

Groundwater Transfer Review Summary Form

Transfer/PA # T- 13371

GW Reviewer Gerald H. Grondin

Date Review Completed: 26 March 2021

Summary of Same Source Review:

The proposed change in point of appropriation is not within the same aquifer as per OAR 690-380-2110(2).

Summary of Injury Review:

The proposed transfer will result in another, existing water right not receiving previously available water to which it is legally entitled or result in significant interference with a surface water source as per 690-380-0100(3).

Summary of GW-SW Transfer Similarity Review:

The proposed SW-GW transfer doesn't meet the definition of "similarly" as per OAR 690-380-2130.

None of the Above

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations.



Oregon Water Resources Department
 725 Summer Street NE, Suite A
 Salem, Oregon 97301-1271
 (503) 986-0900
 www.wrd.state.or.us

Ground Water Review Form:

- Water Right Transfer
- Permit Amendment
- GR Modification
- Other

Application: **T-13371** Applicant Name: **Buck Church / Church Family Farms, Inc.**

Proposed Changes: POA APOA SW→GW RA
 USE POU OTHER

Reviewer(s): **Gerald H. Grondin** Date of Review: **26 March 2021**

Date Reviewed by GW Mgr. and Returned to WRSD: JH 3/31/21

The information provided in the application is insufficient to evaluate whether the proposed transfer may be approved because:

- The water well reports provided with the application do not correspond to the water rights affected by the transfer.
- The application does not include water well reports or a description of the well construction details sufficient to establish the ground water body developed or proposed to be developed.
- Other _____

1. Basic description of the changes proposed in this transfer: _____

This transfer application relates to three water right certificates 52784, 94834, and 94835. The transfer application proposes changes in POU, POA, and APOA as follows (summarized in attached table also):

Certificate 52784: Original POA well and POU acreage affected are well LAKE 1077 and 205.20 acres both in T27S/R17E-sec 32. The proposed change is to move 2.50 POU acres to T27S/R17E-sec 31 and add two APOA wells LAKE 50380 and LAKE 52371 in T27S/R17E-sec 31 & 32 respectively.

Certificate 94834: Original POA well and POU acreage affected are well LAKE 675 (LAKE 676 deepening) and 5.10 acres both in T26S/R18E-sec 29. The proposed change is to change the POA well to LAKE 687 in T26S/R18E-sec 31.

Certificate 94835: Original POA well and POU acreage affected are well LAKE 675 (LAKE 676 deepening) and 35.48 acres both in T26S/R18E-sec 29. The proposed change is to move 6.70 POU acres to T27S/R17E-sec 31 and change the POA well to LAKE 687 in T26S/R18E-sec 31.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
 Yes No Comments: _____

Essentially yes, the “same aquifer” (source) given the same groundwater system will likely be tapped despite the authorized and proposed POA and APOA wells are constructed to varying depths and tap varying geologic units (see attached well logs). Long term groundwater level data indicates groundwater levels at wells in the vicinity of the currently authorized and proposed POA and APOA locations have similar elevations, seasonally fluctuate similarly, and show the same long-term trends (see attached hydrograph) despite being completed at varying depths and different geologic units.

Additionally, groundwater in the Fort Rock Valley-Christmas Valley area (Fort Rock Classified Area) is identified as a single groundwater system. Groundwater is found in both a shallower predominantly basin-fill sediment unit and a deeper predominantly volcanic rocks and sediments unit below. The predominantly basin fill sediment unit and the predominantly volcanic rocks and sediment unit both readily yield groundwater and the two units are hydraulically connected. The geologic unit yielding groundwater to the authorized POA (LAKE 176) is likely from the predominantly volcanic rocks and sediment unit. The proposed POA well (LAKE 745) appears to obtain groundwater from the predominantly basin fill sediment unit.

Miller (1984 and 1986) describes the groundwater source as the main groundwater reservoir. That reservoir includes groundwater in different geologic units. The reservoir has three characteristics. First, the “natural” groundwater level changes less than 1.5 feet annually, indicating the system is highly modulated. Second, the 1980s potentiometric surface was approximately 4292 feet elevation amsl basin-wide with Silver Lake an exception. Third, the reservoir consists of numerous water producing zones in several formations, all having an essentially common potentiometric level, and all being very transmissive in general.

3. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?
 Yes No _____

Essentially no. Single hydraulically connected groundwater system. See discussion in part 2 above.

- b) If yes, estimate the portion of the right supplied by each of the sources and describe any limitations that will need to be placed on the proposed change (rate, duty, etc.): _____

No estimate made and no limitation recommended. Single groundwater system. See item 2 and 3a above.

- 6. For SW-GW transfers, will the proposed change in point of diversion affect the surface water source similarly (as per OAR 690-380-2130) to the authorized point of diversion specified in the water use subject to transfer?

Yes No Comments: _____

Not Applicable. No SW-GW transfer.

- 7. What conditions or other changes in the application are necessary to address any potential issues identified above: _____

Note: the proposed transfer is within the Fort Rock groundwater limited area.

The following are technical groundwater review recommendations. It is recognized that one or more technically recommended conditions may or may not be allowed under the transfer process rules and statutes. This technical groundwater review relies on other appropriate and authorized Department staff to make that determination.

“Large” flow meter condition for any proposed “To” POA and/or APOA well. Require the flow meter for any POA and/or APOA well to be properly installed and maintained. Each meter shall be either within 50 feet of the well head with a clearly visible monument adjacent to the meter or a surveyed location shall be provided and a clearly visible monument adjacent to the meter shall be installed for each meter more than 50 feet from the well head.

Condition 7P (well tag condition) for all the “To” and “From” POA wells.

