

State Engineer Well Nos Compared to OCD Well Nos.

A-758-POD 1	LDG 55-07
A-758-POD 4	LDG 53-07
A-758-POD 5	LDG 45-07
A-758-POD 9	LDG 63-07

OCD Well Nos Compared to State Engineer Well Nos.

LDG 45-07	A-758-POD 5
LDG 53-07	A-758-POD 4
LDG 55-07	A-758-POD 1
LDG 63-07	A-758-POD 9





WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

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1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) 45-07				OSE FILE NUMBER(S) A-758 POD.5				
	WELL OWNER NAME(S) Lightning Dock Geothermal HI-01, LLC				PHONE (OPTIONAL)				
	WELL OWNER MAILING ADDRESS Kearns Building, Suite 600, 136 South Main Street				CITY Salt Lake City		STATE UT	ZIP 84101	
	WELL LOCATION (FROM OGS)	DEGREES 32	MINUTES 8	SECONDS 39.93 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND				
	LONGITUDE 108	50	16.19 W	* DATUM REQUIRED: WGS 84					
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COASTAL LANDMARKS									
2. OPTIONAL	(2.5 ACRES) NW ¼	(10 ACRES) NE ¼	(40 ACRES) NE ¼	(160 ACRES) SW ¼	SECTION 7	TOWNSHIP 25	RANGE 19		
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT		
	HYDROGRAPHIC SURVEY				MAP NUMBER		TRACT NUMBER		
3. DRILLING INFORMATION	LICENSE NUMBER 1681 B		NAME OF LICENSED DRILLER Dennis Chapman			NAME OF WELL DRILLING COMPANY Barbour Drilling			
	DRILLING STARTED 12/10/2010		DRILLING ENDED 2/02/2011		DEPTH OF COMPLETED WELL (FT) 2900	BORE HOLE DEPTH (FT) 2900			
	COMPLETED WELL IS:		☒ ARTESIAN ☐ DRY HOLE ☐ SHALLOW (UNCONFINED)				DEPTH WATER FIRST ENCOUNTERED (FT) NA: Mud rotary from collar		
	DRILLING FLUID:		☐ AIR ☒ MUD ☐ ADDITIVES - SPECIFY:				STATIC WATER LEVEL IN COMPLETED WELL (FT) 0 ft: Water at surface in casing		
	DRILLING METHOD:		☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:						
	DEPTH (FT)		BORE HOLE DIA. (IN)		CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	FROM	TO							
	0	61	38		Line	Weld	29.625	0.375	None
	61	411	28		J55	BT&C	19.124	0.438	None
	411	1680	17.5		J55	BT&C	12.615/12.515	0.380/0.430	None
1680	2900	12.25		None, Open Hole	None			None	
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)				YIELD (GPM)	
	FROM	TO							
	2088	2093	5	Fracture in volcanic tuff					
	2138	2138	2	Fracture in volcanic tuff					
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA None						TOTAL ESTIMATED WELL YIELD (GPM) No Datum			

FOR OSE INTERNAL USE

FILE NUMBER A-758	POD NUMBER 5	TRN NUMBER
LOCATION 25.19.07.322		PAGE 1 OF 2

WELL RECORD & LOG (Version 6/9/08)

