Groundwater Transfer Review Summary Form

Transfer/PA # T- <u>13635</u>

GW Reviewer <u>Gerald H. Grondin</u>

Date Review Completed: <u>20 April 2021</u>

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.

igvee 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	Oregon Water Resour 725 Summer Street NE Salem, Oregon 97301- (503) 986-0900 www.wrd.state.or.us	rces Department 8, Suite A 1271	Ground Water Review Form: ^{nent} 🛛 Water Right Transfer (temporary) □ Permit Amendment □ GR Modification □ Other						
App	olication: T- <u>13</u>	<u>635</u>	Applica	nt Name: <u>Terry No</u>	ofziger & Blaine Nofziger					
Proj	posed Changes	:: 🛛 POA □ USE	□ APOA ⊠ POU	$\Box SW \rightarrow GW$ $\Box OTHER$	\Box RA					
Rev	viewer(s): <u>Ge</u>	rald H. Grondin	<u>l</u>	Date	of Review: <u>20 April 2021</u>					
]	Date Reviewed	by GW Mgr. and I	Returned to WRSD: _JTI 4/21/21					
The tran	information p sfer may be ap	rovided in the ap proved because:	plication is ins	ufficient to evaluate	e whether the proposed					
	The water we affected by th	ll reports provide e transfer.	ed with the app	lication do not corre	espond to the water rights					
	The application details suffici	on does not inclue ent to establish th	de water well r ne ground wate	eports or a descript r body developed o	ion of the well construction r proposed to be developed.					
	Other									
1.	Basic descript This tempo The transfer a table also):	tion of the change prary transfer ap pplication propos	es proposed in plication relate ses changes in P	this transfer: s to water right cer OU and POA as foll	tificate 80684 (file G-10071). ows (summarized in attached					
	Certificate groundwater located in T26 located in T26	80684: Authoriz from four wells: 5S/R18E-sec 31 ar S/R18E-sec 32.	zed irrigation (Well 1 (author nd Well 3 (auth	of 475.2 acres in T2 rized 1.54 cfs) and orized 1.73 cfs) and	26S/R18E-sec 31 & 32 using Well 2 (authorized 0.99 cfs) Well 4 (authorized 1.68 cfs)					
	$\frac{\text{The four w}}{3 = \text{LAKE 690}}$	<u>ells are identified</u>), and Well 4 = LA	by this review : AKE 691.	as Well 1 = LAKE 6	88, Well 2 = LAKE 689, Well					
	The tempor from a well ide 31.	rary transfer prop entified by this re	ooses changes ir view as LAKE	1 30.30 POU acres to 685 (proposed 0.38 c) be irrigated by groundwater (1) be irrigated in T26S/R18E-sec					

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 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 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 wells is likely from the predominantly volcanic rocks and sediment unit. The proposed POA well (LAKE 685) appears to obtain groundwater from the predominantly volcanic rocks and sediment unit also.

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.

4. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with another ground water right?

 \boxtimes Yes \square No Comments: _____

The proposed POA well change will move groundwater pumping closer to the same groundwater right POA well (LAKE 687). The calculated maximum additional seasonal groundwater level drawdown at well LAKE 687 is less than 0.35 feet. The well LAKE 687 should be able to accommodate the seasonal drawdown change. The calculated maximum additional seasonal groundwater level drawdown at other POA wells further away will be less.

The long-term impact on the groundwater system should be the same. That impact is to continue contributing to the ongoing annual Fort Rock Classified Area groundwater level decline (see the attached hydrograph...it shows an annual decline rate of about 0.25 feet per year).

b) If yes, would this proposed change, at its maximum allowed rate of use, likely result in another groundwater right not receiving the water to which it is legally entitled?

□ Yes \boxtimes No If yes, explain:

See discussion in part 4a above.

5. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with another surface water source?

X Yes \square No Comments:

Yes. The POA changes moves pumping closer to surface water particularly Silver Lake and Paulina Marsh. The seasonal drawdown at Silver lake and Paulina Marsh is calculated to be greater by about 0.01 feet and 0.01 feet respectively by the end of the irrigation season. The long-term interference should be the same.

b) If yes, at its maximum allowed rate of use, what is the expected change in degree of interference with any surface water sources resulting from the proposed change?