Condition 7T (modified) for all “To” POA wells: “Prior to use, all POA wells shall be configured to allow a strictly clean water (no oil) static water level measurements with an electric-tape. That can include measurement access via an unobstructed vertical discharge pipe that allows the groundwater level to fluctuate freely within the discharge pipe (no valves, etc.). Otherwise, a dedicated measuring tube must be installed prior to use. The tube must be unobstructed, have a diameter of 3/4 inch (0.75 inch) or greater, and pursuant to figure 200-5 in OAR 690-200.”

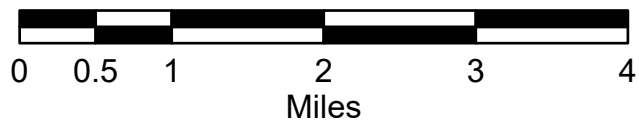
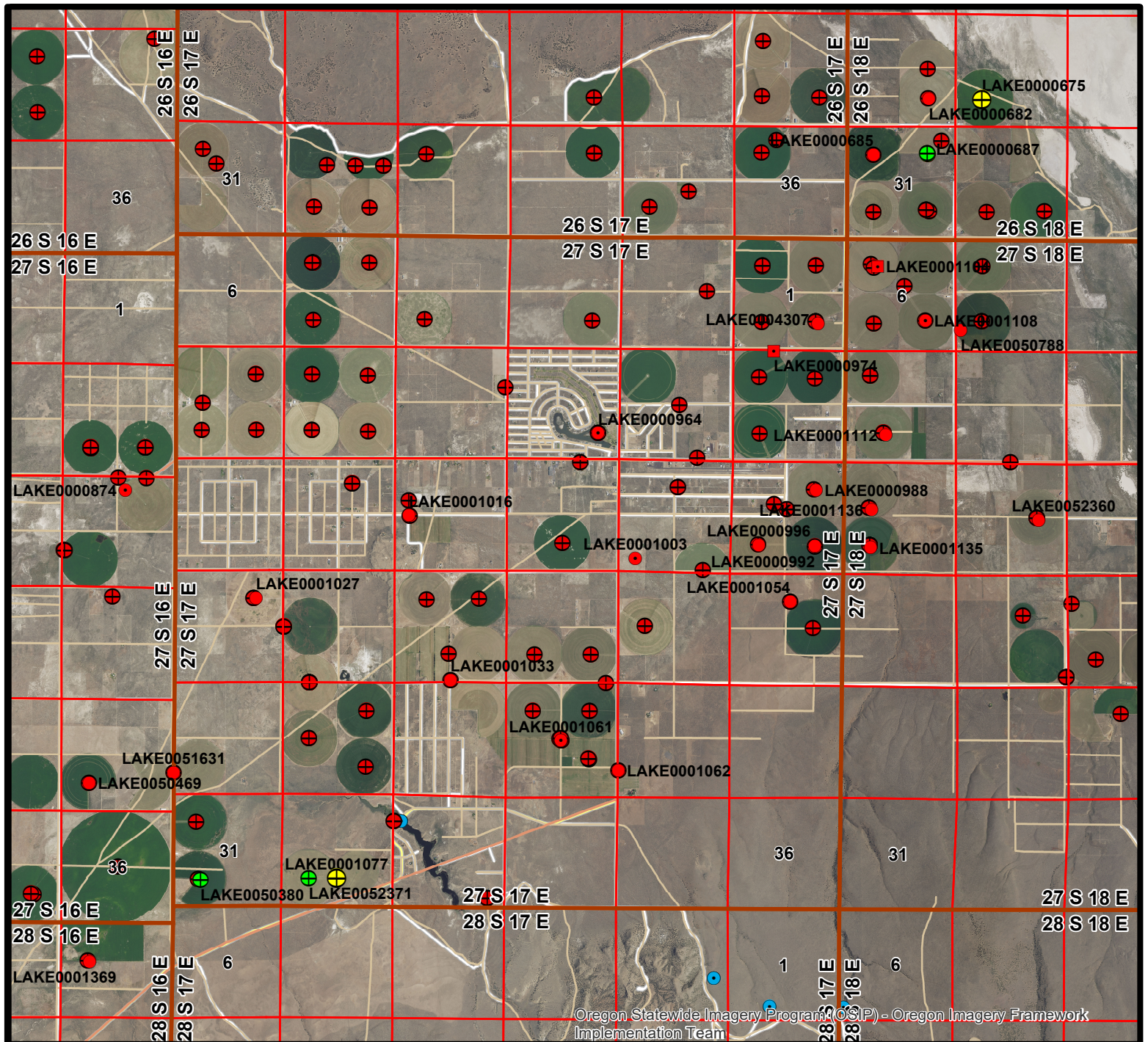
- 8. Any additional comments: _____

No additional comments.

References:

Miller, D.W., 1986, Appraisal of ground-water conditions in the Fort Rock Basin, Lake County, Oregon: Oregon Water Resources Department, Ground Water Report No. 31, 196 p and plates.

Groundwater Transfer Application T-13371 Buck Church / Church Family Farms, Inc.



