	Questionable

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
16	42	Welded	0	283	280	Blank shoe	none	
12	36	Welded	0	583	580	Blank shoe	none	

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
0	283	20	160 sks		Pumped
	583	14 3/4			60ft bottom "Haliburtan"

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received February 15, 2002

Quad _____ FWL _____ FSL _____

File No. A-601-EXPL Use Exploratory Location No. 25.19.7.221

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	280	280	Unconsolidated silty sand and gravel interbeded with gravely clay and some orange clay
280	645	365	Red brown cemented conglomerate, interval from 280' to 380' is very hard and drills very slow
645	910	265	White to dark gray ryholite. Several lost circulation zones in lower 100 ft.

Section 7. REMARKS AND ADDITIONAL INFORMATION

Drilled 20" hole, set 16" casing, cemented behind blank 16" casing- top to bottom 283 ft.
Continued drilling with 14 3/4" hole to 583ft. Set blank 12"casing from top to bottom 283. Spotted 60ft of cement at bottom of 12" with Haliburtan Cement Co of Odessa, Texas.
Drilled on to 910ft. with mud, didn't clean hole, left 50 viscosity drilling mudHi in Drspac to presearve formation and stabilize hole for future entrance.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Jim McBee
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1 and Section 5 need be completed.

Chavez, Carl J, EMNRD

From: Damon Seawright <dseawright@gmail.com>
Sent: Thursday, June 14, 2012 12:15 PM
To: Chavez, Carl J, EMNRD
Subject: RE: AmeriCulture Deepest Total Well Depth Inquiry

Good morning Carl.

A-45-A-S-2 was drilled to 2,100' by Lang Drilling.

All the best,

Damon

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, June 14, 2012 11:00 AM
To: dseawright@gmail.com
Cc: Brooks, David K., EMNRD
Subject: AmeriCulture Deepest Total Well Depth Inquiry

Damon:

Good morning. After an OCD review of the AmeriCulture well files to determine the deepest total depth (TD) of your wells, it appears that the deepest total depth (TD) is 910 feet and is associated with the AmeriCulture State Well No. 2.

Could you please confirm the deepest TD and associated AmeriCulture well depth(s). The OCD observes that there was a G-103 submitted for an allowable TD from between 2000 to 3000 feet; however, a perceived final well record (see attachments) indicates 910 feet may be the deepest depth.

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

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, June 14, 2012 11:00 AM
To: 'dseawright@gmail.com'
Cc: Brooks, David K., EMNRD
Subject: AmeriCulture Deepest Total Well Depth Inquiry
Attachments: Americulture No. 2 Well G-101 and 102.pdf; Americulture No. 2 Well G-103 Deepened.pdf; A-601 Americulture SW#2 log.pdf; AmeriCulture A 45 S 6 SW#2.pdf

Damon:

Good morning. After an OCD review of the AmeriCulture well files to determine the deepest total depth (TD) of your wells, it appears that the deepest total depth (TD) is 910 feet and is associated with the AmeriCulture State Well No. 2.

Could you please confirm the deepest TD and associated AmeriCulture well depth(s). The OCD observes that there was a G-103 submitted for an allowable TD from between 2000 to 3000 feet; however, a perceived final well record (see attachments) indicates 910 feet may be the deepest depth.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Div
2040 Pacheco St.
Santa Fe, NM 87505

Form G-101
Adopted 10-1-74
Revised 10-1-78

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U.S.G.S.		
Operator		
Land Office		

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK---GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [X] FEE [ ]

5.a State Lease No.: GTR-304-1

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]

7. Unit Agreement Name:

b. Type of Well: Geothermal Producer [ ] Low-Temp Thermal [X] Temp Observation [ ] Injection/Disposal [ ]

8. Farm or Lease Name: AmeriCulture

2. Name of Operator: AmeriCulture, Inc.

9. Well No.:

3. Address of Operator: HC 65 Box 260C, Animas, NM 88020

10. Field and Pool, or Wildcat: Lightning Dock

4. Location of Well: UNIT LETTER B LOCATED 319 FEET FROM THE north LINE AND 825 FEET FROM THE east LINE OF SEC. 7 TWP. 25S RGE. 19W NMPM

12. County: Hidalgo

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
1,500	Horquilla Formation?	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
4265' RT	Ind. Single well	Jim McBee	8 Octobert 2001

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
20"	16"	83	278+/-	328	Circ.
15"	12-3/4"	54	600+/-	30 (spot cement)	
12"	Open hole		1500+/-		

Drill a 20-inch hole (using drilling mud) to rhyolite at 278+/- ft. Case with 16-in casing; cement the annulus to the surface. Drill ahead in the rhyolite at a 15-in hole size using air. After passing out of the rhyolite at about 375 feet and into the underlying sediments (mainly limestone and shale), drill ahead to 600 feet, still using air as the circulating fluid. Run a 600-ft string of 12-3/4-in, 54 lb/ft. Spot cement the bottom 80 ft of the 12-3/4-in casing. Change back to drilling mud as the circulating fluid; drill out the cement inside the casing and pressure-test the cement job and conduct a cement bond log. Drill a 12-in hole to 1500+/- ft, obtaining 3 or 4 spot cores (30-ft long, NX size). Circulate out the drilling mud and replace with water. Clean out borehole with air. Run temperature and geophysical logs.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed: [signature] Title: Vice President Date: September 20, 2001

(This space for State Use)

APPROVED BY: [signature] TITLE: DISTRICT SUPERVISOR DATE: 9/24/2001

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Div.
2040 Pacheco St.
Santa Fe, NM 87505

Form C-102
Adopted 10-1-74
Revised 10-1-78

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
AmeriCulture, Inc.	GTR-304-1	

Unit Letter	Section	Township	Range	County
B	7	25S	19W	Hidalgo

Actual Footage Location of Well:
825 feet from the east line and 319 feet from the north line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4265' RT	Horquilla Formation ?	Lightning Dock	10 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

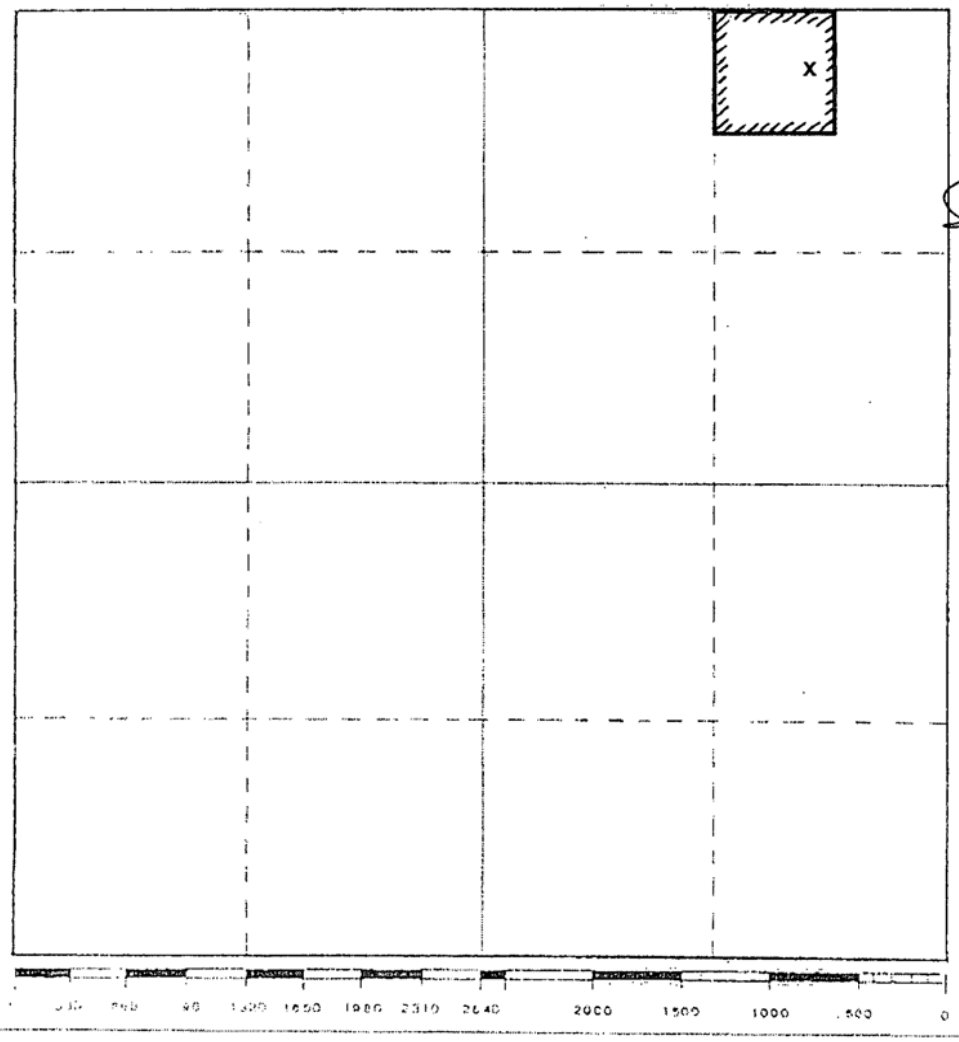
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Name: Damon E. Seawright

Position: Vice-President

Company: AmeriCulture, Inc.

Date: September 20, 2001

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Div
2040 Pacheco St.
Santa Fe, NM 87505

Form C-101
Adopted 10-1-74
Revised 10-1-78

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U.S.G.S.		
Operator		
Land Office		

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [X] FEE [ ]
5.a State Lease No.: GTR-304-1

1a. Type of Work: Drill [ ] Deepen [X] Plug Back [ ]

b. Type of Well: Geothermal Producer [ ] Low-Temp Thermal [X] Temp Observation [ ] Injection/Disposal [ ]

7. Unit Agreement Name:

8. Farm or Lease Name: AmeriCulture

2. Name of Operator: AmeriCulture, Inc.

9. Well No.: AmeriCulture State 2 or OSE Well A-45-A-S-2

3. Address of Operator: HC 65 Box 260C, Animas, NM 88020

10. Field and Pool, or Wildcat: Lightning Dock

4. Location of Well: UNIT LETTER B LOCATED 319 FEET FROM THE north LINE AND 825 FEET FROM THE east LINE OF SEC. 7 TWP. 25S RGE. 19W NMPM

12. County: Hidalgo

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
2,000'; 3,000'	Horquilla Formation?	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
4,265' RT	$3,000 Single Well Geothermal	Boart Longyear	July, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
(Complete) 20 in.	16"	82.8	292'	160?	Circulation
(Complete)14-3/4 in.	12-3/4"	53.6	581'	30	Vol. Est.
8-5/8 in.	7"	26.0	1,500'	28	Vol. Est.
6-1/4 in.	Open/TBD	N/A	2,000'; 3,000'	N/A	N/A

Deepening of existing well AmeriCulture State 2 (OSE A-45-A-S-2) detailed in Sundry Notice accepted by OCD on May 22, 2002. Well was drilled to a depth of 910' and left full of 50 viscosity dripac enriched mud to preserve for future drilling. Combination wire-line-coring/rotary-drilling rig to be mobilized over existing borehole; run 4-1/2-in. flush-joint casing with several welded centralizers to bottom depth of 910' through bentonite/polymer mud filling open section of borehole; hang casing off welded flange at top of existing 12-3/4 in. casing; rig up for continuous wire-line coring at the HQ core size (2-1/2 in. diameter); core out the bottom of the existing borehole at 910', to a final depth to be determined by the project geologist, but probably about 2,000 feet; at final cored TD, run a combination temperature/gamma log; pull and lay down the temporary string of 4-1/2 in. casing; rig up for conventional rotary drilling with an 8-5/8 in. rock bit; redrill the cored borehole to approximately 1,500', as determined by project geologist; run and hang, near the bottom of the 12-3/4 in. surface casing string, about 900' of 7-in. liner, using a high-temperature liner hanger; tag-cement the bottom 250' of the liner (from about 1,500' to 1,250'); drill out below the 7-in. liner with a 6-1/4 in. bit, to approximately 2,000', as determined by project geologist; displace the drilling fluid from the borehole with water; run a combination temperature/gamma log; conduct short duration flow assessment; rig down until data is analyzed (up to several months). Once a continuation drilling and casing strategy is formulated, and our intermediate depth one well bond is upgraded to a deep depth one well bond, a drilling rig will be re-mobilized and drilling will commence to a depth of approximately 3,000'.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed _____ Title Vice-President Date 6-5-03

(This space for State Use)

APPROVED BY _____ TITLE DISTRICT SUPERVISOR DATE 6/19/03

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

Oil Conservation Div.
2040 Pacheco St.
Santa Fe, NM 87505

Form G-102
Adopted 10-1-74
Revised 10-1-78

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
AmeriCulture, Inc.	GTR-304-1	OSE A-45-A-S-2 or AmeriCulture State 2

Unit Letter	Section	Township	Range	County
B	7	25S	19W	Hidalgo

Actual Footage Location of Well:
319 feet from the north line and 825 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4,265' RT	Horquilla Formation?	Lightning Dock	10.0 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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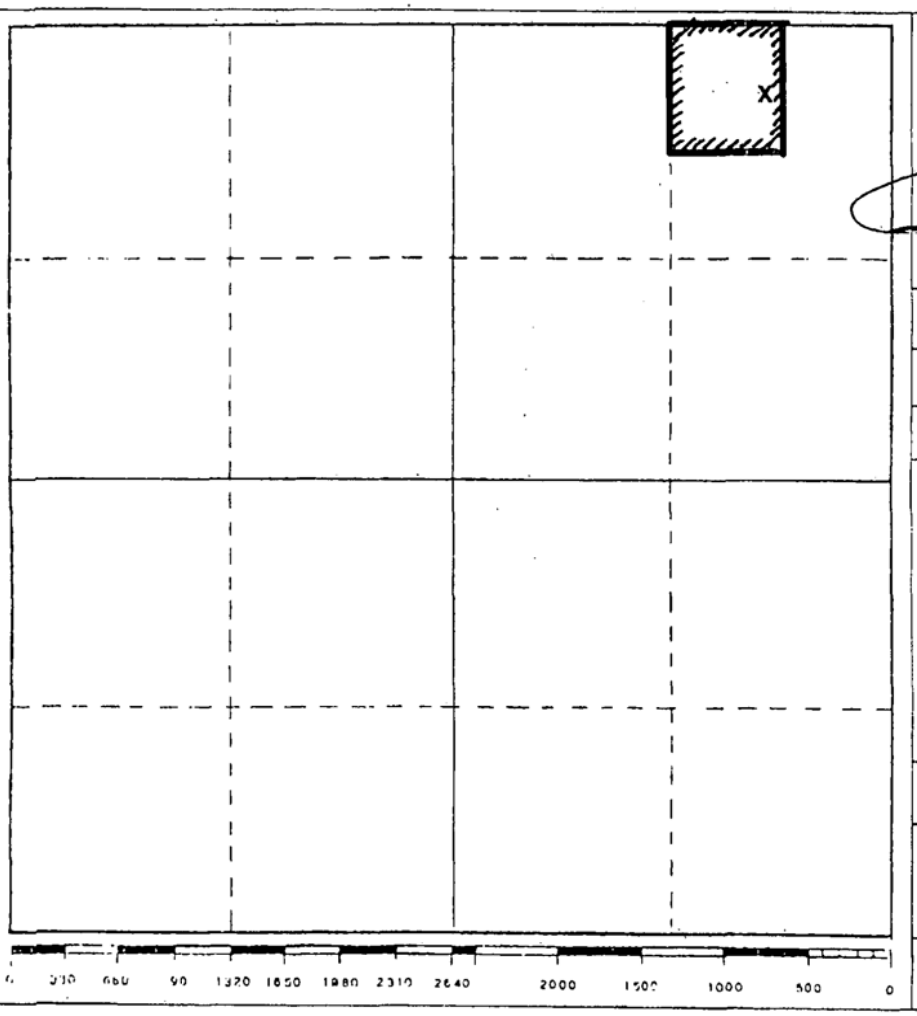
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Name: Damon E. Seawright

Position: Vice-President

Company: AmeriCulture, Inc.

Date: June 5, 2003

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well AMERICULTURE, INC Owner's Well No. A-601-EXPL

Street or Post Office Address 190 Central Park Square

City and State Los Alamos, New Mexico

Well was drilled under Permit No. A-601-EXPL and is located in the:

a. NW ¼ NE ¼ NE ¼ ¼ of Section 7 Township 25S Range 19W N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor McBee Drilling License No. WD 3

Address P.O. Box 1153; Willcox, Az 85644

Drilling Began Nov 2001 Completed Dec 2001 Type tools Rotory Size of hole 20"-16"-12" in.

Elevation of land surface or 4,265 at well is 0 ft. Total depth of well 910 ft.

Completed well is [X] shallow [ ] artesian. Depth to water upon completion of well 75 ft.

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Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
0	283	20	160 sks		Pumped
	583	14 3/4			60ft bottom "Haliburtan"

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received February 15, 2002

Quad _____ FWL _____ FSL _____

File No. A-601-EXPL Use Exploratory Location No. 25.19.7.221

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	280	280	Unconsolidated silty sand and gravel interbeded with gravely clay and some orange clay
280	645	365	Red brown cemented conglomerate, interval from 280' to 380' is very hard and drills very slow
645	910	265	White to dark gray ryholite. Several lost circulation zones in lower 100 ft.

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Continued drilling with 14 3/4" hole to 583ft. Set blank 12"casing from top to bottom 283. Spotted 60ft of cement at bottom of 12" with Haliburtan Cement Co of Odessa, Texas.
Drilled on to 910ft. with mud, didn't clean hole, left 50 viscosity drilling mudHi in Drspac to presearve formation and stabilize hole for future entrance.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Jim McBee
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1 and Section 5 need be completed.

STATE OF NEW MEXICO

STATE ENGINEER OFFICE
DEMING

THOMAS C. TURNEY
State Engineer

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
FAX: (505) 546-2290

February 20, 2002

FILE: A-601-EXPL

Americulture, Inc.
Attn: Damon E. Seawright
HC65 Box 260 C
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of well record for well A-601-EXPL, which has been accepted for filing.

This is the final filing under permit for Exploratory Well A-601-EXPL.

Sincerely,

R. Q. Rogers
Professional Engineer
District 3 Supervisor

By: Charles Jackson
Charles L. Jackson
Animas Basin Supervisor

CLJ:dh
Encl: Well Records
cc: State Engineer
002

GTLT - 4

AmeriCulture
Nos. 3 & SEA-1
ULs: G&A
6&7-25S-19W
Hidalgo County

DRILLED: 2002 & 1996

Revised August 1967

3-09843 $5.00

IMPORTANT—READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

APPLICATION FOR PERMIT

FOR ~~EXPLORATORY, OBSERVATION, AND MONITORING~~ *Injection* WELL

Date Received _____ File No. A-45-A-S-6

1. Name of applicant AmeriCulture, Inc.
   Mailing address HC 65 Box 260C
   City and State Animas, NM 88020
2. Source of water supply Shallow, located in Animas Underground Basin
   (artesian or shallow water aquifer) (name of underground basin)
3. The well is to be located in the SW ¼ SW ¼ NE ¼, Section 6 Township 25S
   Range 19W N.M.P.M., or Tract No. ____ of Map No. ____ of the _____ District,
   on land owned by State of New Mexico.
4. Description of well: name of driller Jim McBee;
   Outside Diameter of casing 13-3/8" inches; Approximate depth to be drilled 450 feet;

Subdivision	Section	Township	Range	Acres	Owner
~~XXXXXXXXXXXX~~	~~6~~	~~XXX~~	~~XXX~~	-	~~XXXXXXXXXXXX~~
NW¼NE¼	7	25S	19W	15	Applicant
* See Below					

7. Additional statements or explanations *Well to be used to inject a maximum of 1,775.52 acre-feet per year diverted from well A-45-A-S under permit A-45-A-S-; for non-consumptive geothermal power production in conjunction with aquaculture and agriculture purposes at the AmeriCulture operations site near Cotton City, New Mexico.

Attachments:

1) Copy of approved form G-103 from the Oil Conservation Division indicating OCD approval of diversion of water from A-45-A-S
2) Approval letter from State Land Office, pertaining to diversion of water from A-45-A-S
3) Copy of State Land Office Geothermal Lease GTR-304-1
4) Relevant components of injection well application (approved) submitted to OCD
   a) Copy of OCD form G-112 which outlines well construction and operational details
   b) Abstract attached to permit
   c) Plat showing locations of production well (A-45-A-S-) and proposed injection well
   d) Diagramatic sketch of the proposed injection well
   e) Regional SiO_2 concentration map
   f) Regional chloride concentration map
   g) Regional ground temperature map at 1 meter depth
   h) Regional ground temperature map at 2 meter depth
   i) Administrative Order of the Oil Conservation Division indicating their approval of the injection well application

I, Damon E. Seawright, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

AmeriCulture, Inc., Permittee,

By: _____

Vice-President, AmeriCulture, Inc.

Number of this permit A-45-A-S-6

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; [illegible] and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

SEE ATTACHED STATE ENGINEER CONDITIONS OF APPROVAL

Proof of completion of works shall be filed on or before January 31 2004.

Proof of application of water to beneficial use shall be filed on or before [illegible].

Witness my hand and seal this 11th day of February, A.D. 2003

John R. D'Antonio, Jr., P.E.

By: R. Q. Rogers
R. Q. Rogers
Professional Engineer
District 3 Manager

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of $5.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1–4—Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed land describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

ATTACHMENT
STATE ENGINEER CONDITIONS OF APPROVAL

FILE: A-45-A

APPLICATION: A-45-A-S-6

APPLICANTS: AmeriCulture, Inc.

1. Permit #: A-45-A-S-6

   Priority: October 24, 2002

   Source: Animas Valley Underground Water Basin

   Location of Well: SW¼SW¼NE¼, Section 6, Township 25 South, Range 19 West, N.M.P.M.

   Purpose of Use: Injection of water used for non-consumptive geothermal power production to support aquaculture and agriculture

   Place of Use: NW¼NE¼, Section 7, Township 25 South, Range 19 West, N.M.P.M.

   Amount of Water: Amount of water injected shall equal 1775.52 acre-feet per annum, or the actual amount less than 1775.52 acre-feet per annum diverted from well A-45-A-S for non-consumptive geothermal power production to support aquaculture and agriculture purposes.

2. All water diverted under permit A-45-A-Enlarged shall be conveyed from well A-45-A-S to injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

3. Well A-45-A-S-6 shall be drilled to a depth not to exceed 450 feet and shall be constructed with casing not to exceed 13.375 inch outside diameter.

4. Well A-45-A-S-6 shall be constructed in accordance with provisions of Oil Conservation Division (OCD) form G-112, and OCD Administrative Order No. GIW-15, approved June 17, 2002.

5. Well A-45-A-S-6 shall be constructed to specifications for Artesian Wells as outlined in Article 4, Section 15, Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Ground Water in New Mexico.

6. Well A-45-A-S-4 shall be constructed by a driller licensed in the State of New Mexico in accordance with N.M. Stat. Ann. §72-12-12 (1998 Repl.).

7. The Animas Valley Basin Supervisor shall be notified prior to drilling and construction of well A-45-A-S-6.

8. Well A-45-A-S-6 shall be equipped with a totalizing meter of a type approved by and installed in a manner and at a location acceptable to the State Engineer and the District 3 Manager.

The State Engineer and the District 3 Manager shall be advised of the make, model, serial number, date of installation and initial reading of said meter prior to injection of water. Injection records shall be submitted to the Office of the State Engineer, District 3 Manager, P.O. Box 844, Deming, New Mexico 88031 for each calendar month, on or before the 10th day of the following month.

9. The permittee shall utilize the best technology and management practices currently available to conserve water.

Witness my hand and seal this 11th day of February, 2003.

John R. D'Antonio, Jr., P.E.

R. Q. Rogers
Professional Engineer
District 3 Manager

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-103
Adopted 10-
Revised 10-

NO. OF COPIES RECEIVED		
DISTRIBUTION		
File		
U. S. G. S.		
Operator		
Land Office		

SUNDRY NOTICES AND REPORTS
ON
GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State [X]
5.a State Lease No.: GTR-304-1

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit —" (Form C-101) for Such Proposals.)

1. Type of well: Geothermal Producer [ ] Temp. Observation [ ] Low-Temp Thermal [X] Injection/Disposal [ ]
7. Unit Agreement Name:
2. Name of Operator: AmeriCulture, Inc.
8. Farm or Lease Name: AmeriCulture
3. Address of Operator: HC 65 Box 260C Animas, NM 88020
9. Well No.: A-601-EXP renumbered A-45-A-S-2
4. Location of Well: Unit Letter B, 319 Feet From The North Line and 825 Feet From The East Line, Section 7 Township 25S Range 19W NMPM.
10. Field and Pool, or Wildcat: Lightning Dock
15. Elevation (Show whether DF, RT, GR, etc.): 4256' RT
12. County: Hidalgo

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	[ ]	PLUG AND ABANDON	[ ]	REMEDIAL WORK	[ ]	ALTERING CASING	
TEMPORARILY ABANDON	[ ]			COMMENCE DRILLING OPNS.	[ ]	PLUG & ABANDON	
PULL OR ALTER CASING	[ ]	CHANGE PLANS	[X]	CASING TEST AND CEMENT JOB	[ ]		
OTHER	[ ]			OTHER			

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 203.

Drilling on well A-601-EXPL (to be renumbered A-45-A-S-2) was terminated November 29, 2001 at a total depth of 910' and left full of a 50 viscosity mud enriched with drispac to stabilize the hole for future drilling and facilitate future logging efforts. AmeriCulture may or may not choose not to resume drilling. In either case AmeriCulture desires to pump geothermal fluids from said geothermal well for its operational requirements. Any disposal of spent geothermal fluids will be done according to the terms specified in our recently renewed discharge permit from New Mexico ENMRD or future terms approved of by ENMRD, and as allowed under the pertinent stipulations placed upon AmeriCulture by the New Mexico Office of the State Engineer regarding the quantity, place, and purpose of use of water rights of AmeriCulture. Although some surface discharge is possible, as outlined under our current discharge permit, AmeriCulture intends to use reinjection, whenever practicable, in deference to geothermal resource conservation. AmeriCulture is applying to the New Mexico Office of the State Engineer to permit well A-601-EXPL (to be renamed A-45-A-S-2) as a supplemental well. Such designation would serve to include said well to the group of fresh and geothermal wells from which AmeriCulture is permitted to produce annually water up to its current water rights holdings (1,567.8 acre feet). Approval of this sundry notice will evidence, to the State Engineer, that the OCD approves of directly producing geothermal fluids from well A-601-EXPL according to the terms stated herein.

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

SIGNED _____ TITLE Vice-President DATE March 15, 200

APPROVED BY _____ TITLE DISTRICT SUPERVISOR DATE 5/22/02

COMMISSIONER'S OFFICE
Phone (505) 827-5760
Fax (505) 827-5766

ADMINISTRATION
Phone (505) 827-5700
Fax (505) 827-5853

GENERAL COUNSEL
Phone (505) 827-5713
Fax (505) 827-4262

PUBLIC AFFAIRS
Phone (505) 827-1245
Fax (505) 827-5766

New Mexico State Land Office
Commissioner of Public Lands
Ray Powell, M.S., D.V.M.

COMMERCIAL RESOURCES
Phone (505) 827-5724
Fax (505) 827-6157

MINERAL RESOURCES
Phone (505) 827-5744
Fax (505) 827-4739

ROYALTY MANAGEMENT
Phone (505) 827-5772
Fax (505) 827-4739

SURFACE RESOURCES
Phone (505) 827-5793
Fax (505) 827-5711

2

June 15, 2001

Damon Seawright
Americulture, Inc.
HC – 65 Box 260C
Animas, NM 88020

RE: Geothermal Lease GTR-304-1

Dear Mr. Seawright:

Your geothermal lease GTR-304-1 in the NW4NE4NE4 of Section 7, Township 25 South, Range 19 West in Hidalgo County is current and all rents and royalties have been paid through August 1, 2001.

The State Land Office has no objections to your increasing the utilization of geothermal resources from the lease as long as the royalties are paid on any increase.

The original royalty calculations were based on circulating water through a down hole heat exchanger in the well and did not involve removing geothermal water; the new system will involve the actual pumping of geothermal water from the well. It will be necessary to re-negotiate the royalty rate when the pump system is installed and operating. We will analyze the resource usage and establish a basis for any revision of the royalty, if necessary.

Please keep us informed of the progress in installing the pumping system and the operational parameters, such as gallons per minute, and exit and re-injection temperatures, when they have been established.

Please contact Gene Darnell, Minerals Manager, at (505) 827-5750 if you have any additional questions.

Sincerely,

Jami Bailey, Director
Oil, Gas, and Minerals Division

JB/ewd

APPENDIX A: RESOURCE RIGHTS

NEW MEXICO STATE LAND OFFICE
ASSIGNMENT OF MINERAL LEASE

FOR OFFICE USE ONLY
Lease No. GTR-304
From No. 0 To No. 1

KNOWN ALL MEN BY THESE PRESENTS:

That Thomas W. McCants (Assignor, include with if applicable) , hereinafter called " Assignor ", for and in consideration of the sum of One Dollar, and other good and valuable consideration paid by Americulture, Inc. (Assignee) , whose Post Office address is 506 Paul Place, Los Alamos, N.M. Zip 87544, hereinafter called the " Assignee ", has sold, transferred, set over and assigned, and by these presents does sell, transfer, set over and assign to the Assignee, his heirs, successors, and assigns, all of the Assignor's right, title, interest and claim in and to that certain Mineral Lease No. GTR-304 made by the State of New Mexico to Thomas W. McCants , under date of September 9 , 1986 , only insofar as said lease covers the following described land to wit:

Institution	Section	Township	Range	Subdivision	Acres
Ref. Sch.	7	25S	19W	NW¼NE¼NE¼	10.00

TRACT #10 HIDALGO COYUNTY See Attached Survey

Together with the personal property thereon, if any, appurtenant thereto, or used or obtained in connection herewith.

The Assignee assumes and agrees to perform all obligations to the State of New Mexico insofar as said described lands are affected, and to pay such rental and royalties, and to do such other acts as are by said lease required as to the above-described subdivisions, to the same extent and in the same manner as if the provisions of said lease were fully set out herein and Assignor is relieved of such obligations and duties.

It is agreed that the Assignee shall succeed to all the rights, benefits and privileges granted the Lessee by the terms of said lease, as to the lands above described.

Signed this 18th day Dec , 19 96 .

SECRETARY (Corporation Only)

ASSIGNOR (If Corporation Print or Type Name of Corporation and Executing Officer) Thomas W. McCants

WIFE (If Applicable) Martha J. McCants

(PERSONAL ACKNOWLEDGMENT)

STATE OF New Mexico)
) ss.
COUNTY OF Hidalgo)

The foregoing instrument was acknowledged before me this 18th day of December , 19 96 .

by Martha J. McCants and Thomas W. McCants

My Commission Expires : June 12, 1999

Barbara Ikyle
Notary Public

(ACKNOWLEDGMENT BY ATTORNEY-IN-FACT)

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____ , 19 _____ .

by _____ as attorney-in-fact in behalf

of _____

My Commission Expires _____

_____
Notary Public

Figure A.1. New Mexico State Mineral Lease Assignment.

State of New Mexico
Commissioner of Public Lands
310 OLD SANTA FE TRAIL P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

RAY POWELL, M.S., D.V.M.
COMMISSIONER

(505) 827-5760
FAX (505) 827-5766

January 26, 1996

Americulture, Inc.
536 Paul Place
Los Alamos, New Mexico 87544

Mr. Gary Seawright

Re: Assignment of State of New Mexico Geothermal Lease No. GTR-304-1

Dear Mr. Seawright:

Enclosed is an approved copy of the above referenced assignment and collateral assignment for your records.

If we can be of additional assistance to you, please contact Karen S. Kreutzer at (505) 827-5750.

Sincerely,

LARRY KEHOE, Director
Oil, Gas and Minerals Division

LK/KSK/ksk

Encl.

xc: Thomas W. McCants
Star Route, Box 265
Animas, New Mexico 88020

Figure A.2. New Mexico State Mineral Lease Assignment confirmation letter.

NEW MEXICO STATE LAND OFFICE
COLLATERAL ASSIGNMENT

The undersigned Americulture, Inc., a New Mexico corporation
and wife or state of incorporation
of 536 Paul Place, Los Alamos, NM 87544, the owner of Partial assignment of Geothermal Lease No. LTR-104
(Specify type of lease or contract)
which expires on the N/A day of N/A, 19____, does hereby assign, transfer and set over unto Thomas W. McCants and Martha Jacquette McCants, his wife
Address HC 65, Box 265, Animas, NM 88020
the aforesaid ~~(RECORD OF OVERRIDE)~~ covering the following described lands of the State of New Mexico, to wit: Partial Assignment

10 acres more fully described on copy of survey attached

APPROVED ON January 23, 1996
COMMISSIONER of PUBLIC LANDS

This assignment is made as collateral security for the payment of indebtedness owing by the undersigned to the assignee herein amounting to $ 100,000.00, and the payment of further advances that may hereafter be made by the assignee herein to the undersigned, not exceeding; however, the sum of $ 100,000.00. The sum of $70.00 for a filing fee must accompany this application.

If the above indebtedness includes any of the following, please indicate such information: Private lands (owned and leased) 15 acres; Federal Lands (includes U.S. Forest Service, BLM, etc.) _____ acres; Other state leased lands _____ acres and lease number(s) _____; State lands under Purchase Contract(s) _____ acres and Contract number(s) _____

This assignment is made subject to all terms and provisions of Sections 19-7-37 through 19-7-45, New Mexico Statutes, Annotated, 1978 Compilation.

AMERICULTURE, INC.

Gary L. Seawright, Pres.
ASSIGNOR (If Corporation, print or type name of Corporation and Executing Officer)

SECRETARY (Corporation only) _____ WIFE (If applicable) _____

FEE: $70.00 (OVER)

Figure A.2: New Mexico State Land Office Collateral Assignment (page 1).

(PERSONAL ACKNOWLEDGMENT)

STATE OF

12

day of

19

My Commission expires: NOTARY PUBLIC

(ACKNOWLEDGMENT BY ATTORNEY-IN-FACT)

STATE OF)
)ss
COUNTY OF)

The foregoing instrument was acknowledged before me this day of

19 , by

as attorney-in-fact in behalf of

My Commission expires: NOTARY PUBLIC

(ACKNOWLEDGMENT BY CORPORATION)

STATE OF

day of

My Commission expires: 6-2-96 NOTARY PUBLIC

APPROVAL OF THE COMMISSIONER

Office of the Commissioner of Public Lands
Santa Fe, New Mexico

I hereby certify that the within Assignment was filed in my office on October 24, 1995, approved by me and to be effective as to the State of New Mexico on January 23, 1996.

Ray Powell
COMMISSIONER OF PUBLIC LANDS
STATE OF NEW MEXICO

Figure A.3: New Mexico State Land Office Collateral Assignment (page 2).

4a

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-112
Adopted 10-
Revised 10-

APPLICATION TO PLACE WELL ON INJECTION-GEOTHERMAL RESOURCES AREA

Operator: AmeriCulture, Inc. | Address: HC 65 Box 260C, Animas, NM 88020

Lease Name: AmeriCulture, Inc. | Well No. | Field: Lightning Dock | County: Hidalgo

Location: Unit Letter ____ ; Well is Located 2290' Feet From The East Line And 2650' Feet From The South Line, Section 6 Township 25S Range 19W NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED
Conductor Pipe	20"	20'	13	surface	
Surface Casing	13-3/8"	150' or top of formation	70	surface	Surface Retur
Long String: Punch perforated	9-5/8"	Formation dependent			
Tubing			Name, Model and Depth of Tubing Packer		

Name of Proposed Injection Formation: Gila Conglomerate | Top of Formation | Bottom of Formation

Is Injection Through Tubing, Casing, or Annulus? Casing | Perforations or Open Hole? Perforations | Proposed Interval(s) of Injection 150-300'

Is This a New Well Drilled For Injection? Yes | If Answer is No, For What Purpose was Well Originally Drilled? | Has Well Ever Been Perforated in Any Zone Other Than the Proposed Injection Zone?

List All Such Perforated Intervals and Sacks of Cement used to Seal Off or Squeeze Each

Depth of Bottom of Deepest Fresh Water Zone in This Area | Is This Injection for Purpose of Pressure Maintenance or Water Disposal? (See Rules 501 and 502) Pressure Maintenance

Anticipated Daily Injection Volume	Minimum	Maximum	Open or Closed Type System	Is Injection to be by Gravity or Pressure?	Approx. Pressure (p
1,584,000 gal	1,440,000 gal	1,728,000 gal		Gravity	

Answer Yes or No Whether the Following Waters are Mineralized to such a Degree as to be Unfit for Domestic, Stock, Irrigation, or Other General Uses | Water to be Injected: No | Natural Water in Injection Zone: No | Are Water Analyses Attache: Yes

Name and Address of Surface Owner (or Lessee, if State or Federal Land)
Burgett Geothermal Inc. (Mr. Dale Burgett) - Lessee of GTR-303; Mr. Thomas McCants - Surface Lessee (agriculture)

List Names and Addresses of all Operators Within One-Half (½) Mile of This Injection Well
Burgett Geothermal; Attn: Mr. Dale Burgett; Box 265A Animas, NM 88020 Phone: (505)-548-2353

Mr. Thomas McCants; Box 265 Animas, NM 88020 Phone: (505)-548-2260

Lightning Dock Geothermal, Inc.; Attn: Mr. Roy Cunniff; 224 W. Greening Ave., Las Cruces, NM 88005 Phone: (505) 523-7908

Have Copies of this Application Been Sent to Each Operator Within One-Half Mile of this Well?	Plat of Area	Electrical Log	Diagrammatic Sketch of Well
Yes ☒ No ☐	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐

Are the Following Items Attached to this Application (see Rule 503)

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

(Signature) Damon E. Seawright, Vice President (Title) April 8, 2002 (Date)

NOTE: Should waivers from all operators within one-half mile of the proposed injection well not accompany this application, the New Mexico Oil Conservation Division will hold the application for a period of 20 days from the date of receipt by the Division's Santa Fe office. If at the end of the 20-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant

INJECTION WELL EXERGY-AMERICULTURE PROJECT
LIGHTNING DOCK KGRA, ANIMAS VALLEY, NEW MEXICO

A geothermal injection well that is suitable for a maximum daily capacity of 1.7 million gallons of 135° F of 1,100 mg/L total dissolved solids (TDS) is proposed to be installed and operated near the center of section 6, Township 25 South, Range 19 West at a location 2,310 feet from the east line of section 6 and 2,700 feet from the south line of section 6 (Figures 1, 2, and 3). The proposed location is located approximately 3,445 feet north northwest of the AmeriCulture 1 State production well and approximately 3,180 feet northwest of the nearest production well, Burgett B. The well is sited in the northwest corner of NM lease GTR-303 and 350 feet inbound of the west and north lease boundaries. The geothermal lessee is Mr. Dale Burgett and the surface agriculture lessee is Mr. Thomas McCants.

The proposed well is located in the western portion of a north-flowing outflow plume of the Lighting Dock geothermal system. Natural outflow plume reservoir temperatures at the injection site are projected to range from 120-160° F at less than 1,000 feet depth. The exact natural chemistry of thermal fluids at this location is not known with certainty. A natural mix of non-thermal fluids and outflow plume geothermal fluids may exist at this site. If so, in situ fluid TDS may be less than the planned 1,100 mg/L injectate. However, chloride and silica concentration maps for alluvial ground water in the Animas Valley outline the outflow plume very well and indicate that the planned injection site is within the dominant geothermal flow to the north (Figures 4 through 7). The proposed injection well site is located within the boundaries of the geochemical and thermal anomaly expressions of the outflow plume.

Pump test data from the AmeriCulture 1 Federal well, regional Bouguer gravity data, and deep borehole data suggest that the injection site is separated from the area of the Burgett and AmeriCulture production wells by an "impermeable" reservoir boundary that probably trends north to northeast along a zone starting at a location between the AmeriCulture Federal well and the AmeriCulture 1 production well. The sharp temperature change along the western boundary of the outflow plume may be reflective of this boundary (Figures 6 and 7). The boundary may be a fault zone or a lateral change in alluvial fan deposits to less permeable deposits toward the basin center. This zone is an impediment to outflow on the west and limits thermal (and chemical) mixing and dispersion. Injection will be done in the "Gila Conglomerate" basin fill and Tertiary volcanics, if the later are encountered.

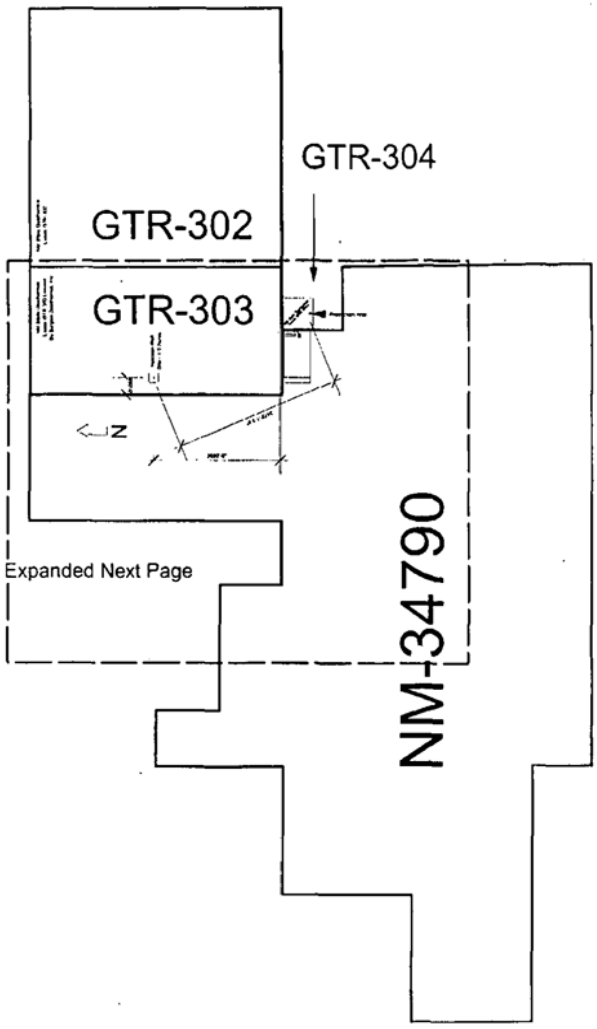


Figure 1. Local Geothermal leases showing production well and proposed injection well site.

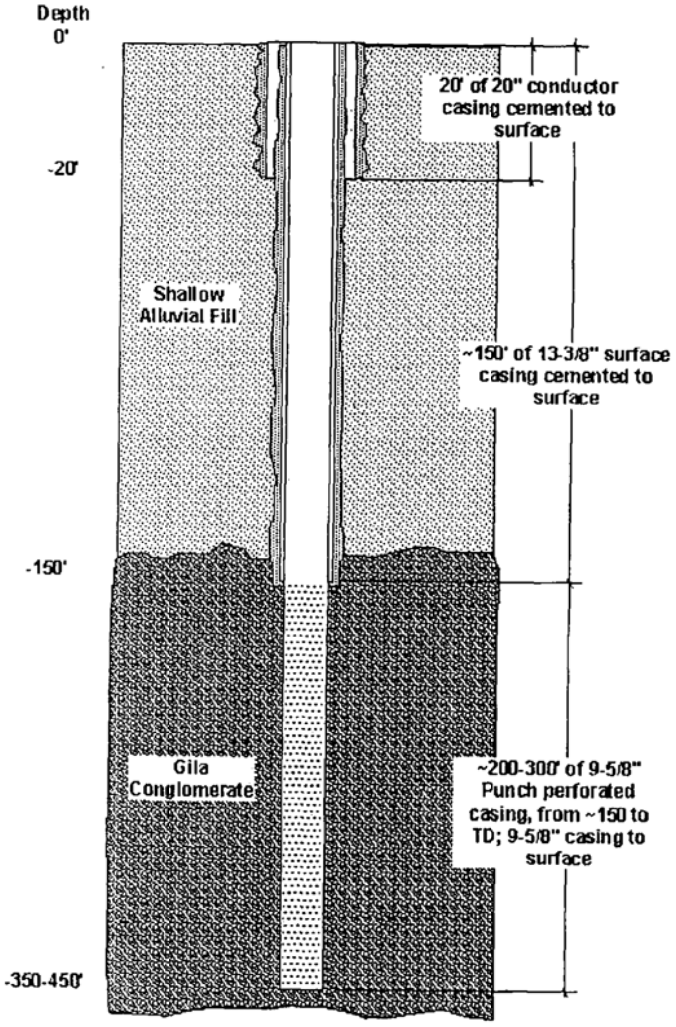


Figure 3. Diagrammatic sketch of the proposed injection well.

