

# Groundwater

DEC 04 2017



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

SALEM, OR

## Water-Use Permit Application Processing

### 1. Completeness Determination

The Department evaluates whether the application and accompanying map contain all of the information required under OAR 690-310-0040 and OAR 690-310-0050 ([www.oregon.gov/owrd/law](http://www.oregon.gov/owrd/law)). The Department also determines whether the proposed use is prohibited by statute. If the Department determines that the application is incomplete, all fees have not been paid, or the use is prohibited by statute, the application and all fees submitted are returned to the applicant.

### 2. Initial Review

The Department reviews the application to determine whether water is available during the period requested, whether the proposed use is restricted or limited by rule or statute, and whether other issues may preclude approval of or restrict the proposed use. An Initial Review (IR) containing preliminary determinations is mailed to the applicant. The applicant has 14 days from the mailing date to withdraw the application from further processing and receive a refund of all fees paid minus \$260. The applicant may put the application on hold for up to 180 days and may request additional time if necessary.

### 3. Public Notice

Within 7 days of the mailing of the initial review, the Department gives public notice of the application in the weekly notice published by the Department at [www.oregon.gov/owrd](http://www.oregon.gov/owrd). The public comment period is 30 days from publication in the weekly notice.

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### 4. Proposed Final Order Issued

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The Department reviews any comments received, including comments from other state agencies related to the protection of sensitive, threatened or endangered fish species. Within 60 days of completion of the IR, the Department issues a Proposed Final Order (PFO) explaining the proposed decision to deny or approve the application. A PFO proposing approval of an application will include a draft permit, and may request additional information or outstanding fees required prior to permit issuance.

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### 5. Public Notice

Within 7 days of issuing the PFO, the Department gives public notice in the weekly notice. Notice includes information about the application and the PFO. Protest must be received by the Department within 45 days after publication of the PFO in the weekly notice. Anyone may file a protest. The protest filing fee is \$410 for the applicant and \$810 for non-applicants. Protests are filed on approximately 10% of Proposed Final Orders. If a protest is filed, the Department will attempt to settle the protest but will schedule a contested case hearing if necessary.

### 6. Final Order Issued

If no protests are filed, the Department issues a Final Order consistent with the PFO. If the application is approved, a permit is issued that specifies the details of the authorized use and any terms, limitations or conditions that the Department deems appropriate.

G-18595

# Minimum Requirements Checklist

Minimum Requirements (OAR 690-310-0040, OAR 690-310-0050 & ORS 537.615)

## Include this checklist with the application

Check that each of the following items is included. The application will be returned if all required items are not included. If you have questions, please call the Water Rights Customer Service Group at (503) 986-0900.

- SECTION 1: applicant information and signature
- SECTION 2: property ownership
- SECTION 3: well development
- SECTION 4: water use
- SECTION 5: water management
- SECTION 6: storage of groundwater in a reservoir
- SECTION 7: use of stored groundwater from the reservoir
- SECTION 8: project schedule
- SECTION 9: within a district
- SECTION 10: remarks

### ATTACHMENTS:

- A - MAP
- B - LAND USE FORM
- C - EASEMENT
- D - DEED
- E - WELL LOGS
- F - UIC PERMIT

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### Attachments:

- Land Use Information Form with approval and signature of local Planning Department (*must be an original*) or signed receipt (ATTACHMENT B)
- Provide the legal description of: (1) the property from which the water is to be diverted, (2) any property crossed by the proposed ditch, canal or other work, and (3) any property on which the water is to be used as depicted on the map. Example: **A copy of the deed, land sales contract or title insurance policy.**
- Fees - Amount enclosed: **\$2,560.00** See the Department's Fee Schedule at [www.oregon.gov/owrd](http://www.oregon.gov/owrd) or call (503) 986-0900.

### Provide a map and check that each of the following items is included: ATTACHMENT A

- Permanent quality and drawn in ink
- Even map scale not less than 4" = 1 mile (example: 1" = 400 ft, 1" = 1320 ft, etc.)
- North Directional Symbol
- Township, Range, Section, Quarter/Quarter, Tax Lots
- Reference corner on map
- Location of each well, and/or dam if applicable, by reference to a recognized public land survey corner (distances north/south and east/west). Each well must be identified by a unique name and/or number.
- Indicate the area of use by Quarter/Quarter and tax lot clearly identified
- NA Number of acres per Quarter/Quarter and hatching to indicate area of use if for primary irrigation, supplemental irrigation, or nursery
- Location of main canals, ditches, pipelines or flumes (if well is outside of the area of use)

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# Application for a Permit to Use Groundwater



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

## SECTION 1: APPLICANT INFORMATION AND

## SIGNATURE

### Applicant Information

NAME		PHONE (HM)	
PHONE (WK)	CELL		FAX
ADDRESS			
CITY	STATE	ZIP	E-MAIL*

### Organization Information

NAME Surprise Valley Electric - Attn. Lynn Culp		PHONE 530-233-3511	FAX 530-233-2190
ADDRESS 516 US Hwy 395E		CELL 530-640-2666	
CITY Alturas	STATE CA	ZIP 96101	E-MAIL* lynnsvvec@frontier.com

### Agent Information – The agent is authorized to represent the applicant in all matters relating to this application.

AGENT / BUSINESS NAME		PHONE	FAX
ADDRESS		CELL	
CITY	STATE	ZIP	E-MAIL*

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Note: Attach multiple copies as needed

\* By providing an e-mail address, consent is given to receive all correspondence from the Department electronically. (Paper copies of the final order documents will also be mailed.)

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### By my signature below I confirm that I understand:

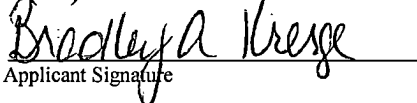
- I am asking to use water specifically as described in this application.
- Evaluation of this application will be based on information provided in the application.
- I cannot use water legally until the Water Resources Department issues a permit.
- Oregon law requires that a permit be issued before beginning construction of any proposed well, unless the use is exempt. Acceptance of this application does not guarantee a permit will be issued.
- If I get a permit, I must not waste water.
- If development of the water use is not according to the terms of the permit, the permit can be cancelled.
- The water use must be compatible with local comprehensive land-use plans.
- Even if the Department issues a permit, I may have to stop using water to allow senior water-right holders to get water to which they are entitled.

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I (we) affirm that the information contained in this application is true and accurate.

  
Applicant Signature

Bradley A. Kresge - General Manager  
Print Name and title if applicable

11/29/17  
Date

Applicant Signature

Print Name and title if applicable

Date

For Department Use		
App. No. <u>Gr 10595</u>	Permit No. _____	Date _____

**SECTION 2: PROPERTY OWNERSHIP**

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Please indicate if you own all the lands associated with the project from which the water is to be diverted, conveyed, and used. DEC 04 2017

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- Yes
- There are no encumbrances.
  - This land is encumbered by easements, rights of way, roads or other encumbrances.
- No
- I have a recorded easement or written authorization permitting access. **SEE ATTACHMENT C**
  - I do not currently have written authorization or easement permitting access.
  - Written authorization or an easement is not necessary, because the only affected lands I do not own are state-owned submersible lands, and this application is for irrigation and/or domestic use only (ORS 274.040).
  - Water is to be diverted, conveyed, and/or used only on federal lands.

List the names and mailing addresses of all affected landowners (*attach additional sheets if necessary*).  
**COLAHAN ENTERPRISES INC., P.O. BOX 300, PAISLEY, OR 97636**

***You must provide the legal description of: 1. The property from which the water is to be diverted, 2. Any property crossed by the proposed ditch, canal or other work, and 3. Any property on which the water is to be used as depicted on the map.***

**SEE ATTACHMENT D**

**SECTION 3: WELL DEVELOPMENT**

WELL NO.	NAME OF NEAREST SURFACE WATER	IF LESS THAN 1 MILE:	
		DISTANCE TO NEAREST SURFACE WATER	ELEVATION CHANGE BETWEEN NEAREST SURFACE WATER AND WELL HEAD
L117043	Chewaucan River	~2035 ft direct line. Well is located beyond 1 mile from where hydraulic connection with river occurs based on static water levels.*	River approx. 80 ft lower
L117044	Chewaucan River	~1000 ft direct line. Well is located beyond 1 mile from where hydraulic connection with river occurs based on static water levels.*	River approx. 80 ft lower
		* Information based on OWRD's review and conclusions for previous SVEC water right application. (Applic. G-17890)	

Please provide any information for your existing or proposed well(s) that you believe may be helpful in evaluating your application. For existing wells, describe any previous alteration(s) or repair(s) not documented in the attached well log or other materials (*attach additional sheets if necessary*).

**SEE ATTACHED WELL LOGS - ATTACHMENT E**

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**SECTION 3: WELL DEVELOPMENT, CONTINUED**

**Total maximum rate requested: 300 GPM** (each well will be evaluated at the maximum rate unless you indicate well-specific rates and annual volumes in the table below).

The table below must be completed for each source to be evaluated or the application will be returned. If this is an existing well, the information may be found on the applicable well log. (If a well log is available, please submit it in addition to completing the table.) If this is a proposed well, or well-modification, consider consulting with a licensed well driller, geologist, or certified water right examiner to obtain the necessary information. SEE ATTACHMENT E FOR COPY OF THE WELL LOGS

OWNER'S WELL NAME OR NO.	PROPOSED	EXISTING	WELL ID (WELL TAG) NO.* OR WELL LOG ID**	FLOWING ARTESIAN	CASING DIAMETER	CASING INTERVALS (IN FEET)	PERFORATED OR SCREENED INTERVALS (IN FEET)	SEAL INTERVALS (IN FEET)	MOST RECENT STATIC WATER LEVEL & DATE (IN FEET)	PROPOSED USE			
										SOURCE AQUIFER***	TOTAL WELL DEPTH	WELL-SPECIFIC RATE (GPM)	ANNUAL VOLUME (ACRE-FEET)
SVE1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L117043	<input type="checkbox"/>	20" 13 3/8"	0-40ft 0-900ft	900-1360ft	0-900ft	159ft June 2014*	Basalt Lithic tuft. See Lithological Description in Well Log	1360ft		
SVE2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L117044	<input type="checkbox"/>	20" 13 3/8"	0-40ft 0-495ft	495-1260ft	0-495ft	145ft June 2014*	Basalt See Lithological Description in Well Log	1260ft		
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>									
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>									
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>									
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>									

\* STATIC DEPTH ESTIMATE TRUE STATIC WITH NO PUMPING FROM WELLS SEVERAL MONTHS PRIOR

\*\* Licensed drillers are required to attach a Department-supplied Well Tag, with a unique Well ID or Well Tag Number to all new or newly altered wells. Landowners can request a Well ID for existing wells that do not have one. The Well ID is intended to serve as a unique identification number for each well.

\*\*\* A well log ID (e.g. MARI 1234) is assigned by the Department to each log in the agency's well log database. A separate well log is required for each subsequent alteration of the well.

\*\*\*\* Source aquifer examples: Troutdale Formation, gravel and sand, alluvium, basalt, etc.

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**SECTION 4: WATER USE**

USE	PERIOD OF USE	ANNUAL VOLUME (ACRE-FEET)
Industrial/Power Development	Year Round	484

**For irrigation use only: NA**

Please indicate the number of primary and supplemental acres to be irrigated (*must match map*).

Primary: \_\_\_\_\_ Acres Supplemental: \_\_\_\_\_ Acres

If you listed supplemental acres, list the Permit or Certificate number of the underlying primary water right(s):

Indicate the maximum total number of acre-feet you expect to use in an irrigation season: \_\_\_\_\_

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- If the use is **municipal or quasi-municipal**, attach Form M NA
- If the use is **domestic**, indicate the number of households: \_\_\_\_\_ NA

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**Exempt Uses:** Please note that 15,000 gallons per day for single or group **domestic** purposes and 5,000 gallons per day for a single **industrial or commercial** purpose are exempt from permitting requirements.

- If the use is **mining**, describe what is being mined and the method(s) of extraction (*attach additional sheets if necessary*): NA

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**SECTION 5: WATER MANAGEMENT**

**A. Diversion and Conveyance**

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What equipment will you use to pump water from your well(s)?

Pump (give horsepower and type): SVE1 IS 200 HP TURBINE; SVE2 IS 300 HP TURBINE

Other means (describe): \_\_\_\_\_

Provide a description of the proposed means of diversion, construction, and operation of the diversion works and conveyance of water. THE PUMPED WATER IS PIPED THROUGH 12" AND 16" PIPELINES TO GEOTHERMAL PLANT, UP TO 300 GPM WILL BE CONSUMED IN COOLING WATER TOWER DURING PRODUCTION OF ELECTRICITY.

