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# OFFICE OF THE STATE ENGINEER

# Chavez, Carl J, EMNRD

From: Sent: To: Cc: Subject: Attachments: Phillips, Haddy L., OSE Friday, August 03, 2012 4:01 PM Michelle Henrie; Janney, David Smith, Michael A; Chavez, Carl J, EMNRD OSE approved 63-7 permit A-758-POD9\_63-7\_EXPL\_PERMIT.pdf

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Attached is a PDF of the approved OSE Exploratory permit for A-758-POD9 (63-7).

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



#### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER District 3 Office, Deming, NM

Scott A. Verhines, P.E., State Engineer P.O. Box 844 301 S. Tin Street Deming, New Mexico 88031 PHONE: (575) 546-2851 FAX: (575) 546-2290

August 2, 2012

FILE: A-758

Lightning Dock Geothermal, HI-01, LLC c/o Mike Hayter 136 S. Main Street, Suite 600 Salt Lake City, New Mexico 84101

Greetings:

Enclosed is your copy of Exploratory Well Permit A-758-POD9, which has been approved.

Your attention is called to the Conditions of Approval under permit A-758-EXPL, which states 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 Exploratory 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.) New Mexico water well drilling and well drilling activities, including well plugging, are regulated under 19.27.4 NMAC. These regulations apply, and provide specific and general direction regarding the drilling of water wells in New Mexico. Due to the geothermal nature of the project and drilling location, project drilling and design appear to also fall under the jurisdiction of the New Mexico Oil Conservation Division and the United States Bureau of Land Management. In the event NMOSE drilling regulations are less stringent than those of other involved regulatory agencies, the more stringent requirements shall be upheld. The following permit conditions provide further specific well construction guidance related to the subject well(s).
- 2.) This permit is also subject to Approved Artesian Well Plan of Operations and Conditions of Approval for A-758-POD9.
- 3.) Well A-758-POD9 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.) NMAC 19.27.4 requires any person engaged in the business of well drilling or plugging a well within New Mexico to obtain a Well Driller License issued by the New Mexico Office of the State Engineer (NMOSE). Therefore, the firm of a New Mexico licensed Well Driller shall drill and/or plug the subject well. On-site supervision of well drilling by the holder of a New Mexico Well Driller License or a NMOSE-registered Drill Rig Supervisor is required.
- 4.) Well A-758-POD9 shall be drilled to a depth not to exceed 3,400 feet and shall be constructed with casing not to exceed 13.375 inch outside diameter.

File A-758 Lightning Dock Geothermal, HI-01

- 5.) NMOSE well record itemizing as-built well design and materials used shall be filed with the State Engineer (NMOSE, PO Box 844 (301 S. Tin Street), Deming, NM 88031-0844), within 20 days after completion of the well. Please attach a copy of artesian plan conditions. Aquifer/pump test data shall be filed not later than ten (10) days after completion of the aquifer/pump test(s).
- 6.) NMOSE pre-installation inspection of artesian / production well casing, witnessing of the grouting of the artesian / production well casing, and testing of the artesian / production casing is required, and shall be facilitated when a NMOSE observer is onsite. NMOSE inspection / witnessing shall be requested during normal work hours by calling the District 3 NMOSE Office at 575-546-2851, at least 48-hours in advance. NMOSE inspection of the artesian / production casing should be requested upon local availability of the casing to quickly address compliance with specifications. It may be necessary to coordinate inspections with other regulatory agencies, specific to their jurisdictions.
- 7.) No water shall be appropriated and beneficially used under this permit.
- 8.) Diversion of water under this exploratory well permit shall be limited to determining aquifer characteristics which shall not exceed ten (10) cumulative days, any testing from exploratory well A-758-POD9 that will exceed ten days must be approved by OSE District III Office. Well A-758-POD9 shall be equipped with a totalizing meter of a type approved by and installed in a manner and at a location approved by the State Engineer and records of the amount of water diverted from the well shall be submitted to the District Manager, P.O. Box 844, Deming, New Mexico 88031 The well shall be plugged in accordance with Subsection C of 19.27.4.31.K NMAC, unless a permit to appropriate water from this well is acquired from the Office of the State Engineer.
- Well A-758-POD9 shall be plugged as per an approved plugging plan in accordance 9.) with Subsection C of 19.27.4.31.K NMAC on or before January 31, 2013, unless the applicant has received an approved permit from the State Engineer for additional use.
- 10.) The State Engineer retains jurisdiction to administer the conditions of this permit.

This permit shall automatically expire July 31, 2013.

Sincerely,

Charles L. Jackson, MPA District 3 Manager By: ! Jullios Haddy Phillips Assistant Manager Gila-San Francisco Basin

cc: State Engineer

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		File No.	7-758
Interstate Stream Commission	NEW MEXICO OFFICE OF APPLICATION FOR PER WITH NO CONSUMPT (check applie For fees, see State Engineer webs Pollution Control And / Or Recovery	THE STATE ENGINATION OF THE STATE ENGINATION OF THE STATE ENGINATION OF THE STATE OF WATER STATE OF WATER STATE OF THE STA	NEER 3-19/18 #5° <sup>y</sup>
I Exploratory	Construction Site De-Watering	Other (Describe):	
Monitoring	Mineral De-Watering		
A separate permit will be	e required to apply water to beneficial use. - Requested Start Date:	Requested End	Date:
Plugging Plan of Operations Submitted? 🔲 Yes 🛛 No			
1. APPLICANT(S) Name: Lightning Dock	Geothermal HI-01, LLC	Name:	
Contact or Agent: Mike Hayter	check here if Agent	Contact or Agent: David Janney	check here if Agent
Mailing Address: 136 S.	Main Street, Suite 600	Mailing Address: 8519 Jeffers	on Street, NE
City: Salt Lake City		City: Albuquerque	
State: UT	Zip Code: 84101	State: NM	Zip Code: 87113
Phone: Phone (Work): <b>(801) 875</b>	☐ Home ☐ Cell 5-4200	Phone: Phone (Work): (505) 821-1801	
E-mail (optional): mike.h	nayter@cyrqenergy.com	E-mail (optional): david.janne	y@amec.com

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FOR OSE INTERNAL USE Application for Permit, Form wr-07, Rev 8/25/11

File Number: A . 758 - POD9	Trn Number:
Trans Description (optional):	
Sub-Basin:	
PCW/LOG Due Date:	