4e

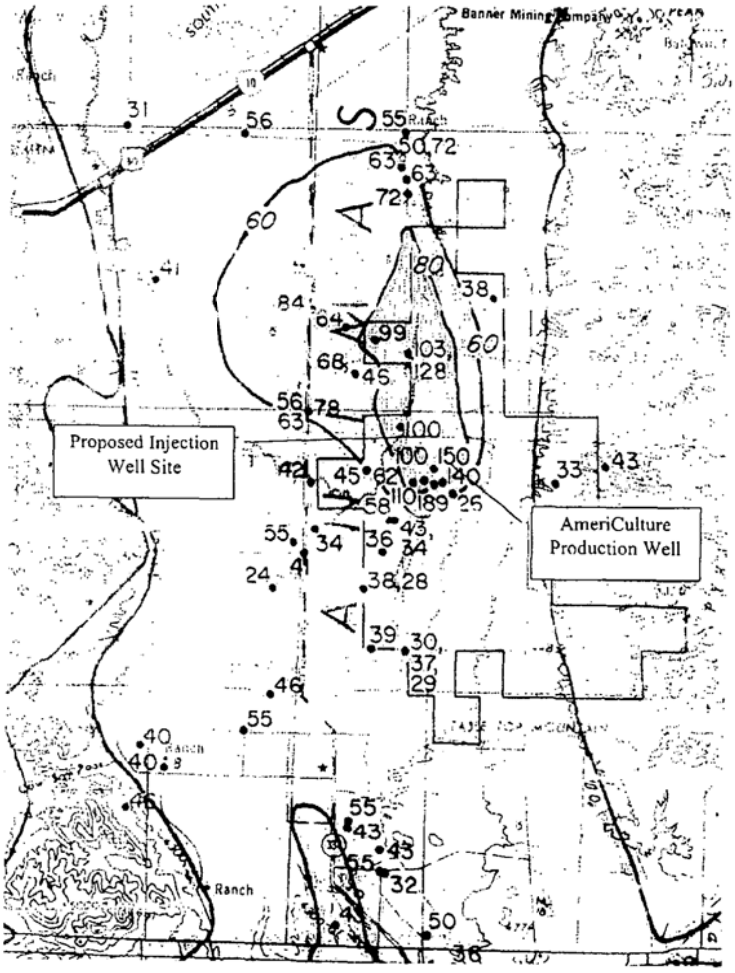


Figure 4. Regional SiO2 concentration map (O'brien and Stone, NM Bureau of Mines Open File Report 131).

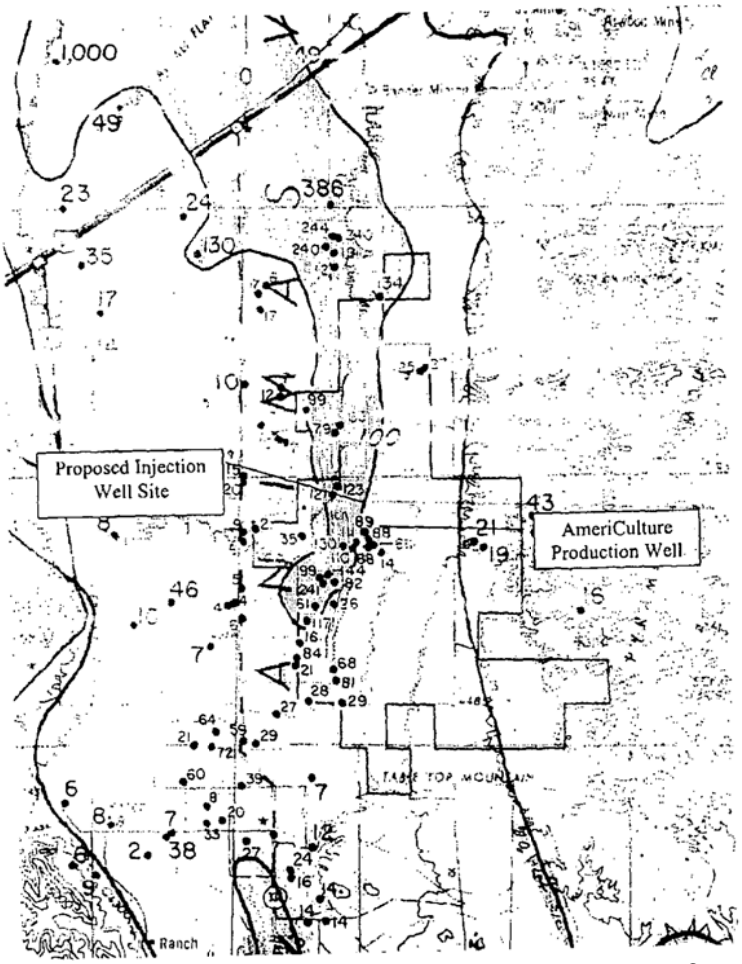


Figure 5. Regional chloride concentration map (O'brien and Stone, NM Bureau of Mines Open File Report 131).

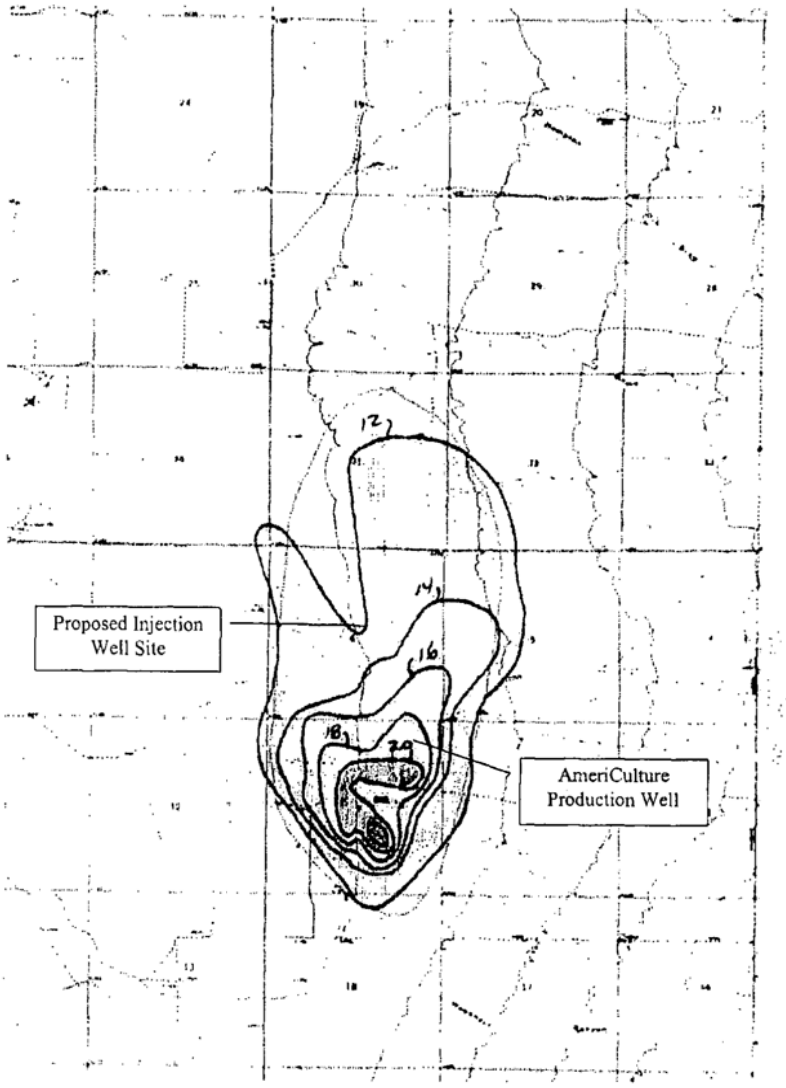


Figure 6. Regional ground temperature (°C) at 1 meter depth at the Lighting Dock Geothermal Anomaly.

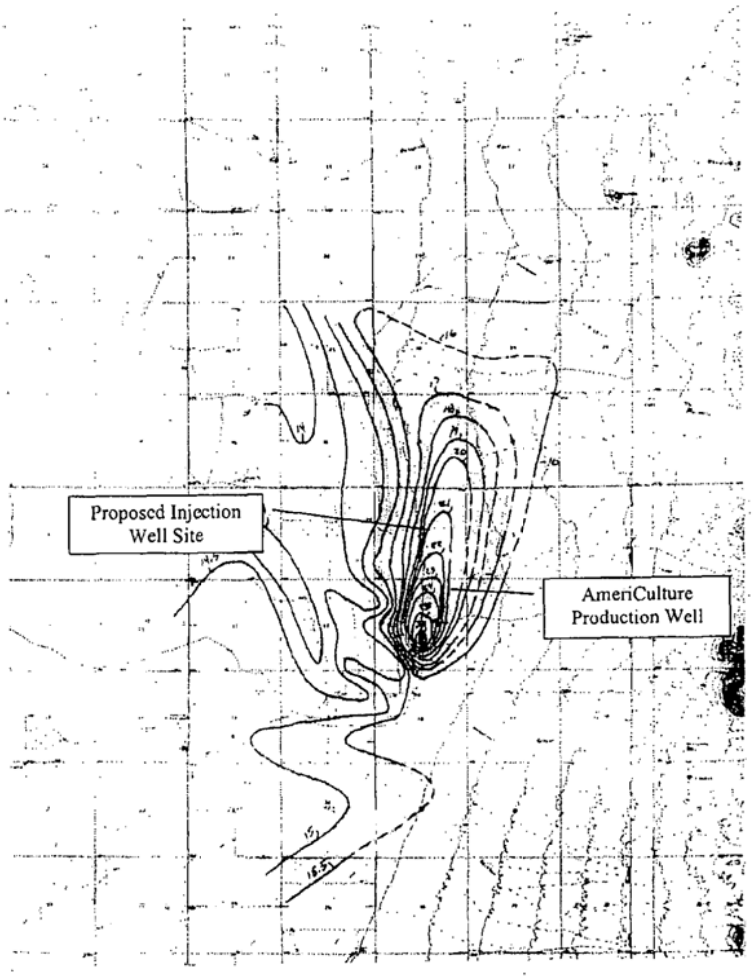


Figure 7. Regional ground temperature (°C) at 2 meter depth at the Lighting Dock Geothermal Anomaly.

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
BETTY RIVERA
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

Administrative Order No. GIW-15

THE APPLICATION OF AMERICULTURE, INC.
FOR ONE GEOTHERMAL INJECTION WELL,
HIDALGO COUNTY, NEW MEXICO

ADMINISTRATIVE ORDER OF
THE OIL CONSERVATION DIVISION

Under the provisions of Rule 503 of the New Mexico Oil Conservation Division Rules and Regulations, Geothermal Resources, AmeriCulture, Inc. made application on April 11, 2002 for authority to complete for injection purposes into a geothermal reservoir its AmeriCulture, Inc. Well No. 3 located in Unit G, Section 6, Township 25 South, Range 19 West, NMPM, Hidalgo County, New Mexico.

THE DIRECTOR FINDS THAT:

(1) The application has been duly filed pursuant to the provisions of the Geothermal Resources Rules and Regulations.

(2) That all offsetting owners of geothermal leases within a one-half mile radius of the proposed injection well have been notified by Certified Mail.

(3) All the requirements of Rule 503 have been complied with.

(4) The proposed injection well is in the interest of conservation and will prevent waste and protect correlative rights and that the subject well is cased and cemented and shall be equipped in such a manner as to prevent danger to natural resources including geothermal resources, underground water supplies and surface resources.

(5) The proposed geothermal injection well should be approved.

IT IS THEREFORE ORDERED THAT:

(1) The applicant herein, AmeriCulture, Inc., is hereby authorized to complete its AmeriCulture, Inc. Well No. 3 located in Unit G, Section 6, Township 25 South, Range 19 West, NMPM, Hidalgo County, New Mexico, in such a manner as to permit the injection of fluids into the Gila Conglomerate through a perforated interval located from 150 feet to 300 feet.

(2) Injection shall be through tubing and surface injection pressure shall not exceed 20 psi.

(3) Monthly injection for the above-described well shall be filed with the Division in accordance with Rule 210 of the Geothermal Resources Rules and Regulations.

(4) The applicant will obtain and file with the Division's District Office a water analysis of the proposed injection zone prior to any injection of fluids.

(5) Surveillance of the above-described well shall be conducted as required by Rule 505 of the Geothermal Rules and Regulations to ensure that all injected fluids are being confined to the intended zone of injection.

IT IS FURTHER ORDERED THAT:

Jurisdiction of this cause is hereby retained by the Division for such further order or orders as may been deemed necessary or convenient for the prevention of waste and/or the protection of correlative rights, and for the protection of natural resources and the environment. Upon failure of the applicant to comply with any requirement of this order, the Division may terminate the authority hereby granted.

APPROVED AT Santa Fe, New Mexico on this 17th day of June, 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Lori Wrotenbery

LORI WROTENBERY
Director

by REJ

LW/REJ

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

DEMING

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

[redacted]
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

January 28, 2010

FILE: A-45-A

Americulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of Extension of Time for Injection Well A-45-A-S-6, which has been granted.

Proof of Completion of Works shall be due in this office by January 31, 2013.

Your rights will expire on January 31, 2013, unless Proofs are filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

Charles L. Jackson, MPA
District 3 Manager

By: Phillips
Haddy Phillips
Assistant Manager
Animas Basin

HP:ps
Encl: Extension of Time
cc: State Engineer

030A

IMPORTANT-(READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM)

APPLICATION FOR EXTENSION OF TIME 3-17622 $25.00

In Which to Perfect An Appropriation of Underground Waters

File No. A-45-A-S-6

Name of permittee AmeriCulture, Inc.

Mailing address 25 Tilapia Trail

City and State Animas, New Mexico 88020

hereby applies for an extension of time in which to complete the well
(complete the well, apply water to beneficial use)

The period of time has proved to be insufficient and additional time is requested for the following reasons (state reasons in detail and if desirable or necessary, submit affidavits, photographs, etc., as evidence in support of statement):

AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submitted an estimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tentatively postponed for reasons relating to technology maturation and reliability issues with certain geothermal power generation equipment. AmeriCulture requests an extension of time of three years from January 31, 2010 to complete this well.

2010 JAN 19 PM 2 16 STATE ENGR. DEMING, NM

The State Engineer is hereby requested to extend the time previously granted by extending the limiting date to January 31, 20 13.

I, Damon E. Seawright, affirm that the foregoing statements are true to the best of my knowledge and belief and that I am the agent for owner and holder of said water right.
(sole, partial, agent for, etc.,)

AmeriCulture, Inc., Permittee

By: _____.

ACTION OF THE STATE ENGINEER

By authority vested in me, this application for additional time is approved (denied) and do hereby grant the permittee an extension of time to the following dates:

Complete the works on or before January 31, 20 13

Apply water to Beneficial Use on or before _____, 20 ____

Witness my hand and official seal this 28th day of January A.D., 20 10

John R. D'Antonio, Jr., P.E., State Engineer

By: _____
Charles L. Jackson, MPA
District Manager

INSTRUCTIONS

File application in triplicate accompanied by a fee of $25.00 for each permit being extended. Five dollars for domestic or stock permits.

Due diligence shall be exercised by the applicant at all times in order to complete his appropriation, change, amendment, etc., within the time limit set in the permit. Should conditions beyond his control (other than financial) delay the work, the State Engineer may, upon request of the applicant, grant reasonable extensions of time as provided by statute, which extensions are not granted for more than one year for any single extension.

This form should be used in making application for extension of time for vested or developed water rights for situations set forth in Chapter 72-12-8, New Mexico Statutes.

In addition to the statements appearing on this form, applicant may submit affidavits or any other pertinent evidence in support of his application. No extension of time shall be granted unless sufficient proof is shown to justify such extension.

If additional space is required, use a separate sheet of paper and attach securely hereto.

Filing of this application for extension of time does not necessarily mean that it will be granted. The filing fee will not be refunded in the event the application is denied.

MEMORANDUM

State Engineer
Deming, New Mexico
January 21, 2010

FILE A-45-A

APPLICATIONS A-45-A-S-6

TO Charles L. Jackson

FROM Haddy Phillips

SUBJECT Application for Extension of Time

APPLICANT AmeriCulture, Inc.

APPLICANT'S STATEMENT

"AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6.The driller is familiar with the drilling plan and has submitted an estimate. This well will serve to receive thermally-depleted water fro a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tentatively postponed for reasons relating to technology maturation and reliability issues with certain geothermal power generation equipment.. AmeriCulture requests and extension of time of three years from January 31, 2010 to complete this well."

COMMENTS Permit to Construct and Injection Well: A-45-A-S-6 was approved February 11, 2003 to construct an injection well to inject 1775.52 acre-feet per annum for non-consumptive geothermal power production purposes under permit A-45-A-Enlarged. All water diverted under this permit shall be conveyed from the wellhead to injection well A-45-A-S-6 via closed system with no water appearing on the surface or being applied to beneficial use.

CONSIDERATIONS

1. Application for extension of time was filed in this office January 19, 2010.

2. This is the 5th extension of time under this permit.

RECOMMENDATION

I recommend this Application for Extension of Time be granted until January 31, 2013.

HP:hp
Encl: Ext of Time (3)

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

DEMING

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

January 6, 2010

FILE: A-45-A

AmeriCulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020

Greetings:

Permit for Injection Well A-45-A-S-6 conditions of approval dated February 11, 2003, require Proof of Completion of Works be filed in this office.

Proof of Completion of Works will be due in this office by January 31, 2010.

Your rights under this permit will expire January 31, 2010, unless proof is filed or an Application for Extension of Time is received in this office before that date. Application for Extension of Time should be filed in triplicate with original signatures on all three forms, accompanied by a $25.00 filing fee.

Sincerely,

Charles L. Jackson, MPA
District Manager

By Phillips
Haddy Phillips
Assistant Manager
Animas Basin

HP:ps
Encl: Ext. of Time forms (3)
097

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

DEMING

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

[redacted]
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

June 19, 2007

FILE: A-45-A

AmeriCulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of Extension of Time for Permit for Injection Well A-45-A-S-6, which has been granted.

Proof of Completion of Works shall be filed in this office by January 31, 2010.

Your rights will expire on January 31, 2010, unless Proofs are filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

Charles L. Jackson, MPA
District 3 Manager

By: Elisa Dominguez
Elisa Dominguez
Administrative Assistant
Animas Basin

ED:ed
Encl: Extension of Time
cc: State Engineer
030a

3-15279 $25.00

IMPORTANT-(READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM)

APPLICATION FOR EXTENSION OF TIME

In Which to Perfect An Appropriation of Underground Waters

File No. A-45-A-S-6.

Name of permittee AmeriCulture, Inc.

Mailing address 25 Tilapia Trail

City and State Animas, New Mexico 88020

hereby applies for an extension of time in which to complete the well
(complete the well, apply water to beneficial use)

The period of time has proved to be insufficient and additional time is requested for the following reasons (state reasons in detail and if desirable or necessary, submit affidavits, photographs, etc., as evidence in support of statement): AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submitted an esimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tenatively postponed for technology development reasons. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2007 to complete the well.

2007 FEB -7 PM 1:50

OFFICE OF THE STATE ENGINEER DEMING, NM

The State Engineer is hereby requested to extend the time previously granted by extending the limiting date to January 31, 20 08.

I, Damon E. Seawright, affirm that the foregoing statements are true to the best of my knowledge and belief and that I am the agent for owner and holder of said water right.
(sole, partial, agent for, etc.)

AmeriCulture, Inc., Permittee

By: _____

ACTION OF THE STATE ENGINEER

By authority vested in me, this application for additional time is approved (denied) and do hereby grant the permittee an extension of time to the following dates:

Complete the works on or before January 31, 20 10

Apply water to Beneficial Use on or before _____, 20 _____

Witness my hand and official seal this 19th day of June A.D., 20 07

John R. D'Antonio, Jr., P.E., State Engineer

By: _____
Charles R. Jackson, MPA
District Manager

INSTRUCTIONS

File application in triplicate accompanied by a fee of $25.00 for each permit being extended. Five dollars for domestic or stock permits.

Due diligence shall be exercised by the applicant at all times in order to complete his appropriation, change, amendment, etc., within the time limit set in the permit. Should conditions beyond his control (other than financial) delay the work, the State Engineer may, upon request of the applicant, grant reasonable extensions of time as provided by statute, which extensions are not granted for more than one year for any single extension.

This form should be used in making application for extension of time for vested or developed water rights for situations set forth in Chapter 72-12-8, New Mexico Statutes.

In addition to the statements appearing on this form, applicant may submit affidavits or any other pertinent evidence in support of his application. No extension of time shall be granted unless sufficient proof is shown to justify such extension.

If additional space is required, use a separate sheet of paper and attach securely hereto.

Filing of this application for extension of time does not necessarily mean that it will be granted. The filing fee will not be refunded in the event the application is denied.

MEMORANDUM

State Engineer
Deming, New Mexico
June 15, 2007

FILE A-45-A

APPLICATION A-45-A-S-6

TO Charles L. Jackson

FROM Elisa Dominguez

SUBJECT Application for Extension of Time

APPLICANT AmeriCulture, Inc.

APPLICANT'S STATEMENT
AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submitted an estimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tentatively scheduled for fall, 2006. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2007 to complete the well.

COMMENTS Application was approved February 11, 2003 for a permit to construct an injection well to inject 1775.52 acre-feet per annum in the Animas Valley Underground Water Basin from non-consumptive geothermal power production purposes to support aquaculture and agriculture purposes from existing well A-45-A-S. All water diverted under permit A-45-A-Enlarged to be conveyed from well A-45-A-S to proposed injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

CONSIDERATIONS

1. Application for extension of time was filed in this office February 7, 2007.

2. This is the fourth extension of time filed under this permit.

RECOMMENDATION
I recommend that this Application for Extension of Time be granted until January 31, 2010.

ED:ed
Encl: Ext. of Time (3)

OK Jackson 6-18-07

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

DEMING

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

December 1, 2006

FILE: A-45-A

AmeriCulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020

Greetings:

Permit for Injection Well A-45-A-S-6 conditions of approval dated February 11, 2003, require Proof of Completion of Works be filed in this office.

Proof of Completion of Works will be due in this office by January 31, 2007.

Your rights under this permit will expire on January 31, 2007, unless Proof is filed or an Application for Extension of Time is received in this office on or before that date. Application for Extension of Time should be filed in triplicate with original signatures on all three forms, accompanied by a $25.00 filing fee.

Sincerely,

Charles L. Jackson, MPA
District 3 Supervisor

By: Phillips
Haddy Phillips
Animas Basin Supervisor

HP:ed
Encl: Ext. of Time forms (3)
097

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

DEMING

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

February 23, 2006

FILE: A-45-A

AmeriCulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020

Greetings:

Permit for Injection Well A-45-A-S-6 conditions of approval dated February 11, 2003, require Proof of Completion of Works be filed in this office.

Proof of Completion of Works should have been filed in this office as soon as possible after completion, but in no event later than January 31, 2006.

Your permit is not in good standing at this time. Please file the above stated Proof or an Application for Extension of Time in this office **within ten (10) days, or this permit will be subject to cancellation**. Application for Extension of Time should be filed in triplicate with original signatures on all three forms, accompanied by a $25.00 filing fee.

Sincerely,

Charles L. Jackson, MPA
District Manager

By: Elisa Dominguez
Elisa Dominguez
Administrative Assistant
Animas Basin

ED:ed
Encl: Ext. of Time forms (3)
084

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

DEMING

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

December 1, 2005

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

FILE: A-45-A

AmeriCulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020

Greetings:

Permit for Injection Well A-45-A-S-6 conditions of approval dated February 11, 2003, require Proof of Completion of Works be filed in this office.

Proof of Completion of Works will be due in this office by January 31, 2006.

Your rights under this permit will expire on January 31, 2006, unless Proof is filed or an Application for Extension of Time is received in this office on or before that date. Application for Extension of Time should be filed in triplicate with original signatures on all three forms, accompanied by a $25.00 filing fee.

Sincerely,

Charles L. Jackson, MPA
District Manager

By: H. Phillips
Haddy Phillips
Animas Basin Supervisor

HP:ed
Encl: Ext. of Time forms (3)
097

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

DEMING

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

March 27, 2006

FILE: A-45-A

AmeriCulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of Extension of Time for Permit for Injection Well A-45-A-S-6, which has been granted.

Proof of Completion of Works shall be filed in this office by January 31, 2007.

Your rights will expire on January 31, 2007, unless Proofs are filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

Charles L. Jackson, MPA
District Manager

By: Elisa Dominguez
Elisa Dominguez
Administrative Assistant
Animas Basin

ED:ed
Encl: Extension of Time
cc: State Engineer
030a

3-14032 $25.00

IMPORTANT—(READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM)

APPLICATION FOR EXTENSION OF TIME
in Which to Perfect An Appropriation of Underground Waters

File No. A-45-A-S-6

Name of permittee AmeriCulture, Inc.
Mailing address 25 Tilapia Trail
City and State Animas, New Mexico 88020

hereby applies for an extension of time in which to Complete well
(complete the well, apply water to beneficial use)

The period of time has proved to be insufficient and additional time is requested for the following reasons (state reasons in detail and if desirable or necessary, submit affidavits, photographs, etc., as evidence in support of statement): AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submitted an esimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tenatively scheduled for fall, 2006. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2006 to complete the well.

The State Engineer is hereby requested to extend the time previously granted by extending the limiting date to January 31, 20 06

I, Damon E. Seawright, affirm that the foregoing statements are true to the best of my knowledge and belief and that I am the agent for (sole, partial, agent for, etc.,) owner and holder of said water right.

AmeriCulture, Inc., Permittee,

By: _____
Vice President, AmeriCulture, Inc.

ACTION OF THE STATE ENGINEER

By authority vested in me, this application for additional time is approved (denied) and do hereby grant the permittee an extension of time to the following dates:

Complete the ~~work~~ works on or before January 31, 20 07

Apply Water to Beneficial Use on or before _____, 20 ____

Witness my hand and official seal this 27th day of March A.D., 20 06

John R. D'Antonio, Jr., P.E., State Engineer

By: _____
Charles L. Jackson, MPA
District Manager

INSTRUCTIONS

File application in triplicate accompanied by a fee of $25.00 for each permit being extended. Five dollars for domestic or stock permits.

Due diligence shall be exercised by the applicant at all times in order to complete his appropriation, change, amendment, etc., within the time limit set in the permit. Should conditions beyond his control (other than financial) delay the work, the State Engineer may, upon request of the applicant, grant reasonable extensions of time as provided by statute, which extensions are not granted for more than one year for any single extension.

This form should be used in making application for extension of time for vested or developed water rights for situations set forth in Chapter 72-12-8, New Mexico Statutes.

In addition to the statements appearing on this form, applicant may submit affidavits or any other pertinent evidence in support of his application. No extension of time shall be granted unless sufficient proof is shown to justify such extension.

If additional space is required, use a separate sheet of paper and attach securely hereto.

Filing of this application for extension of time does not necessarily mean that it will be granted. The filing fee will not be refunded in the event the application is denied.

MEMORANDUM

State Engineer
Deming, New Mexico
March 13, 2006

FILE A-45-A

APPLICATION A-45-A-S-6

TO Charles L. Jackson

FROM Elisa Dominguez ED

SUBJECT Application for Extension of Time

APPLICANT AmeriCulture, Inc.

APPLICANT'S STATEMENT

AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submitted an estimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tentatively scheduled for fall, 2006. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2006 to complete the well.

COMMENTS

Application was approved February 11, 2003 for a permit to construct an injection well to inject 1775.52 acre-feet per annum in the Animas Valley Underground Water Basin from non-consumptive geothermal power production purposes to support aquaculture and agriculture purposes from existing well A-45-A-S. All water diverted under permit A-45-A-Enlarged to be conveyed from well A-45-A-S to proposed injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

CONSIDERATIONS

1. Application for extension of time was filed in this office March 13, 2006.

2. This is the third extension of time filed under this permit.

RECOMMENDATION

I recommend that this Application for Extension of Time be granted until January 31, 2007.

ED:ed
Encl: Ext. of Time (3)

ok Ofchan 3-25-06

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

DEMING

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

January 31, 2005

FILE: A-45-A

AmeriCulture, Inc.
HC 65 Box 260C
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of Extension of Time for Permit for Injection Well A-45-A-S-6, which has been granted.

Proof of Completion of Works shall be filed in this office by January 31, 2006.

Your rights will expire on January 31, 2006, unless Proofs are filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

R. Q. Rogers
Professional Engineer
District 3 Manager

By: Elisa Dominguez
Elisa Dominguez
Administrative Assistant
Animas Basin

ED:ed
Encl: Extension of Time
cc: State Engineer
030a

IMPORTANT—(READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM)

3-12502 $25.00

APPLICATION FOR EXTENSION OF TIME
In Which to Perfect An Appropriation of Underground Waters

File No. A-45-A-S-6

Name of permittee AmeriCulture, Inc.
Mailing address HC 65 Box 260C
City and State Animas, New Mexico 88020

hereby applies for an extension of time in which to Complete well
(complete the well, apply water to beneficial use)

The period of time has proved to be insufficient and additional time is requested for the following reasons (state reasons in detail and if desirable or necessary, submit affidavits, photographs, etc., as evidence in support of statement): AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submit an esimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tenatively scheduled for late-summer or fall, 2005. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2005 to complete the well.

The State Engineer is hereby requested to extend the time previously granted by extending the limiting date to January 31, 20 05

I, Damon E. Seawright, affirm that the foregoing statements are true to the best of my knowledge and belief and that I am the agent for (sole, partial, agent for, etc.,) owner and holder of said water right.

AmeriCulture, Inc., Permittee,

By: Vice President, AmeriCulture, Inc.

2005 JAN 28 AM 10:12
OFFICE OF THE STATE ENGINEER DEMING, NM

ACTION OF THE STATE ENGINEER

By authority vested in me, this application for additional time is approved (denied) and do hereby grant the permittee an extension of time to the following dates:

Complete the ~~work~~ works on or before January 31, 20 06

Apply Water to Beneficial Use on or before _____, 20 _____

Witness my hand and official seal this 31st day of January A.D., 20 05

John R. D'Antonio, Jr., P.E., State Engineer

By: R. Q. Rogers
Professional Engineer
District 2 Manager

INSTRUCTIONS

File application in triplicate accompanied by a fee of $25.00 for each permit being extended. Five dollars for domestic or stock permits.

Due diligence shall be exercised by the applicant at all times in order to complete his appropriation, change, amendment, etc., within the time limit set in the permit. Should conditions beyond his control (other than financial) delay the work, the State Engineer may, upon request of the applicant, grant reasonable extensions of time as provided by statute, which extensions are not granted for more than one year for any single extension.

This form should be used in making application for extension of time for vested or developed water rights for situations set forth in Chapter 72-12-8, New Mexico Statutes.

In addition to the statements appearing on this form, applicant may submit affidavits or any other pertinent evidence in support of his application. No extension of time shall be granted unless sufficient proof is shown to justify such extension.

If additional space is required, use a separate sheet of paper and attach securely hereto.

Filing of this application for extension of time does not necessarily mean that it will be granted. The filing fee will not be refunded in the event the application is denied.

MEMORANDUM

State Engineer
Deming, New Mexico
January 28, 2005

FILE A-45-A

APPLICATION A-45-A-S-6

TO R. Q. Rogers

FROM Elisa Dominguez ES
Charles L. Jackson CA

SUBJECT Application for Extension of Time

APPLICANT AmeriCulture, Inc.

APPLICANT'S STATEMENT

AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submitted an estimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tentatively scheduled for late-summer or fall, 2005. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2005 to complete the well.

COMMENTS

Application was approved February 11, 2003 for a permit to construct an injection well to inject 1775.52 acre-feet per annum in the Animas Valley Underground Water Basin from non-consumptive geothermal power production purposes to support aquaculture and agriculture purposes from existing well A-45-A-S. All water diverted under permit A-45-A-Enlarged to be conveyed from well A-45-A-S to proposed injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

CONSIDERATIONS

1. Application for extension of time was filed in this office January 28, 2005.

2. This is the second extension of time filed under this permit.

RECOMMENDATION

I recommend that this Application for Extension of Time be granted until January 31, 2006.

ED:ed
Encl: Ext. of Time (3)

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

DEMING

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

December 1, 2004

FILE: A-45-A

AmeriCulture, Inc.
HC 65 Box 260C
Animas, New Mexico 88020

Greetings:

Permit for Injection Well A-45-A-S-6 conditions of approval dated February 11, 2003, require Proof of Completion of Works be filed in this office.

Proof of Completion of Works will be due in this office by January 31, 2005.

Your rights under this permit will expire on January 31, 2005, unless Proof is filed or an Application for Extension of Time is received in this office on or before that date. Application for Extension of Time should be filed in triplicate with original signatures on all three forms, accompanied by a $25.00 filing fee.

Sincerely,

R. Q. Rogers
Professional Engineer
District 3 Manager

By
Charles L. Jackson
Animas Basin Supervisor

CLJ:ed
Encl: Ext. of Time forms (3)
097

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

DEMING

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

December 15, 2003

FILE: A-45-A

AmeriCulture, Inc.
HC 65 Box 260C
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of Extension of Time for Permit for Injection Well A-45-A-S-6, which has been granted.

Proof of Completion of Works shall be filed in this office by January 31, 2005.

Your rights will expire on January 31, 2005, unless Proofs are filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

R. Q. Rogers
Professional Engineer
District 3 Manager

By: Charles Jackson
Charles L. Jackson
Animas Basin Supervisor

CLJ:ed
Encl: Extension of Time
cc: State Engineer
030a

IMPORTANT—(READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM)

3-11128 $25.00

APPLICATION FOR EXTENSION OF TIME
in Which to Perfect An Appropriation of Underground Waters

File No. A-45-A-S-6

Name of permittee AmeriCulture, Inc.
Mailing address HC 65 Box 260C
City and State Animas, New Mexico 88020

hereby applies for an extension of time in which to Complete well
(complete the well, apply water to beneficial use)

The period of time has proved to be insufficient and additional time is requested for the following reasons (state reasons in detail and if desirable or necessary, submit affidavits, photographs, etc., as evidence in support of statement): AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submit an esimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, th well construction should coincide with the commencement of power plant construction, tenatively scheduled for late-summer or fall, 2004. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2004 to complete the well.

The State Engineer is hereby requested to extend the time previously granted by extending the limiting date to January 31, 20 05

I, Damon E. Seawright, affirm that the foregoing statements are true to the best of my knowledge and belief and that I am the agent for owner and holder of said water right.
(sole, partial, agent for, etc.)

AmeriCulture, Inc., Permittee,

By _____
Vice President, AmeriCulture, Inc.

ACTION OF THE STATE ENGINEER

By authority vested in me, this application for additional time is approved (denied) and do hereby grant the permittee an extension of time to the following dates:

Complete the ~~work~~ works on or before January 31, 20 05

Apply Water to Beneficial Use on or before _____, 20 ____

Witness my hand and official seal this 15th day of December A.D., 20 03

John R. D'Antonio, Jr., P.E., State Engineer

By: _____
R. Q. Rogers
Professional Engineer
District 3 Manager

INSTRUCTIONS

File application in triplicate accompanied by a fee of $25.00 for each permit being extended. Five dollars for domestic or stock permits.

Due diligence shall be exercised by the applicant at all times in order to complete his appropriation, change, amendment, etc., within the time limit set in the permit. Should conditions beyond his control (other than financial) delay the work, the State Engineer may, upon request of the applicant, grant reasonable extensions of time as provided by statute, which extensions are not granted for more than one year for any single extension.

This form should be used in making application for extension of time for vested or developed water rights for situations set forth in Chapter 72-12-8, New Mexico Statutes.

In addition to the statements appearing on this form, applicant may submit affidavits or any other pertinent evidence in support of his application. No extension of time shall be granted unless sufficient proof is shown to justify such extension.

If additional space is required, use a separate sheet of paper and attach securely hereto.

Filing of this application for extension of time does not necessarily mean that it will be granted. The filing fee will not be refunded in the event the application is denied.

MEMORANDUM

State Engineer
Deming, New Mexico
December 15, 2003

FILE A-45-A

APPLICATION A-45-A-S-6

TO R. Q. Rogers

FROM Elisa Dominguez ED
Charles L. Jackson CA

SUBJECT Application for Extension of Time

APPLICANT AmeriCulture, Inc.

APPLICANT'S STATEMENT

AmeriCulture has identified one drilling contractor capable of adequately drilling A-45-A-S-6. This driller is familiar with the drilling plan and has submitted an estimate. This well will serve to receive thermally-depleted water from a yet-to-be-built geothermal power plant. Ideally, the well construction should coincide with the commencement of power plant construction, tentatively scheduled for late-summer or fall, 2004. It is for this reason that AmeriCulture requests an extension of time of one year from January 31, 2004 to complete the well.

COMMENTS

Application was approved February 11, 2003 for a permit to construct an injection well to inject 1775.52 acre-feet per annum in the Animas Valley Underground Water Basin from non-consumptive geothermal power production purposes to support aquaculture and agriculture purposes from existing well A-45-A-S. All water diverted under permit A-45-A-Enlarged to be conveyed from well A-45-A-S to proposed injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

CONSIDERATIONS

1. Application for extension of time was filed in this office December 11, 2003.

2. This is the first extension of time filed under this permit.

RECOMMENDATION

I recommend that this Application for Extension of Time be granted until January 31, 2005.

ED:ed
Encl: Ext. of Time (3)

Dec 15, 2003

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

DEMING
December 1, 2003

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452
Fax: (505) 546-2290

FILE: A-45-A

AmeriCulture, Inc.
HC 65 Box 260C
Animas, New Mexico 88020

Greetings:

Permit for Injection Well A-45-A-S-6 conditions of approval dated February 11, 2003, require Proof of Completion of Works be filed in this office.

Proof of Completion of Works will be due in this office by January 31, 2004.

Your rights under this permit will expire on January 31, 2004, unless Proof is filed or an Application for Extension of Time is received in this office on or before that date. Application for Extension of Time should be filed in triplicate with original signatures on all three forms, accompanied by a $25.00 filing fee.

Sincerely,

R. Q. Rogers
Professional Engineer
District 3 Manager

By: Charles Jackson
Charles L. Jackson
Animas Basin Supervisor

CLJ:ed
Encl: Ext. of Time forms (3)
097

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

JOHN R. D'ANTONIO, JR., P.E.
State Engineer

DEMING

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505)546-2851
(505)546-7452
FAX:(505)546-2290

February 11, 2003

FILES: A-45-A

AmeriCulture, Inc.
HC 65 Box 260C
Animas, New Mexico 88020

Greetings:

Enclosed is your copy of Permit for Injection Well A-45-A-S-6, which has been approved.

Proof of Completion of Works shall be due in this office by January 31, 2004.

Your attention is called to the Conditions of Approval, which state as follows:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for an injection well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

1. Permit #: A-45-A-S-6

   Priority: October 24, 2002

   Source: Animas Valley Underground Water Basin

   Location of Well: SW¼SW¼NE¼, Section 6, Township 25 South, Range 19 West, N.M.P.M.

   Purpose of Use: Injection of water used for non-consumptive geothermal power production to support aquaculture and agriculture

   Place of Use: NW¼NE¼, Section 7, Township 25 South, Range 19 West, N.M.P.M.

   Amount of Water: Amount of water injected shall equal 1775.52 acre-feet per annum, or the actual amount less than 1775.52 acre-feet per annum diverted from well A-45-A-S for non-consumptive geothermal power production to support aquaculture and agriculture purposes.

2. All water diverted under permit A-45-A-Enlarged shall be conveyed from well A-45-A-S to injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

3. Well A-45-A-S-6 shall be drilled to a depth not to exceed 450 feet and shall be constructed with casing not to exceed 13.375 inch outside diameter.

4. Well A-45-A-S-6 shall be constructed in accordance with provisions of Oil Conservation Division (OCD) form G-112, and OCD Administrative Order No. GIW-15, approved June 17, 2002.

5. Well A-45-A-S-6 shall be constructed to specifications for Artesian Wells as outlined in Article 4, Section 15, Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Ground Water in New Mexico.

6. Well A-45-A-S-4 shall be constructed by a driller licensed in the State of New Mexico in accordance with N.M. Stat. Ann. §72-12-12 (1998 Repl.).

7. The Animas Valley Basin Supervisor shall be notified prior to drilling and construction of well A-45-A-S-6.

8. Well A-45-A-S-6 shall be equipped with a totalizing meter of a type approved by and installed in a manner and at a location acceptable to the State Engineer and the District 3 Manager.

   The State Engineer and the District 3 Manager shall be advised of the make, model, serial number, date of installation and initial reading of said meter prior to injection of water. Injection records shall be submitted to the Office of the State Engineer, District 3 Manager, P.O. Box 844, Deming, New Mexico 88031 for each calendar month, on or before the 10th day of the following month.

9. The permittee shall utilize the best technology and management practices currently available to conserve water.

Sincerely,

R. Q. Rogers
Professional Engineer
District 3 Manager

By: Charles Jackson
Charles L. Jackson
Animas Basin Supervisor

CLJ:ed
Encl: Approved Permit
cc: State Engineer
048

MEMORANDUM

State Engineer
Deming, New Mexico
February 6, 2003
Revised February 6, 2003

FILE A-45-A

APPLICATION A-45-A-S-6

TO R. Q. Rogers

FROM Charles L. Jackson CLJ TWF

SUBJECT Application for Permit for Injection Well

APPLICANT AmeriCulture, Inc.

COMMENTS This application is for a permit to construct an injection well to inject 1775.52 acre-feet per annum in the Animas Valley Underground Water Basin from non-consumptive geothermal power production purposes to support aquaculture and agriculture purposes from existing well A-45-A-S. All water diverted under permit A-45-A-Enlarged to be conveyed from well A-45-A-S to proposed injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

CONSIDERATIONS

1. Application was filed in this office October 24, 2002.
2. Notice of Publication was issued November 5, 2002.
3. Publisher's Affidavit was received in this office on January 3, 2003 from the Lordsburg Liberal. The last date of publication was December 6, 2002 and to date no protests have been filed.
4. The published notice had no errors.
5. The granting of this permit will not impair existing rights.
6. The granting of this permit should increase economic activity while recycling a natural resource within the state and will not be detrimental to the public welfare of the State of New Mexico.

RECOMMENDATION

I recommend that this application be approved subject to the following conditions:

This application is approved provided it is not exercised to the impairment of any others having existing rights prior to this application for permit for an injection well; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with;

and is not detrimental to the public welfare or contrary to the conservation of water within the state, subject to the following conditions:

1. Permit #: A-45-A-S-6

   Priority: October 24, 2002

   Source: Animas Valley Underground Water Basin

   Location of Well: SW¼SW¼NE¼, Section 6, Township 25 South, Range 19 West, N.M.P.M.

   Purpose of Use: Injection of water used for non-consumptive geothermal power production to support aquaculture and agriculture

   Place of Use: NW¼NE¼, Section 7, Township 25 South, Range 19 West, N.M.P.M.

