



State of Oregon  
Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301  
(503) 986-0900

# Application for Limited Water Use License

*A summary of review criteria and procedures that are generally applicable to these applications is available at  
[www.wrd.state.or.us/OWRD/PUBS/forms.shtml](http://www.wrd.state.or.us/OWRD/PUBS/forms.shtml).*

License No. LL-1441

Applicant(s): Davenport Newberry Holdings

Contact Person: Paul L. Stern, Agent (Tel: 303-442-4259)

Mailing Address: 225 NW Franklin Avenue, Suite 1 **RECEIVED BY OWRD**

Bend OR 97701 **NOV 21 2012**  
City State Zip

Telephone No: (541) 323-1190 **SALEM, OR**

I (We) make application for a Limited License to use or store the following described surface waters or groundwater-not otherwise exempt, or to use stored water of the State of Oregon for a use of a short-term or fixed duration:

1. SOURCE(S) OF WATER for the proposed use: Groundwater a tributary of \_\_\_\_\_.
2. TOTAL AMOUNT OF WATER to be diverted: \_\_\_\_\_ cubic feet per second, or 187\* gallons per minute. If water is to be used from more than one source, give the quantity from each: 187\* gpm from one well or any combination of 3 wells.
3. INTENDED USE(S) OF WATER: (check all that apply)
  - Road construction or maintenance
  - General construction
  - Forestland and rangeland management; or
  - Other: Enhanced Geothermal System (EGS) Demonstration Project
4. DESCRIPTION OF PROPOSED PROJECT: Include a description of the intended place of use as shown on the accompanying site map, the method of water diversion, the type of equipment to be used (including pump horsepower, if applicable), length and dimensions of supply ditches and pipelines:

The project will use a maximum of 43,657,589 gallons in year one and 98,038,354 gallons in year two for a total of 141,695,943 gallons over two years. A maximum anticipated flow rate of 1,600 gpm from either one well or any combination of 3 wells would occur for two 5 day periods. Details of anticipated water usage and diversion points is attached.

\* 187 gpm is an annualized average over 2 years, assuming the highest annual volume of water used in year 2 (98,038,354 gallons)

5. PROJECT SCHEDULE: (List day, month, and year)

Date water use will begin January 1, 2013

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Date project will be completed December 31, 2017

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Date water use will be completed December 31, 2017

Is this project fully or partially funded by the American Recovery and Reinvestment Act? (Federal stimulus dollars)  Yes  No

**PLEASE READ CAREFULLY**

**NOTE:** A completed water availability statement from the local watermaster, Land Use Information Form completed by the local Planning Department, fees and site map meeting the requirements of OAR 690-340-030 must accompany this request. The fee for this request is \$250 for the first point of diversion plus \$25 for each additional point of diversion. Please review the Department's fee schedule to view fees required to request a limited license for Aquifer Storage and Recovery testing purposes or for Artificial Groundwater Recharge testing purposes.

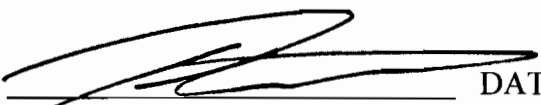
Failure to provide any of the required information will result in return of your application. The license, if granted, will not be issued or replaced by a new license for a period of more than five consecutive years. The license, if granted, will be subordinate to all other authorized uses that rely upon the same source, or water affected by the source, and may be revoked at any time it is determined the use causes injury to any other water right or minimum perennial streamflow.

If water source is a well, well logs or adequate information for the Department to determine aquifer, well depth, well seal and open interval, etc. are required. The licensee shall indicate the intended aquifer. If for multiple wells, each map location shall be clearly tied to a well log.

If a limited license is approved, the licensee shall give notice to the Department (Watermaster) at least 15 days in advance of using the water under the Limited License and shall maintain a record of use. The record of use shall include, but need not be limited to, an estimate of the amount of water used, the period of use and the categories of beneficial use to which the water is applied. During the period of the Limited License, the record of use shall be available for review by the Department upon request.

**REMARKS:**

A meter will be installed at each well and a record of use will be kept.