**B. Application Method**

What equipment and method of application will be used? (e.g., drip, wheel line, high-pressure sprinkler) (*attach additional sheets if necessary*) THIS WATER APPLICATION IS FOR THE CONSUMPTIVE USE OF 300 GPM OF GEOTHERMAL WATER FOR GENERATION OF ELECTRIC POWER IN THE COOLING PROCESS.

**C. Conservation**

Please describe why the amount of water requested is needed and measures you propose to: prevent waste; measure the amount of water diverted; prevent damage to aquatic life and riparian habitat; prevent the discharge of contaminated water to a surface stream; prevent adverse impact to public uses of affected surface waters (*attach additional sheets if necessary*). THIS VOLUME IS NEEDED FOR THE PRODUCTION PROCESS OF 3MW ELECTRICITY. A SIERRA INSTRUMENTS FLOW METER WILL BE INSTALLED TO MEASURE AND RECORD THE VOLUME USED IN THE COOLING SYSTEM AND CONSUMED BY THE COOLING PROCESS. UP TO 300 GPM WILL BE CONSUMPTIVELY USED. WATER NOT CONSUMED WILL BE RE-INJECTED INTO THE INJECTION WELL.

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**SECTION 6: STORAGE OF GROUNDWATER IN A RESERVOIR** NA

If you would like to store groundwater in a reservoir, complete this section (*if more than one reservoir, reproduce this section for each reservoir*). RECEIVED BY OWRD

Reservoir name: \_\_\_\_\_ Acreage inundated by reservoir: \_\_\_\_\_ DEC 04 2017

Use(s): \_\_\_\_\_ SALEM, OR

Volume of Reservoir (acre-feet): \_\_\_\_\_ Dam height (feet, if excavated, write "zero"): \_\_\_\_\_

*Note: If the dam height is greater than or equal to 10.0' above land surface AND the reservoir will store 9.2 acre feet or more, engineered plans and specifications must be approved prior to storage of water.*

**SECTION 7: USE OF STORED GROUNDWATER FROM THE RESERVOIR** NA

If you would like to use stored groundwater from the reservoir, complete this section (*if more than one reservoir, reproduce this section for each reservoir*).

Annual volume (acre-feet): \_\_\_\_\_

USE OF STORED GROUNDWATER	PERIOD OF USE
NA	

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**SECTION 8: PROJECT SCHEDULE**

Date construction will begin: \_\_\_\_\_ CONSTRUCTION BEGAN IN 2011 WITH DRILLING OF THESE TWO WELLS. \_\_\_\_\_

Date construction will be completed: \_\_\_\_\_ CONSTRUCTION WAS COMPLETED IN 2014. \_\_\_\_\_

Date beneficial water use will begin: \_\_\_\_\_ WHEN PLANT RESUMES OPERATING. \_\_\_\_\_

**SECTION 9: within a district** NA

Check here if the point of diversion or place of use are located within or served by an irrigation or other water district.

Irrigation District Name	Address	
City	State	Zip

**SECTION 10: REMARKS**

Use this space to clarify any information you have provided in the application (*attach additional sheets if necessary*). THIS APPLICATION IS SUBMITTED TO TRANSITION SVEC'S CURRENT DOGAMI PERMITS TO THE OWRD LOW-TEMPERATURE GEOTHERMAL PERMIT PROGRAM. GEOTHERMAL WATER FROM PRODUCTION WELLS SVE1 AND SVE2 WILL BE INJECTED BACK IN THE SYSTEM THROUGH THE INJECTION WELL SVE3. UP TO 300 GALLONS OF WATER UNDER THIS APPLICATION MAY BE CONSUMED BY THE PLANT COOLING SYSTEM.

6-18595

Date \_\_\_\_\_

(For staff use only)



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

**WE ARE RETURNING YOUR APPLICATION  
FOLLOWING REASON(S):**

**FOR THE**

- SECTION 1: \_\_\_\_\_
- SECTION 2: \_\_\_\_\_
- SECTION 3: \_\_\_\_\_
- SECTION 4: \_\_\_\_\_
- SECTION 5: \_\_\_\_\_
- SECTION 6: \_\_\_\_\_
- SECTION 7: \_\_\_\_\_
- SECTION 8: \_\_\_\_\_
- SECTION 9: \_\_\_\_\_
- Land Use Information Form \_\_\_\_\_
- Provide the legal description of: (1) the property from which the water is to be diverted, (2) any property crossed by the proposed ditch, canal or other work, and (3) any property on which the water is to be used as depicted on the map.
- Fees \_\_\_\_\_

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**MAP**

- Permanent quality and drawn in ink
- Even map scale not less than 4" = 1 mile (example: 1" = 400 ft, 1" = 1320 ft, etc.)
- North Directional Symbol
- Township, Range, Section, Quarter/Quarter, Tax Lots
- Reference corner on map
- Location of each well, and/or dam if applicable, by reference to a recognized public land survey corner (distances north/south and east/west). Each well must be identified by a unique name and/or number.
- Indicate the area of use by Quarter/Quarter and tax lot clearly identified
- Number of acres per Quarter/Quarter and hatching to indicate area of use if for primary irrigation, supplemental irrigation, or nursery
- Location of main canals, ditches, pipelines or flumes (if well is outside of the area of use)
- Other \_\_\_\_\_

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ATTACHMENT A

**Groundwater Application Map**

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ATTACHMENT B

## Land Use Information Form

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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

## 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.

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## NOTE TO LOCAL GOVERNMENTS

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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

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Applicant: Surprise Valley Electrification Corp Attn: Lynn Culp  
First Last

Mailing Address: 516 US Hwy 395 E

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Alturas CA 96101 Daytime Phone: 530.233.3511  
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:
See Attached Table						<input type="checkbox"/> Diverted	<input type="checkbox"/> Conveyed	<input type="checkbox"/> Used	
						<input type="checkbox"/> Diverted	<input type="checkbox"/> Conveyed	<input type="checkbox"/> Used	
						<input type="checkbox"/> Diverted	<input type="checkbox"/> Conveyed	<input type="checkbox"/> Used	
						<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:

Lake County

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## B. Description of Proposed Use

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

SALEM, OR

- Permit to Use or Store Water   
  Water Right Transfer   
  Permit Amendment or Groundwater 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: 300     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 Power Development

Briefly describe:

SVEC drilled two geothermal production wells in 2011/12 for generation of electricity. Well SVE-1 produces up to 1,200 gpm and SVE 2 produces up to 2,300 gpm. The geothermal water is pumped from these wells into the power plant and then is reinjected back into the system through the 2700 foot deep injection well (SVE-3). Up to 300 gpm of the geothermal water potentially will be consumed in the cooling system

**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. See bottom of Page 3. →

## For Local Government Use Only

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:	
CUP (500 HUS #1256-CUP)	ART. 24	<input checked="" 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.

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SALEM, OR

Name: Darwin Johnson Title: Planning Director  
 Signature: [Signature] Phone: 541-947-6036 Date: 11 Nov 2017  
 Government Entity: Lake Co. Planning Dept.

**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**

**RECEIVED**

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

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

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

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# ATTACHMENT – TABLE

## 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:
<u>33 S</u>	<u>18 E</u>	<u>23</u>	<u>SW NE</u>	<u>1300</u>		<input checked="" type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input type="checkbox"/> Used	<u>Industrial/Power Development</u>
<u>33 S</u>	<u>18 E</u>	<u>23</u>	<u>SE NE</u>	<u>1300</u>		<input type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input type="checkbox"/> Used	<u>Industrial/Power Development</u>
<u>33 S</u>	<u>18 E</u>	<u>23</u>	<u>SE NW</u>	<u>1300</u>	_____	<input type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input type="checkbox"/> Used	<u>Industrial/Power Development</u>
<u>33 S</u>	<u>18 E</u>	<u>23</u>	<u>NE SW</u>	<u>1300</u>		<input type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input type="checkbox"/> Used	<u>Industrial/Power Development</u>
<u>33 S</u>	<u>18 E</u>	<u>23</u>	<u>NW SW</u>	<u>1300</u>	_____	<input checked="" type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input type="checkbox"/> Used	<u>Industrial/Power Development</u>
<u>33 S</u>	<u>18 E</u>	<u>23</u>	<u>NE SE</u>	<u>1300</u>		<input type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input checked="" type="checkbox"/> Used	<u>Industrial/Power Development</u>
<u>33 S</u>	<u>18 E</u>	<u>24</u>	<u>SW NW</u>	<u>1300</u>		<input type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input type="checkbox"/> Used	<u>Industrial/Power Development</u>
<u>33 S</u>	<u>18 E</u>	<u>24</u>	<u>NW SW</u>	<u>1300</u>		<input type="checkbox"/> Diverted	<input checked="" type="checkbox"/> Conveyed	<input type="checkbox"/> Used	<u>Industrial/Power Development</u>

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ATTACHMENT C  
**Lease Agreement**

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## GEOTHERMAL LEASE AND AGREEMENT

THIS GEOTHERMAL LEASE AND AGREEMENT, (herein sometimes referred to as "Lease") made and entered as of the 24<sup>th</sup> day of September, 2010 by and between COLAHAN ENTERPRISES INC., hereinafter referred to as "Lessor", and SURPRISE VALLEY ELECTRIFICATION CORP., a Rural Electric Cooperative, Incorporated under IRS 501(c)(12) . Hereinafter referred to as "Lessee".

### WITNESSETH:

1. Purpose. That Lessor, for and in consideration of Ten Dollars (\$10.00) in hand paid to Lessor by Lessee, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, and in consideration of the covenants and agreements hereinafter contained, has granted, leased, let and demised and by these presents does grant, lease, let and demise exclusively to Lessee, its grantees, successors and assigns, upon and subject to the terms and conditions hereinafter set forth, these certain extractable mineral rights and certain geothermal rights for real property located in the County of Lake, State of OREGON, more particularly described in Exhibit "A" attached hereto and by this reference made a part hereof (hereinafter referred to as the "leased rights"), including all roads, streets, alleys, easements and rights of way owned or claimed by Lessor, on or within the lands above described. This Lease shall cover all the interest in the leased rights now owned or hereafter acquired by Lessor on the property described in Exhibit A".

By the use of such methods as Lessee may desire, Lessee, and its designated representatives, shall have the sole and exclusive right to utilize the leased rights, including but not limited to the right to explore for, drill for, test, develop, operate, produce, extract, take, remove or sell Hot Water, Steam and Thermal Energy and Extractable Minerals, and to store, utilize, process, convert and otherwise treat such Hot Water, Steam and Thermal Energy, and to extract any Extractable Minerals during the term hereof and to transport same, and to inject or re inject effluents into the well or any wells drilled pursuant to the leased rights; or inject water, gas or other fluid or substances by artificial means into formations containing Hot Water, Steam or Thermal Energy as agreed to in the body of this lease agreement. Further, Lessee, its designated representatives and anyone purchasing Leased Substances (as hereinafter defined) from Lessee are hereby granted the use of any easements owned by Lessor across said land, to the full extent of any such rights held by Lessor as set forth in the body of this lease agreement. The possession by Lessee of the leased rights shall be sole and exclusive for the purposes hereof and for purposes incident or related thereto.

Lessee agrees to conduct its activities in a safe, good and workmanlike manner and use reasonable care at all times in all of Lessee's operations on the premises, in accordance with generally accepted, good engineering practice; with due regard for the protection of life and property, preservation of the environment and conservation of natural resources, and minimal intrusion to agricultural operations of the Lessor to prevent injury or damage to cattle, livestock, buildings, fish, water rights, water diversion works, ditches, tanks and water wells or other property or operations of the Lessor located thereon; and Lessee agrees to repair, mitigate or pay the Lessor the fair market value (as agreed to by the parties, or if no agreement is reached, then after 7 days as determined by an independent third-party appraiser) for all damages to the cattle, crops, buildings, livestock, fish, fences, water rights, water diversions, ditches, tanks, water, water wells and other property of the Lessor situated on the surface of the premises resulting from Lessee's operations on the premises, and conduct its activities in a manner which will not unreasonably interfere with any rights reserved to Lessor. Lessee also agrees that all damages to pipe and equipment caused by cattle shall be the responsibility of Lessee. Lessee shall at all time allow Lessor access to well water for irrigation

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and secondary uses as required by Lessor, and access to the online heat exchange upon construction.

