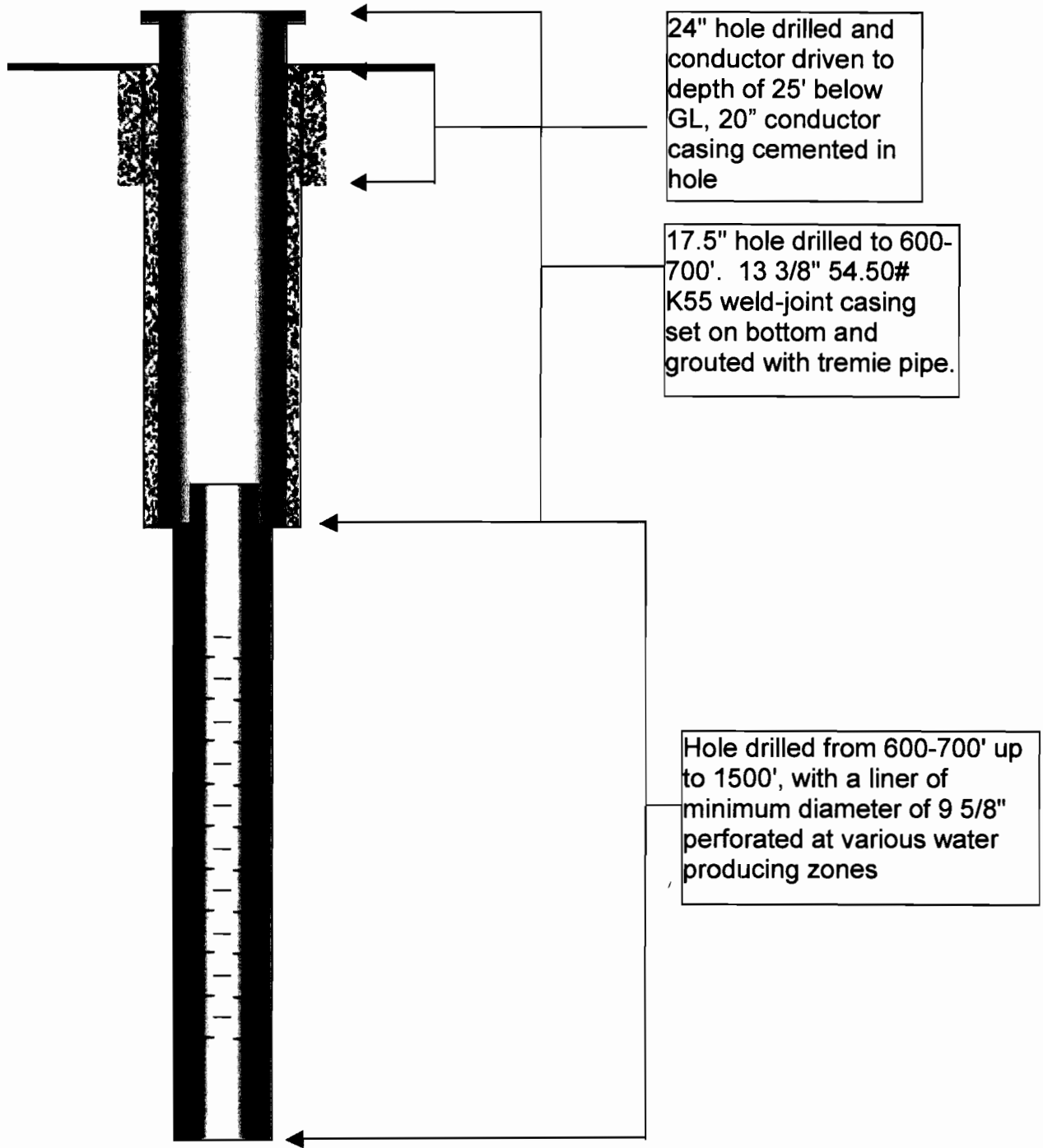


Proposed Well #2



24" hole drilled and conductor driven to depth of 25' below GL, 20" conductor casing cemented in hole

17.5" hole drilled to 600-700'. 13 3/8" 54.50# K55 weld-joint casing set on bottom and grouted with tremie pipe.