SIGNATURE of Applicant:  DATE: 11/20/12  
Title: Agent

**Mapping Requirements (OAR 690-340-0030):**

- (1) A request for a limited license shall be submitted on a form provided by the Water Resources Department, and shall be accompanied by the following:
  - (c) A site map of reproducible quality, drawn to a standard, even scale of not less than 2 inches = 1 mile, showing:
    - (A) The locations of all proposed points of diversion referenced by coordinates or by bearing and distance to the nearest established or projected public land survey corner;
    - (B) The general course of the source for the proposed use, if applicable;
    - (C) Other topographical features such as roads, streams, railroads, etc., which may be helpful in locating the diversion points in the field.

***This page to be completed by the local Watermaster.***

**WATER AVAILABILITY STATEMENT**

Name of Applicant: Davenport Newberry Holdings Limited License Number: 661441

1. To your knowledge, has the stream or basin that is the source for this application ever been regulated for prior rights?  Yes  No

If yes, please explain:

2. Based on your observations, would be there water available in the quantity and at the times needed to supply the use proposed by this application?  Yes  No

3. Do you observe this stream system during regular fieldwork?  Yes  No

If yes, what are your observations for the stream?

4. If the source is a well and if WRD were to determine that there is the potential for substantial interference with nearby surface water sources, would there still be ground water and surface water available during the time requested and in the amount requested without injury to existing water rights?  Yes  No  N/A

What would you recommend for conditions on a limited license that may be issued approving this application?

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5. Any other recommendations you would like to make?

Signature \_\_\_\_\_ WM District #: \_\_\_\_\_ Date: \_\_\_\_\_

# Land Use Information Form



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
www.wrd.state.or.us

## NOTE TO APPLICANTS

In order for your application to be processed by the Water Resources Department (WRD), this Land Use Information Form must be completed by a local government planning official in the jurisdiction(s) where your water right will be used and developed. The planning official may choose to complete the form while you wait, or return the receipt stub to you. Applications received by WRD without the Land Use Form or the receipt stub will be returned to you. Please be aware that your application will not be approved without land use approval.

**This form is NOT required if:**

- 1) Water is to be diverted, conveyed, and/or used only on federal lands; **OR**
- 2) The application is for a water right transfer, allocation of conserved water, exchange, permit amendment, or ground water registration modification, and **all** of the following apply:
  - a) The existing and proposed water use is located entirely within lands zoned for exclusive farm-use or within an irrigation district;
  - b) The application involves a change in place of use only;
  - c) The change does not involve the placement or modification of structures, including but not limited to water diversion, impoundment, distribution facilities, water wells and well houses; **and**
  - d) The application involves irrigation water uses only.

## NOTE TO LOCAL GOVERNMENTS

The person presenting the attached Land Use Information Form is applying for or modifying a water right. The Water Resources Department (WRD) requires its applicants to obtain land-use information to be sure the water rights do not result in land uses that are incompatible with your comprehensive plan. Please complete the form or detach the receipt stub and return it to the applicant for inclusion in their water right application. You will receive notice once the applicant formally submits his or her request to the WRD. The notice will give more information about WRD's water rights process and provide additional comment opportunities. You will have 30 days from the date of the notice to complete the land-use form and return it to the WRD. If no land-use information is received from you within that 30-day period, the WRD may presume the land use associated with the proposed water right is compatible with your comprehensive plan. Your attention to this request for information is greatly appreciated by the Water Resources Department. If you have any questions concerning this form, please contact the WRD's Customer Service Group at 503-986-0801.

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# Land Use Information Form



Oregon Water Resources Department  
 725 Summer Street NE, Suite A  
 Salem, Oregon 97301-1266  
 (503) 986-0900  
 www.wrd.state.or.us

Applicant: Davenport Newberry Holdings LLC  
First Last

Mailing Address: 225 NW Franklin Avenue, Suite 1

Bend OR 97701 Daytime Phone: (541) 323-1190  
City State Zip

## A. Land and Location

Please include the following information for all tax lots where water will be diverted (taken from its source), conveyed (transported), and/or used or developed. Applicants for municipal use, or irrigation uses within irrigation districts may substitute existing and proposed service-area boundaries for the tax-lot information requested below.