2. Term. This Lease shall be for a term of five (5) years from and after the date hereof (hereinafter referred to as the "Primary Term") and so long thereafter as electricity is produced in commercial quantities from the well or through the leased rights, or lands, and for so long as Lessee is prevented from producing same, or the obligations of Lessee hereunder are suspended, for the causes hereinafter set forth, or this Lease is continued in force by reason of any other provision hereof.

3. Primary Term Consideration. It is understood and agreed that the initial consideration paid upon the execution hereof is Twenty- Five Thousand Dollars (\$25,000.00) for all the lease rights during the initial five (5) year lease term, excluding any royalties and rents that are otherwise payable during the term of this lease agreement.

4. Lessee shall conduct all work in compliance with the applicable laws and regulations of the state of Oregon and the United States of America. Lessee shall be fully responsible for compliance with all applicable Federal, state, and local statutes, regulations, and ordinances relating to such work, and for reclamation bonding and any bonding required for geothermal wells. Lessor agrees to cooperate with Lessee in Lessee's application for governmental licenses, permits, and approvals, all costs of which shall be borne by Lessee.

Both Lessee and Lessor are bound by applicable federal, state, and local statutes, regulations, and ordinances that may affect this project now or in the future.

Lessee shall fence all excavations (including sumps and settling ponds), and, upon the termination of the Lease, except any certain sump hole(s) and excavation(s) identified by the Lessor, Lessee shall level and fill all sump holes and excavations, shall remove all debris and shall leave the locations or premises used by Lessee in a clean and sanitary condition.

Lessee shall keep the premises utilized by Lessee clean and orderly throughout the term of occupancy.

Lessee shall replace all fences which the Lessee removed for its purposes and repair all fences which Lessee damaged, and if and when so required by the Lessor, will provide a proper livestock guard at any new point of entry upon lands used by Lessee and utilize best efforts to ensure Lessor's livestock are not allowed to escape as a result of Lessee's utilization of premises.

Lessee shall have reasonable access to and use of water from the leased land for Lessee's drilling, testing and exploration operations thereon, in the vicinity thereof, provided that such use shall not interfere with Lessor's own use for domestic, commercial, stock or agricultural purposes, nor interfere with any legal or contractual commitments of Lessor relating thereto and existing on the date hereof. Lessee shall be allowed to enter on to the Lands during the term of the lease for regular water monitoring activities of all wells or water sources. Lessee acknowledges that except for that certain real property specifically identified and agreed to be taken out of production and for which Lessee is paying rents, Lessor, and Lessor's principals, officers and shareholders, shall have full use and exploitation of the whole of the premises.

Lessee shall protect Lessor's interest in the leased rights against liens of every character arising from its operations thereon. Lessee, at its own expense, prior to commencing operations pursuant to the leased rights, shall obtain, and thereafter while this Lease is in effect shall maintain, adequate Workers Compensation Insurance. Lessee shall protect Lessor

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against damages of every kind and character arising out of the operations or working of Lessee or those under Lessee's control pursuant to the leased rights, but Lessee shall not be liable hereunder in the event of the negligence or willful misconduct of parties other than Lessee, unless retained or approved by the Lessee or Lessee's agents to be on the premises, or perform any service on the premises.

Lessee shall indemnify and defend Lessor from any claim, loss, or liability arising out of or related to any activity of Lessee on the premises utilized by Lessee or any condition of the premises in the possession or under the control of Lessee including any such claim, loss, or liability that may be caused or contributed to in whole or in part failure to effect any repair or maintenance required by this lease and damages to growing crops based upon the fair market value of such crops at the time of such damages. Lessor shall have no liability to Lessee for any injury, loss, or damage caused by third parties, or by any condition of the premises.

Lessee, before going into possession of the premises, shall procure and thereafter during the term of the lease shall continue to carry the following insurance at Lessee's cost: comprehensive general liability insurance in a responsible company with limits of not less than \$300,000 for injury to one person, \$1,000,000 for injury to two or more persons in one occurrence, and \$1,000,000 for damage to property, commercial general liability policy (occurrence version) in a responsible company with coverage for bodily injury and property damage liability, personal injury liability, and medical payment with a general aggregate limit of not less than \$1,000,000 and a per occurrence limit of not less than \$100,000.00. Such insurance shall cover all risks arising directly or indirectly out of Lessee's activities on or any condition of the premises. Such insurance shall protect Lessee against the claims of Lessor on account of the obligations assumed by Lessee and shall name Lessor as an additional insured. Certificates evidencing such insurance and bearing endorsements requiring 10 days' written notice to Lessor prior to any change or cancellation shall be furnished to Lessor prior to Lessee's occupancy of the premises.

Lessor shall have all rights to thermal heat from the electric generating facility after electricity production. In addition, Lessor has the right to the spent geothermal fluids after the generation of electricity to use for traditional agriculture use including, but not limited to irrigation, stock water, aquaculture and greenhouses. Lessee shall provide an online heat exchange to the Lessor adequate for the above purposes.

Lessee shall make available, after the commercial production of electricity and uses by the Lessor and to the extent that it is feasible, thermal energy to the City of Paisley, Oregon, and other non-federal public buildings within the City of Paisley, Oregon, for the purpose of space heating of public buildings.

Lessee shall re inject all geothermal fluids produced after they are used for the production of electricity and Lessor's uses.

5. Royalty. Royalties shall be payable as follows:

(a) With respect to Hot Water, Steam or Thermal Energy produced, saved and used for the generation of electric power which is then sold by Lessee, Lessee shall pay to Lessor as royalty Four Percent (4.0 %) of the Actual Revenue. At the time the Lessee decides to sell the electricity produced to the current and future Members of the Lessee, the royalty payment will then be converted to dollars per kwh in an amount that equals the then total dollar per kwh royalty paid to the Lessor. The dollars per kwh paid to the Lessor at the time the Lessee sells the electricity to the Members of Lessee, and shall increase by two percent (2%) per annum for the remaining life of the project.

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(b) With respect to Extractable Minerals, Lessee shall pay as royalty to Lessor Five Percent (5%) of the net proceeds received by Lessee from the sale of any gases (as herein defined) and from the sale of minerals and/or minerals in solution extracted from the effluents produced and sold from the well or in exercise of the leased rights, or, in the event Lessee extracts from the effluents minerals and/or minerals in solution, Five Percent (5%) of the proceeds received by Lessee from the sale of minerals and/or minerals in solution contained in and extracted from such effluents less costs of transportation and extraction.

Lessee shall pay to Lessor on or before the twenty-fifth day of each month the royalties accrued and payable for the preceding calendar month, or on or before the twenty-fifth day of the month next following that in which Lessee receives payment therefor from the purchaser thereof, whichever method may be chosen by Lessee from time to time, and in making such royalty payments Lessee shall deliver to Lessor statements setting forth the basis for computation and determination of such royalty.

Lessee shall not be required to account to Lessor for or to pay any royalty on Hot Water, Steam, Thermal Energy or Extractable Minerals produced by Lessee which is not utilized, saved and sold, or which is used by Lessee in its operations with respect to the well or the leased rights for or in connection with the developing, recovering, producing, extracting and/or processing of Hot Water, Steam, Thermal Energy and/or minerals in solution or in facilities for the generation of electric power, or which are unavoidably lost.

6. Use of Lease. Lessee shall have the right to drill such well or wells as Lessee may deem desirable for the exercise of the leased rights, including wells for injection or re injection purposes, and shall have the further right to dispose in any such wells waste brine, water and other substances, waste products from a well or wells, power plants or other facilities. Lessee shall further have the right for testing purposes, to freely transfer Leased Substances and Geothermal Resources and to inject such leased Substances and Geothermal Resources into well or into any wells developed pursuant to the leased rights.

7. Well Abandonment. In the event Lessor desires to abandon any well it has drilled on the premises, Lessee shall notify Lessor of the Lessee intention to do so, and if the Lessor within thirty(30) days after such notices elect to retain said well as water well or other purpose, and so notifies Lessee in writing of such intent, then Lessee shall not abandon such well and shall be freed of the obligations of abandoning same, and Lessor shall cause Lessee to be released from any abandonment bond posted by Lessee with respect to said well and Lessor shall concurrently post any new bond required for the same as required by any government agency.

8. Land Compensation. In return for actual surface use of leased land, if Producing Agricultural Lands are required by Lessee to be taken out of production, either temporarily or permanently for Lessee's operations, including but not limited to as a result of Lessee's use of water from the leased lands, Lessee shall compensate Lessor at the annual rate of Four Hundred Dollars (\$400.00) per acre for such lands so affected for the duration of their use. For greater clarity, if Lessee requires 2 acres of producing agricultural land, but its use impacts 10 acres, the rate would apply to the 10 acres. For these purposes any pipelines shall be deemed to require a 10 foot wide ground area. All pipelines shall be insulated as per typical project specifications and shall be colored according to industry norms or permit requirements as may be imposed. Lessee shall further be responsible for any costs associated with the redesign and/or relocation of structures or sprinkling equipment affected by Lessee's operations, which shall be redesigned and/or relocated according to current commercial agricultural standards, including burying feed lines to pivots at adequate depth to protect the same.

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10. Inspection by Lessor. Lessor, or its agents, at Lessor's sole cost and risk, may during normal hours of operation examine the working, installations, structures, or operations of Lessee constructed or undertaken pursuant to the leased rights, and may at reasonable times inspect the books and records of Lessee with respect to matters pertaining to the payment of royalties to Lessor.

11. Default Notice. Upon the violation of any of the terms and conditions of this Lease by Lessee (including but not limited to payment of rental, advance royalty and/or royalty) and the failure of Lessee, as to monetary matters, to make payment, and as to other violations, to begin in good faith to remedy the same, within sixty (60) days after written notice from Lessor so to do, specifying in said notice the nature of such default, then at the option of Lessor this Lease shall forthwith cease and terminate and all rights of Lessee in and to the well and the leased rights shall be at an end.

12. Termination. Notwithstanding any other provisions of this Lease, and in consideration of the payment made by the Lessee to the Lessor for the execution of this Lease, Lessee shall have the right at any time prior to or after default hereunder, to quitclaim and surrender to Lessor all right, title and interest of Lessee in and to the well and the leased rights, and thereupon all rights and obligations of the parties hereto one to the other shall cease and terminate, save and except as to any then accrued royalty or rent obligations of Lessee then payable, and except Lessee's obligations to restore the sunip holes and excavations on the premises, as to which Lessee shall remain liable to Lessor.

13. Partial Ownership Interests. In the event Lessor at the time of making this Lease owns an interest in the leased land less than One Hundred Percent (100%) of the right, title and interest purportedly granted or leased hereby to Lessee, then any payments due Lessor hereunder shall be paid to Lessor only in the proportion which Lessor's Interest bears to a One Hundred Percent (100%) interest in the leased land. Notwithstanding the foregoing, should Lessor hereafter acquire any additional right, title or interest in or to the leased land, it shall be subject to the provisions hereof to the same extent as if owned by Lessor at the date hereof, and any increase in payments of money hereunder necessitated thereby shall commence with the payment next following receipt by Lessee of satisfactory evidence of Lessor's acquisition of such additional interest.

14. Title. Lessor hereby warrants and agrees to defend title to the leased rights and agrees that Lessee, at its option, may pay and discharge any taxes, mortgages, trust deeds or other liens or encumbrances existing, levied or assessed on or against the well or the leased rights, and in the event Lessee exercises such option, Lessee shall be subrogated to the rights of any holder thereof, and shall have, among other rights, the right of applying to the discharge of any such mortgage, tax or other lien or encumbrance any payments accruing to Lessor hereunder.

15. Tax Payments. Lessee shall pay all taxes levied on structures and improvements constructed by Lessee pursuant to this Lease. In the event any taxes are levied or assessed against the right to produce Leased Substances, or against any Leased Substances on or in the land associated with the well or the leased rights, or in the event any increase in the taxes levied or assessed against the well or the leased rights shall be based upon the production of Leased Substances from, or reserves of Leased Substances attributed to, the well or the lease rights, then in either such event Lessee shall pay One Hundred Percent (100%) of any such taxes or increase, as the case may be, and Lessor shall not be required to pay any part thereof.

16. Assignment. The rights of either party hereunder may be assigned in whole or in part, and the right and privilege to do so is hereby reserved by each party, and the provisions hereof shall extend to the heirs, personal representatives, successors and assigns of the parties hereto, but no change or division in ownership of the well, rights, rentals or royalties.