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☒ OTHER - SPECIFY: Vertical Shaft Pump						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUHIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		0	48				
	0	411	26	Class G Cement	1044	Pressure grout	
	0	1080	17.5	Class G Cement	1959	Pressure grout	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
	FROM	TO			
	0	200	200	Red to brown sand	☐ YES ☒ NO
	200	380	180	Orange to brown sandstone	☐ YES ☒ NO
	380	410	50	Gray clay	☐ YES ☒ NO
	410	540	130	Brown to gray sandy clay	☐ YES ☒ NO
	540	630	90	Red-brown cherty sandstone	☐ YES ☒ NO
	630	1650	1020	Red to dark brown sandy conglomerate	☐ YES ☒ NO
	1650	2088	438	Brown to gray volcanic tuff	☐ YES ☒ NO
	2088	2093	5	Fracture: lost circulation, no samples	☒ YES ☐ NO
	2093	2136	43	Brown to gray volcanic tuff	☐ YES ☒ NO
	2136	2138	2	Fracture: lost circulation, no samples	☒ YES ☐ NO
	2138	2900	762	Unknown - total lost circulation, no samples to TD	☐ YES ☒ NO
					☐ YES ☐ NO
					☐ YES ☐ NO
				☐ YES ☐ NO	
				☐ YES ☐ NO	
				☐ YES ☐ NO	
ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL.					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☐ PUMP ☒ AIRLIFT ☐ OTHER - SPECIFY:
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	ADDITIONAL STATEMENTS OR EXPLANATIONS: 0 - 1510 feet BGS = 12.615 ID casing at 0.380 inch wall thickness 1510 - 1880 feet BGS = 12.515 ID casing at 0.430 inch wall thickness	

8. SIGNATURE	THIS UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	1-16-12 DATE

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER <u>A-758</u>	POD NUMBER <u>5</u>	TRN NUMBER
LOCATION <u>25.19.07.322</u>	PAGE 2 OF 2	



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

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1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) 53-07		OSE FILE NUMBER(S) A-758-P004											
	WELL OWNER NAME(S) Lightning Dock Geothermal HI-01, LLC		PHONE (OPTIONAL)											
	WELL OWNER MAILING ADDRESS Keams Building, Suite 600, 136 South Main Street		CITY STATE ZIP Salt Lake City UT 84101											
	WELL LOCATION (FROM GPS)		* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84											
		DEGREES MINUTES SECONDS LATITUDE 32 8 51.39 N LONGITUDE 108 50 8.06 W												
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS														
2. OPTIONAL	(2.5 ACRE) SW ¼		(10 ACRE) NW ¼		(40 ACRE) SW ¼		(160 ACRE) NE ¼		SECTION 7		TOWNSHIP 25		RANGE 19	
3. DRILLING INFORMATION	LICENSE NUMBER 1687		NAME OF LICENSED DRILLER Trinity Exploration, LLP Dennis Geiss				NAME OF WELL DRILLING COMPANY Trinity Exploration, LLP							
	DRILLING STARTED 10/08/2011		DRILLING ENDED 11/20/2011		DEPTH OF COMPLETED WELL (FT) 4431		BORE HOLE DEPTH (FT) 4441		DEPTH WATER FIRST ENCOUNTERED (FT) Unknown; drilled with mud					
	COMPLETED WELL IS:		☒ ARTESIAN		☐ DRY HOLE		☐ SHALLOW (UNCONFINED)		STATIC WATER LEVEL IN COMPLETED WELL (FT) 50 feet					
	DRILLING FLUID:		☐ AIR		☒ MUD		☐ ADDITIVES - SPECIFY:							
	DRILLING METHOD:		☒ ROTARY		☐ HAMMER		☐ CABLE TOOL		☐ OTHER - SPECIFY:					
	DEPTH (FT)		BORE HOLE DIA. (IN)		CASING MATERIAL		CONNECTION TYPE (CASING)		INSIDE DIA. CASING (IN)		CASING WALL THICKNESS (IN)		SLOT SIZE (IN)	
	FROM TO													
	0 395		26		J-55		BT&C		19.124		0.375		None	
	395 1737		17.5		K-55		BT&C		12.615		0.375		None	
	1736 4431		12.25		K-55		BT&C		8.7		0.375		None	
0 46		36		3/8 inch		Weld		29.625		0.375		None		
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)		FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)								YIELD (GPM)	
	FROM TO													
					Unknown									
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA 6 hour flow test										TOTAL ESTIMATED WELL YIELD (GPM) 144				

FOR OSE INTERNAL USE

FILE NUMBER A-758

POD NUMBER 4

WELL RECORD & LOG (Version 6/9/08)