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), <u>or</u> Latitude/Longitude (Lat/Long - WGS84)			
NM State Plane (NAD83)	(Feet)	JTM (NAD83) (Me ]Zone 12N ]Zone 13N	ters)
Well Number (if known):	X or Easting or Latitude:	Y or Northing or Longitude:	Optional: Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot, Block & Subdivision; OR Land Grant Name if known.
LDG 63-7	32° 8' 54.4346''	-108° 49'	
		57.7501"	
NOTE: If more well location	s need to be describ	oed, complete for Ves ⊠No	m WR-08 (Attachment 1 – POD Descriptions)
Other description relating well	to common landmar	ks, streets, or othe	r:
Well is on land owned by: Ros	sette Inc.		
Well Information: NOTE: If n If yes, how many	nore than one (1) we	ell needs to be de	scribed, provide attachment. Attached? 🔲 Yes 🖾 No
Approximate depth of well (fee	et): 3400.00		Outside diameter of well casing (inches): 13.375
Driller Name: Trinity Exploration, L.L.P. Driller License Number: 1687			

#### 3. ADDITIONAL STATEMENTS OR EXPLANATIONS

The LDG 63-7 exploratory well will be used to evaluate the northern extent of the deep, bedrock-hosted geothermal resource in an area of known shallow, alluvial-hosted low temperature geothermal water. Please see attached map.

#### FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number: Trn Number:

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4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

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Explorator	Pollution Control and/or Possivery	Construction	Mine Do Matering:
	Include a plan for pollution	Do Wetering	witte De-Watering:
	i include a plan for pollution	De-watering:	[ include a plan for pollution
description of	f control/recovery, that includes the	I include a description of the	control/recovery, that includes the following.
any proposed	tollowing:	proposed dewatering	A description of the need for mine
pump test, if	A description of the need for the	operation,	dewatering.
applicable.	pollution control or recovery operation.	L The estimated duration of	The estimated maximum period of time
	I he estimated maximum period of	the operation,	for completion of the operation.
	time for completion of the operation.	The maximum amount of	The source(s) of the water to be diverted.
	│	water to be diverted,	The geohydrologic characteristics of the
ť	The annual consumptive use	A description of the need	aquifer(s).
	amount.	for the dewatering operation,	The maximum amount of water to be
ļ ·	The maximum amount of water to be	and,	diverted per annum.
	diverted and injected for the duration of	A description of how the	The maximum amount of water to be
	the operation.	diverted water will be disposed	diverted for the duration of the operation.
	The method and place of discharge.	of.	The quality of the water.
Monitoring:	The method of measurement of	Geo-Thermal:	The method of measurement of water
Include the	water produced and discharged.	Include a description of the	diverted.
reason for the	The source of water to be injected.	geothermal heat exchange	The recharge of water to the aquifer.
monitoring	The method of measurement of	project,	Description of the estimated area of
well, and	water injected.	The amount of water to be	hydrologic effect of the project.
The	The characteristics of the aguifer.	diverted and re-injected for the	The method and place of discharge.
duration	The method of determining the	project.	An estimation of the effects on surface
of the planned	resulting annual consumptive use of	The time frame for	water rights and underground water rights
monitorina.	water and depletion from any related	constructing the geothermal	from the mine dewatering project.
)	stream system.	heat exchange project and	A description of the methods employed to
	Proof of any permit required from the	The duration of the project	estimate effects on surface water rights and
	New Mexico Environment Department	Preliminary surveys design	underground water rights
	An access agreement if the	data and additional	Information on existing wells rivers
	applicant is not the owner of the land on	information shall be included to	springs and wetlands within the area of
	which the nollution plume control or	nrovide all essential facts	bydrologic effect
	recovery well is to be located	relating to the request	hydroiogio cheor.
L	recovery wents to be located.	relating to the request.	l

#### ACKNOWLEDGEMENT

ACKNOWLEDGEMENT	SIO
I, We (name of applicant(s)), David Janney, Agent for Lightning Dock Geothermal HI-01, LLC	
Print Name(s)	<u>Suc</u>
affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.	220
	Y PH
David Janney PG, Agent for LDG HI-DI, LLC	
Applicant/Signature/ Applicant Signature	
ACTION OF THE STATE ENGINEER	
This application is:	
🕅 approved 🛛 🗌 partially approved 🗖 denied	
provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservati Mexico nor detrimental to the public welfare and further subject to the <u>attached</u> conditions of approval.	on of water in New
Witness my hand and seal this <u>2nd</u> day of <u>August</u> 20 <u>12</u> , for the State Engineer,	
Scott A. Verhanes, P.E, State Engineer	
By: Charles L. Jackson, MPA	

3 Manager Title: rict Di Print

Signature

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

Trn Number:

Print

# ATTACHMENT STATE ENGINEER CONDITIONS OF APPROVAL

**FILE:** A-758

**APPLICATION:** A-758-EXPL

**APPLICANTS:** Lightning Dock Geothermal HI-01, LLC

- 1.) New Mexico water well drilling and well drilling activities, including well plugging, are regulated under 19.27.4 NMAC. These regulations apply, and provide specific and general direction regarding the drilling of water wells in New Mexico. Due to the geothermal nature of the project and drilling location, project drilling and design appear to also fall under the jurisdiction of the New Mexico Oil Conservation Division and the United States Bureau of Land Management. In the event NMOSE drilling regulations are less stringent than those of other involved regulatory agencies, the more stringent requirements shall be upheld. The following permit conditions provide further specific well construction guidance related to the subject well(s).
- 2.) This permit is also subject to Approved Artesian Well Plan of Operations and Conditions of Approval for A-758-POD9.
- 3.) Well A-758-POD9 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.) NMAC 19.27.4 requires any person engaged in the business of well drilling or plugging a well within New Mexico to obtain a Well Driller License issued by the New Mexico Office of the State Engineer (NMOSE). Therefore, the firm of a New Mexico licensed Well Driller shall drill and/or plug the subject well. On-site supervision of well drilling by the holder of a New Mexico Well Driller License or a NMOSE-registered Drill Rig Supervisor is required.
- 4.) Well A-758-POD9 shall be drilled to a depth not to exceed 3,400 feet and shall be constructed with casing not to exceed 13.375 inch outside diameter.
- 5.) NMOSE well record itemizing as-built well design and materials used shall be filed with the State Engineer (NMOSE, PO Box 844 (301 S. Tin Street), Deming, NM 88031-0844), within 20 days after completion of the well. Please attach a copy of artesian plan conditions. Aquifer/pump test data shall be filed not later than ten (10) days after completion of the aquifer/pump test(s).
- 6.) NMOSE pre-installation inspection of artesian / production well casing, witnessing of the grouting of the artesian / production well casing, and testing of the artesian / production casing is required, and shall be facilitated when a NMOSE observer is onsite. NMOSE inspection / witnessing shall be requested during normal work hours by calling the District 3 NMOSE Office at 575-546-2851, at least 48-hours in advance. NMOSE inspection of the artesian / production casing should be requested upon local availability of the casing to quickly address compliance with specifications. It may be necessary to coordinate inspections with other regulatory agencies, specific to their jurisdictions.
- 7.) No water shall be appropriated and beneficially used under this permit.
- 8.) Diversion of water under this exploratory well permit shall be limited to determining aquifer characteristics which shall not exceed ten (10) cumulative days, any testing from exploratory well A-758-POD9 that will exceed ten days must be approved by OSE District III Office. Well A-758-POD9 shall be equipped with a totalizing meter of a type approved by and installed in a manner and at a location approved by the State Engineer and records of the amount of water diverted from the well shall be submitted to the District Manager, P.O. Box 844, Deming, New Mexico 88031 The well shall be plugged in accordance with Subsection C of 19.27.4.31.K NMAC, unless a permit to appropriate water from this well is acquired from the Office of the State Engineer.