   Amount of Water: Amount of water injected shall equal 1775.52 acre-feet per annum, or the actual amount less than 1775.52 acre-feet per annum diverted from well A-45-A-S for non-consumptive geothermal power production to support aquaculture and agriculture purposes.

2. All water diverted under permit A-45-A-Enlarged shall be conveyed from well A-45-A-S to injection well A-45-A-S-6 via a closed system with no water appearing on the surface or being applied to beneficial use.

3. Well A-45-A-S-6 shall be drilled to a depth not to exceed 450 feet and shall be constructed with casing not to exceed 13.375 inch outside diameter.

4. Well A-45-A-S-6 shall be constructed in accordance with provisions of Oil Conservation Division (OCD) form G-112, and OCD Administrative Order No. GIW-15, approved June 17, 2002.

5. Well A-45-A-S-6 shall be constructed to specifications for Artesian Wells as outlined in Article 4, Section 15, Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Ground Water in New Mexico.

6. Well A-45-A-S-4 shall be constructed by a driller licensed in the State of New Mexico in accordance with N.M. Stat. Ann. §72-12-12 (1998 Repl.).

7. The Animas Valley Basin Supervisor shall be notified prior to drilling and construction of well A-45-A-S-6.

8. Well A-45-A-S-6 shall be equipped with a totalizing meter of a type approved by and installed in a manner and at a location acceptable to the State Engineer and the District 3 Manager.

   The State Engineer and the District 3 Manager shall be advised of the make, model, serial number, date of installation and initial reading of said meter prior to injection of water. Injection records shall be submitted to the Office of the State Engineer, District 3 Manager, P.O. Box 844, Deming, New Mexico 88031 for each calendar month, on or before the 10th day of the following month.

9. The permittee shall utilize the best technology and management practices currently available to conserve water.

Proof of Completion of Works shall be filed with the State Engineer on or before January 31, 2004.

CLJ:cj
Encls: Application (3)
Publisher's Affidavit

Feb 11, 2003

PROOF OF PUBLICATION

Richard Cole, being duly sworn, deposes and says that he is the General Manager of the Lordsburg Liberal, a newspaper published weekly in the county of Hidalgo, State of New Mexico; that the notice _____ per clipping attached was published once a week/day in regular and entire issue of said newspaper and not in any supplement thereof for 3 consecutive week(s)/day(s), the first publication was in the issue dated November 21, 2002 and the last publication was December 5, 2002

Deponent further states this newspaper is duly qualified to publish legal notice or advertisements within the meaning of Sec. Chapter 167, Laws of 1937.

Signed

Richard E Cole

General Manager
Official Position

STATE OF NEW MEXICO
ss.
County of Hidalgo

Subscribed and sworn before me this

20 day of December

2002.

Cecilia Palmer

Notary Public in and for
Dona Ana County, New Mexico

9-14-05

My Term Expires

STATE ENGINEER OFFICE

NOTICE is hereby given that on October 24, 2002, AmeriCulture, Inc., HC 65 Box 260C, Animas, New Mexico 88020, filed application A-45-A-S-6 with the STATE ENGINEER for permit for injection well in the Animas Valley Underground Water Basin by drilling proposed well A-45-A-S-6, to be located in the SW1/4SW1/4NE1/4, Section 6, Township 25 South, Range 19 West, N.M.P.M., to be drilled to a depth of 450 feet and constructed with 13.375 inch outside diameter casing. Proposed well A-45-A-S-6 to be used to inject an amount of water not to exceed 1,775.52 acre-feet per annum measured at the well, from non-consumptive power production purposes in conjunction with aquaculture and agriculture purposes in the NW1/4NE1/4, Section 7, Township 25 South, Range 19 West, N.M.P.M., under permit A-45-A-Enlarged at the AmeriCulture operations near Cotton City, in Hidalgo County, New Mexico.

Any person, firm or corporation or other entity having standing to file objections or protests shall do so in writing (legible, signed and include the writer's complete name and mailing address). The objection to the approval of the application: (1) If impairment, you must specifically identify your water rights; and/or (2)If public welfare...or conservation of water within the state of New Mexico, you must show you will be substantially affected. The written protest must be filed, in triplicate, with the State Engineer, District 3, P.O. Box 844, Deming, New Mexico 88031, within (10) days after the date of the last publication of this Notice. Facsimile's (fax's) will be accepted as a valid protest as long as the hard copy is sent within 24-hours of the facsimile. Mailing postmark will be used to validate the 24-hour period. Protests can be faxed to 505-546-2290. If no valid protests or objection is filed, the State Engineer will evaluate the application in accordance with Sections 72-2-16, 72-5-6 and 72-12-3.

2003 JAN -3 PM 12:11

OFFICE OF THE
STATE ENGINEER
DEMING, NM

STATE OF NEW MEXICO
STATE ENGINEER OFFICE
DEMING

THOMAS C. TURNEY
State Engineer

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505)546-2851
(505)546-7452
FAX: (505)546-2290

November 6, 2002

FILE: A-45-A-S-6

AmeriCulture, Inc.
HC 65 Box 260C
Animas, New Mexico 88020

Greetings:

Enclosed is Notice for Publication for Permit for injection well in the Animas Valley Underground Water Basin, to be published at your expense once each week for three (3) consecutive weeks in a newspaper of general circulation in Hidalgo County. Please see that the first publication is made as soon as possible after your receipt of the notice.

The New Mexico Legislature has directed the State Engineer to cause the Notice to be published in a newspaper designated by the State Engineer. The Lordsburg Liberal Mail is designated as an eligible newspaper in Hidalgo County.

The accuracy of the content of this notice is your responsibility and the State Engineer is not obligated for expense incurred by the necessity of readvertisement. If an error is found in the enclosed notice, please notify this office before advertisement.

You shall ensure that the published notice is accurate and contains the information set forth in the enclosed notice. Please review the first publication and advise the newspaper of any necessary correction.

Your rights under this application will be subject to cancellation January 6, 2003, unless Affidavit of Publication is received in this office by that date.

This notice is not a permit and does not necessarily indicate that a permit will be granted.

Sincerely,

R. O. Rogers
Professional Engineer
District 3 Manager

By: Charles L. Jackson
Charles L. Jackson
Animas Basin Supervisor

CLJ:mr
Encl: Notice for Publication
cc: State Engineer

AmeriCulture, Inc.
HC 65 Box 260C
Animas, New Mexico 88020

Deming, New Mexico
November 5, 2002

Greetings:

The following notice shall be published at applicants' expense once a week for three (3) consecutive weeks in a newspaper of general circulation in the stream system, or in case of an underground water appropriation the County wherein the well is to be drilled. First publication should be made as soon as possible after receipt of this notice. Publishers' affidavit of such publication must be filed with the State Engineer within sixty (60) days from the date hereon. If the application is for a new appropriation, failure to file proof of publication within the time allowed shall cause postponement of the priority date of the application to the date of receipt of such proof in proper form. In the case of any other type of application, failure to file proofs within the time allowed will cause the application to be cancelled.

The accuracy of the content of this Notice is the responsibility of the applicant and the State Engineer is not obligated for any additional expense incurred by the necessity of readvertisement.

Neither issuance of this Notice, nor lack of protest thereto, is any way indicates favorable action by the State Engineer or approval of the application as requested.

R. Q. Rogers
Professional Engineer
District 3 Manager

NOTE TO PUBLISHER: Immediately after last publication, publisher requested to file affidavit of such publication with the State Engineer, P. O. Box 844, Deming, New Mexico 88031.

STATE ENGINEER OFFICE

NOTICE is hereby given that on October 24, 2002, AmeriCulture, Inc., HC 65 Box 260C, Animas, New Mexico 88020, filed application A-45-A-S-6 with the **STATE ENGINEER** for permit for injection well in the Animas Valley Underground Water Basin by drilling proposed well A-45-A-S-6, to be located in the SW¼SW¼NE¼, Section 6, Township 25 South, Range 19 West, N.M.P.M., to be drilled to a depth of 450 feet and constructed with 13.375 inch outside diameter casing. Proposed well A-45-A-S-6 to be used to inject an amount of water not to exceed 1,775.52 acre-feet per annum measured at the well, from non-consumptive power production purposes in conjunction with aquaculture and agriculture purposes in the NW¼NE¼, Section 7, Township 25 South, Range 19 West, N.M.P.M., under permit A-45-A-Enlarged at the AmeriCulture operations near Cotton City, in Hidalgo County, New Mexico.

Any person, firm or corporation or other entity having standing to file objections or protests shall do so in writing (legible, signed and include the writer's complete name and mailing address). The objection to the approval of the application: (1)if impairment, you must specifically identify your water rights; and/or (2)if public welfare or conservation of water within the state of New Mexico, you must show you will be substantially effected. The written protest must be filed, in triplicate, with the State Engineer, District 3, P.O. Box 844, Deming, New Mexico 88031, within (10) days after the date of the last publication of this Notice. Facsimile's (fax's) will be accepted as a valid protest as long as the hard copy is sent within 24-hours of the facsimile. Mailing postmark will be used to validate the 24-hour period. Protests can be faxed to 505-546-2290. If no valid protests or objection is filed, the State Engineer will evaluate the application in accordance with Sections 72-2-16, 72-5-6 and 72-12-3.

A-45-A-S-6 TWF
AMERICULTURE, INC
INJECTION WELL
RADIUS = 3,265.96 FT.
GILA CONGLOMERATE

WORKSHEET FOR THE THEIS EQUATION
FOR NON-IRRIGATION APPLICATIONS

TRANSMISSIVITY = 6,684.03 ft^2/day = 50,000.00 gal/day ft.
(If in ft^2/day need to multiply by 7.48052 gal/ft^3.)

STORAGE COEFFICIENT = 0.10

TIME IN DAYS = 14,610 Days
(Years x 365.25 days)

DEPLETION = -1,775.52 acre feet / year
(Consumptive diversion in acre feet / year)

PUMPING RATES FOR EACH POINT OF DIVERSION =

$$g.p.m. = \frac{(\text{diversion}) \times (325851.45 \text{ gal/acre-foot})}{(1440 \text{ min/day}) \times (365.25 \text{ day/year})}$$

$$g.p.m. = \frac{(-1,775.52 \text{ acre-feet/year}) \times (325,851.45 \text{ gal./acre-feet})}{(1440 \text{ min/day}) \times (365.25 \text{ day/year})}$$

g.p.m. = -1,100.00 gal./min.

X and Y coordinates of Points of Diversion, (Injection Well)

A-45-A-S-6

X = -3208.6336 feet
Y = -1329.0596 feet

X and Y coordinates of Computation Points, (nearest well)

A-567

X = -93.4130 feet
Y = -348.6219 feet

TIME and DATE
month: 1 day: 7 year: 2003
hour: 10 minute: 46 second: 46

DRAWDOWN AT RANDOM COORDINATES IN AN INFINITE
STRIP, NON - LEAKY AQUIFER USER SPECIFIED BOUNDARIES
AT Y = 0 AND A Y SPECIFIED BY USER
PUMPING MULTIPLE WELLS LOCATED AT POINTS SPECIFIED
BY USER. EACH WELL MAY HAVE A DIFFERENT
PUMPING SCHEDULE. ALL COORDINATES IN THE X - Y PLANE.

(Theis equation)

At y = 0, there is no boundary
There is no other boundary to system

T = 50000. gpd/ft S = .100000

Number of pumping wells = 1

Coordinates of pumping wells and the no. of pumping rates

Well #	X Coordinate	Y Coordinate	No. of Pumping Rates
1	-3208.6	-1329.1	1

PUMPING SCHEDULES FOR THE WELLS

Well Schedule for Pumping Well Number 1

Pumping Rate Pumping Time

Q(1) = -1100.0 gpm for 14610.000 days

Coordinates of Computation Points

(Number of computation points = 1)

Point #	X Coordinates feet	Y Coordinates feet
1	-93.4	-348.6

Image Control = .1000000E-03

time variable (t)

t min = 365.250 days; t max = 14610.000 days;
delta t = 365.250 days

********** RESULTS **********

Drawdowns and Coordinates of computation points

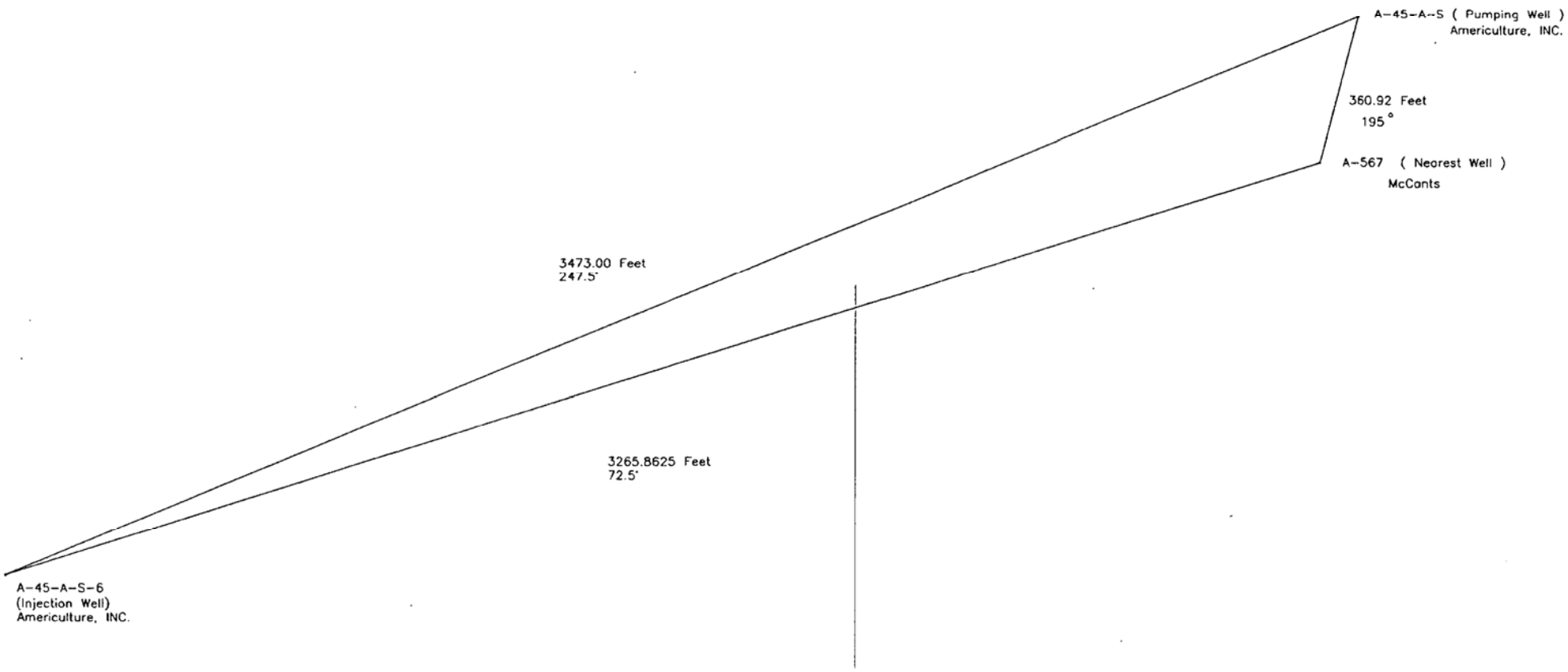
Measured in feet

X = -93.4
Y = -348.6

Time in days

365.250	-4.395
730.500	-6.011
1095.750	-6.988
1461.000	-7.691
1826.250	-8.239
2191.500	-8.690
2556.750	-9.072
2922.000	-9.404
3287.250	-9.697
3652.500	-9.960
4017.750	-10.197
4383.000	-10.415
4748.250	-10.615
5113.500	-10.800
5478.750	-10.973
5844.000	-11.134
6209.250	-11.286
6574.500	-11.429
6939.750	-11.565
7305.000	-11.693
7670.250	-11.816
8035.500	-11.932
8400.750	-12.044
8766.000	-12.151
9131.250	-12.253

9496.500	-12.352
9861.750	-12.446
10227.000	-12.538
10592.250	-12.626
10957.500	-12.711
11322.750	-12.793
11688.000	-12.873
12053.250	-12.950
12418.500	-13.025
12783.750	-13.098
13149.000	-13.169
13514.250	-13.238
13879.500	-13.305
14244.750	-13.370
14610.000	-13.434


A-45-A-S (Pumping Well)
Americulture, INC.
360.92 Feet
195°
A-567 (Nearest Well)
McConts
3473.00 Feet
247.5°
3265.8625 Feet
72.5°
A-45-A-S-6
(Injection Well)
Americulture, INC.

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John Bemis
Cabinet Secretary

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

Jami Bailey
Division Director
Oil Conservation Division

May 31, 2012

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

Re: Lightning Dock Geothermal Project (GTHT-001), Hidalgo County, New Mexico
Geothermal Regulatory Requirements

Dear Mr. Janney:

This letter sets forth the regulatory requirements under the Geothermal Resources Conservation Act for Los Lobos Renewable Power, L.L.C.'s (Los Lobos) contemplated well test as described in a meeting in Santa Fe on May 8, and in a telephone conversation on May 25. This letter will serve as a response to Ms. Henrie's (Los Lobos Attorney) e-mail to OCD Attorney, Mr. David Brooks, on May 29.

We understand that the proposed well test will involve production from one or more of your existing production wells into an injection well for a period of thirty days. The produced water will be either directly injected or temporarily stored or contained before injection into the injection well so that no discharge occurs to land or "waters of the state", and no other chemicals or fluids will be added or commingled.

We understand that Los Lobos will be drilling a new well (Well 63-7) (hereinafter called "the proposed injection well") that will be used for injection of water pumped from the geothermal reservoir production well(s) during your contemplated well test. Please note that Los Lobos will need to communicate and/or coordinate with the appropriate agencies based on the well test to ensure that it is satisfying any regulatory requirements or objectives concurrently with its own well testing objectives. This will help avoid miscommunications based on the well testing in the future. The proposed injection well will also be one of the wells you may use to re-inject water into the geothermal reservoir for commercial production of geothermal power.

Permitting the Proposed Injection Well

You have filed a Form G-101 (Application for Permit to Drill) for the proposed injection well with our Artesia District Office. Upon receipt of the approved G-101 and OCD bond approval, you may commence drilling the well.

You have filed a Form G-112 (Application to Place Well on Injection) for the proposed injection well with the Environmental Bureau in our Santa Fe Office. That form is currently being reviewed and there is a 20-day waiting period before the G-112 may be approved. Subject to the OCD's receipt of proof of mailing of the notices required by 19.14.93.8.B NMAC, which you indicated on May 25 that you were sending to the OCD, the 20-day period begins to run from the later of the date (May 24) on which

the OCD received your Form G-112, or the date on which the required notices were mailed to offsetting lease holders.

Prior to commencement of injection into the proposed injection well, including injection of water extracted during the well test, you must also file Form G-104, with required attachments to the extent the information may be provided, in accordance with 19.14.55.8, and we must approve this form. Nothing in Rule 19.14.55.8 states or indicates that G-104 approval is required only for commencement of injection associated with commercial production, as opposed to injection for testing. However, once the G-104 authorizing injection is approved for the proposed injection well that well will be a permitted injection well and no further G-104 filing will be required unless ownership or operation of the well changes, or the G-112 is modified to change the terms of the injection authority. Please note that there will only be one G-104 submittal for each injection well, while two G-104 submittals are required for each production well used in the well test.

No notice to other parties is required in connection with the G-104 process.

Permitting Production Wells for Proposed Well Test

As stated above, Rule 19.14.55.8 does not distinguish between the requirements for placing a well on production or injection for testing versus commercial production. We therefore conclude that you must file and obtain our approval of Form G-104, with required attachments, for each production well which you will produce for well test purposes prior to commencing the test.

For production wells, however, the Form G-104 for the well test will not include all the data required for approval of the well for commercial production, and accordingly will be only a "Preliminary G-104". The Preliminary G-104 for the well test should specify the length of time, estimated production volume, and flow rate that the particular production well will be produced for purposes of the well test. A "Final G-104" with the required attachments and complete well information must be filed and possibly approved by the OCD for each production well prior to placing each production well on commercial production.

Please contact me if you have questions, comments or other concerns regarding these requirements, or if we can be of further assistance.

Sincerely,

Carl J. Chavez
Environmental Engineer

XC: OCD Online "General Correspondence" Thumbnail
OCD Artesia District Office
Los Lobos, Michelle Henrie
Mr. Michael Smith, Las Cruces BLM Office
Ms. Haddy Phillips, Deming District Office of State Engineer Office

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, May 23, 2012 7:17 AM
To: 'Janney, David'
Cc: Brancard, Bill, EMNRD; Brooks, David K., EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD; Shapard, Craig, EMNRD
Subject: RE: Lightning Dock Geothermal Project Well 63-7 Application

David:

Good morning.

The OCD Artesia DO is now in receipt of BLM GDP approval with conditions on the above subject well and the OCD G-101 and G-102 Forms (geothermal production well).

From our May 8th meeting (meeting) in Santa Fe, the OCD has not received the requested response from Los Lobos where detailed "Draft Options" were discussed on the relocation of injection wells. It is unclear whether the operator is planning to provide the OCD requested response from the meeting?

However, Los Lobos appears to be moving forward with "Draft Option 2" under the OCD Geothermal Regulations (regulations) and it appears that the OCD Artesia DO may begin their review and approval with any conditions and/or rejection of the above subject G-101/G-102 Forms at this time. Los Lobos understands that the OCD is currently working on the path forward under the regulations above with any details on the administrative process, possible public notice requirements, etc. to assist Los Lobos and the OCD based on the meeting: "Draft Option 2" path forward.

Please contact me if you have questions. 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

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From: Janney, David [mailto:david.janney@amec.com]
Sent: Tuesday, May 22, 2012 10:02 AM
To: Chavez, Carl J, EMNRD
Cc: Dade, Randy, EMNRD
Subject: RE: Lightning Dock Geothermal Project Well 63-7 Application

Good morning Mr. Chavez:

I just wanted to confirm that you are in receipt of the application package for the LDG 63-7 well and to ask if you have any questions about it.

Regards,

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

Chavez, Carl J, EMNRD

From:	Chavez, Carl J, EMNRD
Sent:	Thursday, May 17, 2012 7:10 AM
To:	Janney, David (david.janney@amec.com)
Cc:	Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Brooks, David K., EMNRD
Subject:	Lightning Dock Geothermal Project (GTHT-1) Well 63-7

Mr. Janney:

I spoke to Mr. Brooks regarding our discussion this morning about the Well 63-7 G-101/102 Process and Bond Approach subsequent to our last meeting (meeting) of May 8, 2012 in Santa Fe.

The OCD is awaiting Los Lobos Renewable Power, LLC's (Los Lobos) submittal from that meeting; however, this does not prevent Los Lobos from moving forward based on the OCD draft options presented at the meeting and Los Lobo's plans to drill Well 63-7. As you indicated, the BLM is close to final approval with any final conditions on the GDP and will likely communicate with the OCD on any GDP approval(s).

The OCD recommends the following if Los Lobos chooses to proceed with the OCD draft option 2 from the meeting:

1) Los Lobos submitted a G-101 and G-102 Form on April 12, 2012 to the OCD for Well 63-7 with the "Injection/Disposal" Well Type demarcated. The OCD requests that Los Lobos resubmit a G-101 Form for Well 63-7 with the "Geothermal Producer" demarcated to the OCD Artesia and Santa Fe Offices. While Los Lobos submitted G-Forms for other injection wells, it informed the OCD that it was solely interested in drilling Well 63-7 at this time.

2) Once the OCD communicates with the BLM on their GDP approval and/or approval with conditions, the OCD will issue its approval for the geothermal production well with any conditions that it may have, if any.

3) Los Lobos will then need to submit a Geothermal Single or Multi-Well Bond (see Geothermal NMAC "Bonding") for Well 63-7. Los Lobos is cautioned that if it is planning to change the well type to injection afterward, the well must be properly constructed for the intended purpose and satisfy geothermal well spacing regulations. If the intended purpose is injection, Los Lobos will need to satisfy the geothermal regulations for authorization to inject and possibly the WQCC regulations for Class V Geothermal Well with public notice, WQCC Injection Well Bond, etc.

4) While OCD will be communicating with the BLM on the above subject well, Los Lobos will also need to communicate with the OSE on this well.

The OCD believes that this is the desired OCD process going forward after the meeting and the perceived preference of Los Lobo's to proceed under OCD draft option 2 path forward. Please contact me if you have questions. 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

New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John H. Bemis
Cabinet Secretary

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

Jami Bailey
Division Director
Oil Conservation Division

MAY 8, 2012

Mr. Damon Seawright
President
AmeriCulture, Inc.
25 Tilapia Trail
Animas, New Mexico 88020-9341

Re: Lightning Dock Geothermal Project (GTHT-001) AmeriCulture State Well No. 1 Water Quality Complaint NE ¼ of the NE ¼ of Section 7, Township 25 South, Range 19 West, NMPM, Hidalgo County, New Mexico

Dear Mr. Seawright:

The New Mexico Oil Conservation Division (OCD) is responding to your water quality complaint of February 21, 2012.

After receiving the reports of pink dye appearing in the waters at AmeriCulture's fish farm, the Oil Conservation Division demanded a full report of this incident from Los Lobos Renewable Power, LLC (Los Lobos). Los Lobos furnished the OCD with a report including chemical information of the dye substance used.

Based on the information received, the OCD finds no indication that the dye substance contains constituents that have been identified as water contaminants by the New Mexico Water Quality Control Commission, or are otherwise harmful to human health or safety. Our hydrologists believe the dye will dissipate in a short period of time. If this proves not to be the case, please let me know.

In the meantime, we have specifically informed Los Lobos that they must not inject any substance into the aquifer except geothermal waters covered by their existing permit without first filing a notice of intent (NOI) and/or G-103 with the Oil Conservation Division and obtaining OCD approval.

If you have any questions, please contact me at the phone number provided below.

Sincerely,

David K. Brooks

David K. Brooks
Assistant General Counsel
Energy, Minerals & Natural Resources Department

505-476-3450

DB/cjc

XC: OCD District II Office, Artesia
OCD Online "General Correspondence" File

Chavez, Carl J, EMNRD

From: Janney, David [david.janney@amec.com]
Sent: Tuesday, April 17, 2012 10:15 AM
To: Dade, Randy, EMNRD; Chavez, Carl J, EMNRD; Shapard, Craig, EMNRD
Cc: Michael Hayter; Nick Goodman; Michelle Henrie; Louis Capuano III; Steve Harman
Subject: FW: New well location construction

Greetings:

Thank you for taking my call this morning and clarifying that as long as the surface agreement with the land owner is in place we can begin location construction before OCD approves the G-101. We are fully aware that if we construct the location and the G-101 is not approved, we will be responsible for reclamation.

Regarding the G-101s that you received last week. We would like to ask that you please give priority to the LDG 63-7 well. We have submitted the GDP for this well to BLM and anticipate approval as soon as next Tuesday. We have also submitted the application for this well to the OSE but they will not approve it until the OCD has approved its G-101.

Please feel free to contact me with any questions you may have regarding this project.

Sincerely,

David W. Janney, PG
Geologist
AMEC Environment and Infrastructure
8519 Jefferson, NE
Albuquerque, NM 87113
505.821.1801 off
505.821.7371 fax
505.449.8457 cell

Chavez, Carl J, EMNRD

From: Janney, David [david.janney@amec.com]
Sent: Friday, April 13, 2012 9:53 AM
To: Dade, Randy, EMNRD
Cc: Chavez, Carl J, EMNRD
Subject: New well location construction

Good morning Mr. Dade:

I would like to confirm with you a conversation with the main office regarding drill pad construction. We believe that since the drilling locations are located on private surface owned by Los Lobos or Rosette Inc., that we can begin drilling location construction before OCD approves the GDP. We realize that if we construct a pad on Rosette surface according to our access agreement or easement, that we are responsible for reclamation regardless of whether the GDP has been approved by OCD.

I am happy to speak with you about this and will be in the office all day.

Regards,

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

Chavez, Carl J, EMNRD

From: Janney, David [david.janney@amec.com]
Sent: Tuesday, April 03, 2012 11:07 AM
To: Chavez, Carl J, EMNRD
Subject: Kettleman well numbering system
Attachments: BLM_Form_3260-2.pdf

Greetings Carl:

In our conversation last week you indicated you would like to see some information regarding the Kettleman well numbering system. Please find attached the BLM GPD that includes the Kettleman well numbering system.

Regards,

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

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, March 23, 2012 10:51 AM
To: Chavez, Carl J, EMNRD
Cc: Sanchez, Daniel J., EMNRD; Brooks, David K., EMNRD; Dade, Randy, EMNRD
Subject: Well 55-7 Aquifer Pump Test Telephone Call Note to File

Michelle Henrie (Cyrq Attorney) called around 9:40 a.m. today to inquire about the above reworked project well (this was an existing well that was reworked and incorporated into the geothermal project) and whether another pump test water from the well would require containment? She wanted to know in order to direct Cyrq on the allowable duration of any test performed on the well where produced water was evacuated. The OCD answer was yes, and based on this she thought a 2-day pump test could occur, but is still not definite. The OCD indicated that this was why the centralized pond was constructed to contain produced water from wells. In addition, the OCD indicated that it is very concerned about the lack of water quality information from depth and procurement of deep samples with pumps set as deep in the wells to obtain representative samples of water quality at depth and to ensure the protection of the fresh water aquifer system(s) in the area.

She mentioned that the wells prior use was for irrigation, but seemed to understand that the OCD regards the fluids removed from the well to be produced water. Also, Ms. Henrie was informed about the G-103 thumbnail, which contains water quality information from the well that prevented the OCD from allowing produced water from another completed project well from being discharge into the farm field. OCD indicated that while at a 10/28/2011 meeting in Santa Fe Cyrq had indicated that it would treat produced water, the statement seemed to be retracted quickly thereafter and again the sticking point with an allowable discharge to land surface became treatment of produced water. If Cyrq treats water, demonstrates that it meets WQCC Stds., it can discharge onto the farm field and recharge the aquifer; however, on a side note: Cyrq would still not be allowed to discharge into "waters of the state" without obtaining an NPDES Permit.

********** END **********

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/
"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, 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: Tuesday, March 20, 2012 1:32 PM
To: 'Janney, David'; Dade, Randy, EMNRD
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: New Well Applications for the LDG 68-6 and 88-6

David:

The OCD is in receipt of the G-101s and 102s or the wells in question.

Some preliminary issues that the OCD is grappling with based on the submittal are as follows:

1) There is no definition for "Wildcat" well in the geothermal regulations under 19.14.1 NMAC. This is also important because the operator has mentioned it may have other intentions for wells after they are drilled; however, the OCD Geothermal Regulations are very clear on spacing locations based on the well designation. For example, an geothermal temperature gradient well may not be suitable later to become a production and/or injection well.
2) The OCD requires an updated site map to scale with sections of all wells in the project area and within the project scope including any new wells to assess well spacing issues based on the well designation.
3) The OCD is considering the administrative and technical issues associated with Well 53-7, which was completed beyond 4,000 ft. and water quality issues associated with OCD allowing the approval of deeper depths in the project area beyond what the OCD has approved for the project. In addition, the OCD notices these wells are deeper, but no water quality data and hydrogeologic gradient data has been obtained to date (to assess the upward hydrogeologic gradient and convection potential from deeper formations containing brine to upwell into the protectable fresh water supply) has been obtained to date to assess the water quality conditions at depth to ensure that deeper wells do not breach a brine rich zone and contaminate the fresh water supply in the project area and beyond.

Finally, the OCD District Office will determine any approvals and/or approvals with conditions or disapprovals on the G-101s, 102s, and 103s. The OCD will contact you when its work schedule allows for the complete review of the forms with an official response.

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

From: Janney, David [mailto:david.janney@amec.com]
Sent: Tuesday, March 20, 2012 8:50 AM
To: Chavez, Carl J, EMNRD; Dade, Randy, EMNRD
Subject: New Well Applications for the LDG 68-6 and 88-6

Good morning gentlemen:

Can you please provide me with an update on the processing of these new well applications?

Regards,

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

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, March 16, 2012 7:12 AM
To: 'Michelle Henrie'
Cc: Sanchez, Daniel J., EMNRD; Dade, Randy, EMNRD
Subject: RE: Lightning Dock Geothermal - well 45-7 cleanout and completion

Michelle:

The OCD District Office (DO) issues a signature approval and/or approval with conditions on OCD G-Forms when well work is approved.

If the OCD Artesia DO approves the well 45-7 work outlined in the G-103 Sundry Notice, the Artesia District Office will sign-off with approval and/or approval with conditions. The OCD has signed-off on forms and scanned them into pdf format and has sent the form with approval signatures via e-mail to the operator requesting the approval to speed up the process.

Only when an operator receives a signed G-form from the OCD (e-mail, mail, fax) approving the work outlined in a G-form and/or an approval with conditions from the OCD, can an operator proceed with work on the well, etc.

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

From: Michelle Henrie [mailto:michelle@mhenrie.com]
Sent: Thursday, March 15, 2012 4:52 PM
To: Chavez, Carl J, EMNRD
Cc: Dade, Randy, EMNRD
Subject: Lightning Dock Geothermal - well 45-7 cleanout and completion

Hi Carl,
I wanted to keep you in the loop. I will be providing the attached Sundry package with the corrected page 7 to the State Engineer's Office when I send them an application for the cleanout and completion work on Well 45-7. The OSE wanted to know that OCD has approved the work. I just talked with Randy, and my understanding is that the work, with the change made to page 7, has been approved by OCD.
Thanks,
Michelle

From: Dade, Randy, EMNRD [mailto:Randy.Dade@state.nm.us]
Sent: Thursday, March 15, 2012 4:24 PM
To: michelle@mhenrie.com
Subject: FW: Correction to 4th Federal Sundry: 45-7

This change was approved and accepted by L. R. Dade , District II Supervisor on 03/15/2012

From: Smith, Michael A [mailto:michaelsmith@blm.gov]
Sent: Wednesday, March 14, 2012 4:10 PM
To: Dade, Randy, EMNRD
Subject: Correction to 4th Federal Sundry: 45-7

Randy:

I spoke with Louis Capuano III at about 1530 today. He confirmed that the depths on page 7 of the Sundry Notice I sent yesterday are a misprint. He also confirmed that well 45-7 was not deepened below 2900'. I informed him if they decide to deepen the well in the future, Cyrq will need to submit a new sundry notice for BLM review and approval.

I'm including a scan of the hand-corrected page 7. If you need anything else, feel free to ask.

Regards,

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

Chavez, Carl J, EMNRD

From: Tim McCants [dunjabp@yahoo.com]
Sent: Sunday, March 11, 2012 11:36 AM
To: Phillips, Haddy L., OSE; Chavez, Carl J, EMNRD; bchildress@blm.gov; saunders.jerry@epa.gov
Cc: Tom McCants; mccantsplumbing@yahoo.com
Subject: Tracking Dye "Well Contamination"

Greetings,

Haddy, Carl, and Bill, I have added Region 6 EPA contact, Mr. Saunders to this initial email who I feel should also be working in combination with all parties involved at both the Federal and State level regarding this complete violation of water standards in Southern New Mexico.

I want to start out with a brief synopsis on the McCants holdings and reason for our utmost concern involving the latest event(s) involving Cryq Energy.

The McCants Ranch is located between Damon Seawright's (Talapia Farm) and Dale Burgett's (Rosette Inc.) properties. It consist of 1,129 acres deeded surface of which 240 acres are mineral righted, with 342 acre feet of sub-surface water rights and 2,005 acre feet of flood water rights, combined total of 2,347 acre feet. We also hold State and BLM agriculture leases totaling 1,845 acres which both deeded and lease properties run between 80 to 100 head of cattle in any given year. The property has four domestic wells and two exploratory wells on it. Domestic wells are used daily for human and agriculture consumption.

Additional info, our ranch is situated directly within the center of the known geothermal resource area (KGRA) called Lightning Dock, our ranch holds significant importance as this resource (geothermal) is not only accessible by way of the 240 acres mineral righted land, but is also under lease agreement with prior lease holder and now Cryq Energy that we (McCants) have the right to access our additional 889 acres of surface for the geothermal resource up to 1,000 feet for whatever "direct use" we deem applicable.

With this added value, we have been working diligently to garner investor/developer interest to capitalize on this resource as an added value for the renewable energy sector and local economy on a commercial scale.

I hope I have conveyed a better grasp on the profound importance and concern we have regarding any operations involving the use of land, water, and minerals that may have a direct or indirect impact on the McCants holdings.

What we know now is that Cryq Energy, without permit, diluted one of Burgett's geothermal wells located on his state lease with a tracking dye. This dye has traveled to Seawright's well directly impacting the aquaculture (fish) which are now in quarantine with possible irreversible impact!

Or main question at this point is what steps are the State, OCD, EPA taking at this time in regards to sampling additional wells on surrounding properties for this same contamination? As the closest land owner, we have two domestic wells located less than 1,000 feet from the affected Seawright's well.

I understand that Cryq Energy has been performing these test, however it is in our best interest that the test be conducted by an independent.

Also, please advise on additional steps being taken at the State and Federal level to ensure that this incident is resolved to a reasonable liking by all parties, and that Cryq Energy will understand future maleficence and disregard to rules set therein by OSE, OCD, BLM and EPA will be dealt with quickly and accordingly.

It is our hopes that the governing interest(s) in this matter will work swiftly to protect others, thus avoiding additional legal issues.

Sincerely,

Timothy McCants

cc Thomas McCants
William McCants

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, March 07, 2012 12:07 PM
To: 'Janney, David'
Cc: Dade, Randy, EMNRD; Shapard, Craig, EMNRD; Sanchez, Daniel J., EMNRD
Subject: RE: Sundry Notice for the 45-7 cleanout and completion

David:

In accordance with communication with the UIC Director Daniel Sanchez and the OCD Director Jami Bailey on the issues below, you may contact the OCD District Offices directly for all G-101, 102 and 103 submittals as the District Office will have the approval authorization on these geothermal forms and will interface with OCD Santa Fe as needed to ensure compliance with the OCD Geothermal Regulations.

First, the operator must submit a copy of any forms submitted to the OCD District Office to me here at the OCD in Santa Fe. Please do not send duplicates to the District Office because they will need to mail copies to OCD Santa Fe, and this will delay the administrative process. The OCD would appreciate this.

Second, all original bonds and/or original bond duplicates must be sent directly to me here at OCD Santa Fe for processing. A copy to the District Office would also speed up the administrative process because the District Office will need to make sure bonding is in place for any well drilled, reworked, well brought into the scope of the project, etc.

It is important to note that the approval authorization applies to G-101s, 102s and 103s for the time being. This may be modified to include more forms at a later date based on the efficiency, need, staffing, etc., etc. The OCD will keep you informed of any administrative changes. The OCD thinks the changes above serve to empower the OCD district offices on APD approvals, etc. and provide more efficiency in the geothermal administrative process.

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

From: Janney, David [mailto:david.janney@amec.com]
Sent: Wednesday, March 07, 2012 9:43 AM
To: Dade, Randy, EMNRD
Cc: Chavez, Carl J, EMNRD
Subject: Sundry Notice for the 45-7 cleanout and completion

Good morning Randy:

When we spoke yesterday you had not located the G-103 for the above referenced work on the 45-7 well. Were you able to locate the document and its attachment?

I would like to have an opportunity to discuss this and the new well applications with you or Carl later today or in the morning?

Is this something I should schedule with you or Carl?

Regards,

David W. Janney, PG
Geologist
AMEC Environment and Infrastructure
8519 Jefferson, NE
Albuquerque, NM 87113
505.821.1801 off
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505.449.8457 cell

New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

John H. Bemis
Cabinet Secretary

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

Jami Bailey
Division Director
Oil Conservation Division

MARCH 7, 2012

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

Re: Los Lobos Renewable Power, L.C.
Discharge Permit GTHT-001
Chemical Tracer Release
Hidalgo County, New Mexico

Dear Mr. Janney:

This letter concerns your injection of a chemical dye into the geothermal aquifer at the Los Lobos site on January 23, 2012 in order to conduct a tracer test for aquifer delineation.

As we have advised you by telephone, we have received a complaint concerning this incident from Mr. Damon Seawright of Americulture, Inc., wherein he had described the appearance of the dye in water from his geothermal well(s) on the morning of February 16, 2012. This is a concern we must address because, pursuant to NMSA 71-5-8.F, NMSA 71-5-8.L and 40 USC 1601, the Oil Conservation Division has a regulatory responsibility to oversee injection operations into geothermal reservoirs in order to protect the quality of fresh ground water.

Your discharge permit requires that you notify the OCD within 24 hours of any unauthorized discharge or release and file a written report within 15 days.

We previously advised you on January 19, 2012 that a permit from this agency was not necessary for your proposed tracer test study, but that you should obtain authorization for this proposed operation from the Office of the State Engineer. We said this because the Oil Conservation Division neither requires nor licenses aquifer delineation. Having so advised you, we are not now asserting that your proceeding with this testing operation constituted an "unauthorized" discharge or release.

Nevertheless, in view of Americulture's complaint and the fact that the complaint is within our jurisdiction to investigate pursuant to the statutes and rules cited above, we hereby request that you submit a written report concerning this incident to OCD within 15 days from the date of this letter. Your report should be submitted on our Form C-141 (available on the OCD's website under "Forms") and you should include, on the form or in an attached supplement, responses to the following: (1) the source and quantities of water injected; (2) the well or wells into which injection was accomplished; (3) the injection pressures employed; (4) the chemical constituents and quantities of dye and any other additives, and (5)

any investigative or corrective action you have taken. Please also describe your contacts with the Office of the State Engineer concerning this operation both before and after the referenced injection.

Your report should be submitted to the Environmental Bureau in the Division's Santa Fe office.

We thank you in advance for your cooperation.

Sincerely,

Jami Bailey
OCD Director

JB/cjc

xc: OCD District II Office, Artesia
OCD Online "General Correspondence"

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, February 02, 2012 4:16 PM
To: Sanchez, Daniel J., EMNRD; Dade, Randy, EMNRD
Cc: VonGonten, Glenn, EMNRD; Brooks, David K., EMNRD
Subject: FW: Well 47-07

FYI.

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

From: Chavez, Carl J, EMNRD
Sent: Thursday, February 02, 2012 4:15 PM
To: Chavez, Carl J, EMNRD; 'Mike_Smith@blm.gov'
Cc: VonGonten, Glenn, EMNRD
Subject: RE: Well 47-07

Mike:

FYI, OCD Management has informed me that they will defer to BLM's action(s) with the operator on Well 47-07.

OCD will be discussing its G-101 approval forms and adherence to OCD approved G-101s in communication with the operator; however, wells on Federal land must meet the applicable agency's regulatory requirements. 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
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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Chavez, Carl J, EMNRD
Sent: Thursday, February 02, 2012 11:46 AM
To: Mike_Smith@blm.gov
Subject: Well 47-07

Mike:

Good morning. Upon receipt of the BLM letter to the operator last week, I raised the issue and concerns with OCD Management.

The OCD is considering the BLM correspondence along with your recent voice mail message to determine how it will proceed.

Thank you for the communication.

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)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, January 20, 2012 4:40 PM
To: 'Michael Hayter'
Cc: david.janney@amec.com; michelle@mhenrie.com; Ben Barker; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Brooks, David K., EMNRD; Dade, Randy, EMNRD; Bailey, Jami, EMNRD
Subject: RE: Response to OCD letter Oct 12 2011

Mike, et al.:

OCD comments and/or clarifications based on your response letter to the OCD's October 12, 2011 letter are provided below.

On Item 4: All OCD documents (i.e., G-Forms, Bonds....) received from Cyrq Energy, Inc. shall reflect the "Los Lobos Renewable Power, LLC" operator designation in order to be processed by the OCD, unless there is a change that requires administrative changes to OCD's Administrative Record.

On Item 5: OCD may approve a discharge to land if treatment is proposed and the proposed treatment can be demonstrated to meet the WQCC regulations for approval. Any discharge to "Waters of the State" will require an National Pollutant Discharge Elimination System (NPDES) Permit from the Environmental Protection Agency Region 6 Office in Dallas, Texas.