Hole drilled from 600-700' up to 1500', with a liner of minimum diameter of 9 5/8" perforated at various water producing zones

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WATER RESOURCES DEPT
SALEM, OREGON

APPLICATION TO DRILL GEOTHERMAL 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 522.)

(1) Permittee Information

Name	Surprise Valley Electrification Corp
Mailing Address	PO Box 691
City/State/Zip	Alturas, CA 96101
Telephone	530-233-3511
Fax	530-233-2190
Email	dansvec@hdo.net
Prepared by	Daniel Hand
On Site Contact	Lynn Culp
Phone (day)	530-233-3511
Phone (night)	530-640-2666
Other	

(2) Well Information

County	Lake
Lease	Surprise Valley Electrification Corp
Well No.	Lake4448
Location	1/4 SW S 23 T 33S R 18E
Wildcat or Field	NA
Elevation	4502 Feet
Lat/Long of Wellhead	42.694005 -120.568081
Surveyed SHL coordinates; include BHL for directional wells	
Geologic Objective	Geothermal Reservoir Identified by Irrigation Well
Proposed Depth	1500 Feet

Signature

Title

Date

(3) Lease/Ownership (if other than applicant)

	Lessor (mineral owner)	Surface Owner	Lessee
Name	Colahan Enterprises	Same as Lessor	Surprise Valley Electrification Corp
Mailing Address	PO Box 300		PO Box 691
City/State/Zip	Pasiley, OR 97636		Alturas, CA 96101
Telephone	541-943-3341		530-233-3511
Fax	541-943-3341		530-233-2190
Email	lizzymongo@hotmail.com		dansvec@hdo.net

(4) Proposed Well Design (use additional sheets if necessary)

Size of hole	Size of Casing	Weight (pounds per foot)	Grade/Type	Depth	Type and Amount of Cement
24 Inches	20 Inches	65	A-53	25	Type I/II 1 bbls.
17.5 Inches	13 - 3/8 Inches	65	K-55	700	Type "G" 11 bbls.
12.25 Inches	9 - 5/8 Inches	36	K-55	680-1500	Slotted Liner bbls.

(5) Slurry Design for each String (use additional sheets if necessary)

String 1	Annulus height	HT. left in casing	Excess	Density
Tail	25 ft.	0 ft.	0.4 bbls.	15.8 ppg.
Lead	ft.	ft.	bbls.	ppg.

String 2	Annulus height	HT. left in casing	Excess	Density
Tail	700 ft.	0 ft.	4.5 bbls.	15 ppg.
Lead	ft.	ft.	bbls.	ppg.

(6) Geologic Information - if known (use additional sheets if necessary)

	1	at
Assumed fracture gradient of rock vs. depth	psi/ft	ft.
Pore gradient of rock vs. depth (if known)	psi/ft	ft.

	2	at
	psi/ft	ft.
	psi/ft	ft.

	3	at
	psi/ft	ft.
	psi/ft	ft.

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WATER RESOURCES DEPT
SALEM, OREGON

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APPLICATION TO DRILL GEOTHERMAL 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 522.)

REQUIREMENTS

A complete application is required to obtain a permit to drill a geothermal well.

A complete application consists of:

1. This completed application form. We must have original signatures for our records.
Include an electronic copy of the completed application materials either via email or include a disk.
2. The \$2,000 application fee.
3. A \$25,000 drilling bond.
4. Evidence of mineral rights ownership or lease.

APPLICATION FORM

The application is generally self-explanatory. Clarifying notes are listed below:

Section 1

If the applicant is other than an individual, the entity must be registered to do business in Oregon if required by the Secretary of State's office. Secretary of State's web site: <http://www.sos.state.or.us/>

Comment: This well will be drilled very close to the existing hot well on the property as shown on the attached diagram. The intent is to intercept the fault/reservoir at a slightly greater depth than the existing hot well. The existing hot well reported encountering the hot water at 720 feet. Our target is to intercept the fault at around 1000-1200 feet below the ground surface. We want to get as close to the fault as safely possible prior to installing the BOP equipment and setting the first casing. From previous logs we estimate this will be somewhere between 600 - 700 feet. After the casing is cemented in place and BOP is installed and tested we will continue drilling to our target in the vicinity of 1000-1200 feet. See Drilling Plan for further details.