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however accomplished, shall operate to enlarge the obligations or diminish the rights of Lessee, and no such change in ownership shall be binding upon Lessee until the expiration of thirty (30) days after Lessee is furnished with written notice of such transfer or assignment, together with a certified copy of the instruments of transfer or assignment. Lessee's right of assignment expressly includes the right to sublease all or any portion of its rights and obligations hereunder. Lessee must notify the Lessor, in writing, within 30 days of any assignment, however, Lessee will guarantee the performance of any assignee, unless released in writing by Lessor.

17. Force Majeure. The obligation of the Lessee hereunder shall be suspended and the terms of this Lease shall be extended as the case may be, while Lessee is prevented from complying therewith, in whole or in part, by strikes, lockouts, riots, war or the results thereof, acts of God or the elements, fire, flood, accidents, delays in transportation, inability to secure labor or material in the open market, laws, orders, rules, or regulations of Federal, State, County, Municipal, or other governmental agencies, authority, or representative, or any other matter or condition beyond reasonable control of Lessee, whether or not similar to the conditions or matters herein specifically enumerated, or while litigation contesting Lessor's title to the well or the leased rights or the rights granted Lessee hereunder or litigation involving Lessee's operations hereunder shall be pending and undetermined or during any period when Lessee has no market for the products it is then capable of producing from the leased rights or the market price then available for such products will not produce an acceptable profit. For so long as any of the above circumstances continue to exist, Lessee, without impairment of its rights hereunder, shall be excused from performance of all obligations hereunder except payment of taxes, protection of the leased rights, keeping the premise clean and free from debris, and paying the sum of \$4.00 per acre per annum if conditions continue for a period of 6 months or more. It is expressly agreed that the prevention of settlement of any litigation or strike or labor disturbance shall not be considered a matter subject to Lessee's control within the meaning of this Paragraph.

If the permission or approval of any governmental agency is necessary before drilling or producing operations may be commenced pursuant to the leased rights, then if such permission or approval has been applied for at least thirty (30) days prior to the date upon which such operations must be commenced under the terms hereof, the obligation to commence such operations shall be suspended until ninety (90) days after the governmental permit is granted or approval given, or if such permit or approval is denied initially, then so long as Lessee in good faith appeals from such denial or conducts further proceedings in an attempt to secure such permit or approval and ninety (90) days thereafter. Lessor agrees to fully support and cooperate with Lessee in securing permits and authorizations to conduct geothermal operations on the leased rights, all costs of which shall be borne by Lessee.

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18. All statements of production and royalty and all payments to be made by Lessee hereunder shall be sent to the person hereinafter set forth, at the address indicated:

COLAHAN ENTERPRISE INC.  
P.O. BOX 300  
PAISLEY, OR 97636

Lessee shall, upon written notification of change of ownership in the well or leased rights or in the rentals or royalties hereunder, as provided in Paragraph \_\_\_ above hereof, divide and distribute the same to the new owners of such interest; provided,

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however, that if at any time there are three or more persons entitled to rentals or royalties hereunder, Lessee may, at its option, withhold payment of such rentals or royalties until a majority in interest of such persons designate in writing in a recordable instrument delivered to Lessee, a bank, trust company or corporation, as a common agent and depository, to receive all payments due hereunder to such persons. Such designation may be changed at any time in the same manner. Delivery of all statements and payments hereunder may be made by depositing same in the United States mail duly addressed to Lessor at the above address or addresses or to such agent and depository, which shall constitute full performance of Lessee's obligation to make such delivery.

19. Notice. Any notice herein required, or permitted to be given, or furnished by one party to the other shall be in writing. Delivery of such written notice to Lessor shall be made in person, by depositing the same in the United States mail duly certified or by express delivery and addressed to Lessor at P.O. BOX 300 PAISLEY, OR 97636 and delivery of such written notice to Lessee shall be made in person, by depositing the same in the United States mail duly certified or delivered by express delivery and addressed to Lessee at P.O. BOX 691 ALTURAS, CA 96101. Either party hereto may by written notice to the other party change its address to any other location.

20. Definitions. For the purposes of this Lease the following definitions shall apply:

(a) The terms "Hot Water", "Steam" and "Thermal Energy", collectively referred to as "Energy Produced", each shall mean natural geothermal water and/or steam, and shall also mean the natural heat of the earth and the energy present in, resulting from or created by, or which may be extracted from, the natural heat of the earth or the heat present below the surface of the earth, in whatever form such heat or energy naturally occurs;

(b) The term "Extractable Minerals" shall mean any minerals in solution in the well or effluents and all minerals and gases in solution or in the effluents produced from or by means of the well or any well or wells developed in exercise of the leased rights or by means of condensing steam or processing water produced from the effluents from any such well or wells. Said terms shall also include any water so produced or obtained from condensation or steam; provided, however, that the term "gases" shall not include hydrocarbon gases that can be produced separately from the well effluents;

(c) The term "Leased Substances" shall collectively mean the matter, substances and resources defined in subparagraphs 18(a) and 18(b) that are subject to this Lease;

(d) The term "Geothermal Resources" shall collectively mean the matter, substances and resources defined in subparagraph 18(a) and 18(b) that are not subject to this Lease but are located on adjacent land or lands in reasonable proximity thereto;

(e) The term "Actual Revenues" shall mean the sum of those gross sales derived from the sale of electricity generated from the premises, together with production incentives, carbon credits, green tags, and other quantifiable benefits, that now exist or may exist at some future time, that accrue from use of the geothermal resources or production of electricity from the leased premises, and less third party wheeling costs to disseminate the electricity generated from the premises.

(f) The term "Producing Agricultural Lands" shall mean all crop lands, irrigated lands, or grazing lands (which may or may not be irrigated), holding facilities, operational facilities.

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21. Severability. In the event any part or portion or provision of this instrument shall be found or declared to be null, void or unenforceable for any reason whatsoever by any Court of competent jurisdiction, then and in such event only such part, portion or provision shall be affected thereby, and such finding, ruling or decision shall not in any way affect the remainder of this instrument or any of the other terms or conditions hereof, which said remaining terms and conditions shall remain binding, valid and subsisting and in full force and effect between the parties hereto, it being specifically understood and agreed that the provisions hereof are severable for the purposes of the provisions of this clause. In this connection, this Lease shall not in any event extend beyond such term as may be legally permissible under present applicable laws, and should be any such applicable law limit the term hereof to less than that herein provided, then this Lease shall not be void but shall be deemed to be in existence for such term and no longer.

22. Exclusive Rights. Subject to the the Water Rights associated with the premises which are wholly and exclusively retained by the Lessor and the Lessee's obligations hereunder, including the obligation to re inject all geothermal fluids produced after they are used for the production of electricity and Lessor's uses, Lessee shall have the exclusive rights to all Leased Substances and to all power production from Leased Substances on and/or from leased land during the term hereof, subject only to payment of the rents and royalties to Lessor as set forth herein, and other rights and uses as set forth herein.

23. Counterparts. This Lease may be executed in any number of counterparts and all such counterparts shall be deemed to constitute a single lease and the execution of one counterpart by any party Lessor shall have the same force and effect as if such party had signed all the other counterparts.

24. Binding Effect. This Geothermal Lease and Agreement and all of the terms, covenants and conditions hereof shall extend to the benefit of and be binding upon the respective heirs, personal representatives, successors and assigns of the parties hereto.

25. Memorandum of Lease. This lease agreement shall not be recorded. Lessee and Lessor shall, concurrently with execution of this lease, execute and cause to be acknowledged a Memorandum of Geothermal Lease and Agreement approved by Lessee and Lessor, which Memorandum shall be recorded in the official records of the county in which the leased land is located.

26. This lease and agreement shall be interpreted, governed by and construed under the laws of the state of Oregon, without consideration of any conflicts of law between the location of the parties or states of domicile thereof.

*[The remainder of this page is intentionally left blank]*

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IN WITNESS WHEREOF, the parties have caused this instrument to be duly executed as of the date hereinabove first written.

On behalf of,  
COLAHAN ENTERPRISES INC.

On behalf of,  
SURPRISE VALLEY ELECTRIFICATION  
CORP.

*Erin K. Douglas*  
Erin K. Douglas, Secretary  
Lessor

*Daniel W. Silveria*  
Daniel W. Silveria, General Manager  
Lessee

*Oregon*  
State of ~~California~~ )  
County of ~~Medoc~~ *Rabe* )



On this 24<sup>th</sup> day of September, 2010 before me,

the undersigned Notary Public, personally appeared Daniel W. Silveria  
( ) personally known to me  
 proved to me on the basis of satisfactory evidence to be the person(s) whole name(s) Daniel W. Silveria subscribed to the within instrument, and acknowledged that Daniel W. Silveria, executed it.  
WITNESS my hand and official seal.

*Monica Weidner*

Notary's Signature

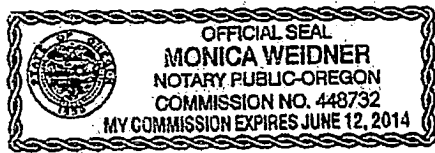
Commission Expires: *June 12, 2014*

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State of Oregon )  
County of Lake )



On this 24<sup>th</sup> day of September, 2010, before me,

the undersigned Notary Public, personally appeared  
( ) personally known to me  
 proved to me on the basis of satisfactory evidence to be the person(s) whole name(s) Erin K. Douglas subscribed to the within instrument, and acknowledged that Erin K. Douglas executed it.  
WITNESS my hand and official seal.

*Monica Weidner*

Notary's Signature

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Recording requested by  
and when recorded mail to:

*Re-Recorded to  
Add Exhibit 'A'* ~~M0711742~~

*489*  
~~225~~  
489

Surprise Valley Electrification Corp.  
Attn: Daniel W. Silveria  
P.O. Box 691  
Alturas, CA 96101

~~M0711101~~  
M0711742

*Re-Recorded to  
Correct Exhibit 'A'*

130476

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**MEMORANDUM OF GEOTHERMAL LEASE AGREEMENT**

*2010*  
THIS MEMORANDUM OF GEOTHERMAL LEASE AGREEMENT (this "Memorandum") is made and entered into as of *Sept 24 2010*, 2010, by and between COLAHAN ENTERPRISES INC., P.O. Box 309 Paisley, OR 97636 "Landowner" and SURPRISE VALLEY ELECTRIFICATION CORP., a Rural Electric Cooperative, Incorporated under IRS 501(c)(12), P.O. Box 691, Alturas, CA 96101 ("Lessee"), with reference to that certain unrecorded Geothermal Lease Agreement for Colahan Enterprises Inc. dated *Sept 24 2010* Assessor's Parcel No.'s 33S18E-203, 33S18E-801, 33S18E-802, 33S18E-1200, 33S18E-1300 (sec 23), 33S18E-1303, 33S18E-1300 (sec 24), situated in Lake County, Oregon, more particularly described on Exhibit A.

Any capitalized terms used and not defined herein shall have the meaning given such terms in the Lease.

Notice is hereby given that, pursuant to the Lease, Landowner has leased the real property described in Exhibit "A" attached hereto and incorporated herein to Lessee for the sole and exclusive right to utilize the leased rights, including but not limited to the right to explore for, drill for, test, develop, operate produce, extract, take, remove, or sell Hot Water, Steam, and Thermal Energy, and Extractable Minerals, and to store, utilize, process, convert and otherwise treat such Hot Water, Steam and Thermal Energy, and to extract any Extractable Minerals during the term hereof and to transport same, and to inject or reinject effluents into the well or any wells drilled pursuant to the leased rights; or inject water, gas or other fluid or substances by artificial means into formations containing Hot Water, Steam, or Thermal Energy as agreed to in the body of the lease agreement.

The initial term of the Lease shall be for five (5) years from and after the date hereof, referred to as the "Primary Term", and so long thereafter as electricity is produced in commercial quantities from the well or through the leased rights, or lands, and for so long as Lessee is prevented from producing same, or the obligations of Lessee hereunder are suspended, for the causes hereinafter set forth, or this Lease is continued in force by reason of any other provision hereof.

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Landowner and Lessee hereby ratify and adopt the Lease, and agree to be bound by all of the terms and provisions thereof.

This Memorandum and the Lease, and all of the terms and provisions hereof and thereof shall run with the land and shall be binding upon and inure to the benefit of the Landowner and Lessee and their respective successors and assigns.