TRN NUMBER 472633

LOCATION 25.19.07.231

PAGE 1 OF 2

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☒ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		0	58				
	0	406	26	Class G	769	Pressure Grout	
	0	1750	17.5	Class G	1864	Pressure Grout	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
	FROM	TO			
	0	200	200	Red to orange sand	☐ YES ☒ NO
	200	220	20	Pink to light brown sticky clay	☐ YES ☒ NO
	220	330	110	Light to dark brown clayey sand	☐ YES ☒ NO
	330	380	50	Greenish to gray clay	☐ YES ☒ NO
	380	1620	1240	Brown to reddish brown sandy conglomerate	☐ YES ☒ NO
	1620	2840	1220	Red to brown volcanic agglomerate	☐ YES ☒ NO
	2840	2930	90	Gray limestone	☐ YES ☒ NO
	2930	3030	100	Gray latite	☐ YES ☒ NO
	3030	3180	160	Gray limestone	☐ YES ☒ NO
	3180	3365	175	Light brown to gray latite	☐ YES ☒ NO
	3365	3575	210	Dark brown limestone	☐ YES ☒ NO
	3575	3680	105	Gray latite	☐ YES ☒ NO
	3680	3990	310	Gray to brown limestone	☐ YES ☒ NO
3990	4010	20	Dark gray to black siltstone	☐ YES ☒ NO	
4010	4441	431	Light gray to brown latite	☐ YES ☒ NO	
				☐ YES ☐ NO	
				☐ YES ☐ NO	

ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☐ PUMP ☒ AIR LIFT ☐ OTHER - SPECIFY:
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	ADDITIONAL STATEMENTS OR EXPLANATIONS: A K55 grade liner with BT&C couplings extends from 1709 - to 4431 feet. It is perforated from 1827- to 4236 feet. The annular space between the liner and the borehole from 1737 ft to 4431 is un-cemented Well 53-07 Sidetrack was drilled through a hole milled into the 53-07 casing between 1684 and 1695 feet. The 53-07 Sidetrack is described on a separate Well Record & Log.	

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	2/7/12 DATE

FOR USE INTERNAL USE

WELL RECORD & LOG (Version 5/9/08)

FILE NUMBER A 758

POD NUMBER 4

TRN NUMBER 472663

LOCATION 25.19.07.231

PAGE 2 OF 2



PAGE 1 OF 2

0375

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☒ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		0	58				
	0	405	26	Class G	769	Pressure grout	
	0	1750	17.5	Class G	1864	Pressure grout	

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
	FROM	TO			
	0	200	200	Red to orange sand	☐ YES ☒ NO
	200	220	20	Pink to light brown sticky clay	☐ YES ☒ NO
	220	330	110	Light to dark brown clayey sand	☐ YES ☒ NO
	330	380	50	Greenish to gray clay	☐ YES ☒ NO
	380	1620	1240	Brown to reddish brown sandy conglomerate	☐ YES ☒ NO
	1620	2090	470	Red to brown volcanic agglomerate	☐ YES ☒ NO
	2090	2320	230	Brown to dark gray volcanic tuff	☐ YES ☒ NO
	2320	2390	70	Dark brown sandstone	☐ YES ☒ NO
	2390	2485	95	Brown to orange andesite	☐ YES ☒ NO
	2485	2618	133	Gray sandy limestone	☐ YES ☒ NO
					☐ YES ☐ NO
					☐ YES ☐ NO
					☐ YES ☐ NO
				☐ YES ☐ NO	
				☐ YES ☐ NO	
				☐ YES ☐ NO	
ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL.					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☐ PUMP ☒ AIR LIFT ☐ OTHER - SPECIFY:
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	ADDITIONAL STATEMENTS OR EXPLANATIONS: Window was milled in casing from 1684 to 1695 to drill sidetrack. Sidetrack was drilled to 2618 with 12.25 bit, completed open hole.	