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

From: Michael Hayter [mailto:Michael.Hayter@cyrqenergy.com]
Sent: Friday, January 20, 2012 3:50 PM
To: Chavez, Carl J, EMNRD
Cc: david.janney@amec.com; michelle@mhenrie.com; Ben Barker
Subject: Response to OCD letter Oct 12 2011

Carl,

Thank you for setting up the call yesterday. I have attached our response to your letter, dated October 12, 2011.

Regards,
Mike Hayter

Cyrq energy

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

January 20, 2012

RE: NMOCD Letter to Cyrq Energy: Lightning Dock Geothermal Project Information Request (GTHT-001): Raser Technologies, Township 22 South, Range 19 West, NMPM, Hidalgo County, New Mexico

Dear Mr. Chavez,

Thank you for arranging the telephone conference today with you, Director Bailey, and Mr. David Brooks to discuss our responses to the requests in your letter dated October 12, 2011. As a follow up to the verbal responses which we provided on the telephone conference, I am providing this letter as a record and formal responses to the five requests/requirements you listed in the letter.

1. "Verification that Cyrq Energy, LLC is registered with Public Regulatory Commission (PRC) as a registered company."

   Response: We have registered Cyrq Energy, Inc. with the PRC and provided proof of registration via email sent on January 13, 2012 from Mr. David Janney of Amec, our Registered Agent. This may be a moot point since Los Lobos Renewable Power, LLC, the Operator and bonded entity, is also registered with the NM PRC.

2. "Must obtain a new OGRID from OCD and change its operating status on OCD's system, unless the new name represents a name change and not a new entity."

   Response: Los Lobos Renewable Power, LLC will continue as the current Operator and bonded entity, leaving the current OGRID in place.

3. "Provide status of field drilling activity, since it apparently became a new company."

   Response: We are providing daily reports during drilling activity to OCD. In our telephone conference on January 19, 2012 you stated that we had satisfied this request/requirement.

4. "Submit new applications, i.e., G-101s, 102s, etc. reflecting the "Cyrq Energy, Inc." revision to forms."

   Response: Los Lobos Renewable Power, LLC, the current Operator and bonded entity, leaving the current OGRID valid and in order.

5. OCD will not approve the discharge of produced water onto the farm field and/or "Waters of the State."

136 South Main Street
(p) 801.875.4200
Suite 600
info@cyrqenergy.com
Salt Lake City, UT 84101
(f) 801.374.3314

Cyrq energy

Response: Los Lobos Renewable Power, LLC is storing produced water in a lined pond as approved in our approved OCD permit(s). We expect to provide the "as-built" of the pond to you within the next week.

Thank you for your assistance in these matters. Please let me know if you have any additional questions.

Kind regards,

Michael Hayter
Director – Project Development
Cyrq Energy / Los Lobos Renewable Power / Lightning Dock Geohtermal

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, January 19, 2012 3:52 PM
To: 'Janney, David'
Cc: Dade, Randy, EMNRD
Subject: RE: LDG 22-18 Well application for Lighting Dock Geothermal HI-01, LLC

David:

Re: Well LDG 22-18

OCD will be sending the associated well bond back to RLI Insurance Company tomorrow morning with instruction to rename the bond under "Los Lobos Renewable Power, LLC., Principal" (Los Lobos) and I am double-checking the location information. Also, Los Lobos will need to resubmit the G-Forms for the subject well under the Los Lobos designation.

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

From: Janney, David [mailto:david.janney@amec.com]
Sent: Thursday, January 12, 2012 7:11 PM
To: Chavez, Carl J, EMNRD
Subject: RE: LDG 22-18 Well application for Lighting Dock Geothermal HI-01, LLC

Greetings Carl:

Please find attached Forms G-101 and G-102 for the above referenced planned geothermal temperature gradient well. The GT B-1 for this well will follow as soon as possible. Please feel free to contact me at 505.821.1801 if you have any questions.

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

Chavez, Carl J, EMNRD

From: Janney, David [david.janney@amec.com]
Sent: Thursday, January 12, 2012 7:11 PM
To: Chavez, Carl J, EMNRD
Subject: RE: LDG 22-18 Well application for Lighting Dock Geothermal HI-01, LLC
Attachments: LDG 22-18 G101,G102 OCD Forms.PDF

Greetings Carl:

Please find attached Forms G-101 and G-102 for the above referenced planned geothermal temperature gradient well. The GT B-1 for this well will follow as soon as possible. Please feel free to contact me at 505.821.1801 if you have any questions.

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

amec

January 12, 2012

Mr. Carl J. Chavez, CHMM
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505
505-476-3490
CarlJ.Chavez@state.nm.us

RE: Application for Permit to Drill Exploratory Geothermal Resources Well LDG 22-18 for Lightning Dock Geothermal HI-01, LLC, Hidalgo County, New Mexico

Dear: Mr. Chavez:

On behalf of Lightning Dock Geothermal HI-01, LLC (Lightning Dock), AMEC Environment & Infrastructure is pleased to submit the attached application package to drill an exploratory geothermal temperature gradient well on its project located in Hidalgo County, New Mexico. This application package includes the Oil Conservation Division's Forms G-101 and G-102 and attached to Form G-101 is a schematic for the planned LDG 22-18 well.

As we discussed yesterday, Form G-102 does not contain the stamp of a State of New Mexico licensed surveyor. The proposed location of the well is 1172 feet FNL and 1228 feet FWL or Latitude: 32 deg, 08 min, 4.4 sec; Longitude: 108 deg, 50 min, 27.7 sec, (WGS84). Since there is the potential for a minor change in the well location based on field conditions, Lightning Dock has provided the planned coordinates for the LDG 22-18 well. After the well has been installed and surveyed, Lightning Dock will submit a revised Form G-102 stamped by a New Mexico licensed surveyor. We will submit the bonding Form GT B-1 for the LDG 22-18 as soon as possible. Should you have questions regarding this application package, please do not hesitate to contact me by email at David.Janney@amec.com or by phone at (505) 821-1801.

Respectfully submitted,

David W. Janney, PG
Geologist, Agent for Lightning Dock Geothermal HI-01, LLC

Cc: Michael Hayter – Lightning Dock Geothermal
Michelle Henrie – Attorney for Lightning Dock Geothermal

AMEC Environment & Infrastructure, Inc.
8519 Jefferson, NE
Albuquerque, New Mexico 87113
(505) 821-1801
FAX: (505) 821-7371
www.amec.com

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-101
Adopted 10-1-74
Revised 10-1-78

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APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE ☐ FEE ☑
5.a State Lease No.: Fed.

1a. Type of Work: Drill ☑ Deepen ☐ Plug Back ☐

b. Type of Well: Geothermal Producer ☐ Low-Temp Thermal ☐ Temp Observation ☑ Injection/Disposal ☐

7. Unit Agreement Name: NA

8. Farm or Lease Name: Federal NM-34790

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

9. Well No.: LDG 22-18

3. Address of Operator: Kearns Building, Suite 600, 136 South Main, Salt Lake City, Utah 84101

10. Field and Pool, or Wildcat: Wildcat

4. Location of Well: UNIT LETTER D LOCATED 1172 FEET FROM THE North LINE AND 1228 FEET FROM THE West LINE OF SEC. 18 TWP. 25 S RGE. 19 W NMPM

12. County: Hidalgo

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
2,500 ft.	Limestone	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
4196 GL	Federal, in place	NM Licensed Driller - TBD	January 16, 2012

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
12.25"	9.625"	40#	40'	16	ground surface
8.5"	7"	23#	surface to 1200'-2000'	260	ground surface
6"	4"	10.5#	1200'-2000' to 2500'	None	1200'-2000'

Please see attached well schematic
4" Liner (perf.) will only be installed in the 6" hole if necessary to stabilize the hole as indicated on the attached well schematic.

TBD = To Be Determined

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed David W. Jenney, PG Title Agent for Lightning Dock Geothermal HI-01, LLC Date January 11, 2012

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Adopted 10-1-74
Revised 10-1-78

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Lightning Dock Geothermal HI-01, LLC	Federal NM-34790	LDG22-18

Unit Letter	Section	Township	Range	County
D	18	25S	19W	Hidalgo

Actual Footage Location of Well:
1172 feet from the North line and 1228 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4196	Limestone	Wildcat	10 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

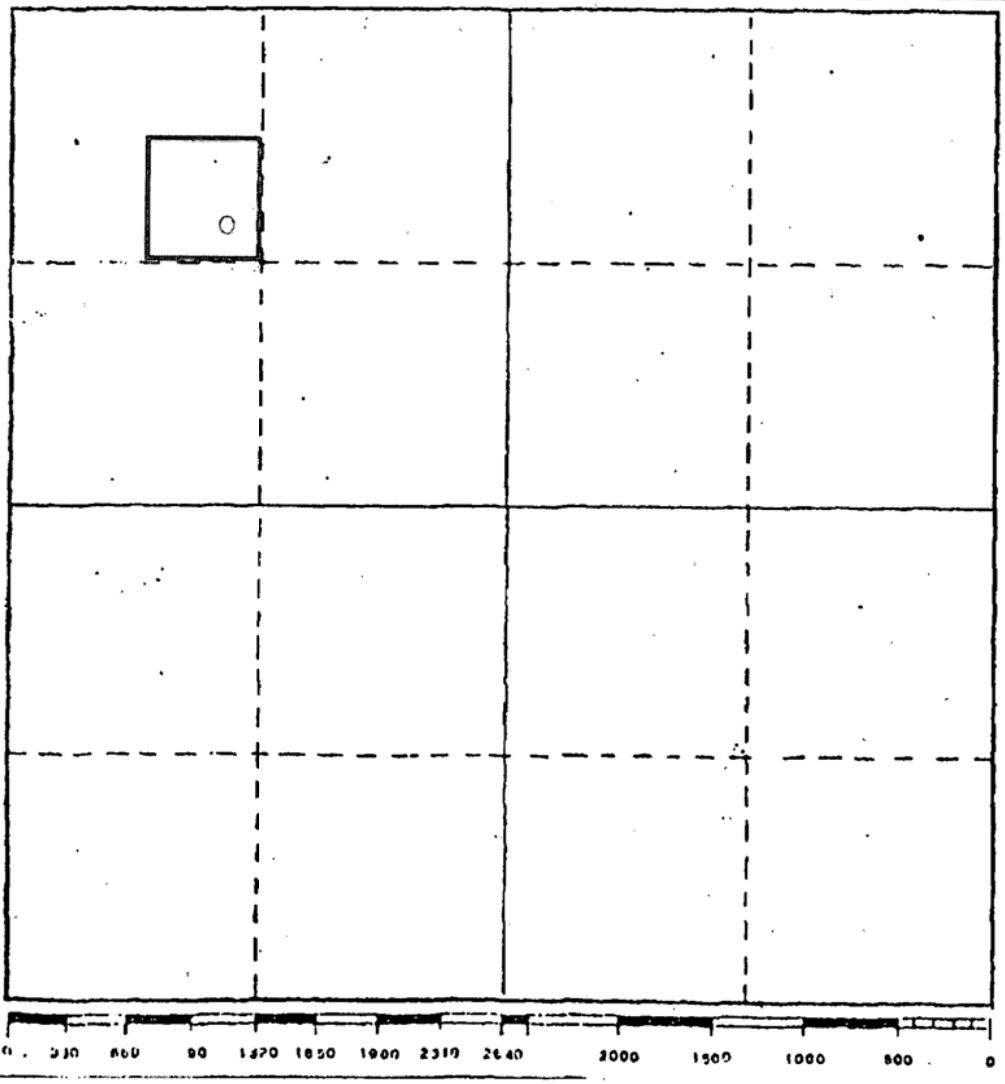
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

David W. Janney, PG

Name: David W. Janney

Position: Agent for

Company: Lightning Dock Geothermal HI-01, LLC

Date: 01/11/2012

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

NA

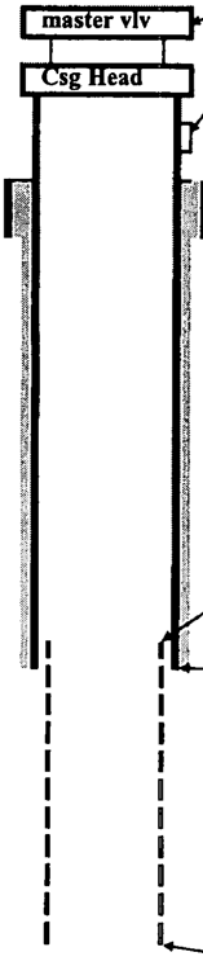
Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

Field Name: Lightning Dock
Well Name: **LDG** **22-18** Strat test slim hole

Typical rig KB elevation 15 ft



Mstr valve size/class	10 inch	ANSI class 150
Wing valve size/class	2 inch	class 150

Conductor			
Casing Size	Weight	Hole Size	Depth
9.625 inch	40 lb/ft	12.25 inch	40 ft

Depth of top of liner	1100-1900 ft

Intermediate			
Casing Size	Weight	Hole Size	Depth
7 inch	23 lb/ft	8 1/2 inch	1200-2000 ft

casing and liner depths as necessary to anchor casing shoe in competent bedrock for formation integrity and BOP tests.

Liner (perf.)	optional - if required for hole stability		
Casing Size	Weight	Hole Size	Depth
4 inch	10.5 lb/ft	6 inch	2500 ft

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, January 19, 2012 2:12 PM
To: 'Janney, David'
Cc: Brooks, David K., EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD
Subject: FW: Morning report for LDG 53-7
Attachments: WellSummaryRpt_111015061904.pdf

David:

Good afternoon. Subsequent to our telephone conference call this afternoon, the OCD Director informed me after the January 5, 2012 meeting with Los Lobos Renewable Power, LLC. Principal.(Los Lobos) and the New Mexico OSE that the OSE would handle the tracer issue associated with any well testing requirements of the OSE. In addition, this morning submittal of G-101s, etc. where Los Lobos was seeking OCD approval to use the Rosette, Inc. State Wells No.s. 1, 3, 4 and 5 for the OSE Tracer Test does not involve approval from the OCD. OCD clarified that any existing wells where the well may become a geothermal project well would need to go through the OCD's Administrative Process for approval similar to the existing Well 55-07, any geothermal temperature gradient wells, etc.

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)

From: Dade, Randy, EMNRD
Sent: Thursday, January 19, 2012 10:49 AM
To: Chavez, Carl J, EMNRD
Subject: FW: Morning report for LDG 53-7

Here is the report that was sent to me. The API # shows to be; 30-023-20017

Chavez, Carl J, EMNRD

From: Janney, David [david.janney@amec.com]
Sent: Thursday, January 19, 2012 7:57 AM
To: Dade, Randy, EMNRD
Cc: Michael Hayter; Michelle Henrie; Chavez, Carl J, EMNRD; Shapard, Craig, EMNRD
Subject: Request for Temporary Approval to conduct a Tracer Test in State Wells No.1, No. 3, and No. 4 for Lightning Dock Geothermal
Attachments: TracerTestFinal Coverletter 1-18-2012.pdf

Good morning:

Please find attached the letter requesting temporary approval to conduct a tracer test using potable water that we discussed yesterday. We are asking humbly if you can process this letter as expeditiously as possible. We must analyze and report on the results of the tracer test by February 1, 2012. Please call me with any questions you may have.

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

January 18, 2012

Mr. Randy Dade
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
District 2 Supervisor
811 South First Street
Artesia, NM 88210
575-748-1283
Randy.Dade@state.nm.us

RE: Request for Temporary Approval to Conduct a Tracer Test in State Wells No. 1, No. 3 and No.4 for Lightning Dock Geothermal HI-01, LLC, Hidalgo County, New Mexico

Dear Mr. Dade:

On behalf of Lightning Dock Geothermal HI-01, LLC (LDG), AMEC Environment & Infrastructure (AMEC) requests temporary approval to re-enter three geothermal wells on New Mexico State geothermal lease GTR 303 to conduct a temporary tracer test and, if necessary, conduct geophysical logging. This project is being undertaken jointly by Rosette, Inc.'s new management and LDG. The research and data collected through the proposed temporary tracer test will assist LDG in evaluating the properties of this geothermal reservoir. Based on LDG's research to date, it believes that this geothermal resource will support electricity generation at a utility scale (15 MW).

LDG proposes the following conditions in connection with its proposed testing and data collection.

1. The re-entered wells would include State Well No. 1, State Well No. 3, and State Well No. 4, which are all located in the southeast corner of New Mexico Section 6, Twp 25S, R 19W. The locations of these wells are depicted on Figure 1. This portion of Section 6 is State Trust Land and LDG has received permission from Rosette, Inc. (the lessee), to use these wells for purposes of this test. LDG is not proposing—and does not have the lessee's permission to—use these wells as permanent project wells.

2. AMEC has reviewed the online databases of the Oil Conservation Division, Office of the State Engineer, and the Petroleum Recovery Research Center of New Mexico Tech and has located the permits and bonding verification for State Wells No. 1, No. 3, and No. 4. The attached Form G-103s for each well have been prepared based on the Form G-101s that reside in OCDs on-line database.

3. For the dye used in the tracer test, LDG proposes to mix Rhodamine WT, which is a standard water tracing dye, with fresh cold water from a separate well located in the northwest corner of Section 12, Twp 25S, R 19W, at the approximate coordinates of 32.14818 N and -108.86157 W (Figure 1). Laboratory analytical results for samples collected from this well in Section 12 in

1986, 2008, and 2010 indicate that the water quality meets or exceeds the drinking water quality requirements set forth in NMAC 26.6.2. Water quality data for the Section 12 well is presented in Table 1 and the MSDS for Rhodamine WT is attached.

4. The specific actions involved in preparing the water tracing dye are as follows:

   - Place 400 gallons of fresh water from the Section 12 well into a clean poly mixing tank, one 400 gallon batch for each well;
   - Add 50 kg of Rhodamine WT liquid or powder to the tank;
   - Stir or circulate until the liquids are thoroughly mixed.

5. The diluted water tracing dye will be pumped into State Well No. 1, No. 3, or No. 4 at a rate of approximately 30 gallons per minute (gpm) and a pressure of approximately 30 pounds per square inch.

6. Following placement of the water tracing dye into the well(s), the test program requires pumping of additional fresh water from the Section 12 well into the State Wells that have received the tracer at a rate of approximately 300 gpm (for each well) for three to five days.

   During the tracer test period (three to five days), the discharge from the pumped wells will be monitored for the presence of tracer. The discharge will take place under LDG's current discharge permit.

7. Mr. Chavez has also requested that Forms G-101 and G-102 be sent to you, with a copy to him. The Forms G 101 and G102 for each of the State Wells are attached. We would appreciate your review as quickly as possible because LDG is under a deadline to analyze the results of this tracer test by February 1, 2012.

Thank you very much for assistance in the development of this important energy project. Should you have questions regarding this application package, please do not hesitate to contact me by email at David.Janney@amec.com or by phone at (505) 821-1801.

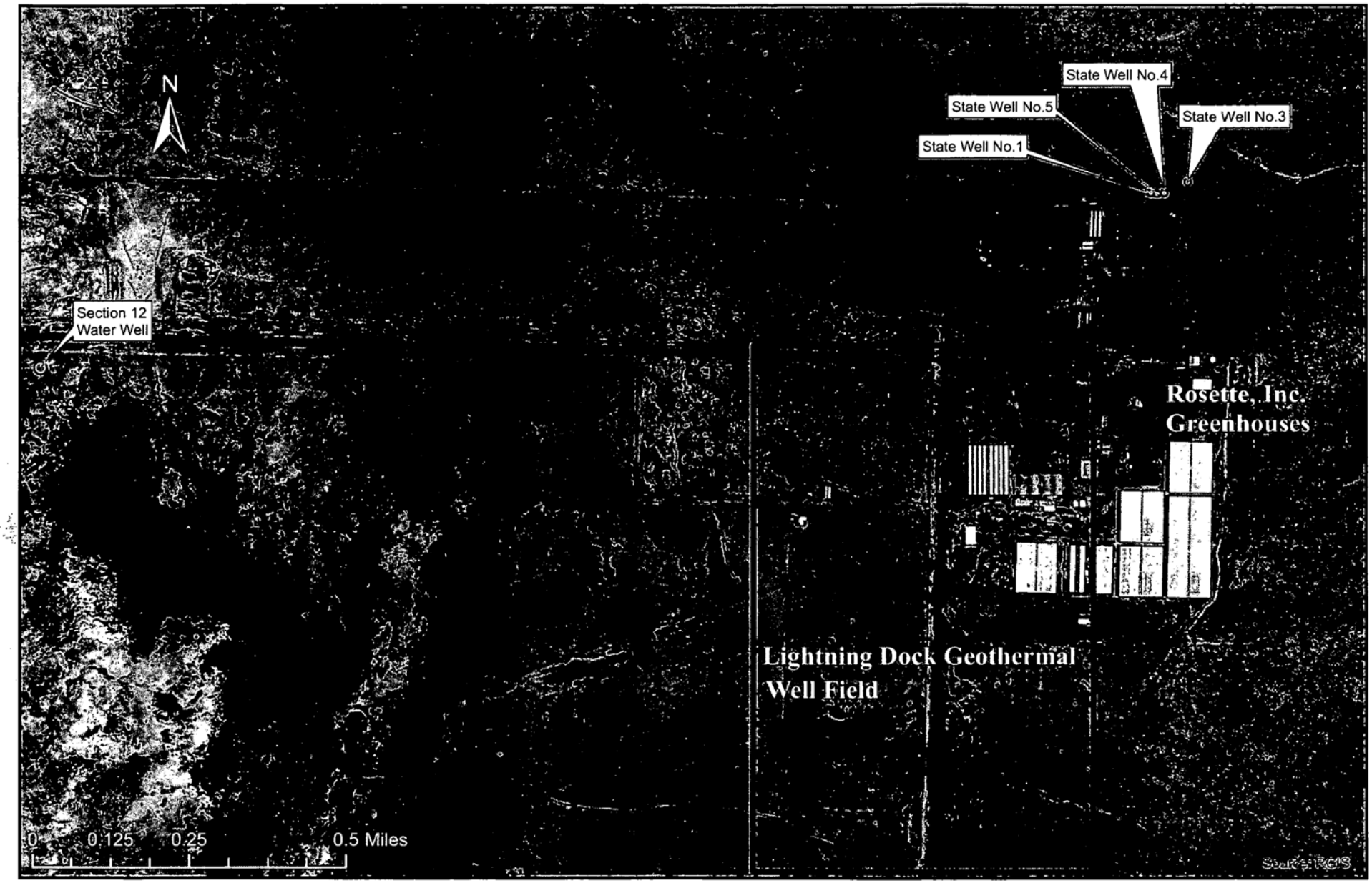
Respectfully submitted,

David W. Janney, PG
Geologist, Agent for Lightning Dock Geothermal HI-01, LLC

Cc: Mr. Carl J. Chavez, NMOCD
Michael Hayter – Lightning Dock Geothermal
Michelle Henrie – Attorney for Lightning Dock Geothermal

Attachments

Figure 1Locations of the State Wells and the Section 12 Fresh Water Well
Forms G-103
Table 1 Summary of laboratory Analytical Results for the Section 12 Fresh Water Well
MSDS for Rhodamine WT
Forms G-103



CLIENT: **Lightning Dock Geothermal H1-01, LLC**	DWN BY: RLRJR CHKD BY: DJ DATUM: N/A PROJECTION: N/A SCALE: AS SHOWN	PROJECT: **Lightning Dock Geothermal H1-01, LLC** **Hidalgo County, New Mexico**	REV NO.: - DATE: OCT 2011 PROJECT NO.: 11-517-00102 FIGURE NO.: 1
AMEC Environment & Infrastructure 8519 Jefferson, NE Albuquerque, New Mexico 87113	amec	TITLE: **Locations of State Well No.1, 3, 4, and 5 and Section 12 Well**	

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-103
Adopted 10-1-74
Revised 10-1-78

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SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State [X] Fee [ ]

5.a State Lease No.: GTR 303

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit —" (Form G-101) for Such Proposals.)

1. Type of well: Geothermal Producer [ ] Temp. Observation [ ] Low-Temp Thermal [X] Injection/Disposal [ ]

7. Unit Agreement Name:

2. Name of Operator: Rosette Inc.

8. Farm or Lease Name: Rosette Inc.

3. Address of Operator: P.O. Box 1618, Roswell, NM 88202-1618

9. Well No.: State Well 3

4. Location of Well
Unit Letter O 1520 Feet From The East Line and 100 Feet From The South Line, Section 6 Township 25S Range 19W NMPM.

10. Field and Pool, or Wildcat: Wildcat

15. Elevation (Show whether DF, RT, GR, etc.): 4250' DF

12. County: Hidalgo

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

- PERFORM REMEDIAL WORK [ ]
- PLUG AND ABANDON [ ]
- TEMPORARILY ABANDON [ ]
- PULL OR ALTER CASING [ ]
- CHANGE PLANS [ ]
- OTHER one-time tracer test [X]

SUBSEQUENT REPORT OF:

- REMEDIAL WORK [ ]
- ALTERING CASING [ ]
- COMMENCE DRILLING OPNS. [ ]
- PLUG & ABANDONMENT [ ]
- CASING TEST AND CEMENT JOB [ ]
- OTHER _____ [ ]

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinenet dates, including estimated date of starting any proposed work) SEE RULE 203.

Please see attached letter:

Request for Temporary Approval to Conduct a Tracer Test
in State Wells No. 1, No. 3, and No. 4 for Lightning Dock Geothermal H1-G1, LLC
Hidalgo, dated January 18, 2012

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

SIGNED David W. Hanson, PG TITLE Agent for Lightning Dock Geothermal DATE 1/18/2012

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form G-103
Adopted 10-1-74
Revised 10-1-78

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Operator		
Land Office		

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State [X] Fee [ ]

5.a State Lease No.: GTR 303

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit —" (Form G-101) for Such Proposals.)

1. Type of well: Geothermal Producer [ ] Temp. Observation [ ] Low-Temp Thermal [X] Injection/Disposal [ ]

7. Unit Agreement Name:

2. Name of Operator: Rosette Inc.

8. Farm or Lease Name: Rosette Inc.

3. Address of Operator: P.O. Box 1618, Roswell, NM 88202-1618

9. Well No.: State Well 4

4. Location of Well: Unit Letter P 800 Feet From The East Line and 50 Feet From The South Line, Section 6 Township 25S Range 19W NMPM.

10. Field and Pool, or Wildcat: Wildcat

15. Elevation (Show whether DF, RT, GR, etc.): 4250' DF

12. County: Hidalgo

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [ ]	PLUG & ABANDONMENT [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [ ]	
OTHER one-time tracer test [X]		OTHER [ ]	

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinenet dates, including estimated date of starting any proposed work) SEE RULE 203.

Please see attached letter:

Request for Temporary Approval to Conduct a Tracer Test
in State Wells No. 1, No. 3, and No. 4 for Lightning Dock Geothermal H1-G1, LLC
Hidalgo, dated January 18, 2012

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

SIGNED David W. Jennings, PG TITLE Agent for Lightning Dock Geothermal DATE 1/18/2012

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

TABLE 1

Summary of Laboratory Analytical Results for the Section 12 Fresh Water Well

NMAC group		Analytes	NMAC Standard	Analytical Results Sample Date and Sample ID 2010 236040-162	2008 8031235	1986 OCD-5
A						
	1	Arsenic (As)	0.1 mg/l	nm	<0.005 mg/l	<0.005 mg/l
	2	Barium (Ba)	1 mg/l	nm	0.024 mg/l	<0.1 mg/l
	3	Cadmium (Cd)	0.01 mg/l	nm	<0.001 mg/l	<0.1 mg/l
	4	Chromium (Cr)	0.05 mg/l	nm	<0.001 mg/l	<0.1 mg/l
	5	Cyanide (CN)	0.2 mg/l	nm	<0.01 mg/l	nm
	6	Fluoride (F)	1.6 mg/l	**1.05 mg/l**	**1.04 mg/l**	**0.98 mg/l**
	7	Lead (Pb)	0.05 mg/l	nm	<0.005 mg/l	<0.1 mg/l
	8	Total Mercury (Hg)	0.002 mg/l	nm	<0.0002 mg/l	nm
	9	Nitrate (NO3 as N)	10 mg/l	nm	**1.19 mg/l**	nm
	10	Selenium (Se)	0.05 mg/l	nm	<0.01 mg/l	<0.1 mg/l
	11	Silver (Ag)	0.05 mg/l	nm	<0.005 mg/l	<0.1 mg/l
	12	Uranium (U)	0.03 mg/l	nm	nm	nm
	13	Radioactivity: Radium (Ra 226-228)	30 pCi/l	nm	nm	nm
	14	Benzene	0.01 mg/l	nm	<0.001 mg/l	nm
	15	Polychlorinated biphenyls (PCB's)	0.001 mg/l	nm	nm	nm
	16	Toluene	0.75 mg/l	nm	<0.001 mg/l	nm
	17	Carbon Tetrachloride	0.01 mg/l	nm	<0.001 mg/l	nm
	18	1,2-dichloroethane (EDC)	0.01 mg/l	nm	<0.001 mg/l	nm
	19	1,1-dichloroethylene (1,1-DCE)	0.005 mg/l	nm	<0.001 mg/l	nm
	20	1,1,2,2-tetrachloroethylene (PCE)	0.02 mg/l	nm	<0.001 mg/l	nm
	21	1,1,2-trichloroethylene (TCE)	0.1 mg/l	nm	<0.001 mg/l	nm
	22	ethylbenze	0.75 mg/l	nm	<0.001 mg/l	nm
	23	total xylenes	0.62 mg/l	nm	<0.001 mg/l	nm
	24	methylene chloride	0.1 mg/l	nm	<0.005 mg/l	nm
	25	chloroform	0.1 mg/l	nm	<0.001 mg/l	nm
	26	1,1-dichloroethane	0.025 mg/l	nm	<0.001 mg/l	nm
	27	ethlene dibromide (EDB)	0.0001 mg/l	nm	<0.001 mg/l	nm
	28	1,1,1-trichloroethane	0.06 mg/l	nm	<0.001 mg/l	nm
	29	1,1,2-trichloroethane	0.01 mg/l	nm	<0.001 mg/l	nm
	30	1,1,2,2-tetrachloroethane	0.01 mg/l	nm	<0.001 mg/l	nm
	31	vinyl chloride	0.001 mg/l	nm	<0.001 mg/l	nm
	32	PAH's: total naphthalene + monomethy	0.03 mg/l	nm	<0.005 mg/l	nm
	33	benzo-a-pyrene	0.0007 mg/l	nm	nm	nm
B						
	1	Chloride (Cl)	250 mg/l	**33.7 mg/l**	**20.4 mg/l**	**18.6 mg/l**
	2	Copper (Cu)	1 mg/l	nm	**0.015 mg/l**	<0.1 mg/l
	3	Iron (Fe)	1 mg/l	nm	**0.013 mg/l**	<0.1 mg/l
	4	Manganese (Mn)	0.2 mg/l	nm	<0.0025 mg/l	<0.05 mg/l
	5	Phenols	0.005 mg/l	nm	nm	nm

TABLE 1

Summary of Laboratory Analytical Results for the Section 12 Fresh Water Well

6	Sulfate (SO4)	600 mg/l	**122 mg/l**	**94.8 mg/l**	**80.5 mg/l**
7	Total Dissolved Solids (TDS)	1000 mg/l	**410 mg/l**	**358 mg/l**	**310 mg/l**
8	Zinc (Zn)	10 mg/l	nm	**0.049 mg/l**	<0.1 mg/l
9	pH	6-9	**7.8**	**7.48**	nm
C					
1	Aluminum (Al)	5 mg/l	nm	<0.05 mg/l	<0.1 mg/l
2	Boron (B)	0.75 mg/l	nm	**0.059 mg/l**	<0.1 mg/l
3	Cobalt (Co)	0.05 mg/l	nm	nm	<0.1 mg/l
4	Molybdenum (Mo)	1 mg/l	nm	<0.01 mg/l	<0.1 mg/l
5	Nickel (Ni)	0.2 mg/l	nm	<0.005 mg/l	<0.1 mg/l

Notes:

nm = Not Measured

< 0.nn = not detectable above the detection limit "0.nn mg/l"

Presto Dyechem Co
60 North Front St
Philadelphia, PA 19106
215-627-1864

Material Safety Data Sheet

July 15, 2011

SECTION I - Material Identity

Item Name	Fluorescent Red Dye
Part Number/Trade Name	Acid red 52
Chemical Formula	C27 H30 N2 O7 S2.Na
CAGE Code	25521
Part Number Indicator	A
MSDS Number	189644
HAZ Code	B

SECTION II - Manufacturer's Information

Manufacturer Name	Presto Dyechem Co
Street	60 North Front St
City	Philadelphia
State	PA
Country	US
Zip Code	19106
Emergency Phone	215-627-1864
Information Phone	215-627-1864

MSDS Preparer's Infomation

Date MSDS Prepared/Revised	01/01/2006
Active Indicator	Y

SECTION III - Physical/Chemical Characteristics

Appearance/Odor	Red POWDER
Boiling Point	NA
Melting Point	NA
Vapor Pressure	NA
Vapor Density	NA
Specific Gravity	1
Solubility in Water	COMPLETE
Container Type	R
Container Pressure Code	1
Temperature Code	4
Product State Code	S

SECTION IV - Fire and Explosion Hazard Data

Flash Point Method	NA
Lower Explosion Limit	NA
Upper Explosion Limit	NA
Extinguishing Media	WATER, DRY CHEMICAL, CO2
Special Fire Fighting Procedures	WEAR SCBA
Unusual Fire/Explosion Hazards	NONE

SECTION V - Reactivity Data

Stability	YES
Stability Conditions to Avoid	WILL PRECIPITATE WITH ACIDS
Materials to Avoid	OXIDIZING AGENTS
Hazardous Decomposition Products	BURNING WILL PRODUCE OXIDES OF CARBON AND NITROGEN
Hazardous Polymerization	NO
Polymerization Conditions to Avoid	WILL NOT OCCUR

SECTION VI - Health Hazard Data

Route of Entry: Skin	YES
Route of Entry: Ingestion	YES
Route of Entry: Inhalation	YES
Health Hazards - Acute and Chronic	NONE DOCUMENTED
Carcinogenity: NTP	NO
Carcinogenity: IARC	NO
Carcinogenity: OSHA	NO
Explanation of Carcinogenity	NONE
Symptoms of Overexposure	NOT KNOWN
Medical Cond. Aggravated by Exposure	NONE KNOWN
Emergency/First Aid Procedures	[EYES] FLUSH WITH WATER [SKIN] WASH WITH SOAP AND WATER [INHAL] MOVE TO FRESH AIR. [INGEST] DILUTE WITH WATER, INDUCE VOMITING.

SECTION VII - Precautions for Safe Handling and Use

Steps if Material Released/Spilled	WEAR APPROPRIATE SAFETY EQUIPMENT. CONTAIN AND CLEAN UP SPILL. CONTAIN LIQUIDS USING ABSORBANTS, SWEEP POWDERS CAREFULLY MINIMIZING DUSTING. SHOVEL ALL SPILL MATERIAL INTO DISPOSAL DRUM.
Neutralizing Agent	NR
Waste Disposal Method	BURY OR INCINERATE ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS. CONTAINERS SHOULD BE TRIPLE RINSED ACCORDING TO FEDERAL REGULATIONS.
Handling and Storage Precautions	HANDLE THIS PRODUCT WITH CARE

	AND AVOID PERSONAL CONTACT.
Other Precautions.....	NR

SECTION VIII - Control Measures

Respiratory Protection.....	NIOSH APPROVED RESPIRATOR MOLDEX 2200
Ventilation.....	LOCAL EXHAUST
Protective Gloves.....	RUBBER
Eye Protection.....	SAFETY GLASSES WITH SIDE SHIELDS
Other Protective Equipment.....	WEAR APRON/COVERALLS TO MINIMIZE SKIN CONTACT
Work Hygenic Practices.....	WASH THOROUGHLY AFTER HANDLING

SECTION IX - Label Data

Protect Eye.....	YES
Protect Skin.....	YES
Protect Respiratory.....	YES
Chronic Indicator.....	NO
Contact Code.....	SLIGHT
Fire Code.....	1
Health Code.....	0
React Code.....	0
Specific Hazard and Precaution.....	NO TARGET ORGANS LISTED FOR CHRONIC EXPOSURES

SECTION X - Transportation Data

Container Quantity.....	1
Unit of Measure.....	GM

SECTION XI - Site Specific/Reporting Information

Volatile Organic Compounds (P/G).....	0
Volatile Organic Compounds (G/L).....	0

SECTION XII - Ingredients/Identity Information

Color Index #.....	45100
Ingredient Name.....	Xanthene
CAS Number.....	3520-42-1
Proprietary.....	NO
Percent.....	0
OSHA PEL.....	NE
ACGIH TLV.....	NE

sole responsibility of the user. All materials that may present unknown health hazards are described herein. We cannot guarantee that these are the only hazards that exist.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-101
Adopted 10-1-74
Revised 10-1-78

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APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [X] FEE
5.a State Lease No. GTR 303

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]
7. Unit Agreement Name

b. Type of Well: Geothermal Producer [ ] Temp Observation [ ]
Low-Temp Thermal [X] Injection/Disposal [ ]
8. Farm or Lease Name: Rosette

2. Name of Operator: Rosette Inc
9. Well No. one

3. Address of Operator: PO Box 265A Animas, NM 88020
10. Field and Pool, or Wildcat: Lightning Dock

4. Location of Well: UNIT LETTER P LOCATED 1050 FEET FROM THE East LINE
AND 50 FEET FROM THE So. LINE OF SEC. 6 TWP. 25s RGE. 19W NMPM

12. County: Hidalgo

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
500		Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
4250	Cash 2,000.00 #5622	Self	10/20/93

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
9 1/8	8 5/8	32	150.	50	Cir

Hot water could be encountered at 100' if so. Pipe will be set there

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new produ zone. Give blowout preventer program, if any.

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

Signed Dale Bourgett Title CEO Date 10/16/93

(This space for State Use)

APPROVED BY Roy E. Johnson TITLE DISTRICT SUPERVISOR DATE 10/26/93

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

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OCT 22 1993

Form C-102
Adopted 10-1-7.
Revised 10-1-7.

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Rosette Inc	Rosette State	1

Unit Letter	Section	Township	Range	County
P	6	25 So.	19 E	Hidalgo

Actual Footage Location of Well:
1050 feet from the E. line and 50 feet from the South line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4250	Valley Fill	Lightning Dock	313.59 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

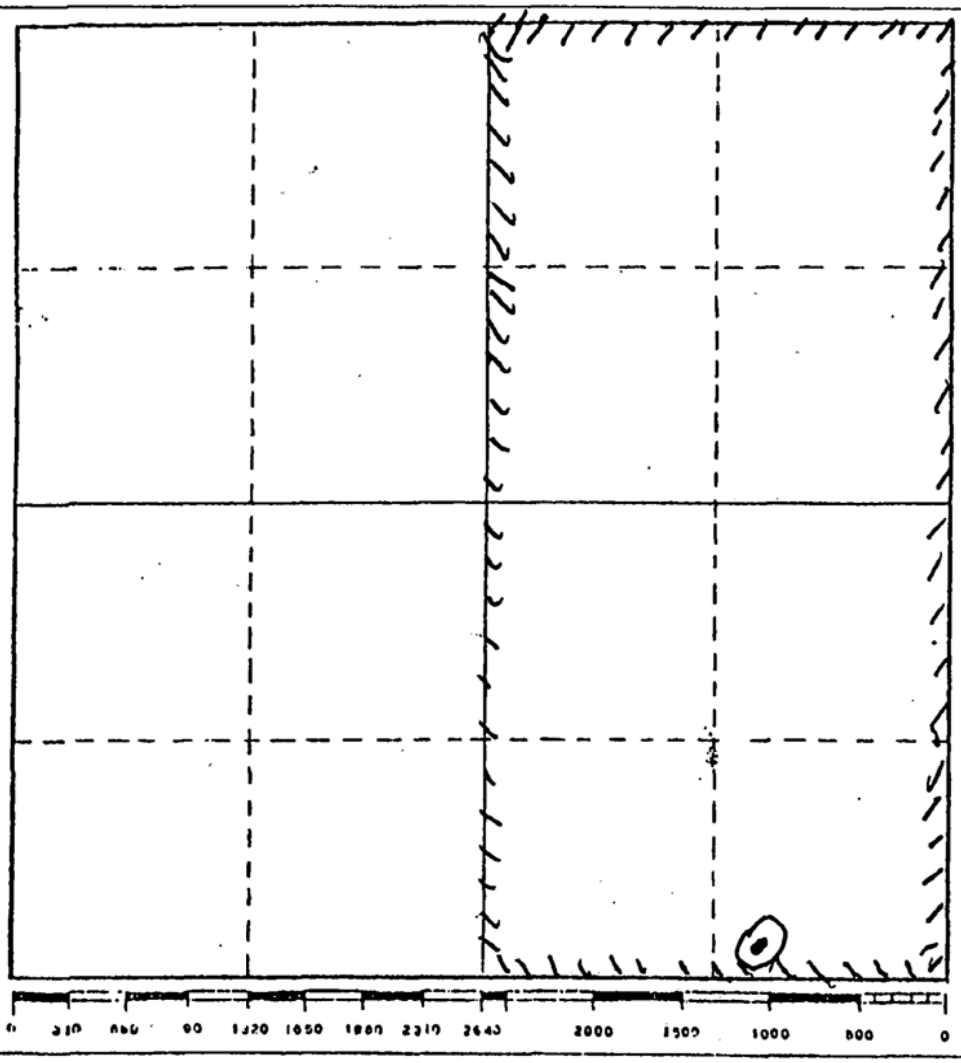
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Name: Dale Burgett

Position: CEO

Company: Rosette Inc

Date: 10/16/93

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-101
Adopted 10-1-74
Revised 10-1-78

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Land Office		

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK---GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [X] FEE
5.a State Lease No.: GTR 303

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]

b. Type of Well: Geothermal Producer [ ] Low-Temp Thermal [X] Temp Observation [ ] Injection/Disposal [ ]

7. Unit Agreement Name:

8. Farm or Lease Name: Rosette

2. Name of Operator: Rosette Inc.

9. Well No.: three

3. Address of Operator: P.O. Box 265 A Animas, New Mexico 88020

10. Field and Pool, or Wildcat: Lighting Dock

4. Location of Well: UNIT LETTER O LOCATED 1520 FEET FROM THE East LINE AND 100 FEET FROM THE South LINE OF SEC. 6 TWP. 25 S RGE. 19 W NMPM

12. County: Hidalgo

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
500	Valley Fill	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
4250	Blanket #9360094	Self	10/20/93

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
9 7/8	8 5/8	32	200	50	cir

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new produ zone. Give blowout preventer program, if any.