2 File: A-758 Lightning Dock Geothermal, HI-01, LLC

- 9.) Well A-758-POD9 shall be plugged as per an approved plugging plan in accordance with Subsection C of 19.27.4.31.K NMAC on or before January 31, 2013, unless the applicant has received an approved permit from the State Engineer for additional use.
- 10.) The State Engineer retains jurisdiction to administer the conditions of this permit.

This permit shall automatically expire July 31, 2013.

Witness my hand and seal this 2<sup>nd</sup> day of August, 2012 .

Scott A. Verhines, P.E., State Engineer

Jackson, MPA Ch Destrict 3 Manager



An Artesian Well Plan of Operations shall be filed with and approved by the Office of the State Engineer prior to commencing the drilling of an artesian well.

A detailed diagram of the proposed artesian well shall be attached to this plan.

I. FILING FEE: There is no filing fee for this form.

#### II. GENERAL / WELL OWNERSHIP:

Office of the State Engineer POD Number (Well Nu	mber) for well (if known): LDG-63-7
Name of well owner: Lightning Dock Geothermal F	II-0), LLC
Mailing address: 136 South Main Street, Suite 600	
City: Salt Lake City State: Utah	Zip code: 84101
Phone number: 801-875-4200	E-mail: mike.hayten@cvrgenergy.com
III WELL DOLLED INFORMATION.	

#### III. WELL DRILLER INFORMATION:

Well Driller contracted to provide drilling services: Trinity Exploration, LLP, PO Box 1688 Gillette, WY 82717 (307) 682-1153 New Mexico Well Driller License No.: 1687 Expiration Date: 12/31/2012

#### **IV. WELL INFORMATION:**

- 1) should familiarize themselves with the need for specialty materials or design required for the monitoring program.
- Will the well tap or penetrate brackish, saline, or otherwise poor quality water? \_\_\_\_\_ No\_\_\_\_ If yes, please 2) provide additional detail in section V.

3)	Depth of top of the anti-	cipated artesian aquifer:	1200 feet below gr	ound level (bgl)	012
4)	Is a flowing artesian he	ad anticipated?	No		JUN -
5)	Will a pitless adspter be	installed in the well?	No	DX0	ပုံ
6)	GPS Well Location:	Latitude: 32	deg,8min,		Hd
		Longitude:	deg, <u>49</u> min,	57.7501 500 WOS84	**
				ma	0
					~

7) Will permanent surface casing be installed? Yes \_\_\_\_ (Note: surface casing is optional and is shallow casing generally set above the confining unit overlying the artesian aquifer). If yes, provide the following detail: \* 35. of 30" CONDUCTED OTHING MAS BEEN ADDED TO DEGLAN PEL 7/23/2012 GMAIL FROM SAID JANNAY/AMA Diameter of borehole to be drilled for the surface casing: a) 26 inches. b) Proposed surface casing depth: 150 feet below ground level.

Surface casing material, grade: \_\_\_\_\_\_ J-55\_\_\_\_ c)

ANNULAE GEOVE REOVIERO

Artesian Well Plan of Operations Version: December 27, 2011 Page 1 of 4

ď)	Inside diameter	(ID):	19.124	inches.
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e) Outside diameter (OD): <u>20</u> inches.

f) Wall thickness: \_\_\_\_\_0.438 inches.

g) Casing joint connection type (note whether coupled, welded, glued, etc.): <u>Welded</u>	
--	--

h) Interval of proposed surface casing annular sanitary seal: <u>0</u> to <u>150</u> feet below ground level.

i) Surface casing sanitary seal material: \_\_\_\_\_Portland Type I/II (5.2-6 gallons of water per sack) \_\_\_\_\_

8)

Artesian casing (Note: artesian casing shall be set adequately into the confining unit overlying the artesian aquifer; in some designs this may also be the production casing; NMOSE inspection requirements apply to installing, grouting and testing the artesian casing):

Proposed artesian casing depth:
Artesian casing material, grade: $J-55$ $7/8  2012$ Inside diameter (ID): $12.615$ inches. $NMOCD$ Outside diameter (OD): $13.375$ inches. $Simple Market = 1000$ Well thicknase: $0.38$ inches $Simple Market = 1000$
Inside diameter (ID):     12.615 inches.     NMOCD Size       Outside diameter (OD):     13.375 inches.     Inches.       Well thickness:     0.38 inches     Inches.
Outside diameter (OD): 13.375 inches.
Wall thickness: 0.38 inches
Wan unceness hores.
Casing joint connection type (note whether coupled, welded, glued, etc.):Buttress thread and coupling
Type and spacing of artesian casing centralizers: <u>Bow, every third casing joint</u>
Manufacturer and model of float shoe: <u>Halliburton</u> 101242325-13-3/8 8rd
Method of annular grout placement (pressure grout or tremie pipe):Pressure grout
Interval of proposed annular grout:0 to1500 feet below ground level.
Proposed annular grout mix: 124 gallons of water per 94 pound sack of Class G cement for lead and 521
gallons of water per 94 pound sack of Class G cement for tall.
Cement type proposed: Lead and tail cement is Class G cement with 40% silica and additives,
Theoretical volume of annular grout required:15283 gallons (2115 cubic feet) with 100% excess
Will the grout be: <u>dry</u> batch-mixed and delivered to the site wet mixed on site
Grout additives requested, and percent by dry weight relative to coment: (See AWWA Standard A100-06
or Halliburton red book; common additives: calcium chloride, bentonite solution, pozzolan ash):

Artesian Well Plan of Operations Version: December 27, 2011 Page 2 of 4 201

q	) Addi	tional notes	and calcu	ulations:	
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		job wi	All cement jobs will have 100% excess flow-back to surface. If no cement returns to surface a top ill be performed with Class O cement.
9)	Produ	Iction casi	ing (set through the artesian casing and into the artesian aquifer; may not be necessary if the artesian
	a)	Will y descri	you be using a production casing within the artesian casing? <u>No</u> If yes, please provide a ption of the following in section V:
		i. 11.	Diameter of borehole to be drilled for production casing; casing joint connection type - note whether coupled, welded, glued, etc.; proposed production casing depth; and inside diameter, outside diameter, wall thickness, casing material, and casing material grade of production casing. List the proposed screened/ perforated interval(s) if you plan to use well screen or perforated
		ili.	casing. List the vertical intervals and seal or fill material if the annulus between the production casing and artesian casing/borehole is to be sealed/ filled.
<b>Y.</b> A	DDITIO Pleas	NAL INI e sec Prop	EQRMATION: List additional information below, or on separate sheet(s): posed Well Diagram attached.
		······	

Please feel free to contact David Janney with AMEC at 505.821.1801 or david janney@amec.com with questions about this plan.