Township	Range	Section	¼ ¼	Tax Lot #	Plan Designation (e.g., Rural Residential/RR-5)	Water to be:	Proposed Land Use:
21S	12E	16	NESW		USFS	<input checked="" type="checkbox"/> Diverted <input type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	monstration
21S	12E	29	SWNE		USFS	<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	monstration
21S	12E	21	NESW		USFS	<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	monstration
						<input type="checkbox"/> Diverted <input type="checkbox"/> Conveyed <input type="checkbox"/> Used	

List all counties and cities where water is proposed to be diverted, conveyed, and/or used or developed:

Deschutes

## B. Description of Proposed Use

Type of application to be filed with the Water Resources Department:

- Permit to Use or Store Water   
  Water Right Transfer   
  Permit Amendment or Ground Water Registration Modification  
 Limited Water Use License   
  Allocation of Conserved Water   
  Exchange of Water

Source of water:  Reservoir/Pond     Ground Water     Surface Water (name) \_\_\_\_\_

Estimated quantity of water needed: 435 (Max)  cubic feet per second     gallons per minute     acre-feet

Intended use of water:  Irrigation     Commercial     Industrial     Domestic for \_\_\_\_\_ household(s)  
 Municipal     Quasi-Municipal     Instream     Other EGS Demonstration Pro

Briefly describe:

The water from groundwater wells will be used for the drilling, stimulation and testing of an enhanced geothermal system (EGS) demonstration project.

**Note to applicant:** If the Land Use Information Form cannot be completed while you wait, please have a local government representative sign the receipt at the bottom of the next page and include it with the application filed with the Water Resources Department.

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See bottom of Page 3. →

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# For Local Government Use Only

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The following section must be completed by a planning official from each county and city listed unless the project will be located entirely within the city limits. In that case, only the city planning agency must complete this form. This deals only with the local land-use plan. Do not include approval for activities such as building or grading permits.

**Please check the appropriate box below and provide the requested information**

- Land uses to be served by the proposed water uses (including proposed construction) are allowed outright or are not regulated by your comprehensive plan. Cite applicable ordinance section(s): \_\_\_\_\_
- Land uses to be served by the proposed water uses (including proposed construction) involve discretionary land-use approvals as listed in the table below. (Please attach documentation of applicable land-use approvals which have already been obtained. Record of Action/land-use decision and accompanying findings are sufficient.) **If approvals have been obtained but all appeal periods have not ended, check "Being pursued."**

Type of Land-Use Approval Needed (e.g., plan amendments, rezones, conditional-use permits, etc.)	Cite Most Significant, Applicable Plan Policies & Ordinance Section References	Land-Use Approval:	
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued

Local governments are invited to express special land-use concerns or make recommendations to the Water Resources Department regarding this proposed use of water below, or on a separate sheet.

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Phone: \_\_\_\_\_ Date: \_\_\_\_\_

Government Entity: \_\_\_\_\_

**Note to local government representative:** Please complete this form or sign the receipt below and return it to the applicant. If you sign the receipt, you will have 30 days from the Water Resources Department's notice date to return the completed Land Use Information Form or WRD may presume the land use associated with the proposed use of water is compatible with local comprehensive plans.



**Receipt for Request for Land Use Information**

Applicant name: \_\_\_\_\_

City or County: \_\_\_\_\_ Staff contact: \_\_\_\_\_

Signature: \_\_\_\_\_ Phone: \_\_\_\_\_ Date: \_\_\_\_\_

# Application for Limited Water Use License—Newberry Volcano EGS Demonstration Project

## Supplementary Information

**Table 3: Maximum water use estimate for all major activities in the Newberry EGS Demonstration**

Activity	Estimated Water Usage Rate, <i>gpm</i>	Maximum Water Volume, <i>gal</i>	Maximum Water Volume, <i>acre-ft</i>	Duration, <i>days</i>
Single well stimulation <sup>1</sup>	800	24,192,000	74.2	21
Rig use during stimulation <sup>2</sup>	-	210,000	0.6	21
Drilling producer #1 <sup>3</sup>		3,152,150	9.7	90
Drilling producer #2 <sup>3</sup>		3,152,150	9.7	90
Connectivity test PW1 <sup>5</sup>	455	4,583,439	14.1	7
Dual well stimulation PW1 <sup>4</sup>	1600 (split between 2 wells)	11,520,000	35.4	5
Connectivity test PW2 <sup>5</sup>	455	4,583,439	14.1	7
Dual well stimulation PW2 <sup>4</sup>	1600 (split between 2 wells)	11,520,000	35.4	5
Circulation Test <sup>6</sup>	912	78,782,765	241.8	60
<b>Total</b>		<b>141,695,942</b>	<b>435</b>	

<sup>1</sup>This uses Souttz GPK2 stimulation volumes and multiplies it by three to achieve our desired network size.