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WATER RESOURCES DEPT
SALEM, OREGON

NOTICE TO WATER WELL CONTRACTORS

The original and first copy of this report are to be filed with the

STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

Lake County 4448

WATER WELL REPORT

STATE OF OREGON

(Please type or print)

(Do not write above this line)

App. 6-10791 Well #1

Lake County

RECEIVED

State Well No.

335/18E-23Cd

OCT 2 1981

State Permit No.

Landowner

WATER RESOURCES DEPT

Recondition

SALEM, OREGON

(1) OWNER:

Name ROSS Calahan Address Box 89 Paisley Ore

(2) TYPE OF WORK (check):

New Well [] Deepening [] Reconditioning [x] Abandon []

(3) TYPE OF WELL:

Rotary [] Cable [x] Driven [] Jetted [] Bored []

(4) PROPOSED USE (check):

Domestic [] Industrial [] Municipal [] Irrigation [] Test Well [x] Other []

(5) CASING INSTALLED:

None " Diam. from ... ft. to ... ft. Gage ...

(6) PERFORATIONS:

Type of perforator used FACTORY 1/8" x 4" Size of perforations 1/8 in. by 4 in. 1656 perforations from 476 ft. to 545 ft.

(7) SCREENS:

Well screen installed? [] Yes [x] No Manufacturer's Name Type Model No. Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level Was a pump test made? [x] Yes [] No If yes, by whom? 800 gal./min. with 8 ft. drawdown after 4 hrs.

(9) CONSTRUCTION:

Well seal-Material used NOT DISTURBED Well sealed from land surface to ... ft. Diameter of well bore to bottom of seal ... in.

(10) LOCATION OF WELL:

County Driller's well number SE 1/4 SW 1/4 Section 23 T. 33 S. R. 18 E W.M. Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 170 ft. Static level 145 ft. below land surface. Date 9-22-81 Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing N/A Depth drilled 0 ft. Depth of completed well 770 ft. Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated.

Table with columns: MATERIAL, From, To, SWL. Entries include: 178' 1/4" x 8" Liner, 24' 3/8" wall x 12" From 616' to 640 + 1' to 616 FT 1/4" x 12" Liner, Liner has a drive shoe.

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WATER RESOURCES DEPT SALEM, OREGON

Work started 2/17 1981 Completed 9-29 1981 Date well drilling machine moved off of well 9-29 1981

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Date 19...

Drilling Machine Operator's License No.

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name LANDOWNER BANK # BDD 221 9815 (Person, firm or corporation) (Type or print)

Address Box 89 Paisley Ore

[Signed] Ross Calahan (Water Well Contractor)

Contractor's License No. Date 19...

(USE ADDITIONAL SHEETS IF NECESSARY)

11214

9-29-81 SP*48656-119

NOTICE TO WATER WELL CONTRACTOR

The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM 10, OREGON within 30 days from the date of well completion.

RECEIVED WATER WELL REPORT APR 7 1964 STATE OF OREGON (Please type or print) STATE ENGINEER SALEM, OREGON

Lake 1628 well # 3 State Well No. 33/18-23G State Permit No.

(1) OWNER:

Name Ross Colohan Address Paisley, Oregon

(2) LOCATION OF WELL:

County Lake Driller's well number SW 1/4 NE 1/4 Section 23 T. 33S R. 18 E W.M. Bearing and distance from section or subdivision corner 1 1/2 miles NW of Paisley, Oregon

(3) TYPE OF WORK (check):

Well [X] Deepening [] Reconditioning [] Abandon [] Abandonment, describe material and procedure in Item 12.

(4) PROPOSED USE (check):

Domestic [] Industrial [] Municipal [] Irrigation [X] Test Well [] Other [] Rotary [] Driven [] Cable [X] Jetted [] Dug [] Bored []

(5) TYPE OF WELL:

(6) CASING INSTALLED: Threaded [] Welded [X] 16" Diam. from 0 ft. to 270 ft. Gage 250

(7) PERFORATIONS:

Perforated? [X] Yes [] No Type of perforator used Mills Size of perforations 1/4 in. by 4 in. 1400 perforations from 100 ft. to 240 ft.