#### VI. SIGNATURE;

I, <u>David W. Janney. Agent for Lightning Dock Geothermal HI-01. LLC</u>, say that I have carefully read the foregoing Artesian Well Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Artesian Well Plan of Operations and attachments are true to the best of my knowledge and belief.

Din G. former Signature of Applicant

June 4, 2012 Date

DFFICE OF THE STATE ENGINEER DEMING, NM DEMING, NM

SOIS JUN -5 PH 1: 07

Artesian Well Plan of Operations Version: December 27, 2011 Page 3 of 4

**VII. ACTION OF THE STATE ENGINEER:** 

This Artesian Well Plan of Operations is:

Approved subject to the attached conditions. Not approved for the reasons provided on the attached letter. Witness my hand and official seal this 2 9 day of JULY

2012

Scott-A. Verhines, State Enginee

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2012 JUN -5 PM 1:07

OFFICE OF THE STATE ENGINEER DELIGING, NM

Artesian Well Plen of Operations Version December 27, 2011 Page 4 of 4



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# NEW MEXICO OFFICE OF THE STATE ENGINEER ARTESIAN WELL PLAN OF OPERATIONS CONDITIONS OF APPROVAL

- 1. This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the following conditions of approval:
- Permittee: Lightning Dock Geothermal HI-01, LLC c/o Michael Hayter 136 South Main Street, Suite 600 Salt Lake City, UT 84101

Permit Number:	A-758-POD9	:	
Application File Date:	June 5, 2012	•	
Priority:	N/A		
Source:	Ground water		
Point of Diversion:	A-758-POD9 located at a point described by_NE <sup>1</sup> / <sub>4</sub> SW <sup>1</sup> / <sub>4</sub> NE <sup>1</sup> / <sub>4</sub> , Section 7, Township 25 South, Range 19 West, N.M.P.M , on land owned by Rosette Inc., Hidalgo County, New Mexico.		
Purpose of Use:	Exploration of groundwater resources		
Place of Use:	N/A		
Amount of Water:	None		

- 2. No water shall be appropriated and beneficially used under this permit.
- 3. A-758-POD9 shall not exceed a depth of 3,400 feet.
- 4. No water shall be diverted from this exploratory well except for testing purposes, which shall not exceed ten (10) cumulative days, and the well shall be plugged in accordance with Subsection C of 19.27.4.31.K NMAC, unless a permit to appropriate water from this well is acquired from the Office of the State Engineer.
- 5. New Mexico water well drilling and well drilling activities, including well plugging, are regulated under 19.27.4 NMAC. These regulations apply, and provide specific and general direction regarding the drilling of water wells in New Mexico. Due to the geothermal nature of the project and drilling location, project drilling and design appear to also fall under the jurisdiction of the New Mexico Oil Conservation Division and the United States Bureau of Land Management. In the event NMOSE drilling regulations are less stringent than those of other involved regulatory agencies, the more stringent requirements shall be upheld. The following permit conditions provide further specific well construction guidance related to the subject well(s).

Permit A-758-POD9 Page 1 of 3

### NEW MEXICO OFFICE OF THE STATE ENGINEER ARTESIAN WELL PLAN OF OPERATIONS CONDITIONS OF APPROVAL

- 6. NMAC 19.27.4 requires any person engaged in the business of well drilling within New Mexico to obtain a Well Driller License issued by the New Mexico Office of the State Engineer (NMOSE). Therefore, the firm of a New Mexico licensed Well Driller shall drill and/or plug the subject well. On-site supervision of well drilling by the holder of a New Mexico Well Driller License or a NMOSE-registered Drill Rig Supervisor is required.
- 7. The NMOSE requests geologic formation samples from A-758-POD9 well drilled under this permit, per NMAC 19.27.4.29.L., unless samples from a comparably deep or deeper project well have already been submitted.
- 8. NMOSE pre-installation inspection of artesian / production well casing, witnessing of the grouting of the artesian / production well casing, and testing of the artesian / production casing is required, and shall be facilitated when a NMOSE observer is onsite. NMOSE inspection / witnessing shall be requested during normal work hours by calling the District 3 NMOSE Office at 575-546-2851, at least 48-hours in advance. NMOSE inspection of the artesian / production casing should be requested upon local availability of the casing to quickly address compliance with specifications. It may be necessary to coordinate inspections with other regulatory agencies, specific to their jurisdictions.
- 9. NMOSE regulations prohibit the construction of wells that allow groundwater to flow uncontrolled at land surface or move appreciably between geologic units through design of the open hole, perforated interval(s), or annular space. 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.
- 10. Downhole pressure differentials created by the placement of fluid sealants may collapse casing pipe and related tubes. The NMOSE shall not be held responsible for improper balancing of fluids and/or interval grouting that results in damage to the well. An appropriate schedule of cementing lifts should be reviewed with the casing manufacturer prior to initiation of grouting.
- 11. The A cementing proposal specific to this well has been tendered 7/23/2012, and approved, indicating Class G, silica flour-enriched cement and lightweight cement grouts will be used for the annular seal encompassing the artesian / production casing string. When used, allowable lightweight cement mixes shall rely on the incorporation of appropriate additives to achieve acceptable lightweight formulation and disallow free water separation from the mix. Use of mix water increment in excess of fundamental demand results in a thinned mix of cement prone to shrinkage that may disrupt effective sealing and hydraulic separation, and lead to annular seal failure.

Production zone groundwater analysis tendered indicates the artesian / production casing annular cement shall be required to provide a minimum of moderate sulfate resistance. In the event the cemented annulus extends through bedded gypsum/anhydrite, or occupies

## NEW MEXICO OFFICE OF THE STATE ENGINEER **ARTESIAN WELL PLAN OF OPERATIONS CONDITIONS OF APPROVAL**

portions of the aquifer system characterized by groundwater concentrations of sulfate in excess of 1,500 mg/l, additional sulfate resistance shall be added in the grout formulation.