<sup>2</sup>Assumes rig is sitting idle during 21 days of stimulation operations and requires less than 10,000 gpd of water for standby operations.

<sup>3</sup>Davenport Power used 19.4 acre-ft when drilling both well 55-29 and 46-16. We assume that our usage will be similar.

<sup>4</sup>The dual well stimulation assumes pumping simultaneously at 800 gpm into two wells for a maximum total time of 5 days.

<sup>5</sup>The connectivity tests between the injection well and each individual producer are planned for a duration between 3 and 7 days. It is assumed that 16.3 to 37.6% of the flashing fluid will be lost to the atmosphere. Additionally, it is assumed that 2% of the injected volume is never recovered due to leak-off in the reservoir. The numbers above reflect a water usage rate of 455 gpm for a full 7 days with 37.6% of evaporative steam loss.

<sup>6</sup>The long-term circulation test is planned to last 30-60 days. It is assumed that 16.3%-37.6% of the production fluid will be lost to the atmosphere. Additionally, it is assumed that 2% of the injected volume is never recovered due to leak-off in the reservoir. The high end estimate is listed above and it represents 37.6% evaporation for a 60 day test.

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## ESTIMATED PROJECT WATER USE BY YEAR

From the stimulation of the injection well to the conclusion of the circulation test, the Newberry EGS Demonstration may use a maximum of 435 acre-ft gross of groundwater. An estimated timeline for the occurrence of major events in Phase II, as well as event durations, is outlined in the timeline below (Figure 1). The project begins in July 2011 with the stimulation of well 55-29, which will utilize approximately 74.2 acre-ft over a 21-day period. Following the stimulation, a three-day flow-back test of 55-29 will be conducted. This task does not use any additional make-up water. In September 2011, drilling of the first of two production wells will begin. Based on Davenport's experience, we expect that each well will require 90 days to drill and 9.7 acre-ft of groundwater. Following the completion of each producer, the connection between the injector and the producer will be tested for up to 7 days and a 5-day stimulation to enhance that connection will be conducted. Finally, a three-well circulation test between the injector and newly-drilled producers will commence in May 2012. The circulation test is scheduled to last between 30 and 60 days and require up to 242 acre-ft of groundwater. Figure 2 presents the projected monthly water usage between July 2011 and June 2012.