Yellow = Authorized POA Wells
Green = Proposed POA / APOA Wells
Red = Groundwater PODs or Other Wells
Blue = Surface Water PODs

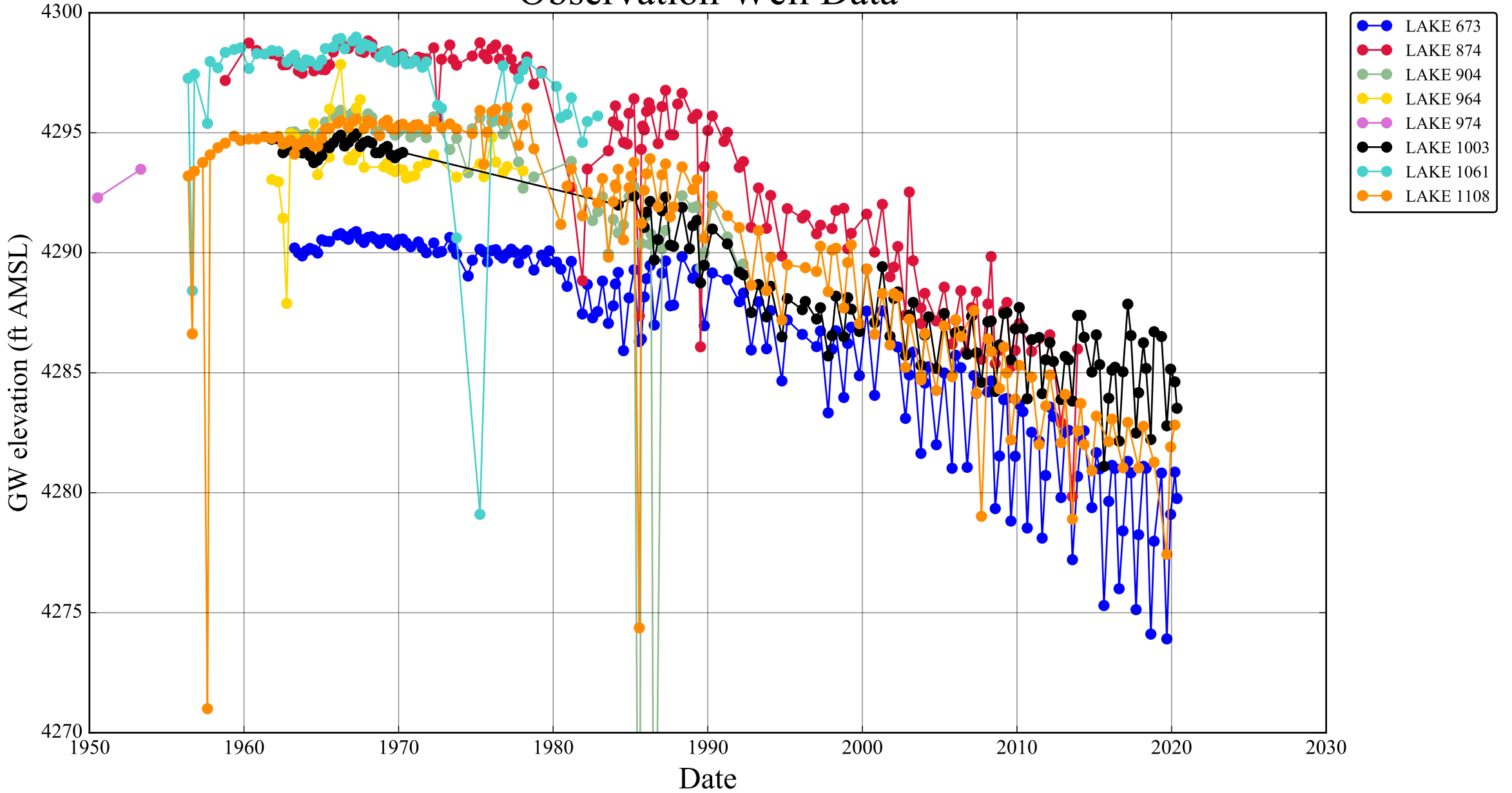


T_13371_Church_Fort_Rock_Valley_proposed_pumping_changes

From Wells		Location TRS	Certificate & POU Acres			Total Area (acres)	Total Volume (ac-ft/yr)	Max Rate (cfs)	Pro- Rated (cfs)	Open Interval Lithology	Total Depth (feet)	Static GW Level (ft blsd)	Land Elevation (ft amsl)	Static GW Level (ft amsl)	Date
Original	Deepening		52784	94835	94834										
LAKE 1077		T27S/R17E-sec 32	205.200			205.20	615.60	2.57	1.27	Volcanic rock & seds	190	79.00	4,372.18	4,293.18	03/13/1978
LAKE 675	LAKE 676	T26S/R18E-sec 29		35.480	5.100	40.58	121.74	0.51	0.25	basin fill & volcanics	569	16.50	4,316.01	4,299.51	05/22/1981
						0.00	0.00	0.00	0.00					0.00	
						0.00	0.00	0.00	0.00					0.00	
						0.00	0.00	0.00	0.00					0.00	
Totals			205.200	35.480	5.100	245.78	737.34	3.07	1.52						

To Wells		Location	Certificate & POU Acres			Total Area (acres)	Total Volume (ac-ft/yr)	Max Rate (cfs)	Pro- Rated (cfs)	Open Interval Lithology	Total Depth (feet)	Static GW Level (ft blsd)	Land Elevation (ft amsl)	Static GW Level (ft amsl)	Date
Original	Deepening		52784	94835	94834										
LAKE 52371		T27S/R17E-sec 32	202.700			202.70	608.10	2.53	1.25	volcanic rocks	162	77.00	4,361.18	4,284.18	03/14/2012
LAKE 50380		T27S/R17E-sec 31	2.500	6.700		9.20	27.60	0.12	0.06	volcanic rocks & seds	165	35.00	4,321.85	4,286.85	02/04/1997
LAKE 687		T26S/R18E-sec 31		28.780	5.100	33.88	101.64	0.42	0.21	basin fill & volcanic seds	461	18.50	4,316.11	4,297.61	05/01/1980
						0.00	0.00	0.00	0.00					0.00	
						0.00	0.00	0.00	0.00					0.00	
Totals			205.200	35.480	5.100	245.78	737.34	3.07	1.52						