Reference is hereby made to executed copies of the Lease in the possession of the Landowner and Lessee, respectively, for all of the terms and provisions thereof, and such terms and provisions are incorporated herein and made a part hereof in all respects as though fully set forth herein. This Memorandum is prepared for the purpose of recordation only, and in no way modifies the terms or provisions of the Lease. If there is any inconsistency between this Memorandum and the terms and provisions of the Lease, the terms and provisions of the Lease shall control. This Memorandum may be executed in multiple counterparts, all of which shall constitute one and the same Memorandum.

(SIGNATURES ON NEXT PAGE)

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IN WITNESS WHEREOF, Landowner and Lessee have executed this Memorandum as of the date first set forth above.

On behalf of,  
COLAHAN ENTERPRISES INC.

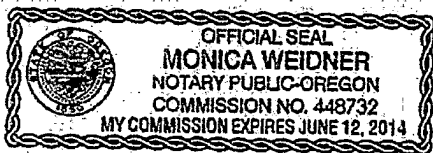
On behalf of,  
SURPRISE VALLEY  
ELECTRIFICATION CORP.

*Erin K Douglas*  
Lessor

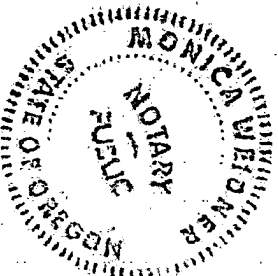
*Daniel W. Silveria*  
Daniel W. Silveria, General Manager  
Lessee

*Oregon*  
State of ~~California~~ )  
County of ~~Modoc~~ *Lake* )

On this 24 day of Sept, 2010 before me,



the undersigned Notary Public, personally appeared Daniel W. Silveria  
( ) personally known to me  
 proved to me on the basis of satisfactory evidence to be the person(s) whole name(s) Daniel W. Silveria subscribed to the within instrument, and acknowledged that Daniel W. Silveria, executed it.  
WITNESS my hand and official seal.



*Monica Weidner*  
Notary's Signature  
Commission Expires: June 12, 2014

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State of Oregon )  
County of Lake )

on this 24 day of Sept, 2010, before me,



the undersigned Notary Public, personally appeared Erin K Douglas  
( ) personally known to me  
 proved to me on the basis of satisfactory evidence to be the person(s) whole name(s) subscribed to the within instrument, and acknowledged that executed it.  
WITNESS my hand and official seal.



*Monica Weidner*  
Notary's Signature  
Commission Expires: June 12, 2014

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STATE OF OREGON, COUNTY OF LAKE

I hereby certify that the within document was received and filed for record this 24 day of September 2010

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Commission Expires: \_\_\_\_\_

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EXHIBIT A

Lands located in Lake County, Oregon

Tax Lot # 33S18E000130000 and 33S18E000130300  
Township 33 South, Range 18 East of the Willamette Meridian

Section 23:

NE 1/4, SE 1/4 NW 1/4, SE 1/4 SW 1/4, SW 1/4 SE 1/4 excepting deed recorded in Book 53 at page 635 of Record of Deeds  
N 1/2 SW 1/4

That portion of NE 1/4 SE 1/4 of said Section 23 lying North of the Chewaucan River, excepting therefrom that portion of said NE 1/4 SE 1/4 contained in a deed from Northwest Townsite Company to Kittie Loveland recorded in Book 52 at page 593 of the Record of Deeds.

Section 24:

N 1/2 NE 1/4, SW 1/4 NE 1/4, NW 1/4, excepting a tract of land conveyed to State of Oregon in Book 79 at page 395 of Record of Deeds and highway right-of-way.

That portion of NW 1/4 SW 1/4 of said Section 24 lying North of the extension of Mill Street in Paisley, Oregon, excepting therefrom those tracts of land heretofore conveyed by Northwest Townsite Company and its predecessors in interest recorded in Book 44 at Page 95, Book 51 at pages 10, 432 and 549; Book 52 at page 593; Book 53 at page 147; Book 56 at page 504; Book 62 at page 386 of the Record of Deeds

Section 26:

NW 1/4 NW 1/4

Tax Lot # 33S18E000120000

SW 1/4 SW 1/4 of Section 23, Township 33 South, Range 18 East, Willamette Meridian.

Tax Lot #33S18E24C0010000

All that tract or parcel of land in Sections 23 and 24, Township 33 South, Range 18 East of the Willamette Meridian, bounded band described as follows: Beginning at a point on the section line between said sections 23 and 24 South 0 degrees 14 minutes West, 550.84 feet from the quarter corner between said sections 23 and 24, and 15 feet from the mill race of the Chewaucan Mills, thence parallel and 15 feet from said Mill race, North 32 degrees 25 minutes East, 121.95 feet; thence North 40 degrees 45 minutes East, 67.20 feet; thence North 54 degrees 54 minutes East, 85 feet; thence North 74 degrees 16 minutes East, 62.90 feet to a flood channel of the Chewaucan River South 15 degrees 44 minutes East, 27.20 feet; thence southwesterly along the bank of said flood channel to said section line; thence along the north bank of the river westerly about 75 feet; thence North 51 degrees 39 minutes East 73 feet, more or less, to a point and place of beginning, containing one acre, more or less.

Tax Lot #33S18E000139900

A parcel of land lying in the S 1/2 of the NW 1/4 of Section 24, Township 33 South, Range 18 East, Willamette Meridian, Lake County, Oregon, and being that property described in that deed to Ross A. Colahan, recorded in Book 205, Page 230 of Lake County Record of deeds. (Which deed references a prior deed, to the State of Oregon, recorded in Book 79, Page 395 of the Lake County Record of Deeds.)

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EXCEPTING and otherwise excluding, that certain real property described as Tax Lot #33S18E24C0070000 in the property tax records of Lake County, Oregon.

AND EXCEPTING those mineral rights accruing to the following real property parcels that are otherwise retained by the United States of America.

Tax Lot #33S18E000080100 and 33S18E000080200

Township 33 South, Range 18 East of the Willamette Meridian

Section 14: SE 1/4 SE 1/4

Section 23: NE 1/4 NW 1/4

Tax Lot #33S18E000020300

Township 33 South, Range 18 East of the Willamette Meridian

Section 13: W 1/2 SW 1/4 SW 1/4

Section 13: SE 1/4 SW 1/4 SW 1/4

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State of Oregon } Real File 71  
County of Lake } ss. File 1742

I hereby certify that the within instrument was received and filed for record on the 3 day of Nov 20 10 at 10:30 o'clock a M. and recorded on page 489 in book 275 record of Weeds of said County

Paul Krawen  
County Clerk

By Merrilee Weidner Deputy

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ATTACHMENT D  
**Property Deed**

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KNOW ALL MEN BY THESE PRESENTS, That ROSS M. COLAHAN and DORIS COLAHAN, husband and wife,

hereinafter called the grantor, for the consideration hereinafter stated, to grantor paid by COLAHAN ENTERPRISES, INC. an Oregon corporation,

hereinafter called the grantee, does hereby grant, bargain, sell and convey unto the said grantee and grantee's heirs, successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereto belonging or appertaining, situated in the County of Lake and State of Oregon, described as follows, to-wit:

Township 33 South, Range 10 East of the Willamette Meridian Section 23: NE1/4, SE1/4, SW1/4, SW1/4, SW1/4 excepting dead recorded in Book 53 at page 635 of Record of Deeds.

Section 24: NE1/4, SW1/4, NW1/4, excepting a tract of land conveyed to State of Oregon in Book 79 at page 395 of Record of Deeds and highway right-of-way.

Section 26: NW1/4 That portion of NW1/4 of said Section 24 lying North of the extension of Mill Street in Paisley, Oregon, excepting therefrom those tracts of land heretofore conveyed by Northwest Townsite Company and its predecessors in interest recorded in Book 44 at page 95, Book 51 at pages 10, 432 and 549; Book 52 at page 593; Book 53 at page 147; Book 56 at page 204; Book 62 at page 396 of the Record of Deeds.

SUBJECT TO all reservations, restrictions, easements and rights-of-way of record or apparent on the ground, including, but not limited to, reservation of one-half of all gas, coal, oil and other sub-surface minerals, together with right to take and remove.

To Have and to Hold the same unto the said grantee and grantee's heirs, successors and assigns forever. And said grantor hereby covenants to and with said grantee and grantee's heirs, successors and assigns, that grantor is lawfully seized in fee simple of the above granted premises, free from all encumbrances.

and that grantor will warrant and forever defend the above granted premises and every part and parcel thereof against the lawful claims and demands of all persons whatsoever, except those claiming under the above described encumbrances.

The true and actual consideration paid for this transfer, stated in terms of dollars, is \$1.00 However, the actual consideration consists of or includes other property or value given or promised which is the whole consideration (indicate which).

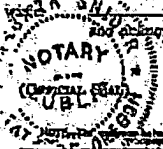
In executing this deed and where the context so requires, the singular includes the plural. WITNESS granted on this 1st day of April, 1981.

Ross M. Colahan, David Colahan

STATE OF OREGON, County of Lake, April 1, 1981

Personally appeared the above named Ross M. Colahan and David Colahan, husband and wife

and acknowledged the foregoing instrument to be voluntary act and deed.



Before me, Barbara J. Soudier, Notary Public for Oregon, My commission expires 9-10-82.

STATE OF OREGON, County of Lake, April 1, 1981. I certify that the within instrument was received for record on the 3 day of August, 1981, at 11:45 o'clock A.M., and recorded in Book 222 or its duplicate/fee/file/Instrument/serial/lot No. Record of Deeds of said county. Witness my hand and seal of County aforesaid. Karen O'Connor, Clerk. By Deputy



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**ATTACHMENT E**

**Well Logs**

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G-18575



# LAKE 52530

WELL I.D. # L \_\_\_\_\_

(1) **LAND OWNER** Well Number SVE #1  
 Name Solaban Enterprises  
 Address P.O. Box 300  
 City Paisley State OR Zip 97636

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

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

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

(5) **BORE HOLE CONSTRUCTION:**  
 Special Construction approval  Yes  No Depth of Completed Well 1360 ft.  
 Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE		SEAL			
Diameter	From To	Material	From To	Sacks	or pounds
	0 1360		0 900		

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

Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

(6) **CASING/LINER:**

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13 3/8"	0	900	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liner:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Drive Shoe used  Inside  Outside  None  
 Final location of shoe(s) \_\_\_\_\_

(7) **PERFORATIONS/SCREENS:**

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>

(8) **WELL TESTS:** Minimum testing time is 1 hour  
 Pump  Bailor  Air  Flowing  Artesian  
 Yield gal/min \_\_\_\_\_ Drawdown \_\_\_\_\_ Drill stem at \_\_\_\_\_ Time \_\_\_\_\_  
~ 1,000 \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ 1 hr.

Temperature of water \_\_\_\_\_ Depth Artesian Flow Found \_\_\_\_\_  
 Was a water analysis done?  Yes By whom \_\_\_\_\_  
 Did any strata contain water not suitable for intended use?  Too little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
 Depth of strata: \_\_\_\_\_

(9) **LOCATION OF WELL by legal description:**  
 County LAKE Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
 Township 33 S N or S Range 18 E (B) or W. WM.  
 Section 23 1/4 \_\_\_\_\_ 1/4 \_\_\_\_\_  
 Tax Lot \_\_\_\_\_ Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
 Street Address of Well (or nearest address) 2,050 ft N & 1,370 ft E from SW corner of section 23

(10) **STATIC WATER LEVEL:**  
 \_\_\_\_\_ ft. below land surface. Date \_\_\_\_\_  
 Artesian pressure \_\_\_\_\_ lb. per square inch Date \_\_\_\_\_

(11) **WATER BEARING ZONES:**  
 Depth at which water was first found \_\_\_\_\_

From	To	Estimated Flow Rate	SWL

(12) **WELL LOG:**  
 Ground Elevation \_\_\_\_\_

Material	From	To	SWL

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Date started \_\_\_\_\_ Completed \_\_\_\_\_

**SOURCE OF DATA/INFO**  
File T-11860  
File LL-1450

**COMPILED BY:** Gerald Gordin  
OWRD Groundwater Section

**DATE:** 22 July 2014

## WELL INFORMATION REPORT 11/16/2000

6-18595

# LAKE 52530

## LITHOGRAPHIC DESCRIPTION OF OIL OR GAS WELL (Not required if a mud log is submitted)

STATE OF OREGON • DEPT OF GEOLOGY & MINERAL INDUSTRIES • 229 BROADALBIN ST SW • ALBANY OR 97321

(In compliance with rules and regulations pursuant to ORS 520.)