(8) SCREENS:

Well screen installed [] Yes [X] No Manufacturer's Name Model No. Diam. Slot size Set from ft. to

(9) CONSTRUCTION:

Well seal—Material used in seal puddled clay Depth of seal 22 ft. Was a packer used? NO Diameter of well bore to bottom of seal 22 in. Were any loose strata cemented off? [] Yes [X] No Was a drive shoe used? [X] Yes [] No Was well gravel packed? [] Yes [X] No Size of gravel: MAR 8 1964 Gravel placed from ft. to ft. Did any strata contain unusable water? [] Yes [X] No Type of water? Depth of strata Method of sealing strata: off

(10) WATER LEVELS:

Static level 83 ft. below land surface Date 4/3/64 Artesian pressure lbs. per square inch Date

(11) WELL TESTS:

Drawdown is amount water level is lowered below static level. Was a pump test made? [X] Yes [] No If yes, by whom? Contractor Yield: 150 gal./min. with 83 ft. drawdown after 3 hrs.

(12) WELL LOG:

Diameter of well below casing 8 Depth drilled 315 ft. Depth of completed well 315 ft. Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

Table with columns: MATERIAL, FROM, TO. Rows include soil zone, gravelly, loose gravel and sand, med. clay&sand, brown, volcanic gravel & clay, brn, gravel, med. seepage of wat, gravel & clay, brn., med. gravel & brn., hard-packed sand and clay, soft sandy clay, brown, sticky clay & gravel, brn., loose gravel, fine waterbe, boulders & clay, gray, sandy clay, brown, fine gravel, waterbearing, sticky clay & gravel, gray, fine sand, white, waterbe, clay & gravel, brn., fine sand, wht. & pink, wat, sandy clay & gravel, fine, med. gravel, waterbearing, sticky clay, brn., basalt rock w/ clay stringers, brown.

Work started 3/7/64 Completed 4/3/1964 Date well drilling machine moved off of well 4/4 1964

(13) PUMP:

Manufacturer's Name Type: H.P.

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Jack Stooksberry, Jr. (Person, firm or corporation) (Type or print) Address Route 2, Box 47, Lakeview, Ore.

Drilling Machine Operator's License No. 45

[Signed] Jack Stooksberry, Jr. (Water Well Contractor) Contractor's License No. 211 Date 4/3 1964

11214

STATE OF OREGON
WATER WELL REPORT
 (as required by ORS 537.755)

well #3
Lake 1626
33S 18E 23ac
Leop.

(1) **OWNER:** Name Ross Colohan & Son Owner's Well Number: _____
 Address P.O. Box
 City Falsely State Oreg. Zip 97636

(2) **TYPE OF WORK:**
 New Well Deepen Recondition Abandon

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

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

(5) **BORE HOLE CONSTRUCTION:**
 Depth of Completed Well 415 ft.
 Special Standards date of approval _____

HOLE Diameter	From	To	SEAL		Amount sacks or pounds
			Material	To	
8"	306	430	not disturbed		

How was seal placed? Method A B C D E
 Other not disturbed

Backfill placed from _____ ft. to _____ ft. Material _____
 Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) **CASING/LINER:**

Casing/Liner	Diameter	From	To	Gauge	Material			
					Steel	Plastic	Welded	Threaded
Casing	8"	+2	300	.188	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liner					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Final location of shoe(s) _____

(7) **PERFORATIONS/SCREENS:**

Perforations Method none
 Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe 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 50 Pumping level _____ Drill stem at 415 Time 1 hr

Temperature of water 175* Depth Artesian Flow Found _____
 Was a water analysis done? Yes By whom NO
 Did any strata contain water not suitable for intended use? Too little
 Salty Muddy Odor Colored Other NO
 Depth of strata: _____