Observation Well Data



Drawdown Calculations Using Theis Equation

Theis Equation: $s = [Q/(4*T*pi)]W(u)$
 $u = (r^2*S)/(4*T*t)$
 $W(u) = (-\ln u) - (0.5772157) + (u/1*1!) - (u^2/2*2!) + (u^3/3*3!) - (u^4/4*4!) + \dots$

s = drawdown (L) r = radial distance (L)
 T = transmissivity (L*L/T) t = time (T)
 S = storage coefficient (dimensionless) u = dimensionless
 pi = 3.141592654 W(u) = well function

Transmissivity T (gpd/ft)	Transmissivity T (ft ² /day)	Storage Coefficient S	Pumping Rate Q (gal/min)	Pumping Rate Q (ft ³ /sec)	Time t (days)	Distance r (feet)	pi	u	W(u)	Drawdown s (feet)	Drawdown Change s (feet)	Well	Comments
Note : W(u) calculation valid when u < 7.1													
Note: yellow grid areas are where values are calculated								7.0000	1.1545E-04				W(u) calculation test
"From" POA wells to Water Right Well closest to Proposed "To" Well LAKE 50380 (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	1,151.25	2.56	30.00	7,160.00	3.14	0.0285	3.0096	3.5384		LAKE 1077	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	227.67	0.51	30.00	50,405.00	3.14	1.4115	0.1142	0.0266		LAKE 675	Continuous Pumping at Full Rate
			1,378.92	3.07						3.56			
"To" POA wells to Water Right Well closest to Proposed "To" Well LAKE 50380 (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	5,965.00	3.14	0.0198	3.3662	0.0000		LAKE 52371	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	1,188.84	2.65	30.00	2,740.00	3.14	0.0042	4.9066	5.9571		LAKE 50380	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	7,160.00	3.14	0.0285	3.0096	0.0000		LAKE 1077	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	190.08	0.42	30.00	46,860.00	3.14	1.2199	0.1535	0.0298		LAKE 687	Continuous Pumping at Full Rate
			1,378.92	3.07						5.99	2.4219		
"From" POA wells to Water Right Well closest to Proposed "To" Well LAKE 50380 (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	568.58	1.27	30.00	7,160.00	3.14	0.0285	3.0096	1.7475		LAKE 1077	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	112.44	0.25	30.00	50,405.00	3.14	1.4115	0.1142	0.0131		LAKE 675	Continuous Pro-Rated Pumping
			681.02	1.52						1.76			
"To" POA wells to Water Right Well closest to Proposed "To" Well LAKE 50380 (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	5,965.00	3.14	0.0198	3.3662	0.0000		LAKE 52371	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	587.14	1.31	30.00	2,740.00	3.14	0.0042	4.9066	2.9421		LAKE 50380	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	7,160.00	3.14	0.0285	3.0096	0.0000		LAKE 1077	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	93.88	0.21	30.00	46,860.00	3.14	1.2199	0.1535	0.0147		LAKE 687	Continuous Pro-Rated Pumping
			681.02	1.52						2.96	1.1961		

Drawdown Calculations Using Theis Equation

Theis Equation: $s = [Q/(4*T*pi)][W(u)]$
 $u = (r^2*S)/(4*T*t)$
 $W(u) = (-\ln u) - (0.5772157) + (u/1*1!) - (u^2/2*2!) + (u^3/3*3!) - (u^4/4*4!) + \dots$

s = drawdown (L) r = radial distance (L)
 T = transmissivity (L*L/T) t = time (T)
 S = storage coefficient (dimensionless) u = dimensionless
 pi = 3.141592654 W(u) = well function

Transmissivity T (gpd/ft)	Transmissivity T (ft2/day)	Storage Coefficient S	Pumping Rate Q (gal/min)	Pumping Rate Q (ft3/sec)	Time t (days)	Distance r (feet)	pi	u	W(u)	Drawdown s (feet)	Drawdown Change s (feet)	Well	Comments
Note : W(u) calculation valid when u < 7.1													
Note: yellow grid areas are where values are calculated								7.0000	1.1545E-04				W(u) calculation test
"From" POA wells to Silver Lake (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	1,151.25	2.56	245.00	42,900.00	3.14	0.1252	1.6220	1.9070		LAKE 1077	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	227.67	0.51	245.00	90,050.00	3.14	0.5516	0.5017	0.1166		LAKE 675	Continuous Pumping at Full Rate
			1,378.92	3.07						2.02			
"To" POA wells to Silver Lake (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	0.00	0.00	245.00	41,845.00	3.14	0.1191	1.6661	0.0000		LAKE 52371	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	1,188.84	2.65	245.00	37,845.00	3.14	0.0974	1.8465	2.2418		LAKE 50380	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	42,900.00	3.14	1.0225	0.2113	0.0000		LAKE 1077	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	190.08	0.42	245.00	86,375.00	3.14	0.5075	0.5507	0.1069		LAKE 687	Continuous Pumping at Full Rate
			1,378.92	3.07						2.35	0.3251		
"From" POA wells to Silver Lake (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	568.58	1.27	245.00	42,900.00	3.14	0.1252	1.6220	0.9418		LAKE 1077	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	112.44	0.25	245.00	90,050.00	3.14	0.5516	0.5017	0.0576		LAKE 675	Continuous Pro-Rated Pumping
			681.02	1.52						1.00			
"To" POA wells to Silver Lake (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	0.00	0.00	245.00	41,845.00	3.14	0.1191	1.6661	0.0000		LAKE 52371	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	587.14	1.31	245.00	37,845.00	3.14	0.0974	1.8465	1.1072		LAKE 50380	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	42,900.00	3.14	1.0225	0.2113	0.0000		LAKE 1077	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	93.88	0.21	245.00	86,375.00	3.14	0.5075	0.5507	0.0528		LAKE 687	Continuous Pro-Rated Pumping
			681.02	1.52						1.16	0.1605		