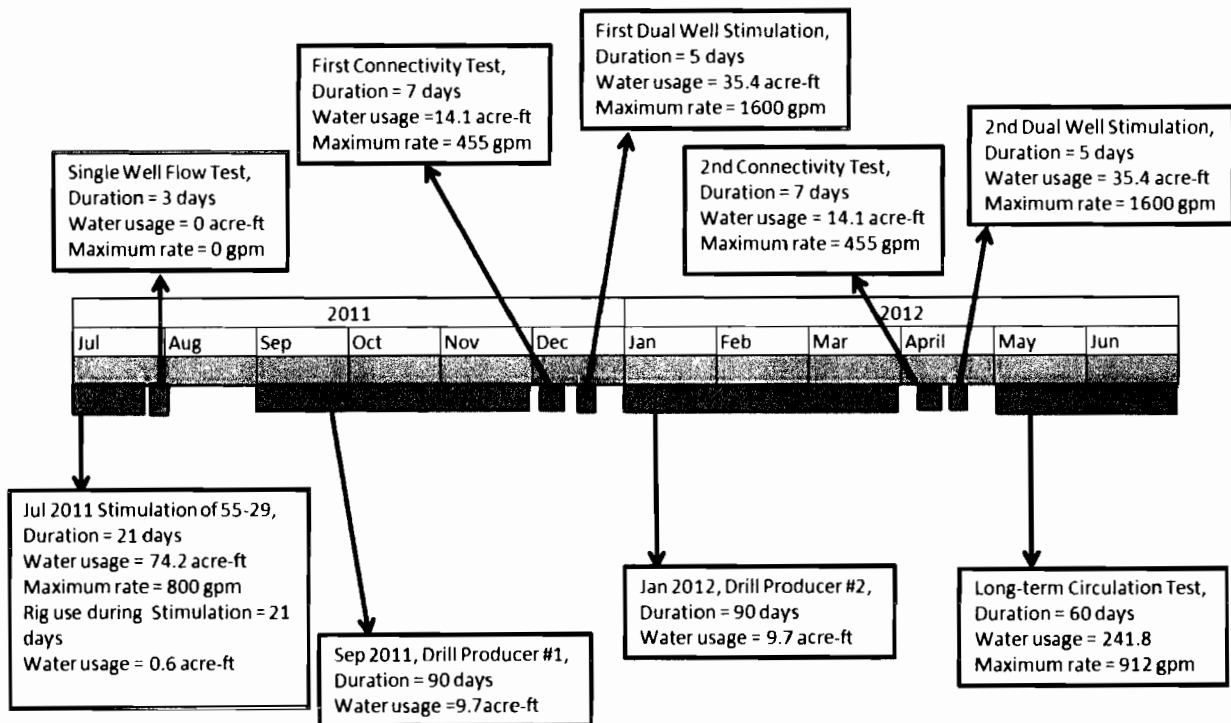


Figure 1: Major events and durations of water use.

Note: Disregard calendar dates as the project started later than anticipated.

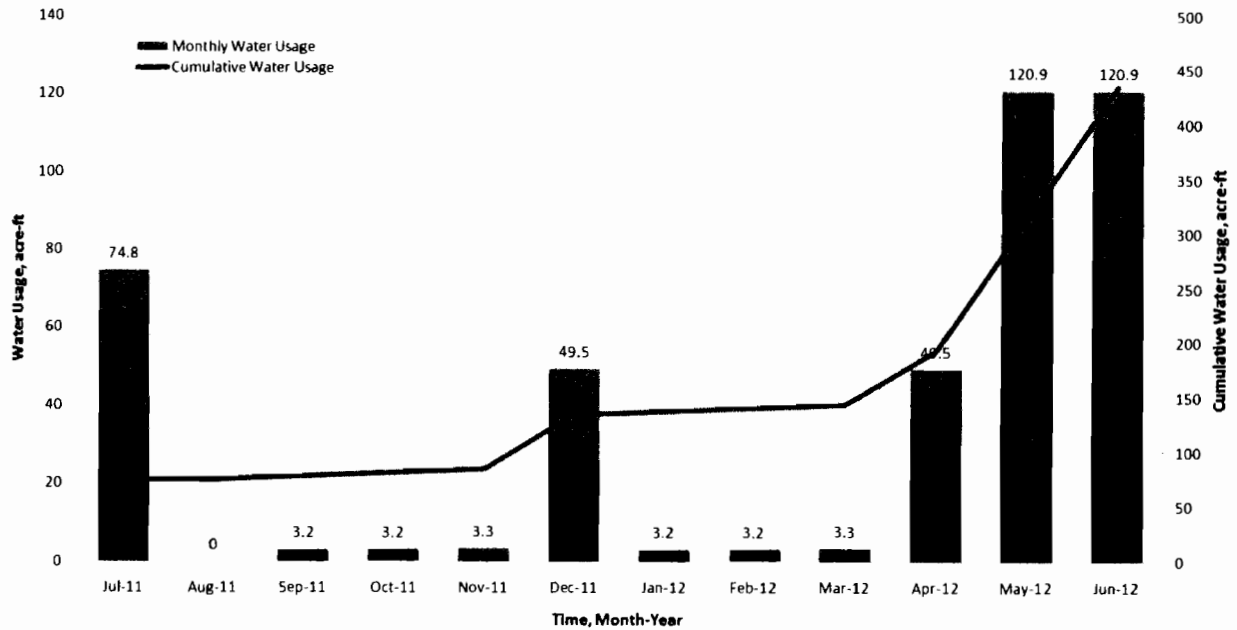
The durations and anticipated rates are the same.