Stream: Silver Lake

⊠ Minimal □ Significant

Stream: Paulina Marsh

 \boxtimes Minimal \square Significant

Provide context for minimal/significant impact:

See comment in part 5a 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 Temporary Transfer Application T-13635 Terry & Blaine Nofziger



Green = Authorized Wells Yellow = Proposed Well Red = Groundwater PODs or Other Wells Blue = Surface Water PODs

Groundwater Temporary Transfer Application T-13635 Terry & Blaine Nofziger



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T_13635_Nofziger_Christmas_Valley_proposed_pumping_changes

					Total	Total	Max	Pro-	Open Interval	Total	Static	Land	Static	
From	Wells	Location	Certificate	e & POU Acres	Area	Volume	Rate	Rated	Lithology	Depth	GW Level	Elevation	GW Level	Date
Original	Deepening	TRS	80684		(acres)	(ac-ft/yr)	(cfs)	(cfs)		(feet)	(ft blsd)	(ft amsl)	(ft amsl)	
LAKE 688		T26S/R18E-sec 31 cd	7.575		7.58	22.73	0.09	0.05	basalt & broken shale	537	22.00	4,314.96	4,292.96	03/18/1981
LAKE 689		T26S/R18E-sec 31 da	7.575		7.58	22.73	0.09	0.05	basalt & broken shale	583	21.50	4,317.95	4,296.45	05/27/1981
LAKE 690		T26S/R18E-sec 32 cd	7.575		7.58	22.73	0.09	0.05	basalt	422	18.50	4,316.00	4,297.50	04/28/1981
LAKE 691		T26S/R18E-sec 32 da	7.575		7.58	22.73	0.09	0.05	basalt	483	22.50	4,312.53	4,290.03	05/30/1981
					0.00	0.00	0.00	0.00					0.00	
	Totals		30.300	0.000 0.000	30.30	90.90	0.38	0.19						

					_				-						
					1	Total	Total	Max	Pro-	Open Interval	Total	Static	Land	Static	
То	Wells	Location	Certificat	te & POU Acres		Area	Volume	Rate	Rated	Lithology	Depth	GW Level	Elevation	GW Level	Date
Original	Deepening	TRS	80684		(a	acres)	(ac-ft/yr)	(cfs)	(cfs)		(feet)	(ft blsd)	(ft amsl)	(ft amsl)	
LAKE 685		T26S/R18E-sec 31 ba	30.300			30.30	90.90	0.38	0.19	pumice & clay	361	23.00	4,315.29	4,292.29	04/23/1980
						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	
						0.00	0.00	0.00	0.00					0.00	
	Totals		30.300	0.000 0.	000	30.30	90.90	0.38	0.19						

Note: The land elevations for LAKE 685 and LAKE 688 are a mix of NGVD 1929 datum

Note: The land elevations for LAKE 689, LAKE 690, and LAKE 691 are NAVD 1988 datum.

Note: The 1929 datum and 1988 datum for the same location can differ up to 4 feet.



Drawdown Calcu	lations Using Thei	s Equation											
Theis Equation:	s = [Q/(4*T*pi)][W u = (r*r*S)/(4*T*t) W(u) = (-In u)-(0.5	(u)] 772157)+(u/1*1!)-(u*u/2*2!)+(u*u*u/	3*3!)-(u*u*u*u/4*4!))+								
	s = drawdown (L) T = transmissivity S = storage coeffic pi = 3.141592654	(L*L/T) cient (dimensionl	less)		r = radial dis t = time (T) u = dimensio W(u) = well	stance (L) onless function							
Transmissivity	Transmissivity	Storage	Pumping Rate	Pumping Rate	Time	Distance	pi	u	W(u)	Drawdown	Drawdown	Well	Comments
T (and/ft)	T (#2/dou/)	Coefficient	Q (rol/min)	Q (#2/222)	t (dava)	r (faat)				S (feet)	Change s		
(gpa/it)	(Itz/day)	3	(gai/min)	(IIS/Sec)	(uays)	(leet)				(leet)	(leet)		
								Note : W(u) calculation v	valid when u <	7.1		
Note	: yellow grid areas	are where valu	es are calculated					7.0000	1.1545E-04				W(u) calculation test
"From" POA well	s to Well I ake 687	(Transmissivity	/ from Morgan (198	88) and McEarland	and Rvals ((1991)). Ilsod	S = 0.001						
		Transmissivity	, nom morgan (150		and Ryais	1551)). Osed	0 - 0.001						
112,207.80	15,000.00	0.00100	169.99	0.38	30.00	6,185.00	3.14	0.0213	3.2952	0.5721		LAKE 691	Continuous Pumping at Full Rate
			169.99	0.38						0.57			
	- Martin Landa - 007 (T		(1000)		Durle (40		0.004						
"To" POA wells to	O WEILLAKE 687 (11	ransmissivity fr	om Morgan (1988)	and McFarland at	na Ryais (19	91)): Used S	= 0.001						
112.207.80	15.000.00	0.00100	169.99	0.38	30.00	2.560.00	3.14	0.0036	5.0419	0.8753		LAKE 685	Continuous Pumping at Full Rate
			169.99	0.38						0.88	0.3032		
"From" POA well	s to Well Lake 687	(Transmissivity	/ from Morgan (198	88) and McFarland	and Ryals ((1991)): Used	S = 0.001						
112 207 80	15 000 00	0.00100	83.96	0.19	30.00	6 185 00	3 14	0.0213	3 2952	0.2825		LAKE 691	Continuous Pro-Rated Pumping
112,207.00	10,000.00	0.00100	83.96	0.19	00.00	0,100.00	0.14	0.0210	0.2002	0.28		EARE 001	Continuous rito-reated r unping
"To" POA wells to	o Well Lake 687 (Ti	ransmissivity fr	om Morgan (1988)	and McFarland a	nd Ryals (19	91)): Used S	= 0.001						
440.007.00	45,000,00	0.00100	00.00	0.40	20.00	0.500.00	2.44	0.0000	E 0440	0 4000			Continuous Dro Dotod Durania
112,207.80	15,000.00	0.00100	83.96	0.19	30.00	2,560.00	3.14	0.0036	5.0419	0.4323	0 1/98	LAKE 685	Commuous Pro-Rated Pumping
L		1	03.30	0.13	1			1	1	0.43	0.1430	1	