Drawdown Calculations Using Theis Equation

Theis Equation: $s = [Q/(4*T*pi)]W(u)$
 $u = (r^2*S)/(4*T*t)$
 $W(u) = (-\ln u) - (0.5772157) + (u/1*1!) - (u^2/2*2!) + (u^3/3*3!) - (u^4/4*4!) + \dots$

s = drawdown (L) r = radial distance (L)
 T = transmissivity (L*L/T) t = time (T)
 S = storage coefficient (dimensionless) u = dimensionless
 pi = 3.141592654 W(u) = well function

Transmissivity T (gpd/ft)	Transmissivity T (ft2/day)	Storage Coefficient S	Pumping Rate Q (gal/min)	Pumping Rate Q (ft3/sec)	Time t (days)	Distance r (feet)	pi	u	W(u)	Drawdown s (feet)	Drawdown Change s (feet)	Well	Comments
Note : W(u) calculation valid when u < 7.1													
Note: yellow grid areas are where values are calculated								7.0000	1.1545E-04				W(u) calculation test
"From" POA wells to Paulina Marsh (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	1,151.25	2.56	30.00	59,075.00	3.14	1.9388	0.0532	0.0626		LAKE 1077	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	227.67	0.51	30.00	102,475.00	3.14	5.8340	0.0004	0.0001		LAKE 675	Continuous Pumping at Full Rate
			1,378.92	3.07						0.06			
"To" POA wells to Paulina Marsh (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	57,810.00	3.14	1.8567	0.0597	0.0000		LAKE 52371	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	1,188.84	2.65	30.00	52,930.00	3.14	1.5564	0.0920	0.1117		LAKE 50380	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	59,075.00	3.14	1.9388	0.0532	0.0000		LAKE 1077	Continuous Pumping at Full Rate
112,207.80	15,000.00	0.00100	190.08	0.42	30.00	98,940.00	3.14	5.4384	0.0007	0.0001		LAKE 687	Continuous Pumping at Full Rate
			1,378.92	3.07						0.11	0.0491		
"From" POA wells to Paulina Marsh (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	568.58	1.27	30.00	59,075.00	3.14	1.9388	0.0532	0.0309		LAKE 1077	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	112.44	0.25	30.00	102,475.00	3.14	5.8340	0.0004	0.0000		LAKE 675	Continuous Pro-Rated Pumping
			681.02	1.52						0.03			
"To" POA wells to Paulina Marsh (Transmissivity from Morgan (1988) and McFarland and Ryals (1991)): Used S = 0.001													
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	57,810.00	3.14	1.8567	0.0597	0.0000		LAKE 52371	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	587.14	1.31	30.00	52,930.00	3.14	1.5564	0.0920	0.0552		LAKE 50380	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	0.00	0.00	30.00	59,075.00	3.14	1.9388	0.0532	0.0000		LAKE 1077	Continuous Pro-Rated Pumping
112,207.80	15,000.00	0.00100	93.88	0.21	30.00	98,940.00	3.14	5.4384	0.0007	0.0001		LAKE 687	Continuous Pro-Rated Pumping
			681.02	1.52						0.06	0.0243		

WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310
within 30 days from the date
of well completion.

WATER WELL REPORT

STATE OF OREGON
(Please type or print)

(Do not write above this line)

*Lake
687*

State Well No. 2105/18E:31a9

State Permit No. _____

(1) OWNER:
Name Mervin Morse
Address PO Box 240 Depart Inn motel
Christmas Valley, Oregon 97639

(2) TYPE OF WORK (check):
New Well Deepening Reconditioning Abandon
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL: **(4) PROPOSED USE (check):**
 Rotary Driven Domestic Industrial Municipal
 Jetted Irrigation Test Well Other
 Bored

(5) CASING INSTALLED: Threaded Welded
 14" Diam. from 0 ft. to 100 ft. Gage 250
 " Diam. from " ft. to " ft. Gage "
 " Diam. from " ft. to " ft. Gage "

(6) PERFORATIONS: Perforated? Yes No
 Type of perforator used _____
 Size of perforations in. by in.
 perforations from ft. to ft.
 perforations from ft. to ft.
 perforations from ft. to ft.

(7) SCREENS: Well screen installed? Yes No
 Manufacturer's Name _____
 Type _____ Model No. _____
 Diam. _____ Slot size _____ Set from _____ ft. to _____ ft.
 Diam. _____ Slot size _____ Set from _____ ft. to _____ ft.

(8) WELL TESTS: Drawdown is amount water level is lowered below static level
 a pump test made? Yes No If yes, by whom?
 Yield: gal./min. with ft. drawdown after hrs.
 " " " " "
 " " " " "
 test 1200 gal./min. with ft. drawdown after 1 hrs.
 Artesian flow g.p.m.
 Temperature of water Depth artesian flow encountered _____ ft.

(9) CONSTRUCTION:
 Well seal—Material used Cement
 Well sealed from land surface to 100 ft.
 Diameter of well bore to bottom of seal 16 1/4 in.
 Diameter of well bore below seal 10 in.
 Number of sacks of cement used in well seal 34 sacks
 How was cement grout placed? pressure grouted

Was a drive shoe used? Yes No Plugs _____ Size: location _____ ft.
 Did any strata contain unusable water? Yes No
 Type of water? _____ depth of strata _____
 Method of sealing strata off _____
 Was well gravel packed? Yes No Size of gravel: _____
 Gravel placed from _____ ft. to _____ ft.