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

Signed: Dale Burgett Title: CEO Date: 11/9/93

(This space for State Use)

APPROVED BY: By Johnson TITLE: DISTRICT SUPERVISOR DATE: 11/24/93

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Adopted 10-1-7
Revised 10-1-7

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Rosette Inc.	Rosette State	3

Unit Letter	Section	Township	Range	County
O	6	25 S	19 E	Hidalgo

Actual Footage Location of Well:
1520 feet from the East line and 100 feet from the South line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4250	Valley Fill	Lighting Dock	313.59 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

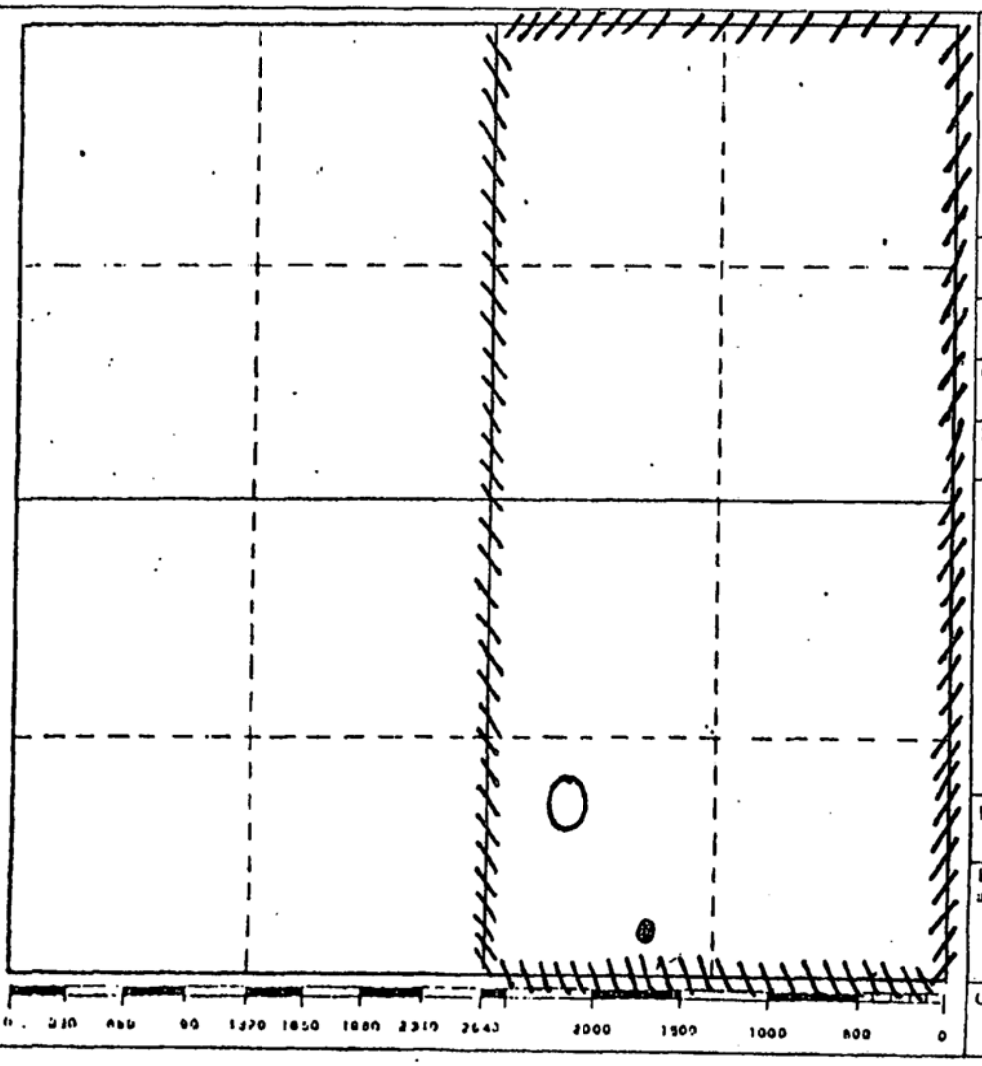
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Name: CEO

Position: CEO

Company: Rosette Inc.

Date: Nov 9, 1993

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-101
Adopted 10-1-74
Revised 10-1-78

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APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK---GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [X] FEE [ ]
5.a State Lease No.: GTR 303

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]
b. Type of Well: Geothermal Producer [ ] Temp Observation [ ] Low-Temp Thermal [X] Injection/Disposal [ ]

7. Unit Agreement Name:
8. Farm or Lease Name: Rosette
9. Well No.: 4
10. Field and Pool, or Wildcat: Lighting Dock
12. County: Hidalgo

2. Name of Operator: Rosette Inc.
3. Address of Operator: P.O. BOX 265 A, Animas, N.M. 88020
4. Location of Well: UNIT LETTER P LOCATED 800 FEET FROM THE East LINE AND 50 FEET FROM THE South LINE OF SEC. 6 TWP. 25 S RGE. 19 W NMPM

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
500		Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
4250	Blanket Bond	Self	10/20/93

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
9 7/8	8 5/8	32	200	50	cir

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new produ zone. Give blowout preventer program, if any.

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

Signed Jake Bassett Title CEO Date 11/22/93

(This space for State Use)

APPROVED BY R E Johnson TITLE DISTRICT SUPERVISOR DATE 12/1/93

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form G-102
Adopted 10-1-7
Revised 10-1-7

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Rosette Inc.	Rosette State	4

Unit Letter	Section	Township	Range	County
P	6	25 S	19 W	Hidalgo

Actual Footage Location of Well:
800 feet from the East line and 50 feet from the North line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4250	Valley Fill	Lighting Dock	313.59 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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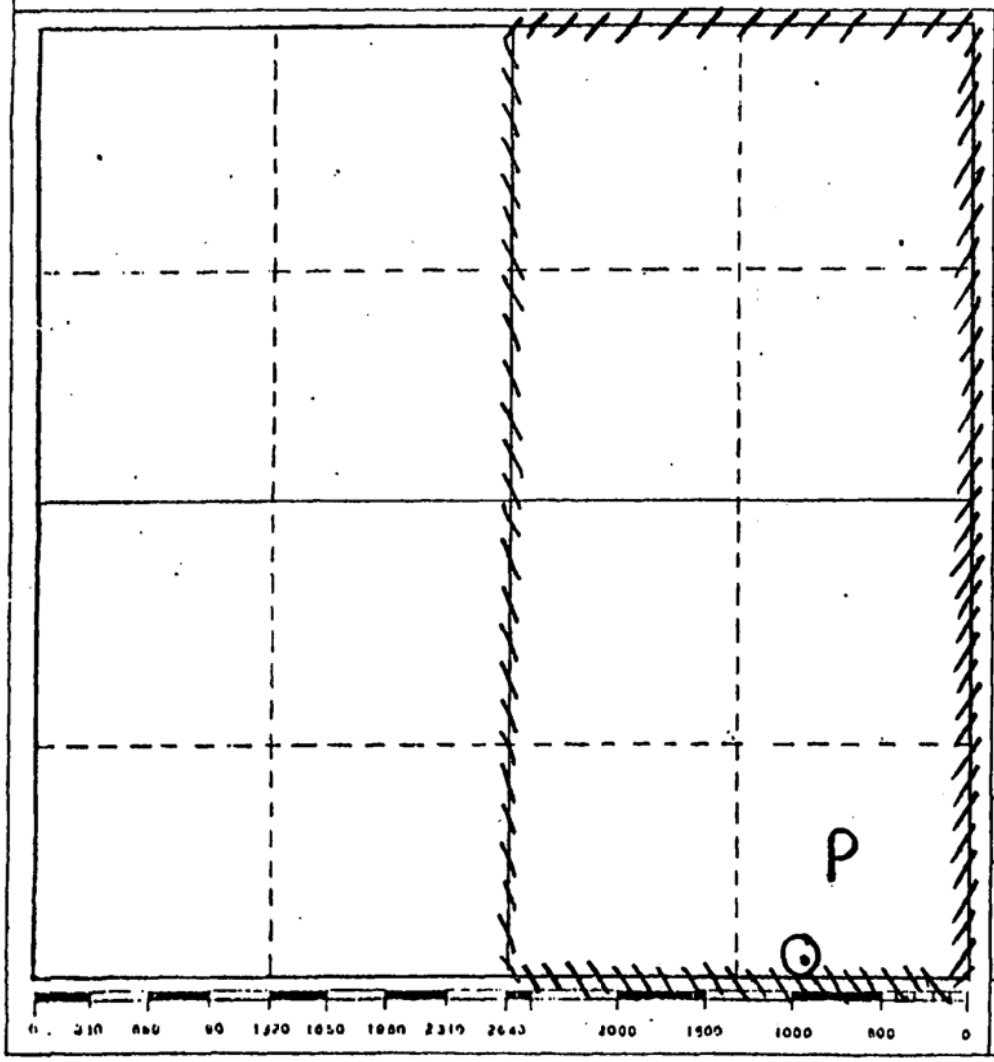
☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

Name: Dale Burgett

Position: CEO

Company: Rosette Inc.

Date: Nov 27/1983

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.

Chavez, Carl J, EMNRD

From: Janney, David [david.janney@amec.com]
Sent: Friday, January 13, 2012 3:02 PM
To: Chavez, Carl J, EMNRD
Cc: Michael Hayter
Subject: FW: Corporate structure
Attachments: PRC Corporate Log Lightning Dock Geothermal.pdf; PRC Corporate Log for Los Lobos.pdf; PRC application Cyrq Energy.pdf

Greetings Carl:

In response to your question regarding the corporate relationship between Los Lobos Renewable Power and Lightning Dock Geothermal we offer the following statement.

Los Lobos Renewable Power, LLC is the owner, parent company, and sole member of Lightning Dock Geothermal HI-01, LLC. Both are Delaware LLCs registered to do business in New Mexico and the images of the PRC registration pages for each of them are attached.

In addition, I have attached a copy of the recently submitted PRC registration application for Cyrq Energy.

Going forward we will submit all of our applications under Lightning Dock Geothermal HI-01, LLC due to its contractual or loan obligations for the project.

Regards,

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

Corporations Division

PRC

Back to Search

Corporation Detail

LOS LOBOS RENEWABLE POWER, LLC

Delaware Foreign Limited Liability Company

Filing Information		Address Information
CorpNmscc	2950368	**Mailing Address**
Corporation Status	Ex-Exempt	10th & King St./One Rodney Square
Date Of Incorporation	10/19/2007	Wilmington, DE - 19801
State Of Incorporation	DE	**Corp Address**
FiscalYearDate		, -
Report Duedate		

Agent Information	Director(s) Information
Officer(s) Information	
Manager Steven R. Brown	

Instrument Information

InstrumentNumber	**2950368**
Filing Date	10/19/2007
Instrument Type	**Certificate Of Registration**
Instrument Text	Los Lobos Renewable Power, Llc Date Of Organization In Delaware Is October 11, 2007 (4 Pg) Perpetual
InstrumentNumber	**2950368**
Filing Date	11/3/2010
Instrument Type	**Certificate Of Revocation**
Instrument Text	Failure To Appoint And Maintain A Registered Agent
InstrumentNumber	**2950368**
Filing Date	2/17/2011
Instrument Type	**Reinstatement**
Instrument Text	Reinstated Based On All Filing.

Note: This is not official record. Please contact NMPRC if question or conflict.

Corporations Division

PRC

Back to Search

Corporation Detail

LIGHTNING DOCK GEOTHERMAL HI-01, LLC

Delaware Foreign Limited Liability Company

Filing Information		Address Information
CorpNmscc	2950376	**Mailing Address**
Corporation Status	Ex-Exempt	10th & King St./One Rodney Square
Date Of Incorporation	10/19/2007	Wilmington, DE - 19801
State Of Incorporation	DE	**Corp Address**
FiscalYearDate		, -
Report Duedate		

Agent Information	Director(s) Information

Officer(s) Information	
Manager	Nicholas Goodman
Manager	John T. Perry
Manager	Scott R. Rhees

Instrument Information	
InstrumentNumber	**2950376**
Filing Date	10/19/2007
Instrument Type	**Certificate Of Registration**
Instrument Text	Lightning Dock Geothermal Hi-01, Llc Date Of Organization In Delaware Is October 11, 2007 (4 Pg) Perpetual
InstrumentNumber	**7444893**
Filing Date	9/29/2011
Instrument Type	**Amended Certificate Of Registration**
Instrument Text	Updating Managment (2 Pgs)

Note: This is not official record. Please contact NMPRC if question or conflict.

SUBMIT ORIGINAL AND A COPY
TYPE OR PRINT LEGIBLY
Foreign Profit Corporation

APPLICATION FOR CERTIFICATE OF AUTHORITY

The undersigned corporation, in order to apply for a Certificate of Authority to transact business in New Mexico under the Business Corporation Act, submits the following statement to the Public Regulation Commission:

1. The name of the corporation is (must be identical to the corporate name as stated on the Certificate of Good Standing from its domestic state): Cyrq Energy, Inc.

It is incorporated under the laws of: Delaware.

2. If the corporate name does not contain the word "corporation", "company", "incorporated", or "limited", or an abbreviation of one of these words (as required under the New Mexico Business Corporation Act), state the corporate name as above **and** include the word or abbreviation it elects to add for use in New Mexico: _____

3. The date of incorporation in its domestic state is: April 17, 2007.
The period of duration is: PERPETUAL.

4. The address of the corporation's **registered office in its domestic state** is:
920 NORTH KING STREET, 2ND FLOOR WILMINGTON, DE 19801

The address of the **principal office**, if different from the registered office address, is:
136 South Main Street, Suite 600 Salt Lake City, UT 84101.

5. The street address of the proposed **registered office in New Mexico** is:
126 East DeVargas Santa Fe, NM 87501.
(P.O. Box is not acceptable. Provide a description of the geographical location if a street address does not exist.)

The **name of the registered agent** at the address of the New Mexico registered office is:
Michelle Henrie.

6. The purpose that the corporation proposes to pursue in the transaction of business in New Mexico is (at least one specific purpose must be stated; attach additional page if needed):

GEOTHERMAL ENERGY DEVELOPMENT, EXPLORATION, AND PRODUCTION

7. The names and respective addresses of the officers and directors of the corporation are (indicate the applicable title of each officer and each director; attach additional page if needed):

Name and Title	Address
Nicholas Goodman -	136 South Main Street Suite 600 Salt Lake City, UT 84101
John T. Perry -	136 South Main Street Suite 600 Salt Lake City, UT 84101
Radoslav Antonov -	590 Madison Ave, 15th Floor, New York, New York 10022
David Kay -	1180 Avenue of Americas, Suite 1940 New York, New York 10036

8. The aggregate number of shares which the corporation has the **authority** to issue, itemized by class and series, if any, within each class is (attach additional page if needed):

100,000

9. The aggregate number shares that **have been issued**, itemized by class and series, if any, within each class is (attach additional page if needed):

45,000

10. Provide an estimate expressed in dollars (or "zero" or "none", if applicable) of the following:

(a) the gross amount of business which will be transacted by the corporation during its current fiscal year, at or from places of business located in New Mexico is:
zero

(b) the gross amount of business which will be transacted by it during such year, wherever transacted, is:
5,000,000

(c) the value of all property to be owned by it and located in New Mexico during such year is:
zero

(d) the value of all property to be owned by it during such year, wherever located, is:
15,000,000

Dated: January 11, 2012

Cyrq Energy, Inc.
Name of Corporation

By _____
Signature of Authorized Officer

THIS APPLICATION MUST BE ACCOMPANIED BY A **CERTIFICATE OF GOOD STANDING / EXISTENCE**, ISSUED BY THE APPROPRIATE OFFICIAL CUSTODIAN OF CORPORATE RECORDS FOR THE STATE OR COUNTRY UNDER THE LAWS OF WHICH THE APPLYING CORPORATION IS INCORPORATED. THIS CERTIFICATE MUST BE **ORIGINAL OR ELECTRONICALLY ISSUED**, AND MUST BE **CURRENT WITHIN THIRTY DAYS**, OR HAS NOT EXPIRED, UPON SUBMISSION TO THE COMMISSION.

Form FPR
(revised 07/03)

STATEMENT OF ACCEPTANCE OF APPOINTMENT
BY DESIGNATED INITIAL REGISTERED AGENT

I, MICHELLE HENRIE,

hereby acknowledge that the undersigned individual or corporation accepts the appointment

as Initial Registered Agent of Cyrq Energy, Inc.,

the corporation which is named in the annexed Application for Certificate of Authority.

_____

(Sign on this line if the registered agent named in the application is an individual. If this line is signed, the two lines below do not apply and must be left blank.)

CORPORATION ACTING AS A REGISTERED AGENT ONLY

(If the following lines are used, the signature line above does not apply and must be left blank.)

_____

(If the registered agent named in the application is a corporation, type or print the name of that corporation here.)

By _____

(An authorized officer of the corporation being appointed as registered agent must sign here.)

Form F-STMNT
(revised 07/03)

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "CYRQ ENERGY, INC." IS DULY INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL CORPORATE EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE ELEVENTH DAY OF JANUARY, A.D. 2012.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL REPORTS HAVE BEEN FILED TO DATE.

AND I DO HEREBY FURTHER CERTIFY THAT THE FRANCHISE TAXES HAVE BEEN PAID TO DATE.

Jeffrey W. Bullock, Secretary of State

4329432 8300

120037377

AUTHENTICATION: 9290632

DATE: 01-11-12

You may verify this certificate online at corp.delaware.gov/authver.shtml

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, December 09, 2011 9:48 AM
To: 'Roger Bowers'; Smith, Michael A; Del Fortner
Cc: Ben Barker; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Brooks, David K., EMNRD
Subject: RE: Exploratory work proposed on private surface

Mr. Bowers:

I believe you received the OCD's communiqué regarding the temperature gradient wells (see below).

****

12/9/2011 8:16 a.m.

Mike, et al.:

OCD requires G-101s and 102s with proper geothermal bonding (single vs. multi-well) in place before issuing approval on any geothermal temperature gradient exploratory wells and compliance with the OCD Discharge Permit conditions.

Please contact me if you have questions. Thank you for the communication.

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

-----Original Message-----
From: Smith, Michael A [mailto:michaelsmith@blm.gov]
Sent: Thursday, December 08, 2011 9:10 AM
To: Del Fortner
Cc: rbageo@sbcglobal.net; Chavez, Carl J, EMNRD
Subject: RE: Exploratory work proposed on private surface

Del:

Just a few details:

1. The Federal regulation in question is 43 CFR 3250.10(b)(2).
2. If LDG determines a need to develop a gradient test-hole on nearby BLM-managed surface, then they have to submit an NOI (BLM form 3200-9). It is not necessary that the BLM-administered area of interest be under a current geothermal lease in order to conduct exploration.
3. If any of the gradient wells will be converted to production or injection wells, then LDG must first receive approval in a GDP.
4. If any of the gradient wells will be used for aquifer testing, even without the intention to convert them to production or injection wells, it is necessary to obtain an approved GDP (43 CFR 3260.10(a)).
5. After exploration operations are complete (i.e. within 30 days of ceasing exploration activity), submit a notice of completion (BLM form 3200-10) and all data (43 CFR 3253.10). Data marked proprietary or confidential will be kept from public review.

If you or Roger have any questions, please feel free to call.

Regards,

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

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

From: Roger Bowers [mailto:rbageo@sbcglobal.net]
Sent: Thursday, December 08, 2011 4:07 PM
To: Smith, Michael A; Del Fortner
Cc: Chavez, Carl J, EMNRD; Ben Barker
Subject: Re: Exploratory work proposed on private surface

Mike,
Thanks for your assistance in this matter. All of the TG holes for this current plan are located on Burgett's land. I am preparing the permit applications for both OCD and OSE, and hope to have Lightning Dock submit them within the next week or so. The intent is to drill small-diameter holes that will be used for observation only. I am working with drillers to finalize the drilling plan, but it looks like we will drill through the unconsolidated sediments with mud rotary and set casing, probably 7". Once we hit the hard volcanics, I'd like to switch to core, which will be about a 4" diameter hole. If coring is not possible, we would continue with rotary drilling. These holes are not designed for any purpose other than to get temperature and lithology information. However, they may be useful in the future as monitor wells for drawdown.

Your details below are noted and appreciated. I'll work closely with Ben and Del to make sure things are done correctly.
Thanks,
Roger

Roger L. Bowers
Roger Bowers & Associates
1305 Bell Avenue
Ely, Nevada 89301-2094

Phone: 775-289-3537
Fax: 775-289-6824
Cell: 775-296-1339
Email: rbageo@sbcglobal.net

From: "Smith, Michael A" <michaelsmith@blm.gov>
To: Del Fortner <delfortner@charter.net>
Cc: "rbageo@sbcglobal.net" <rbageo@sbcglobal.net>; "Chavez, Carl J, EMNRD (CarlJ.Chavez@state.nm.us)" <CarlJ.Chavez@state.nm.us>

Sent: Thursday, December 8, 2011 8:10 AM
Subject: RE: Exploratory work proposed on private surface

Del:

Just a few details:

1. The Federal regulation in question is 43 CFR 3250.10(b)(2).
2. If LDG determines a need to develop a gradient test-hole on nearby BLM-managed surface, then they have to submit an NOI (BLM form 3200-9). It is not necessary that the BLM-administered area of interest be under a current geothermal lease in order to conduct exploration.
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5. After exploration operations are complete (i.e. within 30 days of ceasing exploration activity), submit a notice of completion (BLM form 3200-10) and all data (43 CFR 3253.10). Data marked proprietary or confidential will be kept from public review.

If you or Roger have any questions, please feel free to call.

Regards,

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

-----Original Message-----
From: Del Fortner [mailto:delfortner@charter.net]
Sent: Wednesday, December 07, 2011 7:43 PM
To: Roger Bowers
Cc: michael.hayter@cyrqenergy.com; Ben Barker; Smith, Michael A
Subject: Exploratory work proposed on private surface

Roger, I spoke with Mike Smith this afternoon regarding the proper approach to permitting the temperature gradient holes on Dale Burgett's private property. For BLM, this is covered in 43 CFR 3250. The work you propose does not require a Notice of Intent since it is on private land and LDG has a surface access agreement in place with the land owner. Mike did caution to ensure the OCD and OSE consultations take place and you acquire their permits. I understand you are proposing more locations than will be drilled in order to give LDG flexibility to move depending on the results of each subsequent TG hole. I informed Mike that we would share the locations and the temperature and other data acquired from this work so he will have a record of the work. I've cc'd Mike in this email in the event I have mischaracterized his advice he can correct it before you begin.

Regards, Del

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, December 09, 2011 8:16 AM
To: 'Smith, Michael A'; Del Fortner
Cc: rbageo@sbcglobal.net; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Brooks, David K., EMNRD; Dade, Randy, EMNRD; Phillips, Haddy L., OSE
Subject: RE: Exploratory work proposed on private surface

Mike, et al.:

OCD requires G-101s and 102s with proper geothermal bonding (single vs. multi-well) in place before issuing approval on any geothermal temperature gradient exploratory wells and compliance with the OCD Discharge Permit conditions.

Please contact me if you have questions. Thank you for the communication.

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

-----Original Message-----
From: Smith, Michael A [mailto:michaelsmith@blm.gov]
Sent: Thursday, December 08, 2011 9:10 AM
To: Del Fortner
Cc: rbageo@sbcglobal.net; Chavez, Carl J, EMNRD
Subject: RE: Exploratory work proposed on private surface

Del:

Just a few details:

1. The Federal regulation in question is 43 CFR 3250.10(b)(2).
2. If LDG determines a need to develop a gradient test-hole on nearby BLM-managed surface, then they have to submit an NOI (BLM form 3200-9). It is not necessary that the BLM-administered area of interest be under a current geothermal lease in order to conduct exploration.
3. If any of the gradient wells will be converted to production or injection wells, then LDG must first receive approval in a GDP.
4. If any of the gradient wells will be used for aquifer testing, even without the intention to convert them to production or injection wells, it is necessary to obtain an approved GDP (43 CFR 3260.10(a)).
5. After exploration operations are complete (i.e. within 30 days of ceasing exploration activity), submit a notice of completion (BLM form 3200-10) and all data (43 CFR 3253.10). Data marked proprietary or confidential will be kept from public review.

If you or Roger have any questions, please feel free to call.

Regards,

Michael Smith
Geologist - BLM
Las Cruces District Office
1800 Marquess Street
Las Cruces, NM 88005

575-525-4421
michaelsmith@blm.gov

-----Original Message-----
From: Del Fortner [mailto:delfortner@charter.net]
Sent: Wednesday, December 07, 2011 7:43 PM
To: Roger Bowers
Cc: michael.hayter@cyrqenergy.com; Ben Barker; Smith, Michael A
Subject: Exploratory work proposed on private surface

Roger, I spoke with Mike Smith this afternoon regarding the proper approach to permitting the temperature gradient holes on Dale Burgett's private property. For BLM, this is covered in 43 CFR 3250. The work you propose does not require a Notice of Intent since it is on private land and LDG has a surface access agreement in place with the land owner. Mike did caution to ensure the OCD and OSE consultations take place and you acquire their permits. I understand you are proposing more locations than will be drilled in order to give LDG flexibility to move depending on the results of each subsequent TG hole. I informed Mike that we would share the locations and the temperature and other data acquired from this work so he will have a record of the work. I've cc'd Mike in this email in the event I have mischaracterized his advice he can correct it before you begin.

Regards, Del

Chavez, Carl J, EMNRD

From: Ben Barker [Ben.Barker@cyrqenergy.com]
Sent: Thursday, November 10, 2011 5:26 PM
To: Chavez, Carl J, EMNRD
Cc: Sanchez, Daniel J., EMNRD; Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Mike_Smith@blm.gov
Subject: RE: Sundry notice to amend drilling plan of LDG 53-7
Attachments: Ldg53-7-20111011-00147.jpg

Good afternoon Carl:

I can confirm that the pit in the photo is indeed only a drilling reserve pit, and it is in excellent condition with no breaches. The date of the photo is Oct. 11, 2011 when we had just finished drilling 26" hole and cementing 20" casing. The high-volume hole accounts for the unusually large cuttings pile under the shakers.

The pipe you see in the photo is the cellar drain from the wellhead. The liner was installed with a custom-made boot welded to the liner and secured by redundant water-tight clamps to the drain pipe. The liner manufacturer sent a professional installer from Oregon to oversee the installation and weld any tears, as they have done on thousands of oil and gas pits. There were and are no tears. The other end of the drain pipe is higher than the elevation of the pit edge so there can be no backflow at any pit level. The camera angle and the cuttings piled on the slope below the shakers create the illusion that the drain enters the pit much lower than it actually does. The depth to the drain pipe from the top of the pit is about 18 inches.

If you are available for a personal inspection we will be happy to provide transportation at any time. I think you will be impressed with the quality of materials and workmanship in both the pit and its liner.

Thanks,
Ben

VP Resource Management
Lightning Dock Geothermal HI-01, LLC
Kearns Building, Suite 600
136 South Main Street
Salt Lake City, UT 84101-1684
801-875-4203 office
801-616-6193 mobile1
707-508-9963 mobile2
801-374-3314 fax

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, November 10, 2011 3:46 PM
To: Ben Barker
Cc: Sanchez, Daniel J., EMNRD; Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; 'Mike_Smith@blm.gov'
Subject: RE: Sundry notice to amend drilling plan of LDG 53-7

Ben:

Good afternoon.

Just a note based on the photo (see attachment) of the drill pit, which does not appear to be the centralized pit that Cyrq was planning to reconstruct into a one million gallon capacity with freeboard size pit for future well testing, etc.?

The OCD is concerned about pipes or any breaching of the liner and/or any tears require proper repair and/or liner replacement if tears cannot be repaired. Now that the liner appears to be breached at midpoint, the capacity of the pit to contain or store fluids is reduced.

Please confirm that this is simply the drill pit for Well 53-07 and not the centralized pit that Cyrq has been discussing with the OCD.
Also, please let the OCD know if there are any tears in the liner that need to be repaired. The pipeline breach through the liner can be handled by ensuring adequate freeboard is maintained to prevent leakage through the breached liner location and/or a repair can be made and any pipelines may simply extend over or lie on top of the liner as opposed to breaching the liner at any location.

OCD is anticipating receipt of the "As Built" construction of the centralized pit soon.

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

From: Ben Barker [mailto:Ben.Barker@cyrqenergy.com]
Sent: Monday, November 07, 2011 12:58 AM
To: Dade, Randy, EMNRD
Cc: Chavez, Carl J, EMNRD; Mike_Smith@blm.gov; Richard Estabrook; Michael Hayter; RigMgrCyrq
Subject: Sundry notice to amend drilling plan of LDG 53-7

Dear Mr. Dade,

Thank you for taking time to talk with me about our well program on a Sunday evening. Please find attached the form G-103 to amend the plan of our currently-drilling well LDG 53-7. I will mail a signed paper copy on Monday. The corresponding BLM sundry notice is also attached for your reference. I am sorry to hear you no longer have Darold Gray on staff for inspections. While photos are not a substitute, I include a couple of the rig at work for your information.

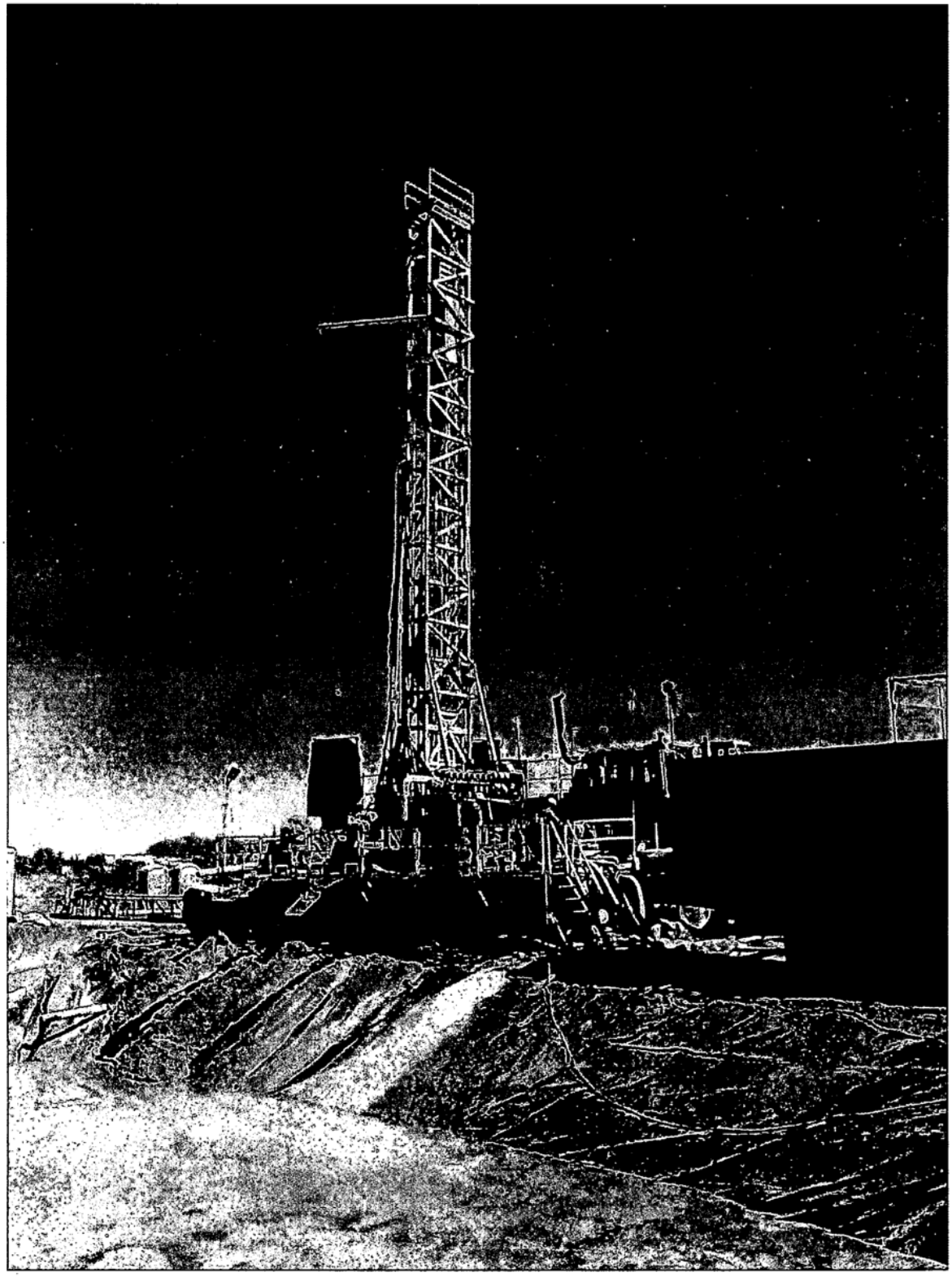
This sundry notice addresses two points, well depth and use of formation water. It was the first point that I discussed with you Sunday evening, and I thank you for your verbal approval to proceed to 4000 ft depth. We are now drilling at 3400 ft and I doubt that we will get more than another 400 ft from this bit, at which point we plan to stop. The G-103 requests the same 4500 ft depth as the BLM sundry for consistency and to cover the unlikely possibility of encountering very rapid drilling.

The second point, use of formation water, is an addition to our geothermal drilling plan. As you know, the benefits of using native fluids in completing wells have been amply demonstrated in oil and gas. Since Lightning Dock Geothermal now has two wells capable of supplying formation water, we would like to begin using water from them to replace domestic fresh water in our drilling operation.

We will be happy to supply any additional information you might need to evaluate these amendments, including an opportunity to consult with our geologist. Thank you for your consideration.

Best regards,
Ben Barker

VP Resource Management
Lightning Dock Geothermal HI-01, LLC
Kearns Building, Suite 600
136 South Main Street
Salt Lake City, UT 84101-1684
801-875-4203 office
801-616-6193 mobile1
707-508-9963 mobile2
801-374-3314 fax



Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, November 10, 2011 3:46 PM
To: 'Ben Barker'
Cc: Sanchez, Daniel J., EMNRD; Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; 'Mike_Smith@blm.gov'
Subject: RE: Sundry notice to amend drilling plan of LDG 53-7
Attachments: Drill Pit Photo 11-7-2011.jpg

Ben:

Good afternoon.

Just a note based on the photo (see attachment) of the drill pit, which does not appear to be the centralized pit that Cyrq was planning to reconstruct into a one million gallon capacity with freeboard size pit for future well testing, etc.?

The OCD is concerned about pipes or any breaching of the liner and/or any tears require proper repair and/or liner replacement if tears cannot be repaired. Now that the liner appears to be breached at midpoint, the capacity of the pit to contain or store fluids is reduced.

Please confirm that this is simply the drill pit for Well 53-07 and not the centralized pit that Cyrq has been discussing with the OCD.
Also, please let the OCD know if there are any tears in the liner that need to be repaired. The pipeline breach through the liner can be handled by ensuring adequate freeboard is maintained to prevent leakage through the breached liner location and/or a repair can be made and any pipelines may simply extend over or lie on top of the liner as opposed to breaching the liner at any location.

OCD is anticipating receipt of the "As Built" construction of the centralized pit soon.

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

From: Ben Barker [mailto:Ben.Barker@cyrqenergy.com]
Sent: Monday, November 07, 2011 12:58 AM
To: Dade, Randy, EMNRD
Cc: Chavez, Carl J, EMNRD; Mike_Smith@blm.gov; Richard Estabrook; Michael Hayter; RigMgrCyrq
Subject: Sundry notice to amend drilling plan of LDG 53-7

Dear Mr. Dade,

Thank you for taking time to talk with me about our well program on a Sunday evening. Please find attached the form G-103 to amend the plan of our currently-drilling well LDG 53-7. I will mail a signed paper copy on Monday. The corresponding BLM sundry notice is also attached for your reference. I am sorry to hear you no longer have Darold Gray on staff for inspections. While photos are not a substitute, I include a couple of the rig at work for your information.

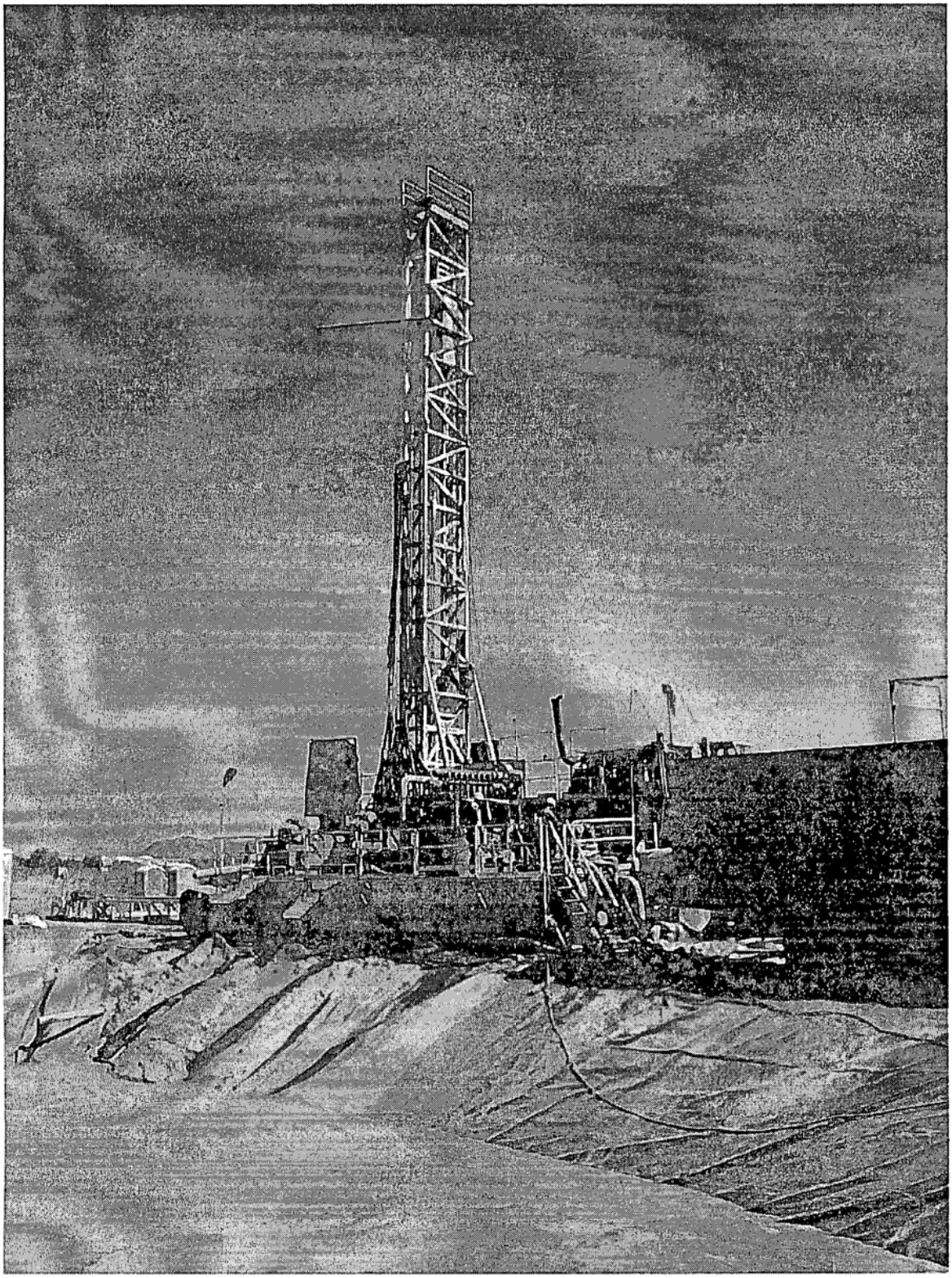
This sundry notice addresses two points, well depth and use of formation water. It was the first point that I discussed with you Sunday evening, and I thank you for your verbal approval to proceed to 4000 ft depth. We are now drilling at 3400 ft and I doubt that we will get more than another 400 ft from this bit, at which point we plan to stop. The G-103 requests the same 4500 ft depth as the BLM sundry for consistency and to cover the unlikely possibility of encountering very rapid drilling.

The second point, use of formation water, is an addition to our geothermal drilling plan. As you know, the benefits of using native fluids in completing wells have been amply demonstrated in oil and gas. Since Lightning Dock Geothermal now has two wells capable of supplying formation water, we would like to begin using water from them to replace domestic fresh water in our drilling operation.

We will be happy to supply any additional information you might need to evaluate these amendments, including an opportunity to consult with our geologist. Thank you for your consideration.

Best regards,
Ben Barker

VP Resource Management
Lightning Dock Geothermal HI-01, LLC
Kearns Building, Suite 600
136 South Main Street
Salt Lake City, UT 84101-1684
801-875-4203 office
801-616-6193 mobile1
707-508-9963 mobile2
801-374-3314 fax



Chavez, Carl J, EMNRD

From: Brooks, David K., EMNRD
Sent: Monday, November 07, 2011 10:56 AM
To: Chavez, Carl J, EMNRD
Subject: RE: Cyrq ownership letter

Categories: Red Category

Based on the information it Mr. Barker's email, if his recitations regarding the named on the permits and bonds are correct, we do not have to do anything.

David

From: Chavez, Carl J, EMNRD
Sent: Tuesday, October 25, 2011 7:31 AM
To: Brooks, David K., EMNRD
Cc: Sanchez, Daniel J., EMNRD; Lucero, Stephen A., EMNRD
Subject: FW: Cyrq ownership letter

David:

Looks like it is a name change from Raser Technologies to Cyrq Energy, Inc.

I'm thinking we keep the same OGRID number, but change the name to Cyrq? Any thoughts or any other concerns?

Thanks.

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

From: Ben Barker [mailto:Ben.Barker@cyrqenergy.com]
Sent: Monday, October 24, 2011 5:56 PM
To: Chavez, Carl J, EMNRD
Cc: Mike_Smith@blm.gov; Dade, Randy, EMNRD; Michael Hayter
Subject: Cyrq ownership letter

Hello Carl,

I returned to my office in Salt Lake City today and found your letter of October 12. A copy should have been forwarded to me in the field and I apologize for our not acknowledging your letter sooner.

I will send a letter responding to your specific queries this week but in the meantime I want to reassure you that none of our interests or operations in New Mexico have changed owners and none of the operator names have changed. All of the permits, bonds and plans filed with or received from NMEMNRD, NMOSE or DOI/BLM are in the names of our two

PRC-registered New Mexico operating entities: Los Lobos Renewable Power, LLC (LLRP) and Lightning Dock Geothermal HI-01, LLC (LDG). LDG continues to be owned by LLRP and LLRP continues to be owned by Raser Power Systems. The corporate parent of Raser Power Systems has undergone a change in name only to Cyrq Energy, Inc.

The practical change since we last spoke is our greatly strengthened corporate balance sheet and more resources to support our development plan. We are completing negotiations with our financial partners over the types of testing that will be needed as we move forward and we wish to discuss those with you. Mike Hayter and I will be in Santa Fe later this week. If you have a time on Friday morning or Thursday afternoon we would be happy to meet with you and answer questions. If that is not convenient for you, would a day next week be better?

Thanks,
Ben Barker

VP Resource Management
Lightning Dock Geothermal HI-01, LLC
Kearns Building, Suite 600
136 South Main Street
Salt Lake City, UT 84101-1684
801-875-4203 office
801-616-6193 mobile1
707-508-9963 mobile2
801-374-3314 fax

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, November 02, 2011 10:54 AM
To: 'Ben Barker'; 'mike.hayter@cyrqenergy.com'
Cc: Bailey, Jami, EMNRD; Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; 'Mike_Smith@blm.gov'
Subject: Test Pit "As Built" Engineering Construction Drawing to Scale and Est. Vols. of Prod. Fluids for Exploratory & Operational Well Testing Requests

Ben and Mike:

Could you please provide the New Mexico Oil Conservation Division (OCD) with the "As Built" Engineering Construction Drawing to Scale for the recently re-constructed pit near Well 55-07.

Also, please provide the estimated volumes of produced fluids needed per individual well test test type during the exploration phase; and if the project ever becomes fully operational, the same information for well type testing with frequency of testing.

Please provide this information to the OCD on or before December 2, 2011. 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
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"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

Chavez, Carl J, EMNRD

From: Ben Barker [Ben.Barker@cyrqenergy.com]
Sent: Monday, October 24, 2011 5:56 PM
To: Chavez, Carl J, EMNRD
Cc: Mike_Smith@blm.gov; Dade, Randy, EMNRD; Michael Hayter
Subject: Cyrq ownership letter

Hello Carl,

I returned to my office in Salt Lake City today and found your letter of October 12. A copy should have been forwarded to me in the field and I apologize for our not acknowledging your letter sooner.