### (1) Permittee Information

Name	Surprise Valley Electrification Corp.
Mailing Address	516 US Hwy 395 E
City/State/Zip	Alturas, CA 96101
Telephone	530.233.3511
Fax	530.233.2190
Email	lynnsvec@frontier.com
Prepared by	Lynn Culp, Silvio Pezzopane, Roy Mink, Kyle Makovsky

### (2) Well Information

Well No.	SVE #1
DOGAMI ID No.	36-037-90009 Lake 448

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General Manager

5/29/2012

Signature

Title

Date

### (3) Well Cuttings

Depth		Description
From	To	
0	40	Brown clay soil and gravelly sand
40	75	Brownish-grey rounded mixed volcanic (basalt, rhyolite, andesite, tuff, pumice) gravel, qtz-rich sand
75	105	Grey quartz-rich sand, with thin brown and grey clay beds, Water Bearing (WB)
105	150	Greyish-brown mixed volcanic gravel, qtz-sand, and clay, WB
150	165	Brown mixed volcanic (basalt, rhyolite, andesite) gravel, rounded sand and clay
165	175	Brown clayey sand and mixed gravels
175	225	Blackish grey basalt gravel, w/ sand and clay beds, WB
225	240	Blackish grey to brown basalt and andesite gravel, and sand
240	305	Varicolored mixed volcanic (basalt, rhyolite, andesite, tuff) gravel and sand, w/ brown clay beds
305	360	Brown gravelly sand and brown clay beds
360	390	Varicolored (grey, brown, black, red, green) basalt, rhyolite, andesite gravel, sand, and brown clay, WB
390	415	Brownish grey and red volcanic gravel, sand, and clay, WB
415	435	Varicolored mixed volcanic gravel (basalt, rhyolite, andesite, tuff), rounded, reddish brown sand and clay
435	490	Varicolored coarse volcanic gravel, rounded, red to brown sand, brown sticky clay beds
490	530	Varicolored volcanic pebble gravel, rounded, w/ sand and reddish brown sticky clay
530	540	White calcite, black and grey basalt andesite, red rhyolite, red and grey tuff w/ brownish red sticky clay
540	575	Red sticky clay ash, vesicular and fibrous pumice clasts, minor sand, grey pebbles
575	640	Red and grey tuffs w/ altered vesicles, minor grey to greenish to black basalt, andesite, rhyolite, WB?
640	675	Red rhyolite tuff and grey andesite w/ altered vesicles, greenish basalt, blades of calcite
675	715	Light grey basalt, reddish brown and green alteration stains, altered vesicles, pyrite, euhedral calcite and quartz
715	715	Light greyish green rhyolite, reddish brown to dark purple basalt?, altered vesicles, pyrite, calcite and quartz
715	795	Dark greenish grey andesite?, dark purplish brown basalt, minor light red and white tuff, rare euhedral quartz
795	870	Dark grey to brown basalt w/ white pumice chunks, rare red and white tuff cinders, rare euhedral quartz
870	905	Dark greenish grey to dark purplish brown basalt, few pumice, rare euhedral and calcite quartz
905	920	Grey to white calcite flakes, possible fracture zone? no rock data - lost circulation, samples floated up during trip out
920	950	Brown sticky slick clay ash, large (<2 cm dia.) euhedral calcite chunks, red cinders and pumice, dries hard
950	1000	Purple, grey, and brown lithic tuff, poorly-welded?, soft waxy, sticky ashy clay, small calcite and quartz crystals
1000	1050	Green, grey, and brown andesite, alteration stains, red lithic tuff, cinders?, large euhedral calcite and quartz crystals
1050	1080	Dark greenish grey andesite, reddish purple stains, hard, fine-grained, large euhedral calcite flakes (fractures?)
1080	1100	no data - no returns
1100	1100	Red, grey, white, and brown lithic tuff or volcanoclastic sediment (depth uncertain, samples floated up during cleaning)
1100	1120	no data - no returns - lost circulation
1120	1120	Dark greenish grey andesite, reddish purple clay? stains, hard, fine-grained, red lithic tuff w/ euhedral quartz crystals, (depth uncertain, sample picked out of the drill collar)
1120	1133	no data - no returns
1133	1133	Reddish brown, lithic tuff, poorly-welded?, sticky clay, dries hard, small calcite and quartz crystals (depth uncertain, sample stuck to the drill bit face)
1133	1235	no data - no returns
1235	1315	Dark greenish grey andesite, red lithic tuff, euhedral quartz crystals, (depth uncertain, sample stuck to the bailer)
1315	1360	no data - no returns
	1360	- Total Depth

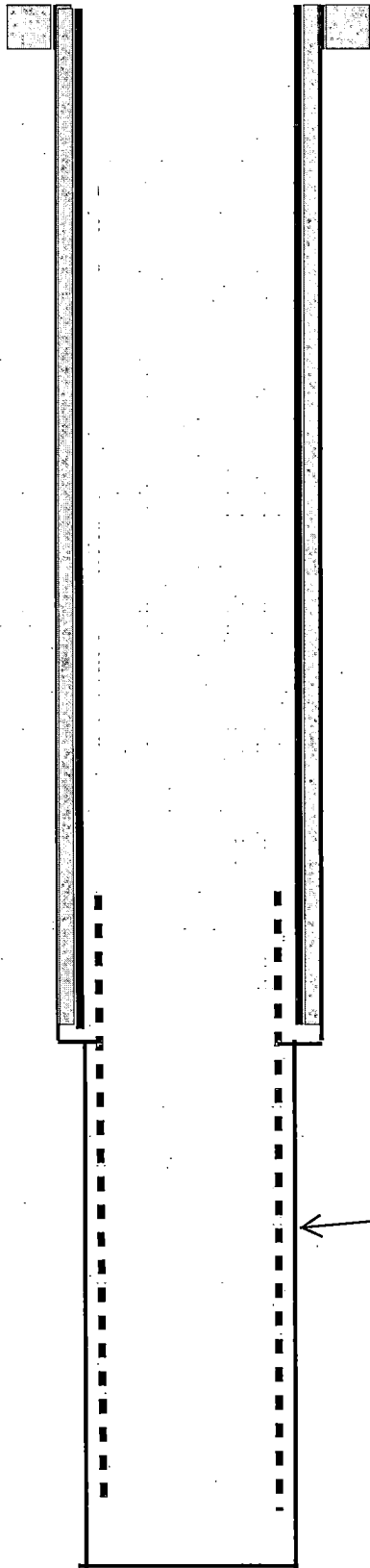
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# Surprise Valley Electric Well #1 Lake 4448 Completion Diagram



0-40ft. 24" Hole.  
20" Conductor Casing.  
Type 2 Cement.

40-900ft. 17.5" Hole.  
0-900ft. 13 3/8" Casing.  
Type G Cement, 470 sacks

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806-1310ft. 9 5/8" Slotted Casing.

900ft. End 13 3/8" Casing.  
900-1360 12 1/4" Hole.

Open Hole

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1310ft. End 9 5/8" Casing.

Drill depth end at 1360ft.

**SUMMARY REPORT - OIL OR GAS WELL**  
**STATE OF OREGON • DEPT OF GEOLOGY & MINERAL INDUSTRIES • 229 BROADALBIN ST SW • ALBANY OR 97321**

(In compliance with rules and regulations pursuant to ORS 520.)

**(1) Permittee Information**

Name	Surprise Valley Electrification Corp.
Mailing Address	516 US HWY 395 E
City/State/Zip	Alturas, CA 96101
Telephone	530.233.3511
Fax	530.233.2190
Email	lynnsvec@frontier.com
Prepared by	Lynn Culp

**(2) Well Information**

Well No.	SVE #1
DOGAMI ID No.	Lake 4448
Drilling Commenced	April 26, 2011
Drilling Completed	October 4, 2011
Date P & A	February 8, 2011
Total Depth	1360 ft
Redrill Depth	
Logs Run	

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**General Manager**

*Signature*

*Title*

*Date*

**(3) Casing Record**

Size of Hole	Size of Casing	Weight (pounds per foot)	Grade/Type	Depth	Type and Amount of Cement	
24"	20"	65	A53B	40ft	Type 2	
17.5"	13 3/8"	54	J55	900ft	Type G	470 sk
12.25"	9 5/8"	36	J55	1360ft		bbls.
						bbls.

**(4) Plugs & Junk**

Plugs / Junk	Geological Marker	Depth

**(5) Perforations or Liner**

Size of Casing	From	To	Shots/ft.	Method of Perforating		
				Jet	Bullet	Slotted Line
9 5/8"	806'	1310'				2.5" slots 6" centers

**(6) Initial Production**

Date	Clean Oil (bbl/day)	Gravity	Percent Water	FTP	FCP	SITP	SICP

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# LAKE 52529

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WELL I.D. # L

**(1) LAND OWNER** Well Number SVE #2  
 Name Colahan Enterprises  
 Address P.O. Box 300  
 City Paisley State OR Zip 97636

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

**(3) DRILL METHOD:**  
 Rotary Air  Rotary Mud  Cable  Auger  
 Other

**(4) PROPOSED USE:**  
 Domestic  Community  Industrial  Irrigation  
 Thermal  Injection  Livestock  Other

**(5) BORE HOLE CONSTRUCTION:**  
 Special Construction approval  Yes  No Depth of Completed Well 1260 ft.  
 Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE		SEAL				
Diameter	From	To	Material	From	To	Secks or pounds
	0	1260		0	495	

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

Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

**(6) CASING/LINER:**

Diameter	From	To	Gauge	Material			
				Steel	Plastic	Welded	Threaded
Casing:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13 3/8"	0	495	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liner:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Drive Shoe used  Inside  Outside  None  
 Final location of shoe(s) \_\_\_\_\_

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

From	To	Slot size	Number	Diameter	Tube/plpe size	Casing	Liner
						<input type="checkbox"/>	<input type="checkbox"/>

**(8) WELL TESTS: Minimum testing time is 1 hour**  
 Pump  Bailor  Air  Flowing  Artesian  
 Yield gal/min \_\_\_\_\_ Drawdowns \_\_\_\_\_ Drill stem at \_\_\_\_\_ Time 1 hr.  
~2,000

Temperature of water \_\_\_\_\_ Depth Artesian Flow Found \_\_\_\_\_  
 Was a water analysis done?  Yes By whom \_\_\_\_\_  
 Did any strata contain water not suitable for intended use?  Too little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
 Depth of strata: \_\_\_\_\_

**(9) LOCATION OF WELL by legal description:**  
 County LAKE Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
 Township 33S N or S Range 18E  B or W. WM.  
 Section 23 1/4 \_\_\_\_\_ 1/4 \_\_\_\_\_  
 Tax Lot \_\_\_\_\_ Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
 Street Address of Well (or nearest address) 2,665 ft N x 1,725 ft W  
from SE corner of section 23

**(10) STATIC WATER LEVEL:**  
 \_\_\_\_\_ ft. below land surface. Date \_\_\_\_\_  
 Artesian pressure \_\_\_\_\_ lb. per square inch Date \_\_\_\_\_

**(11) WATER BEARING ZONES:**  
 Depth at which water was first found \_\_\_\_\_

From	To	Estimated Flow Rate	SWL

**(12) WELL LOG:**  
 Ground Elevation \_\_\_\_\_

Material	From	To	SWL
See attached			

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Date started \_\_\_\_\_ Completed \_\_\_\_\_

**SOURCE OF DATA/INFO**  
 \_\_\_\_\_  
File T-11860  
File LL-1450

**COMPILED BY: Gerald Grandin**  
OWRD Groundwater Section

DATE: 22 July 2014

## WELL INFORMATION REPORT

11/16/2000

G-18595

# LAKE 52529

## LITHOGRAPHIC DESCRIPTION OF OIL OR GAS WELL (Not required if a mud log is submitted)

STATE OF OREGON • DEPT OF GEOLOGY & MINERAL INDUSTRIES • 229 BROADALBIN ST SW • ALBANY OR 97321

(In compliance with rules and regulations pursuant to ORS 520.)