(10) LOCATION OF WELL:
 County Lake Driller's well number 95
7E 1/4 NE 1/4 Section 31 T.7265 R. 18E W.M.
 Bearing and distance from section or subdivision corner _____

(11) WATER LEVEL: Completed well.
 Depth at which water was first found 420 ft.
 Static level 18 1/2 ft. below land surface. Date May 1-80
 Artesian pressure _____ lbs. per square inch. Date _____

(12) WELL LOG: Diameter of well below casing 10"
 Depth drilled 461 ft. Depth of completed well 461 ft.
 Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Brown sand	0	3	
Diatomaceous earth	3	12	
Brown clay	12	23	
dark Green clay	23	75	
black sand	75	80	
Green clay	80	415	
white pumys gravel 1/8	415	430	18 1/2
Green clay	430	445	
white pumys gravel 1/8	445	458	18 1/2
Green clay	458	461	

RECEIVED
 OCT 24 1980
 WATER RESOURCES DEPT
 SALEM, OREGON

Work started Apr 30 19 80 Completed May 1 19 80
 Date well drilling machine moved off of well May 15 19 80

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] Ston J Adams Date May 5, 19 80
 (Drilling Machine Operator)
 Drilling Machine Operator's License No. 1302

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 Lyle Adams (Type or print)
 Address 113 Box 122X Hillbrow, Ore. 97123
 [Signed] Lyle Adams (Water Well Contractor)
 Contractor's License No. 690 Date May 2, 19 80

The original and first copy of this report are to be filed with the
 WATER RESOURCES DEPARTMENT
 SALEM, OREGON 97310
 within 30 days from the date of well completion.

LAKE 1077

WATER WELL REPORT
 STATE OF OREGON
 (Please type or print)
 (Do not write above this line)

RECEIVED
 State Well No. 27/17-32
 State Permit No. 1077
JUL 14 1995

(1) OWNER:

Name Joe Oxenford
 Address 26065 Scans Rd
Vanita Ore 97187

(2) TYPE OF WORK (check):

New Well Deepening Reconditioning Abandon
 If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary Driven
 Cable Jetted
 Dug Bored

(4) PROPOSED USE (check):

Domestic Industrial Municipal
 Irrigation Test Well Other

CASING INSTALLED:

Threaded Welded
 12" Diam. from 0 ft. to 19 ft. Gage .20
 " Diam. from " ft. to " ft. Gage
 " Diam. from " ft. to " ft. Gage

PERFORATIONS:

Perforated? Yes No.

Type of perforator used

Size of perforations in. by in.
 perforations from " ft. to " ft.
 perforations from " ft. to " ft.
 perforations from " ft. to " ft.

(7) SCREENS:

Well screen installed? Yes No

Manufacturer's Name
 Type Model No.
 Diam. Slot size Set from " ft. to " ft.
 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? Yes No If yes, by whom?
 Yield: gal./min. with ft. drawdown after hrs.
1st. 1000 gal. 1st. 1000 gal.
 Bailer test gal./min. with ft. drawdown after hrs.
 Artesian flow g.p.m. to be determined
 Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used Cement
 Well sealed from land surface to 19 ft.
 Diameter of well bore to bottom of seal 17 in.
 Diameter of well bore below seal 12 in.
 Number of sacks of cement used in well seal 74 sacks
 How was cement grout placed? gravel

Was a drive shoe used? Yes No Plugs Size: location ft.
 Did any strata contain unusable water? Yes No
 Type of water? depth of strata
 Method of sealing strata off
 Was well gravel packed? Yes No Size of gravel:
 Gravel placed from " ft. to " ft.

(10) LOCATION OF WELL:

County SALEM, OREGON Driller's well number
NW 1/4 SW 1/4 Section 32 T. 27S R. 17E W.M.
 Bearing and distance from section or subdivision corner
Lat lot 11000

(11) WATER LEVEL: Completed well.

Depth at which water was first found 79 ft.
 Static level 79 ft. below land surface. Date 3/18/78
 Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 12
 Depth drilled 190 ft. Depth of completed well 190 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
<u>SANDY SOIL</u>	<u>0</u>	<u>2</u>	
<u>Yellow clay loam</u>	<u>2</u>	<u>35</u>	
<u>Red soil</u>	<u>35</u>	<u>75</u>	
<u>Clay</u>	<u>75</u>	<u>127</u>	
<u>Clay</u>	<u>127</u>	<u>190</u>	
<u>Clay</u>	<u>190</u>	<u>190</u>	

RECEIVED
FEB 2 1979
WATER RESOURCES DEPT.
SALEM, OREGON

Work started 3/11/78 19 Completed 3-13-78 19
 Date well drilling machine moved off of well 3-13-78 19

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] Bert Jones Date 3/18/78, 19...
 (Drilling Machine Operator)
 Drilling Machine Operator's License No. 158

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 Bert Jones (Type or print)
 (Person, firm or corporation)
 Address 24404 Santiam Hwy Lebanon Ore
 [Signed] Bert Jones (Water Well Contractor)
 Contractor's License No. SW Date 2/18/78, 19...

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

WATER RESOURCES DEPARTMENT. SALEM, OREGON 97310 within 30 days from the date of well completion.

Appl. G-8771

Permit G-8199

Cont. 52784

LAKE 1077 WATER WELL REPORT

STATE OF OREGON

(Please type or print)

(Do not write above this line)

LAKE 1077 copy

275/17E-32 ca

State Well No.

State Permit No.