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	<u>De Geron</u> SIGNATURE OF DRILLER	<u>2/7/12</u> DATE

OFFICE OF THE STATE ENGINEER
 DEMING, NM
 2012 FEB 19 13:50

FOR USE INTERNAL USE		WELL RECORD & LOG (Version 6/3/08)	
FILE NUMBER	A-758	POD NUMBER	4
LOCATION	25, 19, 07, 231	TRN NUMBER	50178
			PAGE 2 OF 2



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

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2011 JAN 25 AM 10:38

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) A-758-POD1 55-7				OSE FILE NUMBER A-758-EXPL				
	WELL OWNER NAME(S) Lightning Dock Geothermal HI-01, LLC				PHONE (OPTIONAL) 801-765-1200				
	WELL OWNER MAILING ADDRESS 5152 North Edgewood Drive, Suite 200				CITY Provo		STATE Utah	ZIP 84604	
	WELL LOCATION (FROM GPS)	DEGREES 32	MINUTES 8	SECONDS 39.60 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84				
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS Adjacent to mechanical shop building on west side of Rosette, Inc. compound, 29 Rose Lane, Animas, NM 88021									
2. OPTIONAL	(2.5 ACRE) 1/4	(10 ACRE) 1/4	(40 ACRE) 1/4	(160 ACRE) 1/4	SECTION	TOWNSHIP ☐ NORTH ☐ SOUTH	RANGE ☐ EAST ☐ WEST		
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT		
	HYDROGRAPHIC SURVEY				MAP NUMBER		TRACT NUMBER		
3. DRILLING INFORMATION	LICENSE NUMBER 1681		NAME OF LICENSED DRILLER Dennis McGrew			NAME OF WELL DRILLING COMPANY Barbour Well, Inc.			
	DRILLING STARTED May 28, 2010		DRILLING ENDED June 8, 2010		DEPTH OF COMPLETED WELL (FT) 2349	BORE HOLE DEPTH (FT) 2349	DEPTH WATER FIRST ENCOUNTERED (FT) 60		
	COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☐ SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) 60			
	DRILLING FLUID: ☐ AIR ☒ MUD ☐ ADDITIVES - SPECIFY:								
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:								
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)	
	FROM	TO							
	0		30	36	steel	none	29.25	0.375	N/A
	0		360	26	steel	BT&C	18.936	0.438	N/A
	0		1050	17.5	steel	BT&C	12.359	0.430	N/A
1050		2349	12.25	none					
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)				YIELD (GPM)	
	FROM	TO							
	1050		1378	328	tuff				300
	1378		2349	971	volcanic alluvium/rhyolite				0
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA weir box and totalizing turbine meter							TOTAL ESTIMATED WELL YIELD (GPM) 300		

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER A-758	POD NUMBER 1	TRN NUMBER
LOCATION 255.19W. 7. 411		PAGE 1 OF 2

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☐ NO PUMP - WELL NOT EQUIPPED ☒ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		none					

2011 JAN 25
 STATE ENGINEER
 DEMING, NM

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?
	FROM	TO			
	1378	1490	112	20% magnetite/alluvium/ryholite orange, white, dark grey	☐ YES ☒ NO
	1490	1530	40	volcanic alluvium/rhyolite orange, white, dark grey	☐ YES ☒ NO
	1530	1543	13	70% cement/30% formation	☐ YES ☒ NO
	1543	1548	5	20% cement/70% alluvium/rhyolite/10% calcite/5% magnetite	☐ YES ☒ NO
	1548	1578	30	volcanic alluvium/rhyolite orange, white, dark grey	☐ YES ☒ NO
	1578	1589	11	LCM, No cement	☐ YES ☒ NO
	1589	1765	76	volcanic alluvium/rhyolite orange, white, dark grey	☐ YES ☒ NO
	1765	1769	4	1% pyrite/10% orange tuff/40% solution deposit	☐ YES ☒ NO
	1769	1789	20	5% limestone/5-15% orange tuff/50% solution deposits/30% qtz	☐ YES ☒ NO
	1789	2349	560	volcanic alluvium/rhyolite orange, white, dark grey	☐ YES ☒ NO
					☐ YES ☐ NO
					☐ YES ☐ NO
					☐ YES ☐ NO
				☐ YES ☐ NO	
				☐ YES ☐ NO	
				☐ YES ☐ NO	
ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☒ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:	
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.	
	ADDITIONAL STATEMENTS OR EXPLANATIONS:		