- 12.
- 13. Given the diameters of the proposed grouted casings, it is recommended that cementing plugs be run both before and after pumping the cement interval during grouting, or that a stab-in cementing pipe and float shoe / collar assembly be utilized.
- 14. The NMOSE requires mechanical integrity testing of the 13.375" OD artesian / production casing string before drilling-out into an underlying stratum. Should the results of the testing prove inconclusive, cement bond log will be required to verify adequate placement and bonding of the annular seal (remedial perforation and cementing may be required). In the event additional regulatory agencies share jurisdiction of mechanical integrity testing, the more stringent requirements shall be upheld.
- A NMOSE Well Record itemizing as-built well design and materials used shall be filed 15. with the State Engineer (NMOSE, PO Box 844 (301 S. Tin Street), Deming, NM 88031-0844), within 20 days after completion of the well. Please attach a copy of these artesian plan conditions. Aquifer/pump test data shall be filed not later than ten (10) days after completion of the aquifer/pump test(s).
- 16. The Permit to Drill an Exploratory Well is valid for 1 year after the date of approval.

The NMOSE Artesian Well Plan of Operations, as annotated, is hereby approved with the aforesaid conditions applied, when signed by an authorized designee of the State Engineer:

Witness my hand and seal this day of July, A.D. 2012.

Scott A. Verhines, P.E., State Engineer

By:

District 3 Manager

Permit A-758-POD9 Page 3 of 3

#### Chavez, Carl J, EMNRD

From:	Rappuhn, Doug H., OSE
Sent:	Wednesday, June 27, 2012 7:38 AM
То:	Janney, David
Cc:	Phillips, Haddy L., OSE; Jackson, Charles L., OSE; Chavez, Carl J, EMNRD; Michael Smith
	(Mike_Smith@blm.gov); Michelle Henrie (michelle@mhenrie.com);
	mike.hayter@cyrqenergy.com
Subject:	RE: LDG 63-7 Approved OCD Form G-101
Attachments:	OCD G-112 LDG 63-7 FINAL COA 6-22-2012.pdf

Hi David -

I'll be finalizing artesian plan approval this morning and forwarding the document by e-mail to our Deming Water Rights Division for permitting. Attached is a copy of the NMOCD Conditions of Approval for OCD Form G-112, received 6/22/2012, recognizing proposed status of the well as a potential Class V Injection Well. As such, the NMOCD has conditioned approval of the well construction based upon installation of a minimum 2200' of annular-grouted production (surface) casing. This will be noted as part of the OSE-approvable design for applicant well number 63-7.

You noted in previous response that since no finalized cementing proposal has been commissioned, applicant's plan is to annular-cement the conductor and production/surface casing strings with the same cement mixes that have been approved for recent project wells. Be advised, the approval of the NMOSE artesian plan will reflect that sufficient tail cement formulation shall be pumped from set-depth of the 13.375" casing to extend upwards to a minimum of 100' above the top of the uppermost (volcanic) bedrock interval. The LDG - 63-7 Drilling Handbook provided notes the top of the volcanic rocks at a depth of approximately 1200' to 1500'bgl, which would then require the tail cement column to extend respectively upwards to approximately 1100' to 1400'bgl, based ultimately on site-specific information.

Since the added density of the lengthened tail mix interval will increase the bottom-hole pressure of the cement column until set, please review the collapse resistance of the 13.375" casing for concerns prior to installation. Thanks; let me know of the need for further discussion.

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

-----Original Message-----From: Janney, David [mailto:david.janney@amec.com] Sent: Monday, June 25, 2012 11:03 AM To: Rappuhn, Doug H., OSE; Michelle Henrie (michelle@mhenrie.com); mike.hayter@cyrqenergy.com Cc: Phillips, Haddy L., OSE Subject: RE: LDG 63-7 Approved OCD Form G-101

Greetings Doug:

Can you or Haddy please provide to Mike Hayter, Michelle Henrie and me an update on the 63-7 application?

We are anxious to schedule a rig to drill this well. The other agencies have approved this well design.

1

We believe we have provided all of the information you need to approve this well design.

Regards,

David Janney AMEC

From: Rappuhn, Doug H., OSE [doug.rappuhn@state.nm.us] Sent: Monday, June 11, 2012 12:30 PM To: Janney, David; Leciii@capuanoengineering.com Cc: Phillips, Haddy L., OSE Subject: FW: LDG 63-7 Approved OCD Form G-101

Hi David and Louis -

Our Deming office has forwarded me the NMOSE Artesian Well Plan of Operations filed for Cyrq Energy well 63-7. It looks like a fairly routine well for the project, but I'll need further information about the exact cement formulations proposed. On earlier wells, this was provided by means of a set of Halliburton Cement Recommendations for the job, after Cyrq selected Halliburton for the cement job, and I had a chance to further discuss my cement questions with the Halliburton engineer.

If Cyrq will be using some other cementing service, I would expect they would also be able to provide similar information on the proposed mix, as the OSE checks water demand of the slurry components and appropriateness of the proposed mix for intended well design. The artesian plan notes distinct lead and tail slurries are proposed but doesn't offer detail regarding the significant difference in water demand for the mixes, which are otherwise stated to be Class G cement with 40% silica flour. The water demand listed on the artesian plan doesn't seem to match that submitted for earlier project wells either.

My artesian plan review would also benefit from looking over the "LDG 63-7 Drilling Handbook by Capauno Engineering Consultants", referenced on the USBLM Form 3260-2 filed with the Las Cruces BLM Office, so I ask that that document be provided (e-mail to me is fine).

One last question – A review of the application packet materials submitted to our Deming OSE Office finds LDG-63-7 listed variably on administrative submittals as an exploratory well (NMOSE), geothermal injection well (USBLM), and geothermal producer (NMOCD, so I would benefit by knowing how Cyrq proposes to use this well; that is, what is/are the function(s) the well will be used for? Given the location and nature of the general project, it appears a given the well is being designed to tap a geothermal reservoir, but it would be appropriate to clarify if the well will be used for injection, production, both or some other stated purpose. There may be some benefit to filing with the OSE as a proposed exploratory well, but further filings would be required to appropriate water from the well.

Thanks,

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<mailto:doug.rappuhn@state.nm.us>

From: Michelle Henrie [mailto:michelle@mhenrie.com] Sent: Thursday, June 07, 2012 4:51 PM To: Phillips, Haddy L., OSE Subject: RE: LDG 63-7 Approved OCD Form G-101

Good question!