RECEIVED APR 10 1978 WATER RESOURCES DEPARTMENT

(1) OWNER:

Name Joe Oxenford Address 26065 Jeans Rd Veneta Ore 97487

(2) TYPE OF WORK (check):

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

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

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

(4) PROPOSED USE (check):

(5) CASING INSTALLED:

2" Diam. from 0 ft. to 19 ft. Gage 250

(6) PERFORATIONS:

Type of perforator used Size of perforations in. by in. perforations from ft. to 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? [] Yes [x] No Yield: gal./min. with ft. drawdown after hrs. Tested w/air 1st 1000+ gpm Bailer test gal./min. with ft. drawdown after hrs. Artesian flow g.p.m. to be determined by pump test at later date

(9) CONSTRUCTION:

Well seal—Material used Cement Well sealed from land surface to 10 ft. Diameter of well bore to bottom of seal 12 in. Diameter of well bore below seal 12 in. Number of sacks of cement used in well seal 14 sacks How was cement grout placed? grout Was a drive shoe used? [] Yes [x] No Plugs Size: location ft. Did any strata contain unusable water? [] Yes [x] No Type of water? depth of strata Method of sealing strata off Was well gravel packed? [] Yes [x] No Size of gravel Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Lake Driller's well number 25 T 275 R 16 E W.M. Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 79 ft. Static level 79 ft. below land surface. Date 3/13/78 Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 12 Depth drilled 190 ft. Depth of completed well 190 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

Table with columns: MATERIAL, From, To, SWL. Rows include: sandy soil (0-2), yellow claystone (2-35), red basalt (35-80), blue basalt (80-120), red cinders (120-127), blue basalt (127-170), red cinders (170-190).

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] Best Jones Date 3/18/78, 19... Drilling Machine Operator's License No. 158

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 Best Jones (Person, firm or corporation) Address 29404 Sunbeam Dr. Lebanon Ore [Signed] Best Jones (Water Well Contractor) Contractor's License No. 158 Date 3/18/78, 19...

FEB 10 1997 WELL I.D.# 206607

STATE OF OREGON

WATER SUPPLY WELL REPORT

(as required by ORS 537.765)

WATER RESOURCES DEPT.

LAKE 50380 (START CARD) # 88460

Instructions for completing this report are on the back of this form.

(1) OWNER: Well Number _____

Name COUGAR MT. CATTLE CO.

Address P.O. Box 598

City Christmas Valley State OREGON Zip 97641

(2) TYPE OF WORK

[X] New Well [] Deepening [] Alteration (repair/recondition) [] Abandonment

(3) DRILL METHOD:

[X] Rotary Air [] Rotary Mud [] Cable [] Auger

[] Other

(4) PROPOSED USE:

[] Domestic [] Community [] Industrial [X] Irrigation

[] Thermal [] Injection [] Livestock [] Other

(5) BOREHOLE CONSTRUCTION:

Special Construction approval [] Yes [X] No Depth of Completed Well 165 ft.

Explosives used [] Yes [] No Type _____ Amount _____

HOLE		SEAL		Sacks or pounds	
Diameter	From To	Material	From To		
18"	0 26	PORTLAND CEMENT	0 26	25 SACKS	
14"	26 100				
8"	100 165				

How was seal placed: Method [] A [] B [X] 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: 14"	+1	26	.250	[X]	[]	[X]	[]
Liner: NONE				[]	[]	[]	[]

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:

[] Perforations Method _____

[] Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
NONE							

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

[] Pump	[] Bailer	[X] Air	[] Flowing Artesian
Yield gal/min	Drawdown	Drill stem at	Time
1000+		125	1 hr.

Temperature of water 52° Depth Artesian Flow Found _____

Was a water analysis done? NO [] Yes By whom _____

Did any strata contain water not suitable for intended use? [X] Too little

[] Salty [] Muddy [] Odor [] Colored [] Other _____

Depth of strata: _____

(9) LOCATION OF WELL by legal description:

County LAKE Latitude _____ Longitude _____

Township 27 N S Range 17 E W.M.

Section 31 SW 1/4 NW 1/4

Tax Lot 500 Lot _____ Block _____ Subdivision _____

Street Address of Well (or nearest address) OFF OLD LAKE RD.

CHRISTMAS VALLEY, ORE 97641

(10) STATIC WATER LEVEL:

35 ft. below land surface. Date 2-4-97

Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found 138

From	To	Estimated Flow Rate	SWL
138	168	1000+	35

(12) WELL LOG:

Ground Elevation _____

Material	From	To	SWL
TOP SOIL SANDY BRN	0	2	
DIAZONITE	2	20	
ROCK BLK HARD	20	138	
ROCK BLK HARD FRACTURE	138	160	35'
CHRISTMAS RED MED.	160	162	35'
ROCK BLACK + HARD	162	165	

Date started 11-15-96 Completed 2-6-97

(unbonded) Water Well Constructor Certification:

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

WWC Number _____

Signed _____ Date _____

(bonded) Water Well Constructor Certification:

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

WWC Number 657

Signed Claude Blackman Date 2-6-97

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

LAKE 52371
LAKE 52371

WELL LABEL # L 105495
START CARD # 208327
ORIGINAL LOG #

Instructions for completing this report are on the last page of this form.