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**Figure 2: Water usage by month.**

The water usage breakdown by year is summarized in Tables 4 and 5 below. Groundwater usage in 2011, 31% of the total, is estimated to be a maximum of 43.7 million gallons. The majority of the project’s water use, 69%, will occur in 2012. Usage in 2012 is dominated by the long-term circulation test. Table 5 and Figure 3 break down the estimated usage by sink type. Evaporative losses are the dominant sink, utilizing 58% of project water. Water that is used to ‘fill’ the reservoir during stimulation and drilling is estimated to use 34% of the project water budget. Losses due to leak-off account for the remaining 8%.

**Table 4: Summary of maximum water usage by year.**

Year	Water Usage, gals	Water Usage, acre-ft	Percent of Total Usage
2011	43,657,589	134	31%
2012	98,038,354	301	69%

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SALEM, OR

LL-1441

# DESC 58649

**STATE OF OREGON**  
**WATER SUPPLY WELL REPORT**  
 (as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L 94394

START CARD # 1004249

**(1) LAND OWNER** Owner Well I.D. PadS-16  
 First Name \_\_\_\_\_ Last Name \_\_\_\_\_  
 Company NEWBERRY GEOTHERMAL HOLDINGS, LLC.  
 Address 300 ATLANTIC STREET, SUITE 301  
 City STAMFORD State CT Zip 06901

**(2) TYPE OF WORK**  New Well  Deepening  Conversion  
 Alteration (repair/recondition)  Abandonment

**(3) DRILL METHOD**  
 Rotary Air  Rotary Mud  Cable  Auger  Cable Mud  
 Reverse Rotary  Other \_\_\_\_\_

**(4) PROPOSED USE**  Domestic  Irrigation  Community  
 Industrial/ Commercial  Livestock  Dewatering  
 Thermal  Injection  Other \_\_\_\_\_

**(5) BORE HOLE CONSTRUCTION** Special Standard  (Attach copy)  
 Depth of Completed Well 823 ft.

BORE HOLE			SEAL				sacks/
Dia	From	To	Material	From	To	Amt	lbs
18	0	25	Cement	0	25	30	S
12.45	25	890					

How was seal placed: Method  A  B  C  D  E  
 Other \_\_\_\_\_

Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Filter pack from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_ Size \_\_\_\_\_

Explosives used:  Yes Type \_\_\_\_\_ Amount \_\_\_\_\_

**(6) CASING/LINER**

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	14		1	25	.250	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	10		12	823	.312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Shoe  Inside  Outside  Other Location of shoe(s) \_\_\_\_\_  
 Temp casing  Yes Dia \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

**(7) PERFORATIONS/SCREENS**  
 Perforations Method Torch  
 Screens Type \_\_\_\_\_ Material \_\_\_\_\_

Perf/Screen	Casing/Screen	Liner	Dia	From	To	Scrns/slot width	Slot length	# of slots	Tele/pipe size
Perf	Liner		742	823	.5	12	810		

**(8) WELL TESTS: Minimum testing time is 1 hour**  
 Pump  Bailer  Air  Flowing Artesian  
 Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)

350	2	845	24
-----	---	-----	----

Temperature 51 °F Lab analysis  Yes By \_\_\_\_\_  
 Water quality concerns?  Yes (describe below)  
 From \_\_\_\_\_ To \_\_\_\_\_ Description \_\_\_\_\_ Amount \_\_\_\_\_ Units \_\_\_\_\_

**(9) LOCATION OF WELL (legal description)**  
 County DESCHUTE Twp 21 S N/S Range 12 E E/W WM  
 Sec 16 NE 1/4 of the NE 1/4 Tax Lot N/A  
 Tax Map Number \_\_\_\_\_ Lot \_\_\_\_\_  
 Lat 43° 45' 0.090" or 43.750025 DMS or DD  
 Long -121° 19' 601" or -121.48361111 DMS or DD  
 Street address of well  Nearest address

NEWBERRY GEOTHERMAL PROJECT, WELL PAD S-16

**(10) STATIC WATER LEVEL**  
 Date 08-03-2008 SWL(psi) \_\_\_\_\_ + SWL(ft) 672  
 Existing Well / Proddoopening \_\_\_\_\_  
 Completed Well \_\_\_\_\_  
 Flowing Artesian?  Dry Hole?