I will send a letter responding to your specific queries this week but in the meantime I want to reassure you that none of our interests or operations in New Mexico have changed owners and none of the operator names have changed. All of the permits, bonds and plans filed with or received from NMEMNRD, NMOSE or DOI/BLM are in the names of our two PRC-registered New Mexico operating entities: Los Lobos Renewable Power, LLC (LLRP) and Lightning Dock Geothermal HI-01, LLC (LDG). LDG continues to be owned by LLRP and LLRP continues to be owned by Raser Power Systems. The corporate parent of Raser Power Systems has undergone a change in name only to Cyrq Energy, Inc.

The practical change since we last spoke is our greatly strengthened corporate balance sheet and more resources to support our development plan. We are completing negotiations with our financial partners over the types of testing that will be needed as we move forward and we wish to discuss those with you. Mike Hayter and I will be in Santa Fe later this week. If you have a time on Friday morning or Thursday afternoon we would be happy to meet with you and answer questions. If that is not convenient for you, would a day next week be better?

Thanks,
Ben Barker

VP Resource Management
Lightning Dock Geothermal HI-01, LLC
Kearns Building, Suite 600
136 South Main Street
Salt Lake City, UT 84101-1684
801-875-4203 office
801-616-6193 mobile1
707-508-9963 mobile2
801-374-3314 fax

Cyrq energy

raser TECHNOLOGIES

October 4, 2011

Cyrq Energy, Inc
Nicholas Goodman
Chief Executive Officer
136 S Main St
Suite 600
Salt Lake City, UT 84101

Dear Stakeholders,

On August 30, 2011, the plan of reorganization for Raser Technologies, Inc. and all of its subsidiaries was confirmed in the United States Bankruptcy Court for the District of Delaware. As of September 9, 2011, Raser Technologies, Inc and all of its subsidiaries emerged from bankruptcy and the plan of reorganization took effect. We sincerely appreciate all of those who have continued to support Raser Technologies, Inc and its subsidiaries through the reorganization process.

Throughout the reorganization process, Raser Technologies, Inc has made several changes within the company. We are excited to announce Raser Technologies, Inc is now Cyrq Energy, Inc. Along with the name change, Cyrq has also relocated its facilities to Salt Lake City. Please note the new contact information for Cyrq Energy, Inc below.

Cyrq Energy, Inc.
Kearns Building, Suite 600
136 South Main Street
Salt Lake City, UT 84101
Phone: 801.875.4200
Fax: 801.374.3314
www.cyrqenergy.com

Cyrq energy

Our new website, www.cyrqenergy.com, is currently under construction and is expected to launch on October 31, 2011. Please note our emails have transitioned to the new domain. Our emails have remained the same except for the domain, which has changed to @cyrqenergy.com. We will maintain the old domain of @rasertech.com for a transitional period of time.

We at Cyrq Energy want to again express our appreciation for your flexibility and support during the reorganization process and hope to develop stronger, long-term relationships with each of you.

Sincerely,

Nicholas Goodman

Nicholas Goodman
Chief Executive Officer

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 12, 2011

Cyrq Energy, Inc.
c/o Mr. Ben Barker
136 South Main Street, Suite 600
Salt Lake City, Utah 84101

Re: Lightning Dock Geothermal Project Information Request (GTHT-001): Raser Technologies, Township 22 South, Range 19 West, NMPM, Hidalgo County, New Mexico

Dear Mr. Barker:

The New Mexico Oil Conservation Division (OCD) became aware of geothermal field activity at the above OCD permitted facility during a telephone call on September 28, 2011 while discussing another geothermal project with the Bureau of Land Management (BLM) - Las Cruces District Office. The OCD was informed by BLM that the company formerly known as Raser Technologies had re-emerged out of Chapter 11 Bankruptcy as "Cyrq Energy, Inc." (Cyrq); however, the OCD has not been contacted by Cyrq about its post bankruptcy plans and/or to discuss any issues with the discharge permit, i.e., bonding, G-101 (Application for Permit to Drill (APD), new operator OCD OGRID requirements, etc.

The OCD hereby lists reminders, possible requirements, and/or requests the following information from Cyrq Energy, Inc.:

1) Verification that Cyrq is registered with the Public Regulation Commission (PRC) as a registered company.
2) Must obtain a new OGRID from the OCD and change its operating status on OCD's system, unless the new name represents merely a name change and not a new entity.
3) Provide the status of field drilling activity, since it apparently became a new company.
4) Submit new applications, i.e., G-101s, 102s, etc. reflecting the "Cyrq Energy, Inc." revisions to forms.
5) OCD will not approve the discharge of produced water onto the farm field and/or "Waters of the State" (see attached February 24, 2011 Santa Fe Meeting Minutes) at the facility.

The information is requested within 30 days of the date of this letter. The OCD and BLM are communicating and working together on this project. Please contact me at (505) 476-3490 or CarlJ.Chavez@state.nm.us if you have questions. Thank you.

Mr. Ben Barker
Cyrq Energy, Inc.
October 12, 2011

Sincerely,

Carl J. Chávez
Environmental Engineer

CJC/cjc

Attachment: February 24, 2011 Santa Fe Meeting Minutes

Xc: Bureau of Land Management- Las Cruces District Office
OCD Underground Injection Control Director
OCD Artesia District Office

Chavez, Carl J, EMNRD

From: Michael Hayter [Michael.Hayter@rasertech.com]
Sent: Wednesday, May 04, 2011 9:34 AM
To: Bemis, John, EMNRD
Cc: Woods, Brett.F, EMNRD; Bailey, Jami, EMNRD; Martinez, Fernando, EMNRD; Chavez, Carl J, EMNRD; VonGonten, Glenn, EMNRD; michelle@mhenrie.com; Ben Barker
Subject: Raser filed for Chpt. 11 to reorganize - Remain comitted to Lightning Dock

Dear Secretary Bemis,

On Friday afternoon, April 29, Raser filed a voluntary, pre-packaged petition for reorganize and restructure our company under Chapter 11 of the U.S. Bankruptcy Code. I wish to emphasize that Raser is not going out of business and will continue its operations while we complete the process over the next several weeks. We are continuing with our commitment to develop the Lightning Dock Geothermal power project in Hidalgo County. Importantly, several of the major creditors are cooperating with us and have committed to providing Raser with additional capital and financing during the bankruptcy process and post bankruptcy. We are encouraged by their support and have jointly submitted a plan to emerge following the bankruptcy and reorganization as a stronger company with a clean balance sheet and capital to fund two focused priorities: the development of Lightning Dock Geothermal in New Mexico and repowering of our existing Thermo 1 geothermal plant in Utah (to significantly increase net output).

For more information, you can go to:
Raser Web Site: http://www.rasertech.com/
Raser Restructuring Press Release: http://www.rasertech.com/news/press-releases/raser-technologies
Raser Resstructuring Q&A: http://www.rasertech.com/news/featured-homepage-story/raser-technologies-plan-of-reorganization

Again, I want to stress that we are continuing our operations and have financial support from several of our major creditors now. We will be providing updates on our web site and I will keep you informed of progress. Of course, you should feel free to contact me with any questions. We remain committed to developing Lightning Dock and to working with you and your agency to develop the first utility scale geothermal power plant in New Mexico.

Regards,
Mike

Director - Business & Project Development
Raser Technologies, Inc.
5152 North Edgewood Drive
Provo, Utah 84003
Office: +1.801.765.1200 x216
Mobile: +1.801.589.1872
www.rasertech.com

Chavez, Carl J, EMNRD

To: Ben Barker
Cc: Dade, Randy, EMNRD; Mike_Smith@blm.gov; Jackson, Charles L., OSE; Rappuhn, Doug H., OSE; VonGonten, Glenn, EMNRD
Subject: RE: Request for reconsideration of G-103, LDG45-7

Mr. Barker, et al.:

The OCD regrets that its position has not changed based on your most recent request today to discharge to the farm field at the project location.

The OCD has completed its review of your February 11, 2011 E-mail and re-submittal based on the OCD's recent February 9, 2011 disapproval of the requested discharge of effluent ground water from Well 45-07 into the nearby farm field. The OCD had previously approved a one-time discharge for the Well 55-07 workover and pump test performed for interested investors in the project. The OCD also later received and reviewed the analytical laboratory data from Turner Laboratories, Inc. submitted shortly after your E-mail this morning.

The OCD notices that there was some difficulty with recovery (50 – 70% range) of some analytical constituents, i.e., sodium, phenols, PAHs, and chlorinated compounds. However, based on the minimal Reporting Limit (RL) and NDs observed in these parameters and in consideration of data submitted, OCD cannot dispute the data results unless the detection was at or near the RL for these constituents to question any possible exceedances. Therefore, the laboratory satisfies the OCD's DQOs based on this situation.

In conclusion, the OCD does not concur with the operator's plan to forego installation of the pits that were approved in the Permit and inject ground water effluent from all project wells into Well 45-07 or any other injection well during the exploration phase of the project. OCD notes this well is not permitted as a Class V Injection Well, but is a geothermal production well that the operator apparently now wishes to use as a Class V Injection Well. Rigorous monitoring is outlined in the Permit from production well effluent before injection via the 3 approved Class V Injection Wells to determine whether NM water quality standards can be met without treatment. If and when, the operator decides to request authorization to produce and/or inject from each well, depending on the well type, the monitoring will be required to show that no treatment of the effluent is necessary other than the basic filtering, etc. to make any allowed effluent suitable for direct discharge into the aquifer or geothermal reservoir, once the operator collects the exploration data to submit in geothermal forms for the OCD to verify that such a geothermal reservoir actually exists at the project location.

Based on the OCD's review of the operator's request, the OCD is concerned that the operator is not proceeding in accordance with its application and approved OCD discharge permit. Therefore, we recommend that the operator take time to study the discharge permit and schedule a meeting to discuss any questions or submit questions via e-mail for the OCD to respond to in order that we may avoid requests that are in conflict with the approved OCD discharge permit and/or the proper mechanism to modify the permit. Also, paperwork should be submitted attached to the appropriate geothermal forms that are properly completed and signed for documentation of the project. All exploration work must be document in some form and serves a purpose when the OCD the proper form requesting authorization to use each well associated with the project. Random requests should not be expected to be received from the operator. Any existing wells handled outside of the scope of the project, will likely be handled similar to the recent Well 55-07 workover.

OCD Comments on your Re-submittal:

Please note that the OCD never indicated that Turner Laboratories lacks credentials. OCD reviewed the EPA QA/QC Summary Sheets today to verify that the laboratory instrumentation meets OCD's DQOs. Based on this situation with NDs, it appears the OCD can consider most, if not all, of the analytical data results do meet the OCD's DQOs. One lab comment is that OCD requires reporting of solids to be based on "Dry" weight and not "Wet" weight as indicated in Turner's analytical report due to the decrease in the calculated analytical data results for solids using "Wet" weight.

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
(Pollution Prevention and Waste Minimization Guidance is under "About Us- Environmental Bureau"
http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

From: Ben Barker [mailto:Ben.Barker@rasertech.com]
Sent: Friday, February 11, 2011 12:24 AM
To: Chavez, Carl J, EMNRD
Cc: Dade, Randy, EMNRD; Mike_Smith@blm.gov; Jackson, Charles L., OSE; Rappuhn, Doug H., OSE; VonGonten, Glenn, EMNRD
Subject: Request for reconsideration of G-103, LDG45-7

Dear Carl,

Thank you for your thoughtful review and for taking time Thursday to fill in some of the gaps in my knowledge of the regulatory background of the Lightning Dock area. We understand that our letter requesting a surface discharge permit (G-103), dated February 4, did not adequately address several important issues. Lightning Dock Geothermal (LDG) respectfully asks for the opportunity to correct those omissions and seeks your reconsideration.
Let me address some particular points raised in your email of February 9.

1. *Lack of Turner Laboratory credentials and QA/QC Summaries.*

   LDG requested expedited analysis of the 45-7 samples with interim reporting of results as soon as they were available. This meant we received several partial reports labeled "draft" in one or two days rather than the usual two weeks required for a formal report. In our haste to put the data before you we did not adequately explain its origin. Turner laboratories advised LDG today that the remaining analyses are complete and that a fully documented report will be delivered next week. Turner has given us verbal assurance that their report will contain the same values already reported and that their work will be fully documented according to EPA standards. The values for Mercury and radioactivity have been added to the attached table on page 3. Neither was significant.

2. *Elevated fluoride and pH reported in 45-7 sample.*

   LDG acknowledges that fluoride levels are high and notes that is true of the entire area. As we reported in our letter of June 30, 2010, Trace Analysis laboratory found a fluoride concentration of 4.84 mg/l in water served to guests at a Lordsburg hotel. The fluoride level reported in 45-7 is below that, at 4.3 mg/l. We point this out merely to recognize that high fluoride is pervasive in Hidalgo County groundwater, not to suggest that it is acceptable.

   We do believe the record of groundwater tests in the area of 45-7 and the adjoining crop field show that this water produced from 45-7 does not increase the risk of fluoride exposure over the water normally produced there for irrigation. Attached to this letter is a map indicating the locations of groundwater wells in Section 7, which are described in the table on page 2, and for which analyses are tabulated on page 3.

   The table on page 3 of the attachment includes all the available data from irrigation and domestic water wells in Section 7. Of the 6 wells for which fluoride measurements are available, only one has a lower fluoride concentration, 3.7 mg/l, than well 45-7. The mean fluoride concentration of the 6 wells, which we understand to have been used for many years to irrigate crops on or near the field we propose to use, is 11 mg/l. The table and map also show the analysis ("well H") of the runoff discharged from Burgett's greenhouses had a fluoride value

of 11.7 mg/l. While high fluoride is clearly a public health issue in drinking water it seems not to have prevented successful floriculture. We believe crop irrigation is a responsible use of the water to grow a winter cover crop that will reduce Aeolian erosion.

With respect to pH, we note that the sample waters from 45-7 were aerated to some extent by the lifting process. This leads to reactions with oxygen and carbon dioxide in the air and increases pH above the *in situ* level. Despite this, the samples do meet the NMAC standard. With production *sans* air lifting, the pH will almost surely decrease. In the case of well 55-7, the air-lifted samples reported to you in June had a pH of 8.69. When we tested again in August after several weeks of pumping, the pH was 6.79, almost a two point reduction.

3. *Volume of discharge.*

LDG seeks to conduct this brief test for the sole purpose of evaluating drilling progress on this first exploratory well. We intend only to learn whether continued drilling is more likely to help or harm the electrical potential of the well. LDG does not intend to use this method for the initial well testing of this well when it is completed. Neither does LDG seek to alter the conditions of approval for testing future wells. LDG fully intends to pursue the policy of no-net-discharge inherent in its project design by using well 45-7 and its successors to return water produced during tests to the reservoir, subject to all the conditions attendant to that use.

The volume of water produced in the 55-7 test was much larger than we expect from 45-7 in the proposed deliverability test. The 55-7 test was largely a reservoir volume test which we do not ask to repeat. We expect 45-7 to be free of the formation drilling damage found in 55-7 and thus to produce at a higher flow rate. Consequently, the limited objectives of the test can be met quickly with a high observed rate and the test terminated promptly. With a rig standing by at a cost of several thousand dollars per day, LDG has no incentive to prolong the flow period. We anticipate satisfying our data needs in fewer than three days and with a withdrawal of less than one third of the amount of water discharged during the 55-7 test. LDG will employ a NMOSE-approved totalizing water meter to comply with all record-keeping requirements.

4. *Pit requirements to protect "Waters of the State."*

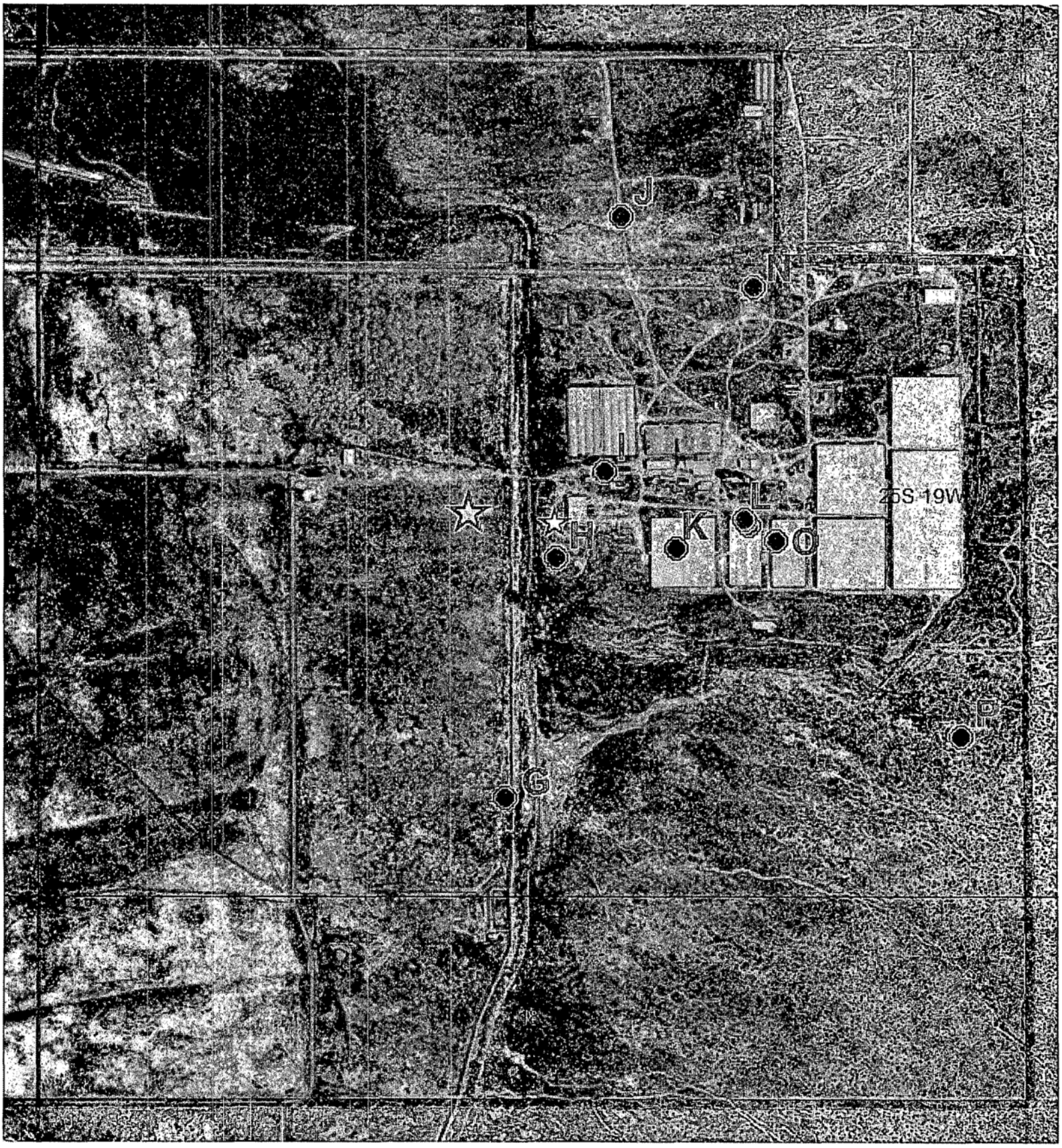
LDG fully accepts its responsibility to protect the "Waters of the State" and believes its record of zero such discharges during the several months of drilling, testing, repairs and retesting at 55-7 bear this out. In the present case, LDG has employed skilled local farmers with the correct survey and tilling equipment to prepare the crop field so as to confine all fluids to the seeded area. LDG has upgraded the distribution system to replace the gravity-feed canal with slotted pipes having adjustable outlets. The field has been graded so the flow of water is westward, away from the valley drain to the playa. Considering the small gradients in this intensively leveled and cultivated area, it unlikely that even a major upset could result in water reaching the creeks or arroyos before being contained with earthmoving equipment LDG keeps on site. The test site will be staffed around the clock to guard against upsets.

We will be happy at any time provide whatever additional information you may need in your deliberation. I will be at the well site on Friday and can provide a video tour of any of the facilities you wish to examine.
Thank you for the opportunity to discuss the Lightning Dock project.

Best regards,
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



☆ 45_7

☆ 55-7

● Wells

Lightning Dock, NM
Reference Map
Section 7

Map Key to Well and Data Base Information

Map Key	DB DATUM	REFERENCE	SAMPLE	DATE	SOURCE DESCRIPTION	Wlongitude27	Nlatitude27	UTM27east	UTM27north
*K	2	Logsdon	P-2	1981	Burgett hot well	-108.83405	32.14549	704288	3558430
*N	3	Logsdon	P-3	1981	McCants well	-108.83272	32.14997	704403	3558928
*G	62	AMAX	AMAX-7	01/27/75	Folk well	-108.83698	32.14122	704020	3557950
*N	63	AMAX	AMAX-8	01/26/75	McCants well	-108.83272	32.14997	704403	3558928
*K	64	AMAX	AMAX-9	07/02/75	Hot well	-108.83405	32.14549	704288	3558430
*N	88	NMSU	NMSU-15	08/06/80	McCants well	-108.83272	32.14997	704403	3558928
*K	89	NMSU	NMSU-16	03/27/81	Burgett well	-108.83405	32.14549	704288	3558430
*L	90	NMSU	NMSU-17	01/06/81	Burgett well	-108.83288	32.14599	704396	3558487
*O	92	NMSU	NMSU-19	01/06/81	Burgett well	-108.83233	32.14563	704449	3558448
*K	93	NMSU	NMSU-20	08/07/80	Burgett well	-108.83405	32.14549	704288	3558430
*K	94	NMSU	NMSU-21	01/06/81	Burgett well	-108.83405	32.14549	704288	3558430
*P	95	NMSU	NMSU-22	08/07/80	Well	-108.82916	32.14227	704756	3558081
I	133	OCD	OCD-4	01/28/86	Burgett geothermal well	-108.83528	32.14681	704168	3558573
H	135	OCD	OCD-6	01/28/86	Burgett greenhouse discharge	-108.83612	32.14534	704093	3558409
J	136	Cunniff	C-1	11/07/85	Well, Beall greenhouse	-108.83501	32.15117	704184	3559057
*K	145	Reeder	R-2A	02/01/49	Richins & McDonald well	-108.83405	32.14549	704288	3558430
*K	146	Reeder	R-2B	04/28/49	Richins & McDonald well	-108.83405	32.14549	704288	3558430
*K	147	Reeder	R-2C	07/30/51	Richins & McDonald well	-108.83405	32.14549	704288	3558430
*K	148	Reeder	R-2D	03/28/52	Richins & McDonald well	-108.83405	32.14549	704288	3558430
*L	178	Summers	Sum-1B	04/28/49	Well	-108.83288	32.14599	704396	3558487
*L	179	Summers	Sum-1E	04/27/54	Well	-108.83288	32.14599	704396	3558487
*O	180	Summers	Sum-2A	04/30/66	Well	-108.83233	32.14563	704449	3558448
*O	181	Summers	Sum-2B	04/30/66	Well	-108.83233	32.14563	704449	3558448
*K	182	Summers	Sum-3	04/30/66	Well	-108.83405	32.14549	704288	3558430

		NMAC	Well 45-7	Water Well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well	well
	Analysis	Standard	2011 Results	Average	*K	*N	*G	*N	*K	*N	*K	*L	*O	*K	*K	*P	I	H	J	*K	*K	*K	*K	*L	*L	*O	*O
A					2	3	62	63	64	88	89	90	92	93	94	95	133	135	136	145	146	147	148	178	179	180	181
1	Arsenic (As)	0.1 mg/L	0.0066	0.01		0.019											0.011	0.012									
2	Barium (Ba)	1.0 mg/L	ND	<0.3		< 0.7											< 0.1	< 0.1									
3	Cadmium (Cd)	0.01 mg/L	ND			< 0.01												< 0.1									
4	Chromium (Cr)	0.05 mg/L	ND	< 0.06		< 0.1											< 0.1	< 0.1									
5	Cyanide (CN)	0.2 mg/L	ND																								
6	Fluoride (F)	1.6 mg/L	4.3	11.0	12.6	12	7.8	13	15								12.5	11.7			11			11	9.9	3.7	12
7	Lead (Pb)	0.05 mg/L	ND	0.24		0.24											< 0.1	< 0.1									
8	Total Mercury (Hg)	0.002 mg/L	ND	0.00		0																					
9	Nitrate (NO3 as N)	10.0 mg/L	1.0	0.79		0.66					1.03				2.15					0.6	0.9		0.4	0.9	0.3		0.2
10	Selenium (Se)	0.05 mg/L	0.0061	0.01		0.01											< 0.01	< 0.01									
11	Silver (Ag)	0.05 mg/L	ND	< 0.08		< 0.03											< 0.1	< 0.1									
12	Uranium (U)	0.03 mg/L	0.00067																								
13	Radioactivity: Radium (Ra 226-228)	30 pCi/L	<0.4																								
14	Benzene	0.01 mg/L	ND																								
15	Polychlorinated biphenyls (PCB's)	0.001 mg/L	ND																								
16	Toluene	0.75 mg/L	ND																								
17	Carbon Tetrachloride	0.01 mg/L	ND																								
18	1,2-dichloroethane (EDC)	0.01 mg/L	ND																								
19	1,1-dichloroethylene (1,1-DCE)	0.005 mg/L	ND																								
20	1,1,2,2-tetrachloroethylene (PCE)	0.02 mg/L	ND																								
21	1,1,2-trichloroethylene (TCE)	0.1 mg/L	ND																								
22	ethylbenze	0.75 mg/L	0.0027																								
23	total xylenes	0.62 mg/L	0.036																								
24	methylene chloride	0.1 mg/L	ND																								
25	chloroform	0.1 mg/L	ND																								
26	1,1-dichloroethane	0.025 mg/L	ND																								
27	ethlene dibromide (EDB)	0.0001 mg/L	ND																								
28	1,1,1-trichloroethane	0.06 mg/L	ND																								
29	1,1,2-trichloroethane	0.01 mg/L	ND																								
30	1,1,2,2-tetrachloroethane	0.01 mg/L	ND																								
31	vinyl chloride	0.001 mg/L	ND																								
32	PAH's: total naphthalene + monomethylnaphthalenes	0.03 mg/L	ND																								
33	benzo-a-pyrene	0.0007 mg/L	ND																								
B																											
1	Chloride (Cl)	250.0 mg/L	44	89	88.30	87.00	130	98	112	89	82	88		123	106	15	94.3	92.4	81.2	85	78	81	82	78	83	88	89
2	Copper (Cu)	1.0 mg/L	ND	< 0.1		< 0.1											< 0.1	< 0.1									
3	Iron (Fe)	1.0 mg/L	ND	0.44	0.20	0.4											<0.1	0.2							0.07	1.5	0.05
4	Manganese (Mn)	0.2 mg/L	ND	0.14		0.08											<0.05	0.05							0	0.41	0.16
5	Phenols	0.005 mg/L	ND																								
6	Sulfate (SO4)	600.0 mg/L	220	510	497.1	480	700	460	400	508	513	536		881	768	80	585	537	394.6	509	460			460	474	469	490
7	Total Dissolved Solids (TDS)	1000.0 mg/L	580	1073	1116	1024	457	1132	1143	982	1167	1034		1628	1452	352	1195	1115	1092	1020	1130			1130	1160	1057	1070
8	Zinc (Zn)	10.0 mg/L	ND	< 0.1		0.1											< 0.1	< 0.1									
9	pH	between 6-9	9.00	8.06	7.71	8.16	7	8.1	7.8	8.5	7.3	8	8.1	8.7	8.5	7.3	8.1	8.1	7.38				8.2		8.4	8.75	9.1
C																											
1	Aluminum (Al)	5.0 mg/L	ND	< 0.68		< 2.5												< 0.1							0.1	0.01	
2	Boron (B)	0.75 mg/L	0.23	0.36	0.48	0.5	0	0	0.4								0.5	0.5						0.45		0.34	0.45
3	Cobalt (Co)	0.05 mg/L	ND	< 0.11		< 0.15											< 0.1	< 0.1									
4	Molybdenum (Mo)	1.0 mg/L	0.018	< 0.23		< 0.5											< 0.1	< 0.1									
5	Nickel (Ni)	0.2 mg/L	ND	< 0.08		< 0.03											< 0.1	< 0.1									

Chavez, Carl J, EMNRD

From: Ben Barker [Ben.Barker@rasertech.com]
Sent: Friday, February 11, 2011 10:44 AM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Jackson, Charles L., OSE; Rappuhn, Doug H., OSE; Mike_Smith@blm.gov; Dade, Randy, EMNRD
Subject: Final chemistry report LDG45-7
Attachments: Turner11A0692 FINAL 02 11 2011 0911.pdf

Good Morning Carl,

Turner laboratories sent their report complete with the missing QA/QC reports this morning. It is attached for your file.

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

TURNER
LABORATORIES INC.

February 11, 2011

Jamie Robinson
Raser Technologies Inc.
5152 N. Edgewood Drive
Provo, UT 84604

TEL (801) 765-1200
FAX

Work Order No.: 11A0692
Order Name: 45-07

RE: Lightning Dock

Dear Jamie Robinson,

Turner Laboratories, Inc. received 1 sample(s) on 01/31/2011 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Terri L. Garcia

Terri Garcia
Technical Director

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

Order: 45-07

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
11A0692-01	LDG 45-7	Ground Water	01/31/2011 1400

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

Case Narrative

The radiochemistry analysis was performed by Radiation Safety Engineering, Inc. in Chandler, AZ.

D5	Minimum Reporting Limit (MRL) is elevated due to sample dilution.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
V1	CCV recovery was above method acceptance limits. This target analyte was not detected in the sample.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
ICP Dissolved Metals-E 200.7								
Aluminum	ND	2.0		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Barium	ND	0.050		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Boron	0.23	0.10		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Cadmium	ND	0.0020		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Calcium	14	4.0		mg/L	1	02/01/2011 0830	02/03/2011 1104	RAD
Chromium	ND	0.030		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Copper	ND	0.020		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Iron	ND	0.30		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Magnesium	ND	3.0		mg/L	1	02/01/2011 0830	02/03/2011 1104	RAD
Manganese	ND	0.020		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Molybdenum	0.018	0.010		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Nickel	ND	0.050		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Silver	ND	0.010		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Sodium	250	5.0	M3	mg/L	1	02/01/2011 0830	02/03/2011 1104	RAD
Zinc	ND	0.040		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
ICP/MS Dissolved Metals-E 200.8								
Arsenic	0.0066	0.00050		mg/L	1	02/01/2011 0830	02/02/2011 1158	RAD
Cobalt	ND	0.0012	D5	mg/L	5	02/01/2011 0830	02/03/2011 1100	RAD
Lead	ND	0.00050		mg/L	1	02/01/2011 0830	02/02/2011 1158	RAD
Selenium	0.0061	0.0025		mg/L	1	02/01/2011 0830	02/02/2011 1158	RAD
Uranium	0.00067	0.00050		mg/L	1	02/01/2011 0830	02/02/2011 1604	RAD
pH-E150.1								
pH (pH Units)	9.0	0.0		-	1	01/31/2011 1645	01/31/2011 1657	GW
Temperature (°C)	26			-	1	01/31/2011 1645	01/31/2011 1657	GW
CVAA Total Mercury-E245.1								
Mercury	ND	0.0010		mg/L	1	02/08/2011 1100	02/09/2011 0948	RAD
Anions by Ion Chromatography-E300								
Chloride	44	5.0		mg/L	5	02/02/2011 1200	02/03/2011 0038	JM
Fluoride	4.3	2.5		mg/L	5	02/02/2011 1200	02/03/2011 0038	JM
Nitrogen, Nitrate (As N)	1.0	1.0		mg/L	1	02/01/2011 1300	02/01/2011 1727	JM
Sulfate	220	100		mg/L	20	02/02/2011 1200	02/03/2011 0057	JM
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	580	20		mg/L	1	02/01/2011 1015	02/03/2011 1450	GW

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Cyanide-SM4500-CN BE								
Cyanide	ND	0.10		mg/L	1	02/03/2011 0830	02/04/2011 0730	JM
Silica-SM4500-Si D								
Silica	120	50		mg/L	25	02/04/2011 1410	02/04/2011 1455	EW
PCBs-SW8082								
Aroclor 1016	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1221	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1232	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1242	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1248	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1254	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1260	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Surr: Decachlorobiphenyl	*99*	*49.2-158.7*		*%REC*	*1*	*02/01/2011 1136*	*02/02/2011 2134*	*DCB*
Volatile Organic Compounds by GC/MS-SW8260B								
1,1,1,2-Tetrachloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,1-Trichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,2,2-Tetrachloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,2-Trichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,2-Trichlorotrifluoroethane	ND	5.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1-Dichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1-Dichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1-Dichloropropene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,3-Trichlorobenzene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,3-Trichloropropane	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,4-Trichlorobenzene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,4-Trimethylbenzene	0.50	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dibromo-3-chloropropane	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dibromoethane	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dichlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dichloropropane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,3,5-Trimethylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,3-Dichlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,3-Dichloropropane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,4-Dichlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
2,2-Dichloropropane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
2-Butanone	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
2-Chlorotoluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
2-Hexanone	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
4-Chlorotoluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
4-Isopropyltoluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
4-Methyl-2-pentanone	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Acetone	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Acrylonitrile	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Benzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromochloromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromodichloromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromoform	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromomethane	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Carbon disulfide	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Carbon tetrachloride	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chloroethane	ND	1.0	V1	ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chloroform	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chloromethane	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
cis-1,2-Dichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
cis-1,3-Dichloropropene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Dibromochloromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Dibromomethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Dichlorodifluoromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Ethylbenzene	2.7	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Hexachlorobutadiene	ND	5.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Iodomethane	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Isopropylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
m,p-Xylene	17	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Methylene chloride	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Naphthalene	8.9	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
n-Butylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
n-Propylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
o-Xylene	19	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
sec-Butylbenzene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Styrene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
tert-Butylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Tetrachloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Toluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
trans-1,2-Dichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
trans-1,3-Dichloropropene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
trans-1,4-Dichloro-2-butene	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Trichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Trichlorofluoromethane	ND	0.50	V1	ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Vinyl acetate	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Vinyl chloride	ND	0.50	V1	ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Surr: 4-Bromofluorobenzene	*98*	*70-130*		*%REC*	*1*	*02/01/2011 1257*	*02/01/2011 1435*	*KP*
Surr: Dibromofluoromethane	*111*	*70-130*		*%REC*	*1*	*02/01/2011 1257*	*02/01/2011 1435*	*KP*
Surr: Toluene-d8	*100*	*70-130*		*%REC*	*1*	*02/01/2011 1257*	*02/01/2011 1435*	*KP*
Semivolatile Organic Compounds-SW8270C								
1,2,4-Trichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
1,2-Dichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
1,3-Dichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
1,4-Dichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4,5-Trichlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4,6-Trichlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dichlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dimethylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dinitrophenol	ND	48		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dinitrotoluene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,6-Dinitrotoluene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Chloronaphthalene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Chlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Methylnaphthalene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Nitroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Nitrophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
3,3'-Dichlorobenzidine	ND	19	V1	ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
3,4-Methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
3-Nitroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4,6-Dinitro-2-methylphenol	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Bromophenyl phenyl ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Chloro-3-methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Chloroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Chlorophenyl phenyl ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Nitroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Nitrophenol	ND	48	V1	ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Acenaphthene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Acenaphthylene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Aniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Anthracene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzo[a]anthracene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Benzo[a]pyrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzo[b,k]fluoranthene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzo[g,h,i]perylene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzoic acid	19	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzyl alcohol	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-chloroethoxy)methane	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-chloroethyl)ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-chloroisopropyl)ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-ethylhexyl)phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Butyl benzyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Chrysene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Dibenz[a,h]anthracene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Dibenzofuran	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Diethyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Dimethyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Di-n-butyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Di-n-octyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Fluoranthene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Fluorene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachlorobutadiene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachlorocyclopentadiene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachloroethane	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Indeno[1,2,3-cd]pyrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Isophorone	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Naphthalene	5.7	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Nitrobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
N-Nitrosodimethylamine	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
N-Nitrosodiphenylamine	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
N-Nitrosodipropylamine	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Pentachlorophenol	ND	29		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Phenanthrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Phenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Pyrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Surr: 2,4,6-Tribromophenol	*85*	*41.08-112.4*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: 2-Fluorobiphenyl	*70*	*29.5-107.83*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: 2-Fluorophenol	*42*	*19.78-74.14*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: 4-Terphenyl-d14	*60*	*39.48-98.11*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: Nitrobenzene-d5	*71*	*12.94-105.5*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: Phenol-d6	*59*	*14.3-96.41*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102007 - E 200.8										
Blank (1102007-BLK1)				Prepared: 02/01/2011 Analyzed: 02/02/2011						
Arsenic	ND	0.00050	mg/L							
Cobalt	ND	0.00025	mg/L							
Lead	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Uranium	ND	0.00050	mg/L							
LCS (1102007-BS1)				Prepared: 02/01/2011 Analyzed: 02/02/2011						
Arsenic	0.049	0.00050	mg/L	0.05000		98	85-115			
Cobalt	0.050	0.00025	mg/L	0.05000		100	85-115			
Lead	0.050	0.00050	mg/L	0.05000		100	85-115			
Selenium	0.25	0.0025	mg/L	0.2500		98	85-115			
Uranium	0.053	0.00050	mg/L	0.05000		106	85-115			
LCS Dup (1102007-BSD1)				Prepared: 02/01/2011 Analyzed: 02/02/2011						
Arsenic	0.048	0.00050	mg/L	0.05000		96	85-115	2	20	
Cobalt	0.050	0.00025	mg/L	0.05000		99	85-115	0.7	20	
Lead	0.050	0.00050	mg/L	0.05000		100	85-115	0.6	20	
Selenium	0.25	0.0025	mg/L	0.2500		98	85-115	0.2	20	
Uranium	0.052	0.00050	mg/L	0.05000		105	85-115	0.7	20	
Matrix Spike (1102007-MS1)	**Source: 11A0692-01**			Prepared: 02/01/2011 Analyzed: 02/02/2011						
Arsenic	0.057	0.00050	mg/L	0.05000	0.0066	101	70-130			
Cobalt	0.048	0.0012	mg/L	0.05000	0.00022	95	70-130			
Lead	0.055	0.00050	mg/L	0.05000	0.00032	108	70-130			
Selenium	0.25	0.0025	mg/L	0.2500	0.0061	97	70-130			
Uranium	0.063	0.00050	mg/L	0.05000	0.00067	124	70-130			
Batch 1102020 - E 200.7										
Blank (1102020-BLK1)				Prepared: 02/01/2011 Analyzed: 02/03/2011						
Aluminum	ND	2.0	mg/L							
Barium	ND	0.050	mg/L							
Boron	ND	0.10	mg/L							
Cadmium	ND	0.0020	mg/L							
Calcium	ND	4.0	mg/L							
Chromium	ND	0.030	mg/L							
Copper	ND	0.020	mg/L							
Iron	ND	0.30	mg/L							
Magnesium	ND	3.0	mg/L							
Manganese	ND	0.020	mg/L							
Molybdenum	ND	0.010	mg/L							
Nickel	ND	0.050	mg/L							
Silver	ND	0.010	mg/L							
Sodium	ND	5.0	mg/L							
Zinc	ND	0.040	mg/L							

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102020 - E 200.7										
LCS (1102020-BS1)				Prepared: 02/01/2011 Analyzed: 02/03/2011						
Aluminum	2.0	2.0	mg/L	2.000		100	85-115			
Barium	2.0	0.050	mg/L	2.000		100	85-115			
Boron	1.0	0.10	mg/L	1.000		100	85-115			
Cadmium	0.050	0.0020	mg/L	0.05000		101	85-115			
Calcium	10	4.0	mg/L	10.00		103	85-115			
Chromium	0.20	0.030	mg/L	0.2000		102	85-115			
Copper	0.24	0.020	mg/L	0.2500		95	85-115			
Iron	1.0	0.30	mg/L	1.000		103	85-115			
Magnesium	10	3.0	mg/L	10.00		105	85-115			
Manganese	0.50	0.020	mg/L	0.5000		99	85-115			
Molybdenum	0.97	0.010	mg/L	1.000		97	85-115			
Nickel	0.49	0.050	mg/L	0.5000		98	85-115			
Silver	0.048	0.010	mg/L	0.05000		96	0-200			
Sodium	10	5.0	mg/L	10.00		104	85-115			
Zinc	0.51	0.040	mg/L	0.5000		102	85-115			
LCS Dup (1102020-BSD1)				Prepared: 02/01/2011 Analyzed: 02/03/2011						
Aluminum	2.0	2.0	mg/L	2.000		100	85-115	0.2	20	
Barium	2.0	0.050	mg/L	2.000		100	85-115	0.007	20	
Boron	1.0	0.10	mg/L	1.000		101	85-115	0.6	20	
Cadmium	0.050	0.0020	mg/L	0.05000		101	85-115	0.04	20	
Calcium	10	4.0	mg/L	10.00		102	85-115	0.5	20	
Chromium	0.20	0.030	mg/L	0.2000		102	85-115	0.02	20	
Copper	0.24	0.020	mg/L	0.2500		96	85-115	0.4	20	
Iron	1.0	0.30	mg/L	1.000		104	85-115	0.3	20	
Magnesium	11	3.0	mg/L	10.00		105	85-115	0.5	20	
Manganese	0.50	0.020	mg/L	0.5000		100	85-115	0.07	20	
Molybdenum	0.97	0.010	mg/L	1.000		97	85-115	0.1	20	
Nickel	0.49	0.050	mg/L	0.5000		98	85-115	0.08	20	
Silver	0.048	0.010	mg/L	0.05000		97	0-200	0.3	200	
Sodium	10	5.0	mg/L	10.00		103	85-115	2	20	
Zinc	0.51	0.040	mg/L	0.5000		102	85-115	0.4	20	

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102020 - E 200.7										
Matrix Spike (1102020-MS1)	**Source: 11A0692-01**			Prepared: 02/01/2011 Analyzed: 02/03/2011						
Aluminum	2.5	2.0	mg/L	2.000	0.43	104	70-130			
Barium	2.0	0.050	mg/L	2.000	0.034	99	70-130			
Boron	1.3	0.10	mg/L	1.000	0.23	103	70-130			
Cadmium	0.046	0.0020	mg/L	0.05000	ND	92	70-130			
Calcium	25	4.0	mg/L	10.00	14	106	70-130			
Chromium	0.20	0.030	mg/L	0.2000	0.00042	99	70-130			
Copper	0.27	0.020	mg/L	0.2500	0.0044	106	70-130			
Iron	1.1	0.30	mg/L	1.000	0.11	100	70-130			
Magnesium	11	3.0	mg/L	10.00	0.23	107	70-130			
Manganese	0.49	0.020	mg/L	0.5000	0.0031	98	70-130			
Molybdenum	0.99	0.010	mg/L	1.000	0.018	97	70-130			
Nickel	0.49	0.050	mg/L	0.5000	0.0043	98	70-130			
Silver	0.043	0.010	mg/L	0.05000	ND	87	0-200			
Sodium	250	5.0	mg/L	10.00	250	(9)	70-130			
Zinc	0.52	0.040	mg/L	0.5000	0.0088	103	70-130			
Batch 1102085 - E245.1										
Blank (1102085-BLK1)				Prepared: 02/08/2011 Analyzed: 02/09/2011						
Mercury	ND	0.0010	mg/L							
LCS (1102085-BS1)				Prepared: 02/08/2011 Analyzed: 02/09/2011						
Mercury	0.0049	0.0010	mg/L	0.005000		98	85-115			
LCS Dup (1102085-BSD1)				Prepared: 02/08/2011 Analyzed: 02/09/2011						
Mercury	0.0054	0.0010	mg/L	0.005000		108	85-115	9	20	
Matrix Spike (1102085-MS1)	**Source: 11B0112-04**			Prepared: 02/08/2011 Analyzed: 02/09/2011						
Mercury	0.0045	0.0010	mg/L	0.005000	ND	90	85-115			
Matrix Spike (1102085-MS2)	**Source: 11B0004-03**			Prepared: 02/08/2011 Analyzed: 02/09/2011						
Mercury	0.0050	0.0010	mg/L	0.005000	0.00047	91	85-115			
Matrix Spike Dup (1102085-MSD1)	**Source: 11B0112-04**			Prepared: 02/08/2011 Analyzed: 02/09/2011						
Mercury	0.0043	0.0010	mg/L	0.005000	ND	86	85-115	5	10	
Matrix Spike Dup (1102085-MSD2)	**Source: 11B0004-03**			Prepared: 02/08/2011 Analyzed: 02/09/2011						
Mercury	0.0051	0.0010	mg/L	0.005000	0.00047	93	85-115	2	10	