Louis Capuano is the best person to talk with Doug. He prepared the drilling handbook and well design. His contact information is below:

Louis Capuano III Capuano Engineering Consultants Leciii@capuanoengineering.com<mailto:Leciii@capuanoengineering.com> (707) 291-3930<tel:7072913930>

If Louis is unavailable or Doug has any other questions, he is welcome to call me and I will get him to the right person. Alternatively, David's office has assigned us one of David's colleagues, Jeff Cotter, jeff.cotter@amec.com<mailto:jeff.cotter@amec.com>, (505) 821-1801.

From: Phillips, Haddy L., OSE [mailto:haddy.phillips@state.nm.us] Sent: Thursday, June 07, 2012 4:23 PM To: Michelle Henrie Subject: RE: LDG 63-7 Approved OCD Form G-101

Michelle,

David got the BLM permit to me. The Permit has been sent to Hydrology for the Artesian Plan of Operations review and approval. Is David still going to be available in case Doug has any questions on the plan? If not whom would he contact?

Thanks Haddy

The information contained in this e-mail is intended only for the individual or entity to whom it is addressed. Its contents (including any attachments) may contain confidential and/or privileged information. If you are not an intended recipient you must not use, disclose, disseminate, copy or print its contents. If you receive this e-mail in error, please notify the sender by reply e-mail and delete and destroy the message.

#### Lightning Dock Geothermal (HI-01) LLC Project Class V Injection Wcll 63-07 (GTHT-001)

#### G-112 Form OCD Santa Fe Office Conditions of Approval (6/22/2012)

1) The operator shall comply with the OCD Artesia District Office G-101 approval for this well.

2) The operator shall construct the well with casing and cement to a minimum depth of 2,200 feet to comply with the OCD Discharge Permit requirement(s).

3) The operator shall submit a G-104 Form with all other associated G-Forms to the OCD for approval within 30 days of well completion and before injection may be allowed into the well.

4) The operator shall have adequate environmental monitoring with physical capability during well drilling operations to implement contingency measures and/or corrective action(s) to protect the fresh water aquifer system(s) (< 10,000 ppm TDS) based on the well completion and construction method. A water quality sample (EPA QA/QC and DQOs) shall be collected, analyzed and the results submitted to the OCD Santa Fe and Artesia Offices within 30-days of well completion to assess water quality conditions. The OCD may require corrective action(s) to be implemented in the event a water quality problem is identified. The above condition is more critical for production/extraction wells, but also important for injection wells that must demonstrate and meet the greater of background and/or WQCC water quality standards before injection into a fresh water aquifer system(s) under operational conditions.

5) The operator shall comply with the terms and conditions of the discharge permit and associated Geothermal Regulations (Chapter 71, Article 5 NMSA 1978 and Title 19, Chapter 14 NMAC). All Underground Injection Control (UIC) Class V Geothermal Injection Wells must comply with the applicable sections of Water Quality Control Commission Regulations (20.6.2.5000 – 5006, et seq. NMAC). All geothermal field activities must comply with 20.6.2 et seq. NMAC).

Please be advised that OCD approval does not relieve Los Lobos Renewable Power, L.L.C. from responsibility should their operations pose a threat to ground water, subsurface trespass, water supply/diversion, surface water, human health or the environment. In such event, a well may be ordered plugged and abandoned and/or used in accordance with the geothermal regulations. In addition, OCD approval does not relieve Los Lobos Renewable Power, L.L.C. of responsibility for compliance with any other federal, state, or local laws and/or regulations.

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#### Chavez, Carl J, EMNRD

From:Phillips, Haddy L., OSESent:Friday, June 22, 2012 10:04 AMTo:Chavez, Carl J, EMNRD; Jackson, Charles L., OSECc:Brooks, David K., EMNRD; dseawright@gmail.comSubject:RE: AmeriCulture State Well No. 2 Total Depth (TD) Verification RequestAttachments: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 Deniing, 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; <u>dseawright@gmail.com</u>
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/

"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 <a href="http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental">http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental</a>

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File Number: A-45-8-2

WELL RECORD	
. OWNER OF WELL	
Name: AmeriCulture	Work Phone: 505-548-2328
Contact: Damon Seawright	Home Phone:
Address: HC 65 Box 260C	a na
City: Animas	State: NM Zip: 88020
. LOCATION OF WELL (A, B, C, or D required	l, E or F if known)
A. 1/4 NE 1/4 NE 1/4 Section:7 Township:2 in Hidalgo County.	<b>53</b> Range: <b>19W</b> N.M.P.M.
B. X =feet, Y = Zone in the U.S.G.S. Quad Map SWALLOW FORK PEAK 7.5 MI	feet, N.M. Coordinate System Grant. N.
C. Latitude: <u>32</u> d <u>9</u> m <u>4.6</u> s Longitude: <u>108</u> d	<b>49</b> m <b>48.4</b> s
D. East 704650 (m), North 3559080 (m), UTM Zo	one 12, NAD 27 (27 or 83)
E. Tract No, Map No of the	Hydrographic Survey
F. Lot No, Block No of Unit/Tra	of the
<ul> <li>G. Other: approximately 420 ft NSL and 825 ft</li> <li>H. Give State Engineer File Number if existin</li> <li>I. On land owned by (required): AmeriCulture</li> </ul>	<b>ESL and 4217 ft elevation</b>
. DRILLING CONTRACTOR License Number: ND-1161 Name: LANG EXPLORATORY DRILLING Agent: Alan F. Lang Home Pho Mailing Address: 2745 W. California Ave City: Salt Lake City State: UT Zip	Work Phone: <u>801-973-6667</u> one:
DRILLING RECORD Drilling began: 10/20/2001; Completed: 9/30/2 Size of hole: 7 7/8 in.; Total depth of well: Completed well is: geothermal exploration (sh Depth to water upon completion of well: 54 ft	2003; Type tools: rotary; 2,100 ft.; Mallow, artesian); Mallow,
ile Number: A-45-8-2	TTO Number 259 198

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

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File Number: A-45-5-2 Form: wr-20

page 1 of 4

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Trn Number: 253,19W



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File Number: A-45-8-2

NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

# 5. PRINCIPAL WATER-BEARING STRATA

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	<u> </u>				rea cong			/1000	
6.	RECORD	OF CAS	ING Threads	Depth	in Feet	Length	Type of	Shoe	Perforations
	(inches)	per ft	. per in.	Тор	Bottom	(feet)	- ] [		From To
	16	42	welded	<u>o</u>	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	<u>N/A</u>
			·······						. <u></u> . <u></u>
7.	RECORD	of Muc	DING AND C	ementi	NG				
	Depth in	Feet	Hole	Sacks	Cubic	Feet	Method	of Pla	cement
	From	To	Diameter	of mud	of Cei	ment			