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 _____ SIGNATURE OF DRILLER	24 January 2011 _____ DATE

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER

POD NUMBER

TRN NUMBER

LOCATION

PAGE 2 OF 2



WELL RECORD & LOG

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OFFICE OF THE
STATE ENGINEER
DENVER, CO

2012 SEP 27 AM 11:50

1. GENERAL AND WELL LOCATION	POD NUMBER (WELL NUMBER) LDG 63-7				OSE FILE NUMBER(S) A-758 - P009			
	WELL OWNER NAME(S) Lightning Dock Geothermal HI-01, LLC				PHONE (OPTIONAL) 801.875.4200			
	WELL OWNER MAILING ADDRESS Kearns Building, Suite 600, 136 South Main Street				CITY Salt Lake City		STATE UT	ZIP 84101
	WELL LOCATION (FROM GPS)	DEGREES 32	MINUTES 8	SECONDS 54.40 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS								
2. OPTIONAL	(2.5 ACRE) NE 1/4	(10 ACRE) NE 1/4	(40 ACRE) SW 1/4	(160 ACRE) NE 1/4	SECTION 7	TOWNSHIP 25	RANGE 19	
	SUBDIVISION NAME				LOT NUMBER	BLOCK NUMBER	UNIT/TRACT	
	HYDROGRAPHIC SURVEY				MAP NUMBER		TRACT NUMBER	
3. DRILLING INFORMATION	LICENSE NUMBER 1702		NAME OF LICENSED DRILLER David Wetherbee			NAME OF WELL DRILLING COMPANY Thermasource, Inc.		
	DRILLING STARTED 08/03/2012		DRILLING ENDED 08/28/2012		DEPTH OF COMPLETED WELL (FT) 3373	BORE HOLE DEPTH (FT) 3373	DEPTH WATER FIRST ENCOUNTERED (FT) unknown, drilled with mud	
	COMPLETED WELL IS: ☒ ARTESIAN ☐ DRY HOLE ☐ SHALLOW (UNCONFINED)						STATIC WATER LEVEL IN COMPLETED WELL (FT) approximately 60 feet	
	DRILLING FLUID: ☐ AIR ☐ MUD ☒ ADDITIVES - SPECIFY: Polyvis polymer							
	DRILLING METHOD: ☒ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER - SPECIFY:							
	DEPTH (FT)		BORE HOLE DIA. (IN)	CASING MATERIAL	CONNECTION TYPE (CASING)	INSIDE DIA. CASING (IN)	CASING WALL THICKNESS (IN)	SLOT SIZE (IN)
	FROM	TO						
	0 35		36	Line	Weld	29.625	0.375	
	0 160		26	J-55	BT&C	19.124	0.438	
	0 1514		17.5	K-55	BT&C	12.615	0.380	
1441 3373		12.25	K-55	BT&C	8.921	0.352	.2	
4. WATER BEARING STRATA	DEPTH (FT)		THICKNESS (FT)	FORMATION DESCRIPTION OF PRINCIPAL WATER-BEARING STRATA (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	YIELD (GPM)			
	FROM	TO						
	60 1273		1213	Unknown not flow tested or pumped				
	1772 2230		458	Unknown not flow tested or pumped				
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA Not flow tested or pumped					TOTAL ESTIMATED WELL YIELD (GPM)			

FOR OSE INTERNAL USE

FILE NUMBER **A-758**

POD NUMBER **9**

WELL RECORD & LOG (Version 6/9/08)