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102014 - SM4500-CN BE										
Blank (1102014-BLK1)				Prepared: 02/03/2011 Analyzed: 02/04/2011						
Cyanide	ND	0.10	mg/L							
LCS (1102014-BS1)				Prepared: 02/03/2011 Analyzed: 02/04/2011						
Cyanide	1.9	0.10	mg/L	2.000		95	90-110			
LCS Dup (1102014-BSD1)				Prepared: 02/03/2011 Analyzed: 02/04/2011						
Cyanide	1.9	0.10	mg/L	2.000		96	90-110	1	20	
Matrix Spike (1102014-MS1)		Source: 11A0692-01		Prepared: 02/03/2011 Analyzed: 02/04/2011						
Cyanide	1.9	0.10	mg/L	2.000	ND	93	70-130			
Matrix Spike Dup (1102014-MSD1)		Source: 11A0692-01		Prepared: 02/03/2011 Analyzed: 02/04/2011						
Cyanide	1.8	0.10	mg/L	2.000	ND	92	70-130	1	20	
Batch 1102018 - E150.1										
Duplicate (1102018-DUP1)		Source: 11A0692-01		Prepared & Analyzed: 01/31/2011						
pH (pH Units)	9.0	0.0	-		9.0			0.2	200	
Temperature (°C)	26		-		26			0.4	200	
Batch 1102021 - SM2540 C										
Duplicate (1102021-DUP1)		Source: 11B0002-02		Prepared: 02/01/2011 Analyzed: 02/02/2011						
Total Dissolved Solids (Residue, Filterable)	1200	20	mg/L		1100			3	5	
Batch 1102062 - SM4500-Si D										
Blank (1102062-BLK1)				Prepared & Analyzed: 02/04/2011						
Silica	ND	2.0	mg/L							
LCS (1102062-BS1)				Prepared & Analyzed: 02/04/2011						
Silica	8.3	2.0	mg/L	8.000		104	90-110			
LCS Dup (1102062-BSD1)				Prepared & Analyzed: 02/04/2011						
Silica	8.3	2.0	mg/L	8.000		104	90-110	0.2	20	
Matrix Spike (1102062-MS1)		Source: 11A0692-01		Prepared & Analyzed: 02/04/2011						
Silica	350	50	mg/L	200.0	120	112	70-130			
Matrix Spike Dup (1102062-MSD1)		Source: 11A0692-01		Prepared & Analyzed: 02/04/2011						
Silica	340	50	mg/L	200.0	120	112	70-130	0.4	20	

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102002 - SW8082										
Blank (1102002-BLK1)				Prepared: 02/01/2011 Analyzed: 02/02/2011						
Aroclor 1016	ND	1.0	ug/L							
Aroclor 1221	ND	1.0	ug/L							
Aroclor 1232	ND	1.0	ug/L							
Aroclor 1242	ND	1.0	ug/L							
Aroclor 1248	ND	1.0	ug/L							
Aroclor 1254	ND	1.0	ug/L							
Aroclor 1260	ND	1.0	ug/L							
Surrogate: Decachlorobiphenyl	*2.05*		*ug/L*	*2.000*		*102*	*49.2-158.7*			
LCS (1102002-BS1)				Prepared: 02/01/2011 Analyzed: 02/02/2011						
Aroclor 1016	8.6	1.0	ug/L	10.00		86	63.49-121			
Aroclor 1260	9.3	1.0	ug/L	10.00		93	62.75-136.1			
Surrogate: Decachlorobiphenyl	*1.93*		*ug/L*	*2.000*		*96*	*49.2-158.7*			
LCS (1102002-BS2)				Prepared: 02/01/2011 Analyzed: 02/02/2011						
Aroclor 1016	21	1.0	ug/L	20.00		104	63.49-121			
Aroclor 1260	21	1.0	ug/L	20.00		106	62.75-136.1			
Surrogate: Decachlorobiphenyl	*2.09*		*ug/L*	*2.000*		*104*	*49.2-158.7*			
LCS Dup (1102002-BSD1)				Prepared: 02/01/2011 Analyzed: 02/02/2011						
Aroclor 1016	9.1	1.0	ug/L	10.00		91	63.49-121	5	30	
Aroclor 1260	9.6	1.0	ug/L	10.00		96	62.75-136.1	3	30	
Surrogate: Decachlorobiphenyl	*1.95*		*ug/L*	*2.000*		*98*	*49.2-158.7*			
Matrix Spike (1102002-MS1)		**Source: 11A0692-01**		Prepared: 02/01/2011 Analyzed: 02/02/2011						
Aroclor 1016	9.4	0.95	ug/L	9.542	ND	99	70-130			
Aroclor 1260	9.4	0.95	ug/L	9.542	ND	99	70-130			
Surrogate: Decachlorobiphenyl	*1.93*		*ug/L*	*1.908*		*101*	*49.2-158.7*			
Matrix Spike Dup (1102002-MSD1)		**Source: 11A0692-01**		Prepared: 02/01/2011 Analyzed: 02/02/2011						
Aroclor 1016	9.4	0.95	ug/L	9.533	ND	98	70-130	0.5	30	
Aroclor 1260	9.3	0.95	ug/L	9.533	ND	97	70-130	2	30	
Surrogate: Decachlorobiphenyl	*1.91*		*ug/L*	*1.907*		*100*	*49.2-158.7*			
Batch 1102003 - SW8270C										

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102003 - SW8270C										
Blank (1102003-BLK1)				Prepared: 02/01/2011 Analyzed: 02/03/2011						
1,2,4-Trichlorobenzene	ND	10	ug/L							
1,2-Dichlorobenzene	ND	10	ug/L							
1,3-Dichlorobenzene	ND	10	ug/L							
1,4-Dichlorobenzene	ND	10	ug/L							
2,4,5-Trichlorophenol	ND	10	ug/L							
2,4,6-Trichlorophenol	ND	10	ug/L							
2,4-Dichlorophenol	ND	10	ug/L							
2,4-Dimethylphenol	ND	10	ug/L							
2,4-Dinitrophenol	ND	50	ug/L							
2,4-Dinitrotoluene	ND	10	ug/L							
2,6-Dinitrotoluene	ND	10	ug/L							
2-Chloronaphthalene	ND	10	ug/L							
2-Chlorophenol	ND	10	ug/L							
2-Methylnaphthalene	ND	5.0	ug/L							
2-Methylphenol	ND	10	ug/L							
2-Nitroaniline	ND	20	ug/L							
2-Nitrophenol	ND	10	ug/L							
3,3'-Dichlorobenzidine	ND	20	ug/L							
3,4-Methylphenol	ND	10	ug/L							
3-Nitroaniline	ND	20	ug/L							
4,6-Dinitro-2-methylphenol	ND	20	ug/L							
4-Bromophenyl phenyl ether	ND	10	ug/L							
4-Chloro-3-methylphenol	ND	10	ug/L							
4-Chloroaniline	ND	20	ug/L							
4-Chlorophenyl phenyl ether	ND	10	ug/L							
4-Methylphenol	ND	10	ug/L							
4-Nitroaniline	ND	20	ug/L							
4-Nitrophenol	ND	50	ug/L							
Acenaphthene	ND	5.0	ug/L							
Acenaphthylene	ND	5.0	ug/L							
Aniline	ND	20	ug/L							
Anthracene	ND	5.0	ug/L							
Benzo[a]anthracene	ND	5.0	ug/L							
Benzo[a]pyrene	ND	5.0	ug/L							
Benzo[b,k]fluoranthene	ND	10	ug/L							
Benzo[g,h,i]perylene	ND	5.0	ug/L							
Benzoic acid	ND	50	ug/L							
Benzyl alcohol	ND	5.0	ug/L							
Bis(2-chloroethoxy)methane	ND	10	ug/L							
Bis(2-chloroethyl)ether	ND	10	ug/L							
Bis(2-chloroisopropyl)ether	ND	10	ug/L							
Bis(2-ethylhexyl)phthalate	ND	10	ug/L							
Butyl benzyl phthalate	ND	10	ug/L							
Chrysene	ND	5.0	ug/L							
Dibenz[a,h]anthracene	ND	5.0	ug/L							
Dibenzofuran	ND	5.0	ug/L							
Diethyl phthalate	ND	10	ug/L							
Dimethyl phthalate	ND	10	ug/L							

Client: Raser Technologies Inc.
Project: Lightning Dock
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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102003 - SW8270C										
Blank (1102003-BLK1)				Prepared: 02/01/2011 Analyzed: 02/03/2011						
Di-n-butyl phthalate	ND	10	ug/L							
Di-n-octyl phthalate	ND	10	ug/L							
Fluoranthene	ND	5.0	ug/L							
Fluorene	ND	5.0	ug/L							
Hexachlorobenzene	ND	10	ug/L							
Hexachlorobutadiene	ND	10	ug/L							
Hexachlorocyclopentadiene	ND	10	ug/L							
Hexachloroethane	ND	10	ug/L							
Indeno[1,2,3-cd]pyrene	ND	5.0	ug/L							
Isophorone	ND	10	ug/L							
Naphthalene	ND	5.0	ug/L							
Nitrobenzene	ND	10	ug/L							
N-Nitrosodimethylamine	ND	10	ug/L							
N-Nitrosodiphenylamine	ND	10	ug/L							
N-Nitrosodipropylamine	ND	10	ug/L							
Pentachlorophenol	ND	30	ug/L							
Phenanthrene	ND	5.0	ug/L							
Phenol	ND	10	ug/L							
Pyrene	ND	5.0	ug/L							
Surrogate: 2,4,6-Tribromophenol	*82.1*		*ug/L*	*100.0*		*82*	*41.08-112.41*			
Surrogate: 2-Fluorobiphenyl	*76.4*		*ug/L*	*100.0*		*76*	*29.5-107.83*			
Surrogate: 2-Fluorophenol	*54.4*		*ug/L*	*100.0*		*54*	*19.78-74.14*			
Surrogate: 4-Terphenyl-d14	*66.4*		*ug/L*	*100.0*		*66*	*39.48-98.11*			
Surrogate: Nitrobenzene-d5	*76.3*		*ug/L*	*100.0*		*76*	*12.94-105.54*			
Surrogate: Phenol-d6	*68.2*		*ug/L*	*100.0*		*68*	*14.3-96.41*			
LCS (1102003-BS1)				Prepared: 02/01/2011 Analyzed: 02/03/2011						
1,2,4-Trichlorobenzene	33	10	ug/L	50.00		67	32.7-106.68			
1,4-Dichlorobenzene	28	10	ug/L	50.00		56	25.58-91.41			
2,4-Dinitrotoluene	34	10	ug/L	50.00		68	49.67-92.28			
2-Chlorophenol	56	10	ug/L	100.0		56	15.21-88.26			
4-Chloro-3-methylphenol	69	10	ug/L	100.0		69	27.03-95.83			
4-Nitrophenol	72	50	ug/L	100.0		72	17-100.77			
Acenaphthene	32	5.0	ug/L	50.00		64	38.53-96.01			
N-Nitrosodipropylamine	38	10	ug/L	50.00		76	26.45-119.04			
Pentachlorophenol	72	30	ug/L	100.0		72	32.71-108.11			
Phenol	56	10	ug/L	100.0		56	11.81-93.93			
Pyrene	36	5.0	ug/L	50.00		72	39.75-104.39			
Surrogate: 2,4,6-Tribromophenol	*87.5*		*ug/L*	*100.0*		*87*	*41.18-106.1*			
Surrogate: 2-Fluorobiphenyl	*70.8*		*ug/L*	*100.0*		*71*	*44.85-96.32*			
Surrogate: 2-Fluorophenol	*44.3*		*ug/L*	*100.0*		*44*	*7.11-72.06*			
Surrogate: 4-Terphenyl-d14	*63.3*		*ug/L*	*100.0*		*63*	*50.25-87.96*			
Surrogate: Nitrobenzene-d5	*69.7*		*ug/L*	*100.0*		*70*	*25.2-98.11*			
Surrogate: Phenol-d6	*61.4*		*ug/L*	*100.0*		*61*	*27.14-95.51*			

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102003 - SW8270C										
LCS Dup (1102003-BSD1)				Prepared: 02/01/2011 Analyzed: 02/03/2011						
1,2,4-Trichlorobenzene	31	10	ug/L	50.00		(63)	32.7-106.68	6	30	
1,4-Dichlorobenzene	25	10	ug/L	50.00		(51)	25.58-91.41	10	30	
2,4-Dinitrotoluene	34	10	ug/L	50.00		(68)	49.67-92.28	0.5	30	
2-Chlorophenol	52	10	ug/L	100.0		(52)	15.21-88.26	7	30	
4-Chloro-3-methylphenol	67	10	ug/L	100.0		(67)	27.03-95.83	3	30	
4-Nitrophenol	75	50	ug/L	100.0		75	17-100.77	4	30	
Acenaphthene	29	5.0	ug/L	50.00		(59)	38.53-96.01	8	30	
N-Nitrosodipropylamine	37	10	ug/L	50.00		74	26.45-119.04	3	30	
Pentachlorophenol	72	30	ug/L	100.0		72	32.71-108.11	1	30	
Phenol	53	10	ug/L	100.0		(53)	11.81-93.93	6	30	
Pyrene	33	5.0	ug/L	50.00		(66)	39.75-104.39	9	30	
Surrogate: 2,4,6-Tribromophenol	*82.7*		*ug/L*	*100.0*		*83*	*41.18-106.1*			
Surrogate: 2-Fluorobiphenyl	*65.9*		*ug/L*	*100.0*		(66)	*44.85-96.32*			
Surrogate: 2-Fluorophenol	*42.7*		*ug/L*	*100.0*		(43)	*7.11-72.06*			
Surrogate: 4-Terphenyl-d14	*58.4*		*ug/L*	*100.0*		(58)	*50.25-87.96*			
Surrogate: Nitrobenzene-d5	*67.0*		*ug/L*	*100.0*		(67)	*25.2-98.11*			
Surrogate: Phenol-d6	*58.8*		*ug/L*	*100.0*		(59)	*27.14-95.51*			
Matrix Spike (1102003-MS1)	**Source: 11A0692-01**			Prepared: 02/01/2011 Analyzed: 02/03/2011						
1,2,4-Trichlorobenzene	27	9.6	ug/L	47.76	ND	(57)	13.68-114.86			
1,4-Dichlorobenzene	26	9.6	ug/L	47.76	ND	(54)	13.41-95.28			
2,4-Dinitrotoluene	35	9.6	ug/L	47.76	ND	74	39.33-98.47			
2-Chlorophenol	49	9.6	ug/L	95.51	ND	(51)	7.08-100.58			
4-Chloro-3-methylphenol	68	9.6	ug/L	95.51	ND	71	33.73-85.17			
4-Nitrophenol	82	48	ug/L	95.51	ND	86	13.67-112.24			
Acenaphthene	30	4.8	ug/L	47.76	ND	(62)	18.64-108.09			
N-Nitrosodipropylamine	32	9.6	ug/L	47.76	ND	(67)	1.19-137.3			
Pentachlorophenol	74	29	ug/L	95.51	ND	77	30.6-111.27			
Phenol	55	9.6	ug/L	95.51	ND	(58)	20.89-90.16			
Pyrene	25	4.8	ug/L	47.76	ND	(52)	20.26-114.22			
Surrogate: 2,4,6-Tribromophenol	*83.3*		*ug/L*	*95.51*		*87*	*41.08-112.41*			
Surrogate: 2-Fluorobiphenyl	*75.4*		*ug/L*	*95.51*		*79*	*29.5-107.83*			
Surrogate: 2-Fluorophenol	*33.7*		*ug/L*	*95.51*		(35)	*19.78-74.14*			
Surrogate: 4-Terphenyl-d14	*66.5*		*ug/L*	*95.51*		*70*	*39.48-98.11*			
Surrogate: Nitrobenzene-d5	*70.2*		*ug/L*	*95.51*		*74*	*12.94-105.54*			
Surrogate: Phenol-d6	*56.7*		*ug/L*	*95.51*		(59)	*14.3-96.41*			

Client: Raser Technologies Inc.
Project: Lightning Dock
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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102003 - SW8270C										
Matrix Spike Dup (1102003-MSD1)	**Source: 11A0692-01**			Prepared: 02/01/2011 Analyzed: 02/03/2011						
1,2,4-Trichlorobenzene	28	9.6	ug/L	48.03	ND	(59)	13.68-114.86	4	30	
1,4-Dichlorobenzene	26	9.6	ug/L	48.03	ND	(54)	13.41-95.28	0.3	30	
2,4-Dinitrotoluene	33	9.6	ug/L	48.03	ND	(69)	39.33-98.47	6	30	
2-Chlorophenol	52	9.6	ug/L	96.06	ND	(54)	7.08-100.58	6	30	
4-Chloro-3-methylphenol	69	9.6	ug/L	96.06	ND	71	33.73-85.17	1	30	
4-Nitrophenol	78	48	ug/L	96.06	ND	81	13.67-112.24	5	30	
Acenaphthene	30	4.8	ug/L	48.03	ND	(62)	18.64-108.09	0.3	30	
N-Nitrosodipropylamine	34	9.6	ug/L	48.03	ND	70	1.19-137.3	5	30	
Pentachlorophenol	68	29	ug/L	96.06	ND	71	30.6-111.27	8	30	
Phenol	56	9.6	ug/L	96.06	ND	(58)	20.89-90.16	0.7	30	
Pyrene	23	4.8	ug/L	48.03	ND	(48)	20.26-114.22	7	30	
Surrogate: 2,4,6-Tribromophenol	*79.6*		*ug/L*	*96.06*		*83*	*41.08-112.41*			
Surrogate: 2-Fluorobiphenyl	*71.0*		*ug/L*	*96.06*		*74*	*29.5-107.83*			
Surrogate: 2-Fluorophenol	*37.8*		*ug/L*	*96.06*		(39)	*19.78-74.14*			
Surrogate: 4-Terphenyl-d14	*57.1*		*ug/L*	*96.06*		(59)	*39.48-98.11*			
Surrogate: Nitrobenzene-d5	*71.0*		*ug/L*	*96.06*		*74*	*12.94-105.54*			
Surrogate: Phenol-d6	*58.8*		*ug/L*	*96.06*		(61)	*14.3-96.41*			

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102005 - SW8260B										

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102005 - SW8260B										
Blank (1102005-BLK1)				Prepared & Analyzed: 02/01/2011						
1,1,1,2-Tetrachloroethane	ND	0.50	ug/L							
1,1,1-Trichloroethane	ND	0.50	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L							
1,1,2-Trichloroethane	ND	0.50	ug/L							
1,1,2-Trichlorotrifluoroethane	ND	5.0	ug/L							
1,1-Dichloroethane	ND	0.50	ug/L							
1,1-Dichloroethene	ND	0.50	ug/L							
1,1-Dichloropropene	ND	0.50	ug/L							
1,2,3-Trichlorobenzene	ND	2.0	ug/L							
1,2,3-Trichloropropane	ND	1.0	ug/L							
1,2,4-Trichlorobenzene	ND	2.0	ug/L							
1,2,4-Trimethylbenzene	ND	0.50	ug/L							
1,2-Dibromo-3-chloropropane	ND	10	ug/L							
1,2-Dibromoethane	ND	2.0	ug/L							
1,2-Dichlorobenzene	ND	0.50	ug/L							
1,2-Dichloroethane	ND	0.50	ug/L							
1,2-Dichloropropane	ND	0.50	ug/L							
1,3,5-Trimethylbenzene	ND	0.50	ug/L							
1,3-Dichlorobenzene	ND	0.50	ug/L							
1,3-Dichloropropane	ND	0.50	ug/L							
1,4-Dichlorobenzene	ND	0.50	ug/L							
2,2-Dichloropropane	ND	0.50	ug/L							
2-Butanone	ND	10	ug/L							
2-Chlorotoluene	ND	0.50	ug/L							
2-Hexanone	ND	2.0	ug/L							
4-Chlorotoluene	ND	0.50	ug/L							
4-Isopropyltoluene	ND	0.50	ug/L							
4-Methyl-2-pentanone	ND	2.0	ug/L							
Acetone	ND	10	ug/L							
Acrylonitrile	ND	10	ug/L							
Benzene	ND	0.50	ug/L							
Bromobenzene	ND	0.50	ug/L							
Bromochloromethane	ND	0.50	ug/L							
Bromodichloromethane	ND	0.50	ug/L							
Bromoform	ND	2.0	ug/L							
Bromomethane	ND	1.0	ug/L							
Carbon disulfide	ND	2.0	ug/L							
Carbon tetrachloride	ND	0.50	ug/L							
Chlorobenzene	ND	0.50	ug/L							
Chloroethane	ND	1.0	ug/L							
Chloroform	ND	0.50	ug/L							
Chloromethane	ND	1.0	ug/L							
cis-1,2-Dichloroethene	ND	0.50	ug/L							
cis-1,3-Dichloropropene	ND	2.0	ug/L							
Dibromochloromethane	ND	0.50	ug/L							
Dibromomethane	ND	0.50	ug/L							
Dichlorodifluoromethane	ND	0.50	ug/L							
Ethylbenzene	ND	0.50	ug/L							

Client: Raser Technologies Inc.
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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102005 - SW8260B										
Blank (1102005-BLK1)				Prepared & Analyzed: 02/01/2011						
Hexachlorobutadiene	ND	5.0	ug/L							
Iodomethane	ND	10	ug/L							
Isopropylbenzene	ND	0.50	ug/L							
m,p-Xylene	ND	1.0	ug/L							
Methylene chloride	ND	1.0	ug/L							
Naphthalene	ND	2.0	ug/L							
n-Butylbenzene	ND	0.50	ug/L							
n-Propylbenzene	ND	0.50	ug/L							
o-Xylene	ND	0.50	ug/L							
sec-Butylbenzene	ND	2.0	ug/L							
Styrene	ND	0.50	ug/L							
tert-Butylbenzene	ND	0.50	ug/L							
Tetrachloroethene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
trans-1,2-Dichloroethene	ND	0.50	ug/L							
trans-1,3-Dichloropropene	ND	2.0	ug/L							
trans-1,4-Dichloro-2-butene	ND	10	ug/L							
Trichloroethene	ND	0.50	ug/L							
Trichlorofluoromethane	ND	0.50	ug/L							
Vinyl acetate	ND	10	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*28.0*		*ug/L*	*25.00*		*112*	*70-130*			
Surrogate: Toluene-d8	*24.5*		*ug/L*	*25.00*		*98*	*70-130*			
LCS (1102005-BS1)				Prepared & Analyzed: 02/01/2011						
1,1-Dichloroethene	30		ug/L	25.00		122	70-130			
Benzene	26		ug/L	25.00		104	70-130			
Chlorobenzene	26		ug/L	25.00		106	70-130			
Toluene	26		ug/L	25.00		104	70-130			
Trichloroethene	27		ug/L	25.00		106	70-130			
Surrogate: 4-Bromofluorobenzene	*25.4*		*ug/L*	*25.00*		*102*	*70-130*			
Surrogate: Dibromofluoromethane	*28.1*		*ug/L*	*25.00*		*113*	*70-130*			
Surrogate: Toluene-d8	*25.5*		*ug/L*	*25.00*		*102*	*70-130*			
LCS Dup (1102005-BSD1)				Prepared & Analyzed: 02/01/2011						
1,1-Dichloroethene	31		ug/L	25.00		123	70-130	0.5	30	
Benzene	26		ug/L	25.00		106	70-130	1	30	
Chlorobenzene	27		ug/L	25.00		109	70-130	3	30	
Toluene	27		ug/L	25.00		109	70-130	4	30	
Trichloroethene	27		ug/L	25.00		109	70-130	2	30	
Surrogate: 4-Bromofluorobenzene	*25.2*		*ug/L*	*25.00*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*27.6*		*ug/L*	*25.00*		*110*	*70-130*			
Surrogate: Toluene-d8	*26.1*		*ug/L*	*25.00*		*104*	*70-130*			

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102005 - SW8260B										
Matrix Spike (1102005-MS1)	**Source: 11A0692-01**			Prepared & Analyzed: 02/01/2011						
1,1-Dichloroethene	31		ug/L	25.00	ND	124	70-130			
Benzene	26		ug/L	25.00	0.010	103	70-130			
Chlorobenzene	27		ug/L	25.00	ND	106	70-130			
Toluene	27		ug/L	25.00	0.18	106	70-130			
Trichloroethene	27		ug/L	25.00	ND	108	70-130			
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*26.6*		*ug/L*	*25.00*		*107*	*70-130*			
Surrogate: Toluene-d8	*25.2*		*ug/L*	*25.00*		*101*	*70-130*			
Matrix Spike Dup (1102005-MSD1)	**Source: 11A0692-01**			Prepared & Analyzed: 02/01/2011						
1,1-Dichloroethene	30		ug/L	25.00	ND	122	70-130	2	30	
Benzene	26		ug/L	25.00	0.010	103	70-130	0.7	30	
Chlorobenzene	26		ug/L	25.00	ND	105	70-130	1	30	
Toluene	26		ug/L	25.00	0.18	104	70-130	2	30	
Trichloroethene	27		ug/L	25.00	ND	106	70-130	1	30	
Surrogate: 4-Bromofluorobenzene	*24.7*		*ug/L*	*25.00*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*27.6*		*ug/L*	*25.00*		*110*	*70-130*			
Surrogate: Toluene-d8	*25.2*		*ug/L*	*25.00*		*101*	*70-130*			

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1102004 - E300										
Blank (1102004-BLK1)				Prepared & Analyzed: 02/01/2011						
Nitrogen, Nitrate (As N)	ND	1.0	mg/L							
LCS (1102004-BS1)				Prepared & Analyzed: 02/01/2011						
Nitrogen, Nitrate (As N)	5.1	1.0	mg/L	5.000		102	90-110			
LCS Dup (1102004-BSD1)				Prepared & Analyzed: 02/01/2011						
Nitrogen, Nitrate (As N)	5.1	1.0	mg/L	5.000		102	90-110	0.4	10	
Matrix Spike (1102004-MS1)	**Source: 11B0002-02**			Prepared & Analyzed: 02/03/2011						
Nitrogen, Nitrate (As N)	35	5.0	mg/L	25.00	8.8	105	80-120			
Matrix Spike Dup (1102004-MSD1)	**Source: 11B0002-02**			Prepared & Analyzed: 02/03/2011						
Nitrogen, Nitrate (As N)	35	5.0	mg/L	25.00	8.8	106	80-120	0.6	10	
Batch 1102013 - E300										
Blank (1102013-BLK1)				Prepared & Analyzed: 02/02/2011						
Chloride	ND	1.0	mg/L							
Fluoride	ND	0.50	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1102013-BS1)				Prepared & Analyzed: 02/02/2011						
Chloride	12	1.0	mg/L	12.50		99	90-110			
Fluoride	2.0	0.50	mg/L	2.000		100	90-110			
Sulfate	13	5.0	mg/L	12.50		103	90-110			
LCS Dup (1102013-BSD1)				Prepared & Analyzed: 02/02/2011						
Chloride	12	1.0	mg/L	12.50		100	90-110	1	10	
Fluoride	1.9	0.50	mg/L	2.000		95	90-110	5	10	
Sulfate	13	5.0	mg/L	12.50		103	90-110	0.8	10	
Matrix Spike (1102013-MS2)	**Source: 11A0675-01**			Prepared: 02/02/2011 Analyzed: 02/03/2011						
Sulfate	440	100	mg/L	250.0	170	106	80-120			
Matrix Spike (1102013-MS3)	**Source: 11A0675-01**			Prepared: 02/02/2011 Analyzed: 02/03/2011						
Fluoride	2.4	0.50	mg/L	2.000	0.50	97	80-120			
Matrix Spike Dup (1102013-MSD2)	**Source: 11A0675-01**			Prepared: 02/02/2011 Analyzed: 02/03/2011						
Sulfate	450	100	mg/L	250.0	170	109	80-120	1	10	
Matrix Spike Dup (1102013-MSD3)	**Source: 11A0675-01**			Prepared: 02/02/2011 Analyzed: 02/03/2011						
Fluoride	2.4	0.50	mg/L	2.000	0.50	96	80-120	0.5	10	

TURNER LABORATORY INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 11A0692 DATE _____ PAGE _____ OF _____

PROJECT NAME LDG 45-7 # _____
CONTACT NAME Ben Barker
COMPANY NAME Raser Technologies
ADDRESS 5152 North Edgewood dr.
Provo, Utah 84604 PHONE _____ FAX _____
SAMPLER'S SIGNATURE Steve R Harmon

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX
LDG45-7	1-31-11	2:00		GW		SEE ATTACHED

Base Neutrals ☐ Acids ☐ 625/8270
Volatile Organics 624/524.2/8260 ☐
TTHMS ☐ HAA5 ☐
Pesticides ☐ PCB's ☐ 8081 8082
NO3 ☐ NO2 ☐ TKN ☐
Oil and Grease ☐ Grav. 1664A
TCLP Analysis VOA ☐ Semi VOA ☐ Pest. ☐
Metals TCLP ☐ Dissolved ☐ Total ☐ RCRA8 ☐
Cyanide Total ☐ Amen. ☐ WAD ☐
SDWA-INORGANICS PRIMARY ☐ SECONDARY ☐
Coliform MPN ☐ pH ☐ Colilert ☐
Cl2 ☐ Cl ☐
COD ☐ TSS ☐ BOD ☐

1. RELINQUISHED BY:
Steve R Harmon
Signature
Steve R Harmon
Printed Name
Raser Technologies
Firm
1-31-11 4:39
Date/Time

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
____ Standard (approx. 10 days)*
____ Next Day ____ 2 Day ____ 5 Day*
____ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. # _____
Bill to: _____

SAMPLE RECEIPT:
Total Containers _____
Temperature 16 / 20 / 18
☐ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature
Stephen Lund
Printed Name
TURNER LABORATORIES, INC.
Firm
1-31-11 1639
Date/Time

* LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:
Compliance Analysis: ☐ Yes ☐ No
ADEQ Forms: ☐ Yes ☐ No
Mail ADEQ Forms: ☐ Yes ☐ No
Custody Seals ☐
Container Intact ☐
COC / Labels Agree ☐
Preservation Confirmation ☐
Appropriate Head Space ☐
Received Within Hold Time ☐

Power Technologies,
Jamie Robinson 801-765-1200

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "methods for chemical analysis of water and waste of the U.S. environmental protection agency," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1) Arsenic (As).....0.1 mg/l
(2) Barium (Ba).....1.0 mg/l
(3) Cadmium (Cd).....0.01 mg/l
(4) Chromium (Cr).....0.05 mg/l
(5) Cyanide (CN).....0.2 mg/l
(6) Fluoride (F).....1.6 mg/l
(7) Lead (Pb).....0.05 mg/l
(8) Total Mercury (Hg).....0.002 mg/l
(9) Nitrate (NO3 as N).....10.0 mg/l
(10) Selenium (Se).....0.05 mg/l
(11) Silver (Ag).....0.05 mg/l

(12) Uranium (U).....0.03 mg/l

(13) Radioactivity: Combined Radium-226 & Radium-228.....30 pCi/l

(14) Benzene.....0.01 mg/l

(15) Polychlorinated biphenyls (PCB's).....0.001 mg/l

(16) Toluene.....0.75 mg/l

(17) Carbon Tetrachloride.....0.01 mg/l

(18) 1,2-dichloroethane (EDC).....0.01 mg/l

(19) 1,1-dichloroethylene (1,1-DCE).....0.005 mg/l

(20) 1,1,2,2-tetrachloroethylene (PCE).....0.02 mg/l

(21) 1,1,2-trichloroethylene (TCE).....0.1 mg/l

(22) ethylbenzene.....0.75 mg/l

(23) total xylenes.....0.62 mg/l

(24) methylene chloride.....0.1 mg/l

(25) chloroform.....0.1 mg/l

(26) 1,1-dichloroethane.....0.025 mg/l

(27) ethylene dibromide (EDB).....0.0001 mg/l

(28) 1,1,1-trichloroethane.....0.06 mg/l

(29) 1,1,2-trichloroethane.....0.01 mg/l

(30) 1,1,2,2-tetrachloroethane.....0.01 mg/l

(31) vinyl chloride.....0.001 mg/l

(32) PAHs: total naphthalene plus monomethylnaphthalenes.....0.03 mg/l

(33) benzo-a-pyrene.....0.0007 mg/l

B. Other Standards for Domestic Water Supply

(1) Chloride (Cl).....250.0 mg/l

(2) Copper (Cu).....1.0 mg/l

(3) Iron (Fe).....1.0 mg/l

(4) Manganese (Mn).....0.2 mg/l

(6) Phenols.....0.005 mg/l

(7) Sulfate (SO4).....600.0 mg/l

(8) Total Dissolved Solids (TDS).....1000.0 mg/l

(9) Zinc (Zn).....10.0 mg/l

(10) pH.....between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of this section unless otherwise provided.

(1) Aluminum (Al).....5.0 mg/l

(2) Boron (B).....0.75 mg/l

(3) Cobalt (Co).....0.05 mg/l

(4) Molybdenum (Mo).....1.0 mg/l

(5) Nickel (Ni).....0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]

[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04.]

20.6.2.3104 DISCHARGE PERMIT REQUIRED: Unless otherwise provided by this Part, no person shall cause or allow effluent or leachate to discharge so that it may move directly of indirectly into ground water unless he is discharging pursuant to a discharge permit issued by the secretary. When a permit has been issued, discharges must be consistent with the terms and conditions of the permit. In the event of a transfer of the ownership, control, or possession of a facility for which a discharge permit is in effect, the transferee shall have authority to discharge under such permit, provided that the transferee has complied with Section 20.6.2.3111 NMAC, regarding transfers.

[2-18-77, 12-24-87, 12-1-95; Rn & A, 20.6.2.3104 NMAC - 20 NMAC 6.2.III.3104, 1-15-01; A, 12-1-01]

20.6.2.3105 EXEMPTIONS FROM DISCHARGE PERMIT REQUIREMENT: Sections 20.6.2.3104 and 20.6.2.3106 NMAC do not apply to the following:

A. Effluent or leachate which conforms to all the listed numerical standards of Section 20.6.2.3103 NMAC and has a total nitrogen concentration of 10 mg/l or less, and does not contain any toxic pollutant. To determine conformance, samples may be taken by the agency before the effluent or leachate is discharged so that it may move directly or indirectly into ground water; provided that if the discharge is by seepage through non-natural or altered natural materials, the agency may take samples of the solution before or after seepage. If for any reason the agency does not have access to obtain the appropriate samples, this exemption shall not apply;

B. Effluent which is discharged from a sewerage system used only for disposal of household and other domestic waste which is designed to receive and which receives 2,000 gallons or less of liquid waste per day;

C. Water used for irrigated agriculture, for watering of lawns, trees, gardens or shrubs, or for irrigation for a period not to exceed five years for the revegetation of any disturbed land area, unless that water is received directly from any sewerage system;

D. Discharges resulting from the transport or storage of water diverted, provided that the water diverted has not had added to it after the point of diversion any effluent received from a sewerage system, that the source of the water diverted was not mine workings, and that the secretary has not determined that a hazard to public health may result;

E. Effluent which is discharged to a watercourse which is naturally perennial; discharges to dry arroyos and ephemeral streams are not exempt from the discharge permit requirement, except as otherwise provided in this section;

F. Those constituents which are subject to effective and enforceable effluent limitations in a National Pollutant Discharge Elimination System (NPDES) permit, where discharge onto or below the surface of the ground so that water contaminants may move directly or indirectly into ground water occurs downstream from the outfall where NPDES effluent limitations are imposed, unless the secretary determines that a hazard to public health may result. For purposes of this subsection, monitoring requirements alone do not constitute effluent limitations;

G. Discharges resulting from flood control systems;

H. Leachate which results from the direct natural infiltration of precipitation through disturbed materials, unless the secretary determines that a hazard to public health may result;

I. Leachate which results entirely from the direct natural infiltration of precipitation through undisturbed materials;

J. Leachate from materials disposed of in accordance with the Solid Waste Management Regulations (20 NMAC 9.1) adopted by the New Mexico Environmental Improvement Board;

K. Natural ground water seeping or flowing into conventional mine workings which re-enters the ground by natural gravity flow prior to pumping or transporting out of the mine and without being used in any mining process; this exemption does not apply to solution mining;

L. Effluent or leachate discharges resulting from activities regulated by a mining plan approved and permit issued by the New Mexico Coal Surface Mining Commission, provided that this

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "methods for chemical analysis of water and waste of the U.S. environmental protection agency," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1) Arsenic (As).....0.1 mg/l

(2) Barium (Ba).....1.0 mg/l [7]

(3) Cadmium (Cd).....0.01 mg/l [7]

(4) Chromium (Cr).....0.05 mg/l [7]

(5) Cyanide (CN).....0.2 mg/l

(6) Fluoride (F).....1.6 mg/l

(7) Lead (Pb).....0.05 mg/l

(8) Total Mercury (Hg).....0.002 mg/l

(9) Nitrate (NO3 as N).....10.0 mg/l

(10) Selenium (Se).....0.05 mg/l

(11) Silver (Ag).....0.05 mg/l

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of this section unless otherwise provided.

(1) Aluminum (Al)..... .....5.0 mg/l

(2) Boron (B) .....0.75 mg/l

(3) Cobalt (Co) .....0.05 mg/l

(4) Molybdenum (Mo) .....1.0 mg/l

(5) Nickel (Ni) .....0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]

[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04.]

20.6.2.3104 DISCHARGE PERMIT REQUIRED: Unless otherwise provided by this Part, no person shall cause or allow effluent or leachate to discharge so that it may move directly of indirectly into ground water unless he is discharging pursuant to a discharge permit issued by the secretary. When a permit has been issued, discharges must be consistent with the terms and conditions of the permit. In the event of a transfer of the ownership, control, or possession of a facility for which a discharge permit is in effect, the transferee shall have authority to discharge under such permit, provided that the transferee has complied with Section 20.6.2.3111 NMAC, regarding transfers.

[2-18-77, 12-24-87, 12-1-95; Rn & A, 20.6.2.3104 NMAC - 20 NMAC 6.2.III.3104, 1-15-01; A, 12-1-01]

20.6.2.3105 EXEMPTIONS FROM DISCHARGE PERMIT REQUIREMENT: Sections 20.6.2.3104 and 20.6.2.3106 NMAC do not apply to the following:

A. Effluent or leachate which conforms to all the listed numerical standards of Section 20.6.2.3103 NMAC and has a total nitrogen concentration of 10 mg/l or less, and does not contain any toxic pollutant. To determine conformance, samples may be taken by the agency before the effluent or leachate is discharged so that it may move directly or indirectly into ground water; provided that if the discharge is by seepage through non-natural or altered natural materials, the agency may take samples of the solution before or after seepage. If for any reason the agency does not have access to obtain the appropriate samples, this exemption shall not apply;

exemption shall not be construed as limiting the application of appropriate ground water protection requirements by the New Mexico Coal Surface Mining Commission;

M. Effluent or leachate discharges which are regulated by the Oil Conservation Commission and the regulation of which by the Water Quality Control Commission would interfere with the exclusive authority granted under Section 70-2-12 NMSA 1978, or under other laws, to the Oil Conservation Commission.

[2-18-77, 6-26-80, 7-2-81, 12-24-87, 12-1-95; 20.6.2.3105 NMAC - Rn, 20 NMAC 6.2.III.3105, 1-15-01; A, 12-1-01]

Radiation Safety Engineering, Inc.
3245 N. WASHINGTON ST. · CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Turner Laboratories
2445 N. Coyote Drive, Ste. 104
Tucson, AZ 85745

Sampling Date: January 31, 2011
Sample Received: February 02, 2011
Analysis Completed: February 08, 2011

Sample ID	Radium 226 Activity Method 903.1 (pCi/L)	Radium 228 Activity Method 904 (pCi/L)	Total Radium (pCi/L)
11A0692-01	< 0.4	< 0.4	<0.4
Date of Analysis	2/3/2011	2/3/2011	2/3/2011

Robert L. Metzger, Ph.D., C.H.P.

SUBCONTRACT ORDER

Turner Laboratories, Inc.

11A0692

RUSH

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Terri Garcia

RECEIVING LABORATORY:

Radiation Safety Engineering, Inc.
3245 N. Washington St.
Chandler, AZ 85225-1121
Phone :(480) 897-9459
Fax: (480) 892-5446

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 11A0692-01	**Ground **	**Sampled:01/31/2011 14:00**		40906
Radiochemistry, Radium 226/202	02/07/2011 00:00	03/02/2011 14:00		
Containers Supplied:				
1 Gallon HDPE, HNO3 (A				

2.1.11 0930

Released By	Date	Received By	Date
Released By	Date	Received By	Date

Chavez, Carl J, EMNRD

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: Ben Barker [Ben.Barker@rasertech.com]
Sent: Sunday, February 06, 2011 10:24 PM
To: Chavez, Carl J, EMNRD
Cc: Dade, Randy, EMNRD; Jackson, Charles L., OSE; mikesmit@blm.gov
Subject: Application for Discharge Permit to test LDG 45-7
Attachments: G-103LDG45-7test.pdf

Dear Mr. Chavez,

Attached is the electronic version of Lightning Dock Geothermal's application for OCD approval of surface discharge during a flow test of well 45-7. We have placed the drilling rig on standby to reduce costs somewhat while we get water analyses, and naturally we would like to do anything we can to facilitate your review. Turner Laboratory in Tucson has given us a preliminary report of water chemistry values and we expect the certified report in a few days. The water quality in 45-7 is superior to that found in well 55-7 and we think there is very little risk in allowing a flow test to proceed with the water used to irrigate a winter crop on the same acreage where we successfully grew a crop of sorghum in 2010.

I will post paper copies of this application to your office on Feb. 7. Please do not hesitate to tell me of anything else you may need.

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: Jamie Robinson [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
Attachments: 11A0692 DRAFT 02 07 2011 1511.pdf

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

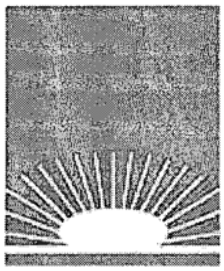
Hello Jamie,

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



TURNER
LABORATORIES INC.