### (1) Permittee Information

Name	Surprise Valley Electrification Corp.
Mailing Address	516 US Hwy 395 E.
City/State/Zip	Alturas, CA 96101
Telephone	530.233.3511
Fax	530.233.2190
Email	lynnsvec@frontier.com
Prepared by	Lynn Culp, Kyle Makovsky, Roy Mink, Silvio Pezzopane

### (2) Well Information

Well No.	SVE #2
DOGAMI ID No.	36-037-90027 Lake 1628

General Manager

5/29/2012

Signature

Title

Date

### (3) Well Cuttings

Depth		Description
From	To	
0	40	Brown clay soil and gravelly sand
40	60	Light brown ash fragments, reddish rhyolite, black basalt, minor calcite/quartz
60	80	Light brown/grey ash, red rhyolite, black basalt, cinders, rounded grains, black and red cuttings magnetic
80	105	Light grey/brown ash, red rhyolite, black basalt, rounded grains, chert and obsidian magnetic
105	125	Light grey/brown ash, red rhyolite, black basalt, rounded grains, purple, orange alteration, green stone
125	155	Grey/brown ash, red rhyolite, black basalt, rounded grains, black and grey chips magnetic, light tan pumice fragments
155	185	Grey/brown ash, red rhyolite, black basalt, magnetic, white/grey pumice green stone, minor alteration stains
185	210	Grey/brown rhyolite, red rhyolite with alteration, black basalt, white/grey pumice
210	245	Grey/brown rhyolite, red rhyolite, black basalt, light brown pumice
245	300	Grey/brown rhyolite, red and brown rhyolite, black basalt, pumice, rounded grains
300	340	Brown/grey rhyolite, rounded w/ some alteration, light grey tuff, black basalt/rhyolite; light grey tuff, feldspar chips
340	360	Grey/light brown rhyolite, dark grey/black rhyolite, light red/yellow altered rhyolite, some chips rounded
360	410	Grey/brown rhyolite, dark grey/black basalt, light red/yellow altered rhyolite, grey/white pumice, rounded pebbles
410	420	Black basalt, light brown rhyolite, some alteration
425	430	no data - no returns
435	460	Black basalt, light brown/grey rhyolite; red altered rhyolite
460	465	Fine sand of light brown/grey rhyolite, black basalt/rhyolite; light brown/red altered rhyolite
465	475	Light brown/grey rhyolite, black basalt/rhyolite, yellow/red altered rhyolite
475	490	Large amount fine sand, smaller cuttings are same as above with white alteration/pumice
490	510	Altered tuff, light grey to reddish brown to dark brown, waxy texture, amorphous silica present
510	530	no data - no returns
530	565	Dark to light gray basalt, andesite, white and green alteration minerals
565	620	Porphyritic basalt and andesite, pink/dark green/white alteration, opaline quartz, amorphous silica, calcite rhombs
620	695	Dark gray, green, purple, and red basalt, amorphous silica, euhedral quartz, and calcite in vesicles
695	710	Porphyritic andesite, opaline quartz
710	790	Gray green and red basalt, altered, fibrous banded white mineral, calcite rhombs, crystalline and opaline quartz
790	800	Olivine rich basalt, little alteration
800	815	Porphyritic andesite and basalt rock, highly altered, clear crystalline quartz, banded alteration
815	845	Amygdaloidal basalt, amygdules are green, white banded, botryoidal texture, calcite grains
845	890	Gray basalt, little to no alteration
890	905	Vesicular/amygdaloidal basalt, high amount of crystalline quartz filling vesicles
905	920	Basalt with pyrite mineralization
920	930	Gray basaltic andesite
930	960	Gray/red/purple basalt, calcite rhombs, some amygdaloidal calcite
960	1010	Dark gray and green basalt, calcite rhombs
1010	1070	Highly altered vesicular/amygdaloidal basalt, pyrite mineralization, dark green/white/pink alteration minerals
1070	1260	no data - no returns
	1260	- Total Depth

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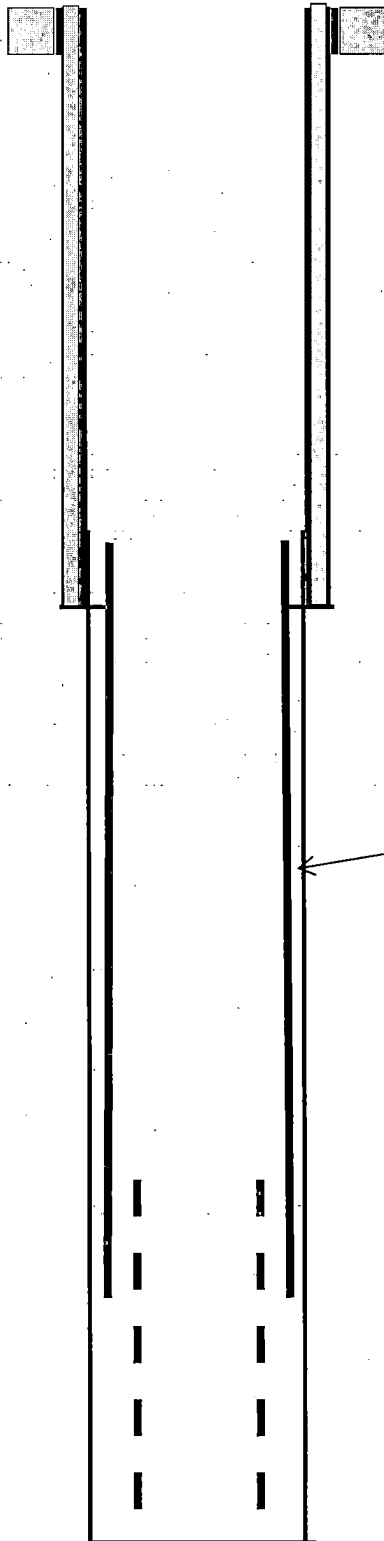
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Surprise Valley Electric Well #2 Lake 1628  
Completion Diagram

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0-40ft. 24" Hole.  
20" Conductor Casing.  
Type 2 Cement.

0-495ft. 17.5" Hole.  
0-495ft. 13 3/8" Casing.  
Type G Cement 240 sacks

445-1046ft. 9 5/8" Slotted Casing.

495ft. End 13 3/8" Casing.  
900-1260ft 12 1/4" Hole.

Open hole

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940-1210ft. 7" Perforated Casing.

1046ft. End 9 5/8" Casing.

1210ft. End 7" Casing.

Drill depth end at 1260ft.

G-18595

**SUMMARY REPORT - OIL OR GAS WELL**  
**STATE OF OREGON • DEPT OF GEOLOGY & MINERAL INDUSTRIES • 229 BROADALBIN ST SW • ALBANY OR 97321**

(In compliance with rules and regulations pursuant to ORS 520.)

**(1) Permittee Information**

Name	Surprise Valley Electrification Corp.
Mailing Address	516 US HWY 395 E
City/State/Zip	Alturas, CA 96101
Telephone	530.233.3511
Fax	530.233.2190
Email	lynnsvec@frontier.com
Prepared by	Lynn Culp

**(2) Well Information**

Well No.	SVE #2
DOGAMI ID No.	Lake 1628
Drilling Commenced	April 26, 2011
Drilling Completed	February 9, 2012
Date P & A	May 2, 2011
Total Depth	1260 ft
Redrill Depth	
Logs Run	

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**General Manager**

Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

**(3) Casing Record**

Size of Hole	Size of Casing	Weight (pounds per foot)	Grade/Type	Depth	Type and Amount of Cement
24"	20"	65	A53B	40ft	Type 2
17.5"	13 3/8"	54	J55	495ft	Type G 240 sks
12.25"	9 5/8"	36	J55	1046ft	
	7"	23	K55 LT&C	1210ft	bbls..

**(4) Plugs & Junk**

Plugs / Junk	Geological Marker	Depth

**(5) Perforations or Liner**

Size of Casing	From	To	Shots/ft.	Method of Perforating		
				Jet	Bullet	Slotted Line
9 5/8"	445'	1046'				2.5" slots 6" centers
7"	940	1210				.5" holes/40 holes per ft

**(6) Initial Production**

Date	Clean Oil (bbl/day)	Gravity	Percent Water	FTP	FCP	SITP	SICP

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**INJECTION WELL - SVE-3**

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G-18598-

LITHOGRAPHIC DESCRIPTION OF OIL OR GAS WELL

(Not required if a mud log is submitted)

STATE OF OREGON • DEPT OF GEOLOGY & MINERAL INDUSTRIES • 229 BROADALBIN ST SW • ALBANY OR 97321

(In compliance with rules and regulations pursuant to ORS 520.)

(1) Permittee Information

Name	Surprise Valley Electric
Mailing Address	516 U.S. Hwy. 395E
City/State/Zip	Alturas, California 96101
Telephone	866-843-2667 530-233-3511
Fax	
Email	
Prepared by	Lynn Culp, Roy Mink, Silvio Pezzopane

(2) Well Information

Well No.	SVE-3
DOGAMI ID No.	

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Signature

Title

Date

(3) Well Cuttings

Depth		Description
From	To	
0	10	Brown sandy soil and gravelly sand; mix of volcanic lithologies (basalt, rhyolite, andesite, tuff, pumice)
10	40	Brownish-gray rounded fine gravel; mixed volcanic (basalt, rhyolite, andesite, obsidian, tuff, pumice), qtz-rich sand
40	100	Brownish-gray rounded medium to coarse (cobble) gravel; mixed volcanic (as above)
100	180	Dark brownish-gray rounded sand and gravel; mixed volcanic (as above)
180	230	Light-dark brownish-gray rounded medium (pebble) gravel; mixed volcanic (as above)
230	310	Brownish-gray rounded sand and coarse gravel; mixed volcanic (as above), qtz and detrital sand, brown silt and clay
310	440	Dark brownish gray rounded basalt gravel; olivine? phenocrysts rusty yellowish green, minor varicolored tuff and cinders
440	460	Brownish-gray rounded sand and medium gravel; mixed volcanic (as above), qtz and detrital sand, brown clay
460	490	Light-dark brownish gray rounded basalt gravel; phenocrysts rusty yellowish green, minor varicolored tuff and cinders
490	560	Brownish-gray rounded medium (pebble) gravel; mixed volcanic lithologies (as above), sand, brown clay
560	600	Brown sticky clay ash; dark brownish gray basalt gravel; weakly cemented qtz sand and ash fragments
600	660	Brownish-gray rounded pebble gravel; mixed volcanic lithologies, sand, brown clay
660	720	Reddish brown sticky clay ash; lithics of varicolored tuff; rounded pebble gravel, white, red, and black cinders; qtz sand
720	820	Grayish brown clay ash; soft red, olive gray to brown tuff; rounded basalt pebble gravel, w/pumicite and obsidian
820	860	Light olive brown clay ash; chunks soft red and brown non-welded tuff; rounded basalt pebble gravel
860	880	Reddish brown clay ash; chunks olive, red, and brown non-welded tuff; rounded pebble gravel, olive green clay coatings
880	920	Light olive to grayish brown clay ash; waxy red, white, and brown tuff and ash fragments; rounded basalt pebble gravel
920	970	Reddish brown clay ash; waxy olive, red, and brown tuff; weakly cemented qtz sand and ash fragments
970	1040	Brown clay ash; white pumicite, qtz sand, rounded olive and red welded tuff granules, cinders and ash fragments
1040	1140	Reddish brown clay ash; chunks of waxy olive, red, and light gray tuff; weakly cemented qtz sand and ash fragments
1140	1240	Red sticky clay ash; lithics of cinders and qtz ash fragments; whitish, red and gray tuff, rounded obsidian/basalt pebbles
1240	1290	Dark olive brown clay ash; red and olive gray non-welded tuff; rounded qtz, obsidian grains
1290	1350	Dark gray clay and ash; red and gray tuff; rounded basalt pebbles; calcite/qtz (chalcedony?) coatings/fillings
1350	1490	Dark olive gray to black, partially-welded vitric lithic tuff; red and gray tuff; clay, calcite/qtz fillings/cement?
1490	1540	Dark olive gray to black, moderately-welded vitric tuff; varicolored tuff lithics; calcite/qtz fillings/cement
1540	1630	Black partially-welded lithic tuff (50%); brown clay ash (20%), varicolored tuff (30%); calcite/qtz blades/fillings/cement
1630	1730	Reddish brown clay ash (60%); black to olive and varicolored tuffs (40%); calcite/qtz euhedral, blades/coatings
1730	1840	Black to dark olive partially-welded lithic tuff (60%); brown and gray tuff (40%); calcite/qtz in blades/fillings/cement
1840	1910	Black to dark olive partially-welded lithic tuff (50%); brown and gray tuff (50%); calcite/qtz in blades/fillings/cement
1910	1920	Reddish brown clay ash (60%); olive to black, and varicolored tuff (30%); calcite/qtz blades, rounded pebbles
1920	1990	Dark gray to black partially-welded tuff (60%); brown and gray ash tuff (40%); calcite/qtz fillings/cement
1990	2090	Olive gray to black moderately-welded vitric tuff (80%); white, red and gray ash tuff (<20%); chalcedony, FeO stains?
2090	2210	Light gray to white ash tuff (90-20%); black to olive gray tuff (20-70%), brown, red, and gray tuff (2-15%); qtz
2210	2370	Dark reddish brown lithic non-welded (ash) tuff (70-90%); red, white, black, and olive gray tuff (10-30%); calcite/qtz
2370	2410	Light bluish to greenish gray ash tuff (90-20%); brown, red, black, white, olive tuff (20-70%); calcite/euhedral qtz
2410	2430	Dark reddish brown lithic ash tuff (50-70%); greenish gray tuff (20-30%); red, gray, and black tuff (10-20%); calcite/qtz
2430	2460	Light bluish to greenish gray ash tuff (90-20%); brown, black, and red lithic tuff (20-70%); euhedral calcite blades/qtz
2460	2580	Dark reddish brown lithic ash tuff (40-50%); greenish gray ash tuff (20-30%), varicolored tuff (10-30%); calcite
2580	2610	Reddish brown tuff (30-40%); olive gray moderately-welded tuff (20-30%); varicolored lithics (20-30%), calcite blades
2610	2630	Reddish brown tuff (30-40%); olive gray densely-welded tuff (20-30%); varicolored lithics (20-30%), calcite blades
2630	2660	Reddish brown tuff (40-50%); olive gray partially-welded tuff (20-30%); varicolored lithics (10-20%), calcite/qtz crystals
2660	2705	no returns - no data
	2705	- Total Vertical Depth (before cleaning)