(9) **LOCATION OF WELL by legal description:**
 County Lake Latitude _____ Longitude _____
 Township 33S N or S, Range 18E E or W, WM.
 Section 23 SW 1/4 NE 1/4
 Tax Lot _____ Lot _____ Block _____ Subdivision _____
 Street Address of Well (or nearest address) _____

(10) **STATIC WATER LEVEL:**
120 ft. below land surface. Date Mar. 18-87
 Artesian pressure _____ lb. per square inch. Date _____

(11) **WELL LOG:** Ground elevation unknown

Material	From	To	WB?	SWL
Hard Grey Basalt	306	329		
Mild Brown Lava	329	331		
Hard Grey Basalt	331	337		
Mild Brown Lava	337	339		
Broken Lava, W/B	339	353	WR-	
Hard Basalt	353	360		
White Clays	360	375		
Brown & Blue Clays	375	430		
Brown & Blue Clays	430	432		

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 WATER RESOURCES DEPT
 SALEM, OREGON

Date started Mar. 9-87 Completed Mar. 18-87

(unbonded) **Water Well Constructor Certification:**
 I constructed this well in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.
 Signed [Signature] Date Mar. 22-87

(bonded) **Water Well Constructor Certification:**
 I accept responsibility for construction of this well and its compliance with all Oregon water well standards. This report is true to the best of my knowledge and belief.
 Signed [Signature] Date 4-9-87
 Company Orvall Buckner Well Drilling, Inc. Co. No. _____ No. _____

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Lake 1629

well # 4 33S/18E-23

STATE OF OREGON WATER WELL REPORT (as required by ORS 537.765)

APR 17 1987

(1) OWNER: Name Ross Colohan Address Paisley City State Oregon Zip 97636

(2) TYPE OF WORK: [X] New Well [] Deepen [] Recondition [] Abandon

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

(4) PROPOSED USE: [] Domestic [] Community [] Industrial [X] Irrigation [] Thermal [] Injection [] Other

(5) BORE HOLE CONSTRUCTION: Depth of Completed Well 610 ft. Special Standards date of approval

Table with columns: HOLE Diameter, SEAL Material, Amount sacks or pounds. Row 1: 12" 0 18' Bentonite-C 18 31 sacks

How was seal placed? Method [] A [] B [] C [] D [] E [X] Other poured down

(6) CASING/LINER: Table with columns: Diameter, From, To, Gauge, Steel, Plastic, Welded, Threaded. Casing: 8" +1 74 250 [X] [] [X] []

(7) PERFORATIONS/SCREENS: [] Perforations Method none [] Screens Type Material

Table for perforations/screens with columns: From, To, Slot size, Number, Diameter, Tele/pipe size, Casing, Liner

(8) WELL TESTS: Minimum testing time is 1 hour. Yield gal/min 300, Pumping level, Drill stem at 600, Time 1 hr

Temperature of water 175* Depth Artesian Flow Found. Was a water analysis done? [] Yes [X] No

(9) LOCATION OF WELL by legal description: County Lake Township 33S N or S, Range 18E E or W, WM. Section 23 Tax Lot Lot Block Subdivision Street Address of Well (or nearest address) none

(10) STATIC WATER LEVEL: 75 ft. below land surface. Date Mar. 6-87 Artesian pressure lb. per square inch. Date

(11) WELL LOG: Ground elevation unknown

Table for well log with columns: Material, From, To, WB?, SWL. Rows include Clay & Sand, Cemented Conglomerate, Soft Clay & Loose Gravel, W.B. Sand & Gravel, Brownish-Blue Conglomer., Blue Clay Conglomerate, Gravels-Some Water, Blue Clay Conglomerate, Gravels-Some Water, Blue Clay Conglomerate, Gravels.

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MAR 21 2011

WATER RESOURCES DEPT SALEM, OREGON

Date started Mar. 2-87 Completed Mar. 7-87

(unbonded) Water Well Constructor Certification: I constructed this well in compliance with Oregon well construction standards. Signed [Signature] Date 3-10-87

(bonded) Water Well Constructor Certification: I accept responsibility for construction of this well and its compliance with all Oregon water well standards. Signed Orvail Buckner Date Apr. 7-87

Company Orvail Buckner Well Drilling, Inc. Co. Job No.

T 11214