February 07, 2011

Jamie Robinson
Raser Technologies Inc.
5152 N. Edgewood Drive
Provo, UT 84604

TEL (801) 765-1200
FAX

Work Order No.: 11A0692
Order Name: 45-07

RE: Lightning Dock

Dear Jamie Robinson,

Turner Laboratories, Inc. received 1 sample(s) on 01/31/2011 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Terri Garcia
Technical Director

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

Order: 45-07

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
11A0692-01	DRAFT: LDG 45-7	Ground Water	01/31/2011 1400

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Date Received: 01/31/2011

Case Narrative

D5	Minimum Reporting Limit (MRL) is elevated due to sample dilution.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
V1	CCV recovery was above method acceptance limits. This target analyte was not detected in the sample.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: DRAFT: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
ICP Dissolved Metals-E 200.7								
Aluminum	ND	2.0		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Barium	ND	0.050		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Boron	0.23	0.10		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Cadmium	ND	0.0020		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Calcium	14	4.0		mg/L	1	02/01/2011 0830	02/03/2011 1104	RAD
Chromium	ND	0.030		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Copper	ND	0.020		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Iron	ND	0.30		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Magnesium	ND	3.0		mg/L	1	02/01/2011 0830	02/03/2011 1104	RAD
Manganese	ND	0.020		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Molybdenum	0.018	0.010		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Nickel	ND	0.050		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Silver	ND	0.010		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
Sodium	250	5.0	M3	mg/L	1	02/01/2011 0830	02/03/2011 1104	RAD
Zinc	ND	0.040		mg/L	1	02/01/2011 0830	02/03/2011 1105	RAD
ICP/MS Dissolved Metals-E 200.8								
Arsenic	0.0066	0.00050		mg/L	1	02/01/2011 0830	02/02/2011 1158	RAD
Cobalt	ND	0.0012	D5	mg/L	5	02/01/2011 0830	02/03/2011 1100	RAD
Lead	ND	0.00050		mg/L	1	02/01/2011 0830	02/02/2011 1158	RAD
Selenium	0.0061	0.0025		mg/L	1	02/01/2011 0830	02/02/2011 1158	RAD
Uranium	0.00067	0.00050		mg/L	1	02/01/2011 0830	02/02/2011 1604	RAD
pH-E150.1								
pH (pH Units)	9.0	0.0		-	1	01/31/2011 1645	01/31/2011 1657	GW
Temperature (°C)	26			-	1	01/31/2011 1645	01/31/2011 1657	GW
Anions by Ion Chromatography-E300								
Chloride	44	5.0		mg/L	5	02/02/2011 1200	02/03/2011 0038	JM
Fluoride	4.3	2.5		mg/L	5	02/02/2011 1200	02/03/2011 0038	JM
Nitrogen, Nitrate (As N)	1.0	1.0		mg/L	1	02/01/2011 1300	02/01/2011 1727	JM
Sulfate	220	100		mg/L	20	02/02/2011 1200	02/03/2011 0057	JM
Total Dissolved Solids (Residue, Filterable)-SM2540 C								
Total Dissolved Solids (Residue, Filterable)	580	20		mg/L	1	02/01/2011 1015	02/03/2011 1450	GW
Cyanide-SM4500-CN BE								
Cyanide	ND	0.10		mg/L	1	02/03/2011 0830	02/04/2011 0730	JM

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: DRAFT: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Silica-SM4500-Si D								
Silica	120	50		mg/L	25	02/04/2011 1410	02/04/2011 1455	EW
PCBs-SW8082								
Aroclor 1016	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1221	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1232	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1242	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1248	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1254	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Aroclor 1260	ND	0.96		ug/L	1	02/01/2011 1136	02/02/2011 2134	DCB
Surr: Decachlorobiphenyl	*99*	*49.2-158.7*		*%REC*	*1*	*02/01/2011 1136*	*02/02/2011 2134*	*DCB*
Volatile Organic Compounds by GC/MS-SW8260B								
1,1,1,2-Tetrachloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,1-Trichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,2,2-Tetrachloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,2-Trichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1,2-Trichlorotrifluoroethane	ND	5.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1-Dichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1-Dichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,1-Dichloropropene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,3-Trichlorobenzene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,3-Trichloropropane	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,4-Trichlorobenzene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2,4-Trimethylbenzene	0.50	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dibromo-3-chloropropane	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dibromoethane	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dichlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dichloroethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,2-Dichloropropane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,3,5-Trimethylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,3-Dichlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,3-Dichloropropane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
1,4-Dichlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
2,2-Dichloropropane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
2-Butanone	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
2-Chlorotoluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
2-Hexanone	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
4-Chlorotoluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: DRAFT: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
4-Isopropyltoluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
4-Methyl-2-pentanone	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Acetone	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Acrylonitrile	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Benzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromochloromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromodichloromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromoform	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Bromomethane	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Carbon disulfide	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Carbon tetrachloride	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chlorobenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chloroethane	ND	1.0	V1	ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chloroform	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Chloromethane	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
cis-1,2-Dichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
cis-1,3-Dichloropropene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Dibromochloromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Dibromomethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Dichlorodifluoromethane	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Ethylbenzene	2.7	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Hexachlorobutadiene	ND	5.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Iodomethane	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Isopropylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
m,p-Xylene	17	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Methylene chloride	ND	1.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Naphthalene	8.9	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
n-Butylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
n-Propylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
o-Xylene	19	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
sec-Butylbenzene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Styrene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
tert-Butylbenzene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Tetrachloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Toluene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
trans-1,2-Dichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
trans-1,3-Dichloropropene	ND	2.0		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
trans-1,4-Dichloro-2-butene	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Trichloroethene	ND	0.50		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Trichlorofluoromethane	ND	0.50	V1	ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Vinyl acetate	ND	10		ug/L	1	02/01/2011 1257	02/01/2011 1435	KP

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: DRAFT: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Vinyl chloride	ND	0.50	V1	ug/L	1	02/01/2011 1257	02/01/2011 1435	KP
Surr: 4-Bromofluorobenzene	*98*	*70-130*		*%REC*	*1*	*02/01/2011 1257*	*02/01/2011 1435*	*KP*
Surr: Dibromofluoromethane	*111*	*70-130*		*%REC*	*1*	*02/01/2011 1257*	*02/01/2011 1435*	*KP*
Surr: Toluene-d8	*100*	*70-130*		*%REC*	*1*	*02/01/2011 1257*	*02/01/2011 1435*	*KP*
Semivolatile Organic Compounds-SW8270C								
1,2,4-Trichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
1,2-Dichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
1,3-Dichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
1,4-Dichlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4,5-Trichlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4,6-Trichlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dichlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dimethylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dinitrophenol	ND	48		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,4-Dinitrotoluene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2,6-Dinitrotoluene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Chloronaphthalene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Chlorophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Methylnaphthalene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Nitroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
2-Nitrophenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
3,3´-Dichlorobenzidine	ND	19	V1	ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
3,4-Methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
3-Nitroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4,6-Dinitro-2-methylphenol	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Bromophenyl phenyl ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Chloro-3-methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Chloroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Chlorophenyl phenyl ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Methylphenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Nitroaniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
4-Nitrophenol	ND	48	V1	ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Acenaphthene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Acenaphthylene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Aniline	ND	19		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Anthracene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzo[a]anthracene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzo[a]pyrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzo[b,k]fluoranthene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzo[g,h,i]perylene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB

Client: Raser Technologies Inc.
Project: Lightning Dock
Work Order: 11A0692
Lab Sample ID: 11A0692-01

Client Sample ID: DRAFT: LDG 45-7
Collection Date/Time: 01/31/2011 1400
Matrix: Ground Water
Order Name: 45-07

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Benzoic acid	19	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Benzyl alcohol	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-chloroethoxy)methane	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-chloroethyl)ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-chloroisopropyl)ether	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Bis(2-ethylhexyl)phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Butyl benzyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Chrysene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Dibenz[a,h]anthracene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Dibenzofuran	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Diethyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Dimethyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Di-n-butyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Di-n-octyl phthalate	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Fluoranthene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Fluorene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachlorobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachlorobutadiene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachlorocyclopentadiene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Hexachloroethane	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Indeno[1,2,3-cd]pyrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Isophorone	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Naphthalene	5.7	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Nitrobenzene	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
N-Nitrosodimethylamine	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
N-Nitrosodiphenylamine	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
N-Nitrosodipropylamine	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Pentachlorophenol	ND	29		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Phenanthrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Phenol	ND	9.6		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Pyrene	ND	4.8		ug/L	1	02/01/2011 1140	02/03/2011 1827	DCB
Surr: 2,4,6-Tribromophenol	*85*	*41.08-112.4*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: 2-Fluorobiphenyl	*70*	*29.5-107.83*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: 2-Fluorophenol	*42*	*19.78-74.14*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: 4-Terphenyl-d14	*60*	*39.48-98.11*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: Nitrobenzene-d5	*71*	*12.94-105.5*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*
Surr: Phenol-d6	*59*	*14.3-96.41*		*%REC*	*1*	*02/01/2011 1140*	*02/03/2011 1827*	*DCB*

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 11A0692 DATE _____ PAGE _____ OF _____

PROJECT NAME LDG 45-7 # _____
CONTACT NAME Ben Barker
COMPANY NAME Raser Technologies
ADDRESS 5152 North Edgewood dr.
Provo, Utah 84604 PHONE _____ FAX _____
SAMPLER'S SIGNATURE Steve R Harmon

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX
LDG45-7	1-31-11	2:00		GW		SEE ATTACHED

Base Neutrals ☐ 625/8270 · Acids ☐ · Volatile Organics ☐ 624/524.2/8260 · TTHMS ☐ · HAA5 ☐ · Pesticides ☐ 8081 · PCB's ☐ 8082 · NO3 ☐ · NO2 ☐ · TKN ☐ · Oil and Grease ☐ Grav. 1664A · TCLP Analysis ☐ VOA · Semi VOA ☐ · Pest. ☐ · Metals ☐ TCLP · Dissolved ☐ · Total ☐ · RCRA8 ☐ · Cyanide ☐ Total · Amen. ☐ · WAD ☐ · SDWA-INORGANICS ☐ PRIMARY · SECONDARY ☐ · Coliform ☐ MPN · Colilert ☐ · pH ☐ · Cl2 ☐ · Cl- ☐ · COD ☐ · TSS ☐ · BOD ☐

1. RELINQUISHED BY:
Signature: Steve R Harmon
Printed Name: Steve R Harmon
Firm: Raser Technologies
Date/Time: 1-31-11 4:39

2. RECEIVED BY:
Signature: _____
Printed Name: _____
Firm: _____
Date/Time: _____

TURNAROUND REQUIREMENTS:
____ Standard (approx. 10 days)*
____ Next Day ____ 2 Day ____ 5 Day*
____ Email Preliminary Results To: _____
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. # _____
Bill to: _____

SAMPLE RECEIPT:
Total Containers _____
Temperature 16 20 18
☐ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature: _____
Printed Name: _____
Firm: _____
Date/Time: _____

4. RECEIVED BY:
Signature: _____
Printed Name: FREDRICK WOLD
Firm: TURNER LABORATORIES, INC.
Date/Time: 1-31-11 1639

* LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:
Compliance Analysis: ☐ Yes ☐ No
ADEQ Forms: ☐ Yes ☐ No
Mail ADEQ Forms: ☐ Yes ☐ No

Custody Seals ☐
Container Intact ☐
COC / Labels Agree ☐

Preservation Confirmation ☐
Appropriate Head Space ☐
Received Within Hold Time ☐

Roger Technologies,
Jamie Robinson 801-745-1200

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "methods for chemical analysis of water and waste of the U.S. environmental protection agency," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1) Arsenic (As).....0.1 mg/l
(2) Barium (Ba).....1.0 mg/l
(3) Cadmium (Cd).....0.01 mg/l
(4) Chromium (Cr).....0.05 mg/l
(5) Cyanide (CN).....0.2 mg/l
(6) Fluoride (F).....1.6 mg/l
(7) Lead (Pb).....0.05 mg/l
(8) Total Mercury (Hg).....0.002 mg/l
(9) Nitrate (NO3 as N).....10.0 mg/l
(10) Selenium (Se).....0.05 mg/l
(11) Silver (Ag).....0.05 mg/l

(12) Uranium (U).....0.03 mg/l

(13) Radioactivity: Combined Radium-226 & Radium-228.....30 pCi/l

(14) Benzene.....0.01 mg/l

(15) Polychlorinated biphenyls (PCB's).....0.001 mg/l

(16) Toluene.....0.75 mg/l

(17) Carbon Tetrachloride.....0.01 mg/l

(18) 1,2-dichloroethane (EDC).....0.01 mg/l

(19) 1,1-dichloroethylene (1,1-DCE).....0.005 mg/l

(20) 1,1,2,2-tetrachloroethylene (PCE).....0.02 mg/l

(21) 1,1,2-trichloroethylene (TCE).....0.1 mg/l

(22) ethylbenzene.....0.75 mg/l

(23) total xylenes.....0.62 mg/l

(24) methylene chloride.....0.1 mg/l

(25) chloroform.....0.1 mg/l

(26) 1,1-dichloroethane.....0.025 mg/l

(27) ethylene dibromide (EDB).....0.0001 mg/l

(28) 1,1,1-trichloroethane.....0.06 mg/l

(29) 1,1,2-trichloroethane.....0.01 mg/l

(30) 1,1,2,2-tetrachloroethane.....0.01 mg/l

(31) vinyl chloride.....0.001 mg/l

(32) PAHs: total naphthalene plus monomethylnaphthalenes.....0.03 mg/l

(33) benzo-a-pyrene.....0.0007 mg/l

B. Other Standards for Domestic Water Supply

(1) Chloride (Cl).....250.0 mg/l

(2) Copper (Cu).....1.0 mg/l

(3) Iron (Fe).....1.0 mg/l

(4) Manganese (Mn).....0.2 mg/l

(6) Phenols.....0.005 mg/l

(7) Sulfate (SO4).....600.0 mg/l

(8) Total Dissolved Solids (TDS).....1000.0 mg/l

(9) Zinc (Zn).....10.0 mg/l

(10) pH.....between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of this section unless otherwise provided.

(1) Aluminum (Al) ..... 5.0 mg/l

(2) Boron (B) ..... 0.75 mg/l

(3) Cobalt (Co) ..... 0.05 mg/l

(4) Molybdenum (Mo) ..... 1.0 mg/l

(5) Nickel (Ni) ..... 0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]

[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04.]

20.6.2.3104 DISCHARGE PERMIT REQUIRED: Unless otherwise provided by this Part, no person shall cause or allow effluent or leachate to discharge so that it may move directly of indirectly into ground water unless he is discharging pursuant to a discharge permit issued by the secretary. When a permit has been issued, discharges must be consistent with the terms and conditions of the permit. In the event of a transfer of the ownership, control, or possession of a facility for which a discharge permit is in effect, the transferee shall have authority to discharge under such permit, provided that the transferee has complied with Section 20.6.2.3111 NMAC, regarding transfers.

[2-18-77, 12-24-87, 12-1-95; Rn & A, 20.6.2.3104 NMAC - 20 NMAC 6.2.III.3104, 1-15-01; A, 12-1-01]

20.6.2.3105 EXEMPTIONS FROM DISCHARGE PERMIT REQUIREMENT: Sections 20.6.2.3104 and 20.6.2.3106 NMAC do not apply to the following:

A. Effluent or leachate which conforms to all the listed numerical standards of Section 20.6.2.3103 NMAC and has a total nitrogen concentration of 10 mg/l or less, and does not contain any toxic pollutant. To determine conformance, samples may be taken by the agency before the effluent or leachate is discharged so that it may move directly or indirectly into ground water; provided that if the discharge is by seepage through non-natural or altered natural materials, the agency may take samples of the solution before or after seepage. If for any reason the agency does not have access to obtain the appropriate samples, this exemption shall not apply;

B. Effluent which is discharged from a sewerage system used only for disposal of household and other domestic waste which is designed to receive and which receives 2,000 gallons or less of liquid waste per day;

C. Water used for irrigated agriculture, for watering of lawns, trees, gardens or shrubs, or for irrigation for a period not to exceed five years for the revegetation of any disturbed land area, unless that water is received directly from any sewerage system;

D. Discharges resulting from the transport or storage of water diverted, provided that the water diverted has not had added to it after the point of diversion any effluent received from a sewerage system, that the source of the water diverted was not mine workings, and that the secretary has not determined that a hazard to public health may result;

E. Effluent which is discharged to a watercourse which is naturally perennial; discharges to dry arroyos and ephemeral streams are not exempt from the discharge permit requirement, except as otherwise provided in this section;

F. Those constituents which are subject to effective and enforceable effluent limitations in a National Pollutant Discharge Elimination System (NPDES) permit, where discharge onto or below the surface of the ground so that water contaminants may move directly or indirectly into ground water occurs downstream from the outfall where NPDES effluent limitations are imposed, unless the secretary determines that a hazard to public health may result. For purposes of this subsection, monitoring requirements alone do not constitute effluent limitations;

G. Discharges resulting from flood control systems;

H. Leachate which results from the direct natural infiltration of precipitation through disturbed materials, unless the secretary determines that a hazard to public health may result;

I. Leachate which results entirely from the direct natural infiltration of precipitation through undisturbed materials;

J. Leachate from materials disposed of in accordance with the Solid Waste Management Regulations (20 NMAC 9.1) adopted by the New Mexico Environmental Improvement Board;

K. Natural ground water seeping or flowing into conventional mine workings which re-enters the ground by natural gravity flow prior to pumping or transporting out of the mine and without being used in any mining process; this exemption does not apply to solution mining;

L. Effluent or leachate discharges resulting from activities regulated by a mining plan approved and permit issued by the New Mexico Coal Surface Mining Commission, provided that this

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "methods for chemical analysis of water and waste of the U.S. environmental protection agency," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1) Arsenic (As).....0.1 mg/l
(2) Barium (Ba).....1.0 mg/l
(3) Cadmium (Cd).....0.01 mg/l
(4) Chromium (Cr).....0.05 mg/l
(5) Cyanide (CN).....0.2 mg/l
(6) Fluoride (F).....1.6 mg/l
(7) Lead (Pb).....0.05 mg/l
(8) Total Mercury (Hg).....0.002 mg/l
(9) Nitrate (NO3 as N).....10.0 mg/l
(10) Selenium (Se).....0.05 mg/l
(11) Silver (Ag).....0.05 mg/l

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of this section unless otherwise provided.

(1) Aluminum (Al)..... .....5.0 mg/l

(2) Boron (B) .....0.75 mg/l

(3) Cobalt (Co) .....0.05 mg/l

(4) Molybdenum (Mo) .....1.0 mg/l

(5) Nickel (Ni) .....0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]

[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04.]

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[2-18-77, 12-24-87, 12-1-95; Rn & A, 20.6.2.3104 NMAC - 20 NMAC 6.2.III.3104, 1-15-01; A, 12-1-01]

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exemption shall not be construed as limiting the application of appropriate ground water protection requirements by the New Mexico Coal Surface Mining Commission;

M. Effluent or leachate discharges which are regulated by the Oil Conservation Commission and the regulation of which by the Water Quality Control Commission would interfere with the exclusive authority granted under Section 70-2-12 NMSA 1978, or under other laws, to the Oil Conservation Commission.

[2-18-77, 6-26-80, 7-2-81, 12-24-87, 12-1-95; 20.6.2.3105 NMAC - Rn, 20 NMAC 6.2.III.3105, 1-15-01; A, 12-1-01]

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, January 07, 2011 6:50 AM
To: Ben Barker
Cc: VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD; Brooks, David K., EMNRD
Subject: Lightning Docker Geothermal Project (GTHT-1) Documentation of Recent Meeting on 1/5/2011 & Phone Call on 1/6/2011

Ben:

Good morning. This e-mail is being sent to briefly document our impromptu meeting on Wednesday, January 5, 2011 and phone call regarding well testing and disposition of produced water review of OCD hearing records on January 6, 2011.

January 5, 2011 Meeting in Santa Fe:

You called me while in Santa Fe for another meeting with another agency and had some time to meet with OCD to discuss the project. The project terms and conditions have been documented in the OCD discharge permit (GTHT-1) on electronic file at OCD Online and from OCD Geothermal Regulations at http://www.emnrd.state.nm.us/ocd/documents/OilConservationDivisionGeothermalApplicationProcess8-18-2009.pdf. The Regulations address all of your questions during our meeting.

We met and discussed the following:

1) Timeframe for submittal of OCD well logs, forms, etc. I promised to follow-up to address your concerns about proprietary information and timeframe for disclosure of OCD forms. In response to this, please go to: 19.14.56 NMAC (Geothermal Resources Well Log (Form G-105) at http://www.nmcpr.state.nm.us/nmac/_title19/T19C014.htm.

2) OCD APDs for production and injection wells under the GTHT-1 permit are specified in the approved G-101 Forms w/ conditions. If Raser wishes to deviate from the discharge permit and approved G-101s, i.e., surface casing depths, it must provide documentation citing the applicable sections of the permit and regulations with its technical basis for any deviation requests and/or approvals by the OCD. Changing the discharge permit may require a "Minor" or "Major Modification" with public notice, etc. under 20.6.2 NMAC. As with any OCD reviews, upon closer scrutiny of the request, the OCD reserves the right where necessary to make prior approvals more stringent if there is more scientific information that is considered during any review or deviation by the operator to the permit.

   Some discussion of Raser's reason for questioning the surface casing and cement depths was considered. OCD went over 19.14.27 NMAC (Casing and Cementing Requirements) with Raser. Regulations require well to be set in competent bedrock and OCD discussed OCD's mandate under 20.6.2 NMAC to protect fresh waters of the state. The project is complex because the Animas Basin appears to be largely comingled due to faulting with fresh water conditions prevatent at depth (< 10,000 ppm TDS). The brackish zone has yet to be discovered at depth.

3) Raser indicated that it would like to use the farm field to discharge produced water (i.e., fresh water with exception of Fluorides that are believed to be naturally elevated in project area).

4) OCD reminded Raser about documentation of the entire project with OCD Geothermal Forms and OCD encouraged Raser to take OCD Forms and make them electronic for data entry and to include any attachments that don't fit on the forms, etc. This was a specific condition in the G-101 APD approvals.

5) OCD requested that Raser document any questions it has with OCD so it could adequately respond to project questions and issues that may arise and that there can be no questions about perceived approvals by the OCD during the meeting. Raser agreed to document any questions or issues in writing to the OCD.

January 6, 2011 Phone Call:

1) In order to research how OCD determine the 1500 ft. cement and surface casing depth in the APDs, Raser wanted to review the OCD permit file and hearing records. OCD Online contains most of the project information; however, Raser was referred to Florene Davidson to schedule a date and time to review the physical hearing records for the project.

2) Regarding the rationale for OCD approving project well testing produced water to be discharged into the farm field, similar to the most recent Burgett well testing in 2010, Raser wanted to know how produced water in the San Juan Basin is handled? After providing Case # 14246 and Order # R-13127, Raser was referred to Charlie Perrin of OCD for more information. OCD Geothermal Regulations are cited in 19.14.35 NMAC. Raser indicated that production and injection well testing would generate a much greater volume of produced water than the most recent well testing on the Burgett Well in 2010. The issues were the Fluoride and TDS levels in the project area that are believed to be on the order of background levels.

3) Raser suggested that its Hydrogeologist investigate the casing issue raised during the meeting held the day before as Raser believes the surface casing with cement depths may be too great and based on the open bore-hole construction it wished the production interval to extend into fault zones, etc.

Please contact me if you have questions about the above.

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")

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:

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@sta To

te.nm.us>	"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>	
01/18/2011 06:13 PM	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.
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Office: (505) 476-3490
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Website: http://www.emnrd.state.nm.us/ocd/index.htm
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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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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

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

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To: Chavez, Carl J, EMNRD; 'Mike_Smith@blm.gov'
Cc: Jackson, Charles L., OSE; Phillips, Haddy L., OSE; Johnson, Mike S., OSE
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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?
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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.

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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,

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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 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.

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
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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)
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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

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: 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.

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Thank you.

Carl J. Chavez, CHMM
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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.
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1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
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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

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Douglas H. Rappuhn
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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,

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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.

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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: 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: 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

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
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(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: 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
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
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Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Michael Hayter [Michael.Hayter@rasertech.com]
Sent: Friday, October 29, 2010 2:08 PM
To: Chavez, Carl J, EMNRD
Cc: Dade, Randy, EMNRD; Mike_Smith@blm.gov; VonGonten, Glenn, EMNRD; Ben Barker; Jim Rosser
Subject: RE: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

Carl,

Thank you - I believe this was a result of the transition from our previous permitting consultant. He had represented that this was completed. We will complete and turn those in as soon as possible.

Regards,
Mike

Director - Business & Project Development Raser Technologies, Inc.
5152 North Edgewood Drive
Provo, Utah 84003
Office: +1.801.765.1200 x216
Mobile: +1.801.589.1872
www.rasertech.com

-----Original Message-----
From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, October 29, 2010 1:18 PM
To: Michael Hayter
Cc: Dade, Randy, EMNRD; Mike_Smith@blm.gov; VonGonten, Glenn, EMNRD
Subject: FW: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

Mike:

Good afternoon. The OCD does not have G-101s and G-102s for the above subject wells.

OCD recommends that you submit them with locations that were recently approved GDPs from BLM.

Thank you.

Carl J. Chavez, CHMM
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-----Original Message-----
From: Chavez, Carl J, EMNRD
Sent: Wednesday, October 27, 2010 8:52 AM

To: 'Mike_Smith@blm.gov'
Cc: VonGonten, Glenn, EMNRD; Michael Hayter; Dade, Randy, EMNRD
Subject: RE: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

Mike:

Good morning.

Raser Technologies needs to confirm that their most recent submitted State G-101s and 102s on file with the OCD reflect the correct locations before OCD processes their forms for these wells.

Thank you.

Carl J. Chavez, CHMM
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Office: (505) 476-3490
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-----Original Message-----
From: Mike_Smith@blm.gov [mailto:Mike_Smith@blm.gov]
Sent: Wednesday, October 27, 2010 8:36 AM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Michael Hayter; Dade, Randy, EMNRD
Subject: Re: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

Carl:

The 2 enclosures sent to Raser Tech with the BLM decision were copies of the approved GDP's with Conditions of Approval (COAs) and BLM form 1842-1 (Appeals to the IBLA). OCD should have received copies of the approved GDP's and I apologize for the oversight. I have dropped copies in the mail to OCD in Santa Fe (Randy - let me know if I need to send copies to the Artesia Office too). I won't burden you with the form 1842-1 because only the permitee has standing to appeal the COA's.

In regards to these Federal GDP's (51-07 and 53-12). These as being the two injection wells that Raser had relocated in place of injection wells 62-18 and 82-18 - please reference the attached map:

(See attached file: 51-07 & 53-12_BASE_MAPv1.jpg)

Regards,

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

PS I did go to the OCD website you linked in your e-mail. I was able to download the image files, but they were corrupted and I could not get the complete files. This may be an issue with our server, but you may want to check the OCD site too.

"Chavez, Carl J,
EMNRD"
<CarlJ.Chavez@sta To

te.nm.us> "Michael Hayter" <Michael.Hayter@rasertech.com>
10/26/2010 06:58 AM cc "VonGonten, Glenn, EMNRD" <Glenn.VonGonten@state.nm.us>, "Dade, Randy, EMNRD" <Randy.Dade@state.nm.us>
Subject
OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

(Embedded image moved to file: pic02011.gif)
Mike:

Good morning. The New Mexico Oil Conservation Division (OCD) is in receipt (see attachment) of the Bureau of Land Management's (BLM) GDP permit approval of the above subject wells. OCD notices that the enclosures referenced in the approval letter above are missing from the copy I received in the mail.

The OCD is prepared to process the OCD G-101s and G-102s for the subject wells; however, in most recent correspondence you mentioned that the well locations may have been changed? Consequently, I am requesting confirmation that the locations have indeed changed from the previous locations identified in G-101s and G102 Forms currently on file with the OCD. I recommend that you review the G Forms for Wells 51-07 and 53-12 (Class V Geothermal Injection Wells) to make sure the locations are correct at http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pCJC0813635742

If the locations have changed, and the current forms on file with the OCD do not reflect the correct locations of the wells, you will need to resubmit G-101s and G-102s for the wells at your earliest convenience. If you confirm that the locations are correct, the OCD will process the G-Forms today.

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
(Pollution Prevention Guidance is under "Publications")

File: OCD Online "GTHT-1 "General Correspondence"

[attachment "BLM GDP Approvals 51-07 and 53-12 10-21-10.pdf" deleted by Mike Smith/LCFO/NM/BLM/DOI]

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, October 29, 2010 1:18 PM
To: 'mike.hayter@rasertech.com'
Cc: Dade, Randy, EMNRD; 'Mike_Smith@blm.gov'; VonGonten, Glenn, EMNRD
Subject: FW: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

Mike:

Good afternoon. The OCD does not have G-101s and G-102s for the above subject wells.

OCD recommends that you submit them with locations that were recently approved GDPs from BLM.

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: Chavez, Carl J, EMNRD
Sent: Wednesday, October 27, 2010 8:52 AM
To: 'Mike_Smith@blm.gov'
Cc: VonGonten, Glenn, EMNRD; Michael Hayter; Dade, Randy, EMNRD
Subject: RE: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

Mike:

Good morning.

Raser Technologies needs to confirm that their most recent submitted State G-101s and 102s on file with the OCD reflect the correct locations before OCD processes their forms for these 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: Mike_Smith@blm.gov [mailto:Mike_Smith@blm.gov]
Sent: Wednesday, October 27, 2010 8:36 AM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Michael Hayter; Dade, Randy, EMNRD
Subject: Re: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

Carl:

The 2 enclosures sent to Raser Tech with the BLM decision were copies of the approved GDP's with Conditions of Approval (COAs) and BLM form 1842-1 (Appeals to the IBLA). OCD should have received copies of the approved GDP's and I apologize for the oversight. I have dropped copies in the mail to OCD in Santa Fe (Randy - let me know if I need to send copies to the Artesia Office too). I won't burden you with the form 1842-1 because only the permitee has standing to appeal the COA's.

In regards to these Federal GDP's (51-07 and 53-12). These as being the two injection wells that Raser had relocated in place of injection wells 62-18 and 82-18 - please reference the attached map:

(See attached file: 51-07 & 53-12_BASE_MAPv1.jpg)

Regards,

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

PS I did go to the OCD website you linked in your e-mail. I was able to download the image files, but they were corrupted and I could not get the complete files. This may be an issue with our server, but you may want to check the OCD site too.

"Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us>
10/26/2010 06:58 AM

To: "Michael Hayter" <Michael.Hayter@rasertech.com>
cc: "VonGonten, Glenn, EMNRD" <Glenn.VonGonten@state.nm.us>, "Dade, Randy, EMNRD" <Randy.Dade@state.nm.us>
Subject: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12

(Embedded image moved to file: pic02011.gif)
Mike:

Good morning. The New Mexico Oil Conservation Division (OCD) is in receipt (see attachment) of the Bureau of Land Management's (BLM) GDP permit approval of the above subject wells. OCD notices that the enclosures referenced in the approval letter above are missing from the copy I received in the mail.

The OCD is prepared to process the OCD G-101s and G-102s for the subject wells; however, in most recent correspondence you mentioned that the well locations may have been changed? Consequently, I am requesting

confirmation that the locations have indeed changed from the previous locations identified in G-101s and G102 Forms currently on file with the OCD. I recommend that you review the G Forms for Wells 51-07 and 53-12 (Class V Geothermal Injection Wells) to make sure the locations are correct at http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pCJC0813635742

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If the locations have changed, and the current forms on file with the OCD do not reflect the correct locations of the wells, you will need to resubmit G-101s and G-102s for the wells at your earliest convenience. If you confirm that the locations are correct, the OCD will process the G-Forms today.

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
(Pollution Prevention Guidance is under "Publications")

File: OCD Online "GTHT-1 "General Correspondence"

[attachment "BLM GDP Approvals 51-07 and 53-12 10-21-10.pdf" deleted by Mike Smith/LCFO/NM/BLM/DOI]

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, October 26, 2010 6:59 AM
To: 'Michael Hayter'
Cc: VonGonten, Glenn, EMNRD; Dade, Randy, EMNRD
Subject: OCD G-101s and 102s for Class V Geothermal Injection Wells 51-07 and 53-12
Attachments: BLM GDP Approvals 51-07 and 53-12 10-21-10.pdf

Mike:

Good morning. The New Mexico Oil Conservation Division (OCD) is in receipt (see attachment) of the Bureau of Land Management's (BLM) GDP permit approval of the above subject wells. OCD notices that the enclosures referenced in the approval letter above are missing from the copy I received in the mail.

The OCD is prepared to process the OCD G-101s and G-102s for the subject wells; however, in most recent correspondence you mentioned that the well locations may have been changed? Consequently, I am requesting confirmation that the locations have indeed changed from the previous locations identified in G-101s and G102 Forms currently on file with the OCD. I recommend that you review the G Forms for Wells 51-07 and 53-12 (Class V Geothermal Injection Wells) to make sure the locations are correct at http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pCJC0813635742.

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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
(Pollution Prevention Guidance is under "Publications")

File: OCD Online "GTHT-1 "General Correspondence"

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005
www.blm.gov/nm

TAKE PRIDE® IN AMERICA

In Reply Refer To:
NMNM 034790
3260 (L0310)

OCT 21 2010

DECISION

Lightning Dock Geothermal LLC :
c/o Mr. Ben Barker :
5152 North Edgewood Drive :
Provo, UT 84604 :

Geothermal Permits to Drill Approved

The Bureau of Land Management (BLM) Las Cruces District Office (LCDO) has completed review of your Geothermal Drilling Permits (GDP) and accompanying Drilling Plans and Operations Plans for the 51-07 and 53-12 injection wells at the Lightning Dock Geothermal Lease (NMNM034790). This permit is approved subject to the general standards defined in 43 CFR §3260.11 and the Conditions of Approval (COA) attached to each approved permit (43 CFR §3260.12). This project is currently bonded with the BLM (Bond Number NMB000512).

If you contend that you are adversely affected by this decision, you may appeal this decision directly to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and the enclosed Form 1842-1. If an appeal is taken, your notice of appeal must be filed in this office (at the above address) within 30 days from receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you decide to file a petition (pursuant to regulation 43 CFR 4.21 (58 FR 4939, January 19, 1993) (request) for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

1) The relative harm to the parties if the stay is granted or denied,

2) The likelihood of the appellant's success on the merits,

3) The likelihood of immediate and irreparable harm if the stay is not granted, and

4) Whether the public interest favors granting the stay.

Bill Childress
District Manager

cc:
✓Mr. Carl Chavez
Mr. Randy Dade

3 Enclosures:
1 – Form 1842-1
2 – Form 3260-4
3 – 43 CFR §3260.11

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, October 20, 2010 5:56 AM
To: 'Michael Hayter'
Cc: Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: Update and request

Mike:

Good morning.

If you moved two of the locations of the injection wells (53-12 and 51-07) , the OCD APD G-101s and G-102s must be resubmitted with the new location information. I recommend that you view the existing submitted APDs, etc. for 53-12 and 51-07 to verify whether you need to send new forms. OCD Geothermal Regulations have location criteria.

Also, updated maps displaying the new locations of all project wells will need to be submitted.

Thanks.

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: Michael Hayter [mailto:Michael.Hayter@rasertech.com]
Sent: Tuesday, October 19, 2010 5:32 PM
To: Chavez, Carl J, EMNRD
Cc: Ben Barker; Steve Harman; Fesmire, Mark, EMNRD; Dade, Randy, EMNRD
Subject: RE: Update and request

Carl,

Thank you. I was able to download the signed G-101's. You are correct that we moved two of the proposed injection wells and BLM is completing their review and approval of the new GDP's.

Regards,
Mike

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, October 19, 2010 7:07 AM
To: Michael Hayter
Cc: Ben Barker; Steve Harman; Fesmire, Mark, EMNRD; Dade, Randy, EMNRD
Subject: RE: Update and request

Mike:

Good morning.

First, to address your main inquiry, you may access electronic copies of all OCD approved or signed drilling permits (G101s and 102s) from wells 13-07, 33-07, 45-07 and 53-07 at OCD Online: http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pCJC0813635742.

You may right click on the TIFF files at OCD Online and convert them to pdf files for reduced file size and easier electronic transmission.

From recollection, there were a couple of Class V Geothermal Injection Wells (Injection Wells 53-12 and 51-07- see e-mail msg. to Layne Ashton below) that are not on your list that BLM was in the process of reviewing (see msg. below) the GDPs, but to my knowledge OCD has not received any BLM approvals on these wells (I'm copying Randy Dade of the OCD Artesia District to keep him in the loop and in case the Artesia Office has received them?). Once BLM approves the GDPs, OCD will post signed G-101s at OCD Online.

From: *Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]*
Sent: *Thursday, June 10, 2010 8:18 AM*
To: *Layne Ashton; Ben Barker*
Cc: *Mike_Smith@blm.gov; Dade, Randy, EMNRD*
Subject: *FW: OCD Discharge Permit (GTHT-1) Final Processing of APDs for final ODC approval signatures w/ conditions*

Layne:

Good morning.

I see BLM GDP approvals for all of the OCD Discharge Permit project geothermal wells with the exception of Injection Wells 53-12 and 51-07.

OCD may issue approvals w/ conditions on Injection Well 42-18 and Development Wells 13-07, 33-07, 45-07, 47-07 and 53-07.

By receipt of this e-mail message, OCD is requesting that BLM confirm the GDP approvals for the above wells and confirm that BLM GDP approvals for Wells 53-12 and 51-07 have not been approved yet.

Upon receipt of confirmation, OCD will act on the above APD approvals with conditions. Thank you.

********** *End*

Please contact me if you have technical difficulty in accessing the forms at OCD Online and I will convert them to pdf and send them to you. Thanks for the update.

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: Michael Hayter [mailto:Michael.Hayter@rasertech.com]
Sent: Monday, October 18, 2010 10:12 AM
To: Chavez, Carl J, EMNRD
Cc: Ben Barker; Steve Harman; Fesmire, Mark, EMNRD
Subject: Update and request

Carl,

I'll begin with the request. Can you provide pdf or electronic copies of the signed drilling permits (production wells / G101 and 102) for 13-07, 33-07, 45-07, 47-07, and 53-07?

We have copies of the applications with our signatures, but none with OCD's signatures. This may be a legacy of our disassociation with Jay Hamilton, our former permit consultant. We are preparing a drilling RFP and need the final permits/COA for the process.

As a general update for you and Mark:

- We signed on our investment partner, Evergreen-FE, who is committing up to $15.3M to the project, primarily for drilling (press release: http://www.rasertech.com/news/press-releases/raser-technologies-obtains-preliminary-financing-with-evergreen-clean-energy-and-fe-clean-energy-group-for-the-development-of-the-lightning-dock-new-mexico-geothermal-project)

- As of today, we began a magneto-telluric survey (MT), an electrical resistivity study of the site to help us in identifying the reservoir and prioritize our drilling targets.

We have a goal to begin drilling before the end of this year and will stay in touch with you.

Regards,
Mike

Director - Business & Project Development
Raser Technologies, Inc.
5152 North Edgewood Drive
Provo, Utah 84003
Office: +1.801.765.1200 x216
Mobile: +1.801.589.1872
www.rasertech.com

Chavez, Carl J, EMNRD

From: Michael Hayter [Michael.Hayter@rasertech.com]
Sent: Monday, October 18, 2010 10:12 AM
To: Chavez, Carl J, EMNRD
Cc: Ben Barker; Steve Harman; Fesmire, Mark, EMNRD
Subject: Update and request

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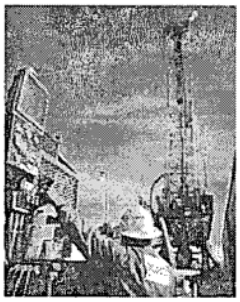
Mobile: +1.801.589.1872
www.rasertech.com

raser
TECHNOLOGIES

Raser Technologies Obtains Preliminary Financing With Evergreen Clean Energy And FE Clean Energy Group For The Development Of The Lightning Dock, New Mexico Geothermal Project

Tuesday, October 5, 2010 | Category: **Press Releases**

Lightning Dock Project Expected To Deliver 15 Megawatts of Geothermal Power To Phoenix, Arizona



Provo, UT, October 5, 2010, Raser Technologies, Inc. (**NYSE: RZ**), an energy technology company, announced today that it and its wholly owned subsidiary Lightning Dock Geothermal HI-01, LLC (LDG) have signed an agreement with Evergreen-FE Lightning Dock, LLC ("Evergreen-FE"), a collaboration between the FE Clean Energy Group, a group of funds focused on investments in renewable energy and energy efficiency projects, and Evergreen Clean Energy, LLC to fund the resource development of the Company's Lightning Dock Geothermal Project in Animas County, New Mexico.

The agreement contemplates that Evergreen-FE will invest $15.3 million in LDG to finance the development of the Lightning Dock Geothermal Project in exchange for a 51% interest in LDG and that Raser will develop and manage the project, subject to the negotiation and execution of definitive agreements satisfactory to the parties. To facilitate the continuing resource development of the Lightning Dock Geothermal Project while definitive documents are being completed, the agreement provides for an initial investment in the form of loans of up to approximately $2 million to LDG to fund the continued resource development of the project. The loans will be secured by a first priority lien on certain LDG equipment. Upon, and subject to, execution of definitive documents governing Evergreen-FE's equity investment in LDG , the loan balance will be credited towards the purchase price payable by Evergreen-FE for its interest in LDG.

George Sorenson, Chairman of FE Clean Energy Group, commented, "We are excited to move forward with Raser and believe the Lightning Dock project will be a successful project providing clean, renewable energy to residents in Phoenix, Arizona."

Raser recently re-entered a well (TFD 55-7) at Lightning Dock that was drilled in 1984 and was later abandoned. Initial test results from the well are encouraging and indicate geothermal water temperatures greater than 300 degrees Fahrenheit with favorable chemical properties. LDG is in advanced discussions with equipment manufacturers to provide binary cycle generators for the Lightning Dock project. LDG anticipates negotiating a turnkey, fixed price

agreement for engineering, procurement and construction (EPC) for the project. It is contemplated that the EPC contractor will provide construction financing for the project's generating facility.

Dean Rostrom, Principal of Evergreen Clean Energy added, "We are working on the construction and financing arrangements and anticipate moving towards conclusion over the next several weeks. The Lightning Dock project is moving along as planned and we look forward to a successful project."

Raser has a 20-year Power Purchase Agreement (PPA) with Salt River Project to sell renewable energy from the Lightning Dock Project into Phoenix, Arizona. When complete, the proposed project is expected to deliver up to 15 MW of geothermal power.

About FE Clean Energy Group

FE Clean Energy Group manages four funds focused on investments in the middle market energy efficiency services sector and in return-driven sustainable development. FE Clean Energy Group specializes in investing in privately held companies that deliver energy efficiency, emissions reduction, renewable energy and reliable power services to the industrial, commercial and public sectors. FE Clean Energy's experience is in originating and structuring energy efficiency and emission reduction project investments. Further information on FE Clean Energy Group can be found at: **www.fecleanenergy.com**

About Evergreen Clean Energy LLC

Evergreen partners with the world's leading developers to meet the demand for clean energy in a smart and efficient new way. Evergreen's partners contribute the best available natural resources, latest technologies, and most innovative processes, while Evergreen contributes an efficient financing program that accelerates production of clean energy. Further information on Evergreen may be found at: **www.evergreencleanenergy.com**

About Raser Technologies

Raser (NYSE: RZ) is an environmental energy technology company focused on geothermal power development and technology licensing. Raser's Power Systems segment develops clean, renewable geothermal electric power plants with one operating plant in southern Utah and eight active and early stage projects in four western United States: Utah, New Mexico, Nevada and Oregon, as well as a concession for 100,000 acres in Indonesia. Raser's Transportation and Industrial segment focuses on extended-range plug-in-hybrid vehicle solutions and using Raser's award-winning Symetron™ technology to improve the torque density and efficiency of the electric motors and drive systems used in electric and hybrid-electric vehicle powertrains and industrial applications. Further information on Raser may be found at: **www.rasertech.com**.

Cautionary Note Regarding Forward-Looking Statements

This press release contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including, but not limited to, statements regarding; our beliefs about the proposed Lightning Dock geothermal power project; our beliefs about our ability to negotiate definitive agreements with Evergreen-FE relating to its proposed equity investment in LDG;our beliefs about the strength and enforceability of our agreements; our belief about our ability to obtain financing and develop future geothermal projects and the geothermal industry in general. These forward -looking statements involve certain risks and uncertainties that could cause actual results to differ, including, without limitation, the competitive environment and our ability to compete in the industry; our ability to attract, train and retain key personnel; and such other risks as

identified in our quarterly report on Form 10-Q for the quarter ended June 30, 2010, as filed with the Securities and Exchange Commission, and all subsequent filings.

All forward-looking statements in this press release are based on information available to us as of the date hereof, and we undertake no obligation to update forward-looking statements to reflect events or circumstances occurring after the date of this press release.

###

Raser Technologies, Inc.
Issa Arnita
Investor Relations
(801) 765-1200
investorrelations@rasertech.com