**WATER BEARING ZONES** Depth water was first found

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
07-24-2008	704	890	500		672

**(11) WELL LOG** Ground Elevation 6,190

Material	From	To
Fill	0	3
Blue Gray Basalt	3	18
Gray Basalt	18	82
Red Cinders	82	95
Gray Broken Basalt (Lost Circ.)	95	152
Cemented back to bottom of seal casing	25	152
Red Cinders	152	186
Gray Basalt	186	204
Gray Basalt Very Hard	204	223
Red Cinders	223	231
Brown Sandstone Conglomerate	231	268
Red Cinders	268	408
Gray Basalt Hard	408	518
Red Cinders	518	552
Brown Sandstone	552	569
Gray Basalt	569	634
Red Cinder	634	688
Gray Basalt	688	704
Red Cinder WB	704	715

Date Started 07-22-2008 Complete 08-03-2008

**(unbonded) Water Well Constructor Certification** **RECEIVED**  
 I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.  
 License Number \_\_\_\_\_ Date \_\_\_\_\_  
 Password: (if filing electronically) \_\_\_\_\_  
 Signed \_\_\_\_\_  
**WATER RESOURCES DEPT SALEM, OREGON**

**(bonded) Water Well Constructor Certification**  
 I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.  
 License Number 1285 Date 12-28-2008  
 Password: (if filing electronically) \_\_\_\_\_  
 Signed Robert Buckner  
 Contact Info (optional) \_\_\_\_\_

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ORIGINAL - WATER RESOURCES DEPARTMENT  
 THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Form Version: 0.89

JAN 07 2009

66441

WATER RESOURCES DEPT  
 SALEM, OREGON

ARCW TO FILE  
 1/12/09



STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

03-27-2008

WELL LABEL # L 93031

START CARD # 1002875

(1) LAND OWNER Owner Well I.D.

First Name Last Name
Company NEWBERRY GEOTHERMAL LLC
Address C/O HAP TAYLOR
City BEND State OR Zip 97709

(2) TYPE OF WORK [X] New Well [ ] Deepening [ ] Conversion
[ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD
[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

(4) PROPOSED USE [ ] Domestic [ ] Irrigation [ ] Community
[X] Industrial/ Commercial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION Special Standard [ ] Attach copy

Depth of Completed Well 583.00 ft.

Table with columns: Dia, From, To, Material, SEAL, Amt, lbs. Rows include Bentonite Chips and Cement.

How was seal placed: Method [ ] A [ ] B [X] C [ ] D [ ] E

[X] Other Poured Dry

Backfill placed from ft. to ft. Material

Filter pack from ft. to ft. Material Size

Explosives used: [ ] Yes Type Amount

(6) CASING/LINER

Table with columns: Casing, Liner, Dia, From, To, Gauge, Stl, Plstc, Wld, Thrd. Includes graphical symbols for casing types.

Shoe [X] Inside [ ] Outside [ ] Other Location of shoe(s) 583

Temp casing [ ] Yes Dia From To

(7) PERFORATIONS/SCREENS

Perforations Method Air Perf

Screens Type Material

Table with columns: Perf/S, Casing/Screen, Dia, From, To, Scrn/slot width, Slot length, # of slots, Tele/pipe size.

(8) WELL TESTS: Minimum testing time is 1 hour

[ ] Pump [ ] Bailer [X] Air [ ] Flowing Artesian

Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)

Table with 4 columns: Yield, Drawdown, Depth, Duration. Row 1: 500, , 580, 2.

Temperature 53 °F Lab analysis [ ] Yes By

Water quality concerns? [ ] Yes (describe below)

Table with columns: From, To, Description, Amount, Units.

(9) LOCATION OF WELL (legal description)

County Deschutes Twp 21.00 S N/S Range 12.00 E E/W WM
Sec 29 SW 1/4 of the NE 1/4 Tax Lot NON
Tax Map Number Lot
Lat 43° 43' 48.000" or 43.73000000 DMS or DD
Long -121° 18' 48.000" or -121.31333333 DMS or DD
[ ] Street address of well [ ] Nearest address

FOREST SERVICE RD 558 DRILL PAD 29 NE CORNER

(10) STATIC WATER LEVEL

Table with columns: Date, SWL(psi), SWL(ft). Rows for Existing Well / Predeepening and Completed Well (03-13-2008, 325).