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ing, Haliburton
ing, tremie stab
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#### 8. PLUGGING RECORD

Plugging Contractor:	
Address:	
Plugging Method:	
Date Well Plugged:	· · · · · · · · · · · · · · · · · · ·
Plugging approved by:	

#### State Engineer Representative



File Number: A-45-3-2 Form: wr-20

page 2 of 4

Trn Number: 255,19W

#### File Number: A-45-8-2

#### NEW MEXICO OFFICE OF THE STATE ENGINEER WELL RECORD

. LOG OF Depth in From	HOLE Feet To	Thickness in feet	Color and Type of Material Encountered
0 270 645 1105 1326 1334 1653 1850 1990 2030	270 645 1105 1326 1334 1653 1850 1990 2030 2100	270 375 460 221 8 319 197 140 40 70	Basin fill alluvium Indurated conglomerate Rhyolite Volcaniclastic sediments Andesite Sandstone, shale, and conglomerate Limestone Dacite Limestone Sandstone and siltstone
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File Number: A-45-8-2 Form: wr-20

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page 3 of 4

Trn Number: 258,19W

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.  $\Lambda$ 

1 Juy Driller

 FOR STATE ENGINEER USE ONLY

 Quad \_\_\_\_\_; FWL \_\_\_\_; FSL \_\_\_\_; Use \_\_\_\_\_; Location No. \_\_\_\_\_\_

File Number: A-45-8-2 Form: wr-20

page 4 of 4

Trn Number: 258,19W

# Chavez, Carl J, EMNRD

From:	Chavez, Carl J, EMNRD
Sent:	Friday, June 22, 2012 9:46 AM
То:	'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 <sup>1</sup>/<sub>2</sub> 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: <u>CarlJ.Chavez@State.NM.US</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "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: 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; <u>dseawright@gmail.com</u>
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: <u>Carl J. Chavez@State.NM.US</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "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: Sent:	Michael Hayter [Michael.Hayter@rasertech.com] Wednesday, September 30, 2009 4:25 PM Chayer, Carl J. EMNED
Cc:	Steve Brown; Brooks, David K., EMNRD; Fesmire, Mark, EMNRD; VonGonten, Glenn, EMNRD: Dick Clayton: Sean McBride: Ben Barker: Lavne Ashton: Jay Hamilton
Subject:	RE: Request for Status of Final Signed OCD Discharge Permit (GTHT-1)

Mr. Chavez,

In response to your request for an update on our plans to sign the OCD's document and commence with drilling, please

1. Project Status: Los Lobos / Raser has not commenced with drilling on our project due to further delays caused by protests from Americulture, Inc. and Mr. Thomas McCants to our application for water permits (we require water for cooling the plant and have options to purchase or lease existing water rights which require a permit to change the point of diversion and type of use of the water rights). We understand that once we sign the OCD discharge permit document and place the bonds, the OCD will process the geothermal well APD's (and updates), and the OSE will provide their drilling permits allowing us to proceed with drilling and testing. However, the protest of water permits presents a project risk that is not acceptable to project finance lenders and, therefore creates a project risk for us should we begin drilling but not have the water available for the plant cooling.

We are very near the completion of the initial permitting phase. The final permit(s) required for us to have a project that is ready to proceed to the drilling phase are the aforementioned water permits and a diversion permit from the OSE (to divert the geothermal, non-consumptive water from production wells to injection wells). We received several letters from OSE in late May and early June informing us of the protests from Americulture, Inc. and Mr. McCants; and stating that the OSE would schedule a "Pre-hearing Conference". As of today, we have not received any notification that this conference has been scheduled. In fact, we are extremely anxious to begin the process and therefore sent a letter in the past two weeks to OSE requesting that they proceed with scheduling the conference as soon as possible. This will enable us to understand the hearing process and timing, determine where we stand, and calculate what risks we face.

The Lightning Dock project is of the highest priority for Raser / Los Lobos and we are hopeful that we may begin soon this year to meet our goals.

- 2. Discharge Permit / Signature: Los Lobos / Raser will sign the document issued on July 1, 2009 by this Friday, October 2, 2009 and send you an electronic copy with the original to follow.
- 3. Bond(s): It is our intent to complete the bonding (requiring a total of \$65,000) as soon as we are ready to begin drilling. However, we need to resolve the pending issues (described above) with the NMOSE and/or have a better understanding of the associated risk before we provide the bond(s). We will complete the bonding within the specified time required by the permit to begin drilling activities; and hope that we can do so before the end of 2009.

Thank you for your attention to this matter. We look forward to moving forward on the Lightning Dock geothermal project.

Kind regards, Michael Hayter

Director - Geothermal Business Development Raser Technologies, Inc. 5152 North Edgewood Drive From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, September 30, 2009 12:53 PM
To: Jay Hamilton
Cc: Steve Brown; Michael Hayter; Brooks, David K., EMNRD; Fesmire, Mark, EMNRD; VonGonten, Glenn, EMNRD
Subject: Request for Status of Final Signed OCD Discharge Permit (GTHT-1)

Mr. Hanilton, et al.:

The New Mexico Oil Conservation Division (OCD) is writing to request a status update on the applicant's plans to sign the OCD's document by COB this Friday, October 2, 2009. A signed discharge permit means that you have a discharge permit and an unsigned discharge permit cannot be called a discharge permit until signed.

The OCD is currently considering rescinding the document that was issued on July 1, 2009.

Please contact me if you have questions or need to discuss 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: <u>CarlJ.Chavez@state.nm.us</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u>index.htm (Pollution Prevention Guidance is under "Publications")

From: Jay Hamilton [mailto:hamiltonenviro@yahoo.com]
Sent: Wednesday, September 23, 2009 12:20 PM
To: Chavez, Carl J, EMNRD
Cc: Steve Brown; Michael Hayter
Subject: Re: Lightning Dock Geothermal Project (GTHT-1) Final Signed Permit

Carl,

I will look into it and get back to you shortly.

Thanks,

Jay

From: "Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us>
To: Jay Hamilton <hamiltonenviro@yahoo.com>
Cc: Steve Brown <steve.brown@rasertech.com>; Michael Hayter <Michael.Hayter@rasertech.com>
Sent: Wednesday, September 23, 2009 11:07:26 AM
Subject: RE: Lightning Dock Geothermal Project (GTHT-1) Final Signed Permit

Jay, et al.:

Do you know the status of the bonding and when the OCD will receive a signed discharge permit from Los Lobos or Raser? 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: <u>CarlJ.Chavez@state.nm.us</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u>index.htm (Pollution Prevention Guidance is under "Publications")

From: Jay Hamilton [mailto:hamiltonenviro@yahoo.com]
Sent: Thursday, August 06, 2009 12:51 PM
To: Chavez, Carl J, EMNRD
Cc: Steve Brown; Michael Hayter
Subject: Re: Lightning Dock Geothermal Project (GTHT-1) Final Signed Permit

Carl,

Thanks, I will get that to you shortly.