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**PROPOSED WELL DIAGRAM**  
for  
**Surprise Valley Electric**  
Pasley #3

HOLE Information

CONDUCTOR  
26 in to 40 ft

SURFACE HOLE  
17-1/2 in to 602 ft

PRODUCTION HOLE 1  
12-1/4 in to 2580 ft

open hole  
12 1/4 in to 2705'

CASING Information

CONDUCTOR PIPE  
20 in

Top (12-5/8" Production Liner 12-1/4")

SURFACE CASING  
13-3/4 in 68 ppi 1.35 Sealoffs

PRODUCTION LINER 1  
9-5/8 in 40 ppi, K55, BTC Sealoffs

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7" Perf. Liner 2580'-2692'

8/2014 cleaned hole 2657-2710'  
set 7" perf. liner with  
bull nose and hole @  
2692 ft.

G-18595

**SUMMARY REPORT - OIL OR GAS WELL**  
**STATE OF OREGON • DEPT OF GEOLOGY & MINERAL INDUSTRIES • 229 BROADALBIN ST SW • ALBANY OR 97321**

(In compliance with rules and regulations pursuant to ORS 520.)

**(1) Permittee Information**

Name	Surprise Valley Electrification Corp.
Mailing Address	516 US Hwy 395 E
City/State/Zip	Alturas, CA. 96101
Telephone	530.233.3511
Fax	530.233.2190
Email	lynnsvec@frontier.com
Prepared by	Lynn Culp/George Scheid

**(2) Well Information**

Well No.	SVE Well #3
DOGAMI ID No.	36-037-90032
Drilling Commenced	July 25, 2012
Drilling Completed	August 17, 2012
Date P & A	July 9, 2012
Total Depth	2705ft
Redrill Depth	
Logs Run	

*Signed E. Lynn Culp*

Member Service Manager

November 9, 2012

Signature

Title

Date

**(3) Casing Record**

Size of Hole	Size of Casing	Weight (pounds per foot)	Grade/Type	Depth	Type and Amount of Cement	
26"	20"	104.05	30XS	40'	Type II	159 sx
17 1/2"	13 3/8"	68#	K-55	602'	89.1	bbbs.
12 1/4"	9 5/8"	40#	K-55	2580'	N/A	bbbs.
						bbbs.

**(4) Plugs & Junk**

Plugs / Junk	Geological Marker	Depth

**(5) Perforations or Liner**

Size of Casing	From	To	Shots/ft.	Method of Perforating		
				Jet	Bullet	Slotted Liner
9 5/8"	490'	2580'				

**(6) Initial Production**

Date	Clean Oil (bbl/day)	Gravity	Percent Water	FTP	FCP	SITP	SICP

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ATTACHMENT F

**SVEC UIC Permit (UIC ID 14415)**

---



# Oregon

Theodore R. Kulongoski, Governor

Department of Environmental Quality  
Northwest Region Portland Office  
2020 SW 4th Avenue, Suite 400  
Portland, OR 97201-4987  
(503) 229-5263  
Fax: (503) 229-6945  
TTY: (503) 229-5471

January 5, 2011

Mr. Daniel W. Silveria  
Surprise Valley Electrification Corp.  
P.O. Box 691  
Alturas, CA 96101

Re: Underground Injection Control (UIC) registration for geothermal injection well, near Forest Road 331 & River Road, in Paisley, UIC #14415.

Dear Mr. Silveria:

Thank you for submitting a registration form for the UIC system at your site. The following table shows your UIC identification number combined with the injection system information you submitted. Generally, each facility is issued one UIC number; the various injection systems at that facility are then identified sequentially -1, -2, -3, etc. Please reference this number in future correspondence and retain this letter, or a copy of it, on site, should your facility be inspected.

<i>UIC #</i>	<i>Type Code</i>	<i>Status &amp; Treatment</i>	<i>Location</i>
14415-1	5A5	New geothermal injection well	Forest Road 331 & River Road

Please note that you are required to do the following:

- Update DEQ registration information whenever a change of ownership, change of land use, abandonment or closure of your injection system takes place. If this facility is sold or rented, notify the next owner about the registered injection system.
- Maintain and operate the injection system to protect groundwater resources.
- Notify DEQ of any modifications to the system or WRD permits.

In the event a substance is spilled which may contaminate groundwater, contact the Eastern Region office in Bend at (541) 388-6146, and call Oregon Emergency Management at (503) 378-6377 or (800) 452-0311.

Based on the information you have certified and sent to DEQ, your injection system is authorized by rule under OAR 340-044. Please check with your local government to see if they have additional requirements.

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G-18595



Mr. Daniel W. Silveria  
January 5, 2011  
page 2

If you have any questions about this letter, please contact me at (503) 229-6371, or toll free inside Oregon at 1-800-452-4011.

Sincerely,



David Cole, UIC Hydrogeologist  
DEQ - Water Quality Division

cc: Eric Nigg, WQ Manager, DEQ-ER  
Mike Zwart, Water Resources Department

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G-18595



**SURPRISE VALLEY  
ELECTRIFICATION CORP.**

516 U.S. HWY 395E  
PHONE (530) 233-3511

ALTURAS, CA 96101  
FAX (530) 233-2190



December 27, 2017

Oregon Water Resource Department  
725 Summer St NE, Suite A  
Salem, OR 97301

Dear Permitting Coordinator:

I have obtained the Water Availability Statements from Brian Mayer, District 12 Watermaster, and have attached them to the Limited License applications. I have also included the required maps that were missing from the Limited License applications.

Thank you for your prompt review of our applications.

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Lynn Culp'.

E. Lynn Culp  
Member Service Manager

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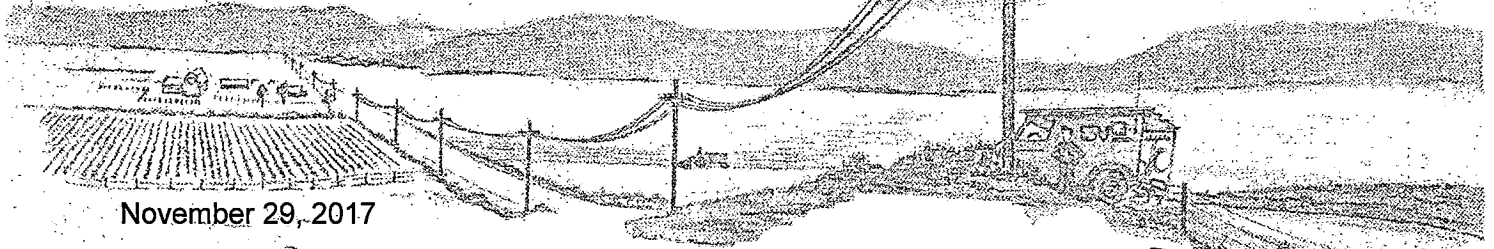




# SURPRISE VALLEY ELECTRIFICATION CORP.

516 U.S. HWY 395E  
PHONE (530) 233-3511

ALTURAS, CA 96101  
FAX (530) 233-2190



November 29, 2017

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Oregon Water Resource Department  
725 Summer St NE, Suite A  
Salem, OR 97301

DEC 04 2017

SALEM, OR

Dear Permitting Coordinator:

Surprise Valley Electrification Corp. ("SVEC") submits this application package to begin the transition of its geothermal well permits from the Oregon Department of Geology and Mineral Resources ("DOGAMI") to the Oregon Water Resources Department ("OWRD").

### Background

In 2011, SVEC obtained permits to drill two geothermal wells from the DOGAMI.<sup>1</sup> SVEC intended for the first well to be a production well and the second well to be a reinjection well. SVEC ultimately determined that those first two wells (SVE #1 DOGAMI ID 36-037-90009 and SVE #2 DOGAMI ID 36-037-90027) would be used for production, and a third well (SVE #3 DOGAMI ID 36-037-90032) would be drilled and used for reinjection. SVEC obtained approval from DOGAMI for its reinjection well in 2014.

Since 2015, SVEC has relied on the geothermal wells for the production of energy at its geothermal plant in Paisley, Oregon. DOGAMI has recently indicated that it would prefer to transfer jurisdiction of the geothermal wells to OWRD.

### Contents of Application Package

To facilitate the transfer of authority for the geothermal wells from DOGAMI to OWRD, SVEC has prepared an application package designed to request authority from OWRD to continue operation of its geothermal wells. Additionally, SVEC is requesting limited license authority to operate the wells to "bridge the gap" pending approval of SVEC's permit applications.

<sup>1</sup> The temperature of SVEC's wells range from 225-240 °F. Initially SVEC and DOGAMI expected that they may be hotter, but testing has demonstrated that they were consistently below 250 °F. The threshold for DOGAMI's jurisdiction is 250 °F, and the OWRD has jurisdiction for any geothermal wells below 250 °F. In 2012, OWRD and DOGAMI executed a memorandum of agreement indicating that DOGAMI would have authority for the wells, despite the well temperature being below the threshold for DOGAMI jurisdiction.

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Accordingly, this application package consists of both permit applications and limited license applications, and includes the following components:

- Permit application for industrial use of groundwater (and limited license application for same)
- Permit application for reinjection well (and limited license application for same)
- Permit for consumptive use of groundwater to use as cooling water in the generation of electricity in an amount up to 300 gallons per minute (gpm) (and limited license application for same)

**Request**

SVEC requests expeditious approval of the attached permit and limited license applications. Please feel free to contact us with any questions regarding the applications.

Sincerely yours,



Bradley A. Kresge

General Manager

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**Oregon Water Resources Department**  
**Apply for a Permit to Appropriate Ground Water and/or Store Ground Water**

[Main](#)    [Help](#)  
[Return](#)    [Contact Us](#)

Today's Date: Tuesday, December 5, 2017

Base Application Fee for use of Ground, Surface and optionally Stored Water.		\$1,340.00
Number of proposed cubic feet per second (cfs) to be appropriated. (1 cfs = 448.83 gallons per minute)	1	\$350.00
Number of proposed Use's for the appropriated water. (i.e. Irrigation, Supplemental Irrigation, Pond Maintenance, Industrial, Commercial, etc) *	1	
Number of proposed Ground Water points of appropriation. (i.e. number of wells) (include all injection wells, if applicable) **	2	\$350.00
Number of Acre Feet to be stored in a reservoir/pond from Ground Water.	0	
Number of Acre Feet to be appropriated from reservoir/pond (Only Applies to reservoir/pond constructed under Ground Water Application)	0	
Number of reservoirs.	0	
Permit Recording Fee. ***		\$520.00
* the 1st Water Use is included in the base cost. ** the 1st Ground Water point of appropriation is included in the base cost. *** the Permit Recording Fee is not required when the application is submitted but, must be paid before a permit will be issued. It is fully refundable if a permit is not issued. If the recording fee is not paid prior to issuance of the Final Order, permit issuance will be delayed.	<input type="button" value="Recalculate"/>	
Estimated cost of Permit Application		\$2,560.00

OWRD Fee Schedule

Fee Calculator Version B20170117
----------------------------------

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