(1) LANDOWNER Owner Well I.D. _____
First Name Buck Last Name Church
Company _____
Address PO Box 751
City Christmas Valley State OR Zip 97641

(2) TYPE OF WORK New Conversion Deepening
 Alteration (complete Sections 2a & 10) Abandonment (complete Section 5a)

(2a) PRE-ALTERATION: Well Depth _____ ft.
Seal Material _____
Casing Type: Steel Plastic Other _____
Casing Gauge _____ Casing Diameter _____

(3) DRILL METHOD Rotary Air Rotary Mud Auger
 Cable Cable Mud Reverse Rotary Other _____

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

(5) BORE HOLE CONSTRUCTION
Depth of Completed Well 162 ft. Special Standard: Yes (attach copy)

BORE HOLE			SEAL				
Dia	From	To	Material	From	To	Amount	Scks/lbs
<u>14</u>	<u>110</u>	<u>162</u>					

How was seal placed: Method A B C D E
 Other _____
Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE:
Calculated Amount Proposed to be Used: _____ sacks/lbs
Actual Amount Used: _____ sacks/lbs

(6) CASING/LINER

Csng/Linr	Dia	+	From	To	Gauge	Steel	Plastic	Welded	Thrd

Shoe Inside Outside Other Location of shoe(s) _____
Temporary casing Yes Diameter _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Perforations Method _____
Screens Type _____ Material _____

Perf	Scrn	Csng	Linr	Screen Dia	From	To	Screen/slot width	Slot length	# of slots	Te/pipe size

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
Yield gal/min 900 Drawdown _____ Drill stem/Pump depth 158 Duration (hr) 1

Temperature _____ °F Lab analysis Yes By _____
Water quality concerns? Yes (describe below) TDS _____ ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County LAKE Twp 27S N or S Range 17E E or W W.M.
Sec 32 NW 1/4 of the SW 1/4 Tax Lot 1300
Tax Map Number _____ Lot _____
Lat _____ " or _____ DMS or DD
Long _____ " or _____ DMS or DD

Street Address of Well (or nearest address)
NOT ASSIGNED

(10) STATIC WATER LEVEL

	Date	SWL (psi)	+	SWL (ft)
Existing Well/Pre-Alteration	<u>3-14-12</u>			<u>77</u>
Completed Well	<u>3-14-12</u>			<u>77</u>

Flowing Artesian? Yes Dry Hole? Yes
WATER BEARING ZONES Depth water was first found 77

SWL Date	From	To	Est Flow	SWL (psi)	+	SWL (ft)
<u>3-14-12</u>	<u>77</u>	<u>162</u>	<u>900</u>			<u>77</u>

(11) WELL LOG Ground Elevation _____

Material	From	To
<u>Broken Rock</u>	<u>110</u>	<u>162</u>

RECEIVED
MAR 30 2012
WATER RESOURCES DEPT
SALEM, OREGON

Date Started 3-13-12 Completed 3-14-12

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

License Number _____ Date _____

Signed _____

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

License Number 1568 Date 3-14-12

Signed Daniel J. Kuhn

Contact Info. (optional) _____

RECEIVED
MAY 31 2012

STATE OF OREGON
WATER SUPPLY WELL REPORT

LAKE 52371

(ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L 105495
START CARD # 208327
ORIGINAL LOG #

Instructions for completing this report are on the last page of this form.

(1) LANDOWNER Owner Well I.D.
First Name Buck Last Name Church
Company _____
Address PO Box 751
City Christmas Valley State OR Zip 97641

(2) TYPE OF WORK New Conversion Deepening
 Alteration (complete Sections 2a & 10) Abandonment (complete Section 5a)

(2a) PRE-ALTERATION: Well Depth _____ ft.
Seal Material _____
Casing Type: Steel Plastic Other _____
Casing Gauge _____ Casing Diameter _____

(3) DRILL METHOD Rotary Air Rotary Mud Auger
 Cable Cable Mud Reverse Rotary Other _____

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

(5) BORE HOLE CONSTRUCTION
Depth of Completed Well 162 ft. Special Standard: Yes (attach copy)

BORE HOLE			SEAL				
Dia	From	To	Material	From	To	Amount	Scks/lbs
<u>14</u>	<u>110</u>	<u>162</u>					

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

Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE:
Calculated Amount Proposed to be Used: _____ sacks/lbs
Actual Amount Used: _____ sacks/lbs

(6) CASING/LINER

Csng	Lnr	Dia	+	From	To	Gauge	Steel	Plastic	Welded	Thrd

Shoe Inside Outside Other Location of shoe(s) _____
Temporary casing Yes Diameter _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Perforations Method _____
Screens Type _____ Material _____

Perf	Scrn	Csng	Lnr	Screen Dia	From	To	Screen/slot width	Slot length	# of slots	Tele/pipe size

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
Yield gal/min 900 Drawdown 158 Drill stem/Pump depth 1 Duration (hr) _____
Temperature _____ °F Lab analysis Yes By _____

Water quality concerns? Yes (describe below) TDS _____ ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County LAKE Twp 27S or S Range 17E E or W W.M.
Sec 32 NW 1/4 of the SW 1/4 Tax Lot 1300
Tax Map Number _____ Lot _____
Lat _____ " or _____ DMS or DD
Long _____ " or _____ DMS or DD

Street Address of Well (or nearest address) _____
NOT ASSIGNED

(10) STATIC WATER LEVEL

	Date	SWL (psi)	+	SWL (ft)
Existing Well/Pre-Alteration	<u>3-14-12</u>			<u>77</u>
Completed Well	<u>3-14-12</u>			<u>77</u>

Flowing Artesian? Yes Dry Hole? Yes

WATER BEARING ZONES Depth water was first found _____

SWL Date	From	To	Est Flow	SWL (psi)	+	SWL (ft)
<u>3-14-12</u>	<u>77</u>	<u>162</u>	<u>900</u>			<u>77</u>

(11) WELL LOG Ground Elevation _____

Material	From	To
<u>BROKEN ROCK</u>	<u>110</u>	<u>162</u>

RECEIVED
MAR 20 2012
WATER RESOURCES DEPT
SALEM, OREGON

Date Started 3-13-12 Completed 3-14-12

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

License Number _____ Date _____

Signed _____

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

License Number 1568 Date 3-14-12

Signed Daniel A. Kuhn
Contact Info. (optional) _____