Jay

From: "Chavez, Carl J, EMNRD" <Carl J.Chavez@state.nm.us>
To: Jay Hamilton <hamiltonenviro@yahoo.com>
Cc: Michael Hayter <Michael.Hayter@rasertech.com>; "Reeves, Jacqueta, EMNRD" <Jacqueta.Reeves@state.nm.us>
Sent: Thursday, August 6, 2009 12:45:03 PM
Subject: Lightning Dock Geothermal Project (GTHT-1) Final Signed Permit

Jay:

FYI, the OCD has not received the signed version of the OCD discharge permit (GTHT-001) issued on July 1, 2009. The OCD needs the signed discharge permit from Mr. Brown (the applicant) I believe. Also, Los Lobos has already paid the \$100 filing fee and permit fee, so we just need the signed version of permit that was mailed out on July 1, 2009. 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: <u>Carl J. Chavez@state.nm.us</u> Website: http://www.emnrd.state.nm.us/ocd/index.htm (Pollution Prevention Guidance is under "Publications")

From: Jay Hamilton [mailto:hamiltonenviro@yahoo.com]
Sent: Tuesday, August 04, 2009 4:37 PM
To: Chavez, Carl J, EMNRD
Subject: Re: Fw: Lightning Dock - Move Well 47-07

Carl,

thanks,

From: "Chavez, Carl J, EMNRD" <Carl J.Chavez@state.nm.us>
To: Jay Hamilton <hamiltonenviro@yahoo.com>
Cc: Steve Brown <steve.brown@rasertech.com>; Michael Hayter <Michael.Hayter@rasertech.com>; "Reeves, Jacqueta, EMNRD" <Jacqueta.Reeves@state.nm.us>
Sent: Tuesday, August 4, 2009 4:32:50 PM
Subject: RE: Fw: Lightning Dock - Move Well 47-07

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Jay:

I would complete a C-103 change of location for Well 47-07 and attach the C-101 and 102 forms to it. 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: <u>CarlJ.Chavez@state.nm.us</u> Website: http://www.emnrd.state.nm.us/ocd/index.htm (Pollution Prevention Guidance is under "Publications")

From: Jay Hamilton [mailto:hamiltonenviro@yahoo.com]
Sent: Tuesday, August 04, 2009 4:23 PM
To: Chavez, Carl J, EMNRD
Cc: Steve Brown; Michael Hayter
Subject: Re: Fw: Lightning Dock - Move Well 47-07

Carl,

Thanks, I will have you the C-101 and C102 as soon as they give me a new location for 47-07.

Jay

From: "Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us>
To: Jay Hamilton <hamiltonenviro@yahoo.com>; carl <carlj.chavez@state.nv.us>
Cc: Steve Brown <steve.brown@rasertech.com>; Michael Hayter <Michael.Hayter@rasertech.com>; "Reeves, Jacqueta, EMNRD" <Jacqueta.Reeves@state.nm.us>; "Fesmire, Mark, EMNRD" <mark.fesmire@state.nm.us>
Sent: Tuesday, August 4, 2009 3:36:36 PM
Subject: RE: Fw: Lightning Dock - Move Well 47-07

Jay, et al.:

The OCD testified that moving a well location is possible through the OCD's administrative process.

If Raser is looking to change the location significantly from the originally proposed location, then the OCD would need to scrutinize this more closely in our review and approval process. If the location is slightly altered, the OCD must approve the new location too, but the review process may be minor in scope. I hope this addresses your question. Both reviews fall under the OCD's administrative process and may require a site visit to make a final call too. 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: <u>CarlJ.Chavez@state.nm.us</u> Website: http://www.emnrd.state.nm.us/ocd/index.htm (Pollution Prevention Guidance is under "Publications")

From: Jay Hamilton [mailto:hamiltonenviro@yahoo.com]
Sent: Tuesday, August 04, 2009 11:14 AM
To: Chavez, Carl J, EMNRD; carl
Cc: Steve Brown; Michael Hayter
Subject: Fw: Fw: Lightning Dock - Move Well 47-07

Carl,

My moving Well 47-07 will that have impact on Damon or the appealing process?

We are a little gun shy.

Thanks,

Jay

From: Steve Brown <Steve.Brown@rasertech.com>
To: Jay Hamilton <hamiltonenviro@yahoo.com>
Cc: Michael Hayter <Michael.Hayter@rasertech.com>
Sent: Monday, August 3, 2009 7:50:55 PM
Subject: RE: Fw: Lightning Dock - Move Well 47-07

Jay,

Will this have an impact on Damon Seawright?

Steve

From: Jay Hamilton [mailto:hamiltonenviro@yahoo.com]
Sent: Monday, August 03, 2009 12:44 PM
To: Steve Brown; Ben Barker
Subject: Fw: Fw: Lightning Dock - Move Well 47-07

Steve/Ben

Because of State regulations Well 47-07 needs to be moved.

The well needs to be 165 feet from quarter-quarter-quarter section.

Mark has given us a map with the boundaries of where the well can be moved.

Ben this probably is your call. This well will probably be moved in the future unless this it is the first well we will be drilling.

I just need to get this approved so we can moved forward.

Please call if you have questions. I need this as soon as possible.

Thanks,

Jay

--- Forwarded Message ----From: Mark Winkelaar <winkerstick@gmail.com> To: Jay Hamilton <hamiltonenviro@yahoo.com> Sent: Monday, August 3, 2009 8:53:17 AM Subject: Re: Fw: Lightning Dock - Move Well 47-07 Attached map document with description of 100 ft x 100 ft area at least 165 ft from quarter quarter section lines. Mark Winkelaar On Wed, Jul 29, 2009 at 9:56 AM, Jay Hamilton<hamiltonenviro@yahoo.com> wrote: > oops!!! Here is the attachment from the OCD. Well 47-07 needs to be at > least 165 feet from the outer boundary of the quarter-quarter-quarter > section. > Thanks. > > Jay > ----- Forwarded Message -----> From: Jay Hamilton < hamiltonenviro@yahoo.com> > To: Mark Winkelaar < winkerstick@gmail.com> > Cc: Steve Brown <<u>steve.brown@rasertech.com</u>>; Michael Hayter > <Michael.Hayter@rasertech.com> > Sent: Wednesday, July 29, 2009 9:52:27 AM > Subject: Lightning Dock - Move Well 47-07 > > Mark, > > Please give the boundry where we can move Well 47-07 at Lightning Dock. > > Thanks, > > Jay

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