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 400

Table with columns: SWL Date, From, To, Est Flow, SWL(psi), SWL(ft). Rows for dates 03-10-2008 to 03-12-2008.

(11) WELL LOG

Ground Elevation 5,800

Table with columns: Material, From, To. Lists various soil and rock layers like Clay Pumice, Ash Tuff Purple, etc.

Date Started 01-17-2008 Completed 03-13-2008

(unbonded) Water Well Constructor Certification
I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number 758 Date 03-27-2008

Electronically Filed

Signed THOMAS R PECK (E-filed)

WATER RESOURCES DEPT SALEM, OREGON

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1720 Date 03-27-2008

Electronically Filed

Signed JACK ABBAS (E-filed)

Contact Info (optional)

66-1441

APPROVED TO FILE 1/21/2012 JRS



DESC 10060

215/128/2/BB

DESC 10060

AUG 1 1 1995

WATER RESOURCES DEPT. SALEM, OREGON

STATE OF OREGON WATER WELL REPORT (as required by ORS 537765)

(START CARD #) 70924

(1) OWNER 95 21 CALIFORNIA ENERGY COMPANY INC. 900 N. HERITAGE DR. BLDG. D, RIDGECREST CA 93555

(9) LOCATION OF WELL by legal description: County DESCHUTES Latitude Longitude Township 21 S Range 12 E Section 21 NW 1/4 NW 1/4 Tax Lot MAP Lot Block Subdivision Street Address of Well (or nearest address) NATIONAL FOREST

(2) TYPE OF WORK: NEW WELL

(10) STATIC WATER LEVEL: -565 ft. below land surface Date July 8, 1995 Artesian pressure Date

(3) DRILL METHOD: ROTARY AIR

(4) PROPOSED USE: Industrial

(11) WATER BEARING ZONES: Depth at which water was first found -782 From To Estimated Flow Rate SWL -782 -805 200 GPM -555

(5) BORE HOLE CONSTRUCTION:

Special Construction Approval No Depth of completed well -805 ft. Explosives used NO Type Amount HOLE SEAL AMOUNT Diameter From To Material From To Sacks 15 1/2" 0 -203 CEMENT 0 -203 28 YD 8 7/8" -203 -805

(12) WELL LOG: Ground Elevation FROM TO SWL SOIL & PUMICE 0 10 BROKEN GREY ROCK 10 82 GREY ROCK 82 205 BROKEN CAVING GREY ROCK 205 374 HARD GREY ROCK 374 433 RED ROCK 433 570 HARD RED & GREY ROCK 570 585 HARD GREY ROCK 585 661 RED ROCK 661 729 HARD GREY 729 782 RED CINDERS 782 793 555 BROKEN BROWN ROCK NOV 21 793 805 555

How was seal Placed C Backfill placed from ft. to ft. Material Gravel placed from ft. to ft. Size of Gravel

(6) CASING / LINER:

CASING Dia. From To Gage Material 10" +2 -203 .250 STEEL / WELDED LINER 7" +2 -793 .188 STEEL / WELDED

Final location of shoe (s)

(7) PERFORATIONS / SCREENS:

METHOD TYPE MATERIAL TORCH Perforations From To Slot size Number Dia. Tels / pipe size -693 -772 1/4 X 8 144 7" 7" LINER

(8) WELL TESTS:

Minimum testing time is 1 hour TESTING METHOD AIR Yield GPM Drawdown Drill stem at Time 50 GPM -685 1 HOUR 200 GPM -730 1 HOUR

Temperature of Water 68 F Depth Artesian Flow Found Was a water analysis done? NO By whom Did any strata contain water not suitable for intended use?

WATER RESOURCES DEPT SALEM, OREGON Date started May 1, 1995 Completed July 28, 1995

(Unbonded) Water Well Constructor Certification: I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

(Bonded) Water Well Constructor Certification: I accept responsibility for the construction alteration or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

LL-1441

ANALYSIS TO FILE 11/21/2011 JLR

Signature

DATE 8-1-95 WWC NUMBER 693



**PROPOSED LOCATIONS**

WATER WELL #1 & #2  
NEWBERRY PROJECT  
DESCHUTES CO., OREGON  
T21S, R12E, SECTION 21

CLEAR CUT AREA  
5000' CONTOUR (1:1)  
STREET ROADS