TRN NUMBER **510069**

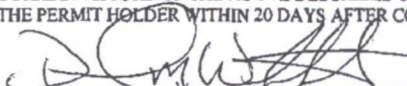
LOCATION **25. 19. 7. 232**

PAGE 1 OF 2

5. SEAL AND PUMP	TYPE OF PUMP: ☐ SUBMERSIBLE ☐ JET ☒ NO PUMP - WELL NOT EQUIPPED ☐ TURBINE ☐ CYLINDER ☐ OTHER - SPECIFY:						
	ANNULAR SEAL AND GRAVEL PACK	DEPTH (FT)		BORE HOLE DIA. (IN)	MATERIAL TYPE AND SIZE	AMOUNT (CUBIC FT)	METHOD OF PLACEMENT
		FROM	TO				
		0	30				
		0	1514				
		26		532.4	pressure grout		
		20		1003.5	pressure grout		

6. GEOLOGIC LOG OF WELL	DEPTH (FT)		THICKNESS (FT)	COLOR AND TYPE OF MATERIAL ENCOUNTERED (INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES)	WATER BEARING?	
	FROM	TO				
	0	1273	1273	Quaternary Alluvium: lakebed clays, gravels, some conglomerate near the bottom	☒ YES ☐ NO	
					☐ YES ☐ NO	
	1273	1772	499	Tertiary Volcanics: welded tuff and ash flows with interbedded andesite flows and agglomerated	☐ YES ☒ NO	
					☐ YES ☐ NO	
	1772	2230	458	Tertiary Volcanics: welded tuff and ash flows with interbedded andesite flows and agglomerated	☒ YES ☐ NO	
					☐ YES ☐ NO	
	2230	3373	1142	Paleozoic sediments: interbedded calcareous siltstone and limestone of the Horquilla Formation with local Tertiary intrusives	☒ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
					☐ YES ☐ NO	
	ATTACH ADDITIONAL PAGES AS NEEDED TO FULLY DESCRIBE THE GEOLOGIC LOG OF THE WELL					

7. TEST & ADDITIONAL INFO	WELL TEST	METHOD: ☐ BAILER ☐ PUMP ☐ AIR LIFT ☐ OTHER - SPECIFY:	
		TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.	
	ADDITIONAL STATEMENTS OR EXPLANATIONS: Not pumping or flow testing conducted, this is planned to be an injection well.		

8. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 SIGNATURE OF DRILLER	9/18/12 DATE

 2012 SEP 21 AM 11:50
 OFFICE OF THE
 STATE ENGINEER
 DEMING, NM

FOR OSE INTERNAL USE

WELL RECORD & LOG (Version 6/9/08)

FILE NUMBER A-758	POD NUMBER 9	TRN NUMBER 510069
LOCATION 25.19.7.232	PAGE 2 OF 2	

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. ~~NE~~ 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.

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DENING, NM

2012 JUN 22 AM 9:59

File Number: A-45-S-2
Form: WR-20

page 1 of 4

Trn Number: 25S, 19W

25S. 19W. 07. 22

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)
<u>280</u>	<u>420</u>	<u>140</u>	<u>fractured conglomerate</u>	<u>>1000 gpm airlift</u>

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
<u>16</u>	<u>42</u>	<u>welded</u>	<u>0</u>	<u>280</u>	<u>280</u>	<u>casing</u>	<u>N/A</u>
<u>12 3/4</u>	<u>36</u>	<u>welded</u>	<u>0</u>	<u>580</u>	<u>580</u>	<u>casing</u>	<u>N/A</u>
<u>8 5/8</u>	<u>29</u>	<u>welded</u>	<u>470</u>	<u>1455</u>	<u>985</u>	<u>cement float</u>	<u>N/A</u>

7. RECORD OF MUDDING AND CEMENTING

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

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
<u>1</u>	_____	_____	_____
<u>2</u>	_____	_____	_____
<u>3</u>	_____	_____	_____
<u>4</u>	_____	_____	_____
<u>5</u>	_____	_____	_____

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

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2012 JUN 22 AM 9:59

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

Alan J. Jorg
5/28/04
(mm/dd/year)

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FOR STATE ENGINEER USE ONLY

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

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

page 4 of 4

Trn Number: 258,19W