Drawdown Calcu	lations Using Their	s Equation											
Theis Equation:	s = [Q/(4*T*pi)][W(u = (r*r*S)/(4*T*t) W(u) = (-In u)-(0.5	(u)] 772157)+(u/1*1!)-(u*u/2*2!)+(u*u*u/	3*3!)-(u*u*u*u/4*4!))+								
	s = drawdown (L) T = transmissivity S = storage coeffic pi = 3.141592654	(L*L/T) cient (dimensionl	less)		r = radial dis t = time (T) u = dimensio W(u) = well	tance (L) onless function							
Transmissivity	Transmissivity	Storage	Pumping Rate	Pumping Rate	Time	Distance	pi	u	W(u)	Drawdown	Drawdown	Well	Comments
T (and/ft)	T (#2/day)	Coefficient	Q (gal/min)	Q (#2/coc)	t (dave)	r (foot)				S (foot)	Change s		
(gpu/it)	(Itz/day)	3	(gai/min)	(IIS/Sec)	(uays)	(leet)				(leet)	(leet)		
								Note : W(u) calculation v	valid when u <	7.1		
								`					
Note	: yellow grid areas	are where valu	es are calculated					7.0000	1.1545E-04				W(u) calculation test
"From" BOA well	s to Woll I ako 687	(Transmissivity	(from Morgan (19	88) and McEarland	and Pyale (1991)): Usod	S = 0.001						
TTOIL FOR Well	S to Well Lake 007	Transmissivity	i i oli i Morgan (130		anu ityais (1331)). Used	5 - 0.001						
112,207.80	15,000.00	0.00100	169.99	0.38	245.00	6,185.00	3.14	0.0026	5.3767	0.9334		LAKE 691	Continuous Pumping at Full Rate
			169.99	0.38						0.93			
	- M/- II I - I - 007 (T		(1000)		Durale (40)		0.004						
"To" PUA wells to	O Well Lake 687 (11	ransmissivity fr	om Morgan (1988)	and McFarland al	nd Ryais (19	91)): Used S	= 0.001						
112.207.80	15.000.00	0.00100	169.99	0.38	245.00	2,560.00	3.14	0.0004	7,1388	1.2393		LAKE 685	Continuous Pumping at Full Rate
			169.99	0.38						1.24	0.3059		
"From" POA well	s to Well Lake 687	(Transmissivity	/ from Morgan (198	88) and McFarland	and Ryals (1991)): Used	S = 0.001						
112 207 80	15 000 00	0.00100	83.96	0.19	245.00	6 185 00	3 14	0.0026	5 3767	0.4610		LAKE 691	Continuous Pro-Rated Pumping
112,207.00	10,000.00	0.00100	83.96	0.19	240.00	0,100.00	0.14	0.0020	0.0707	0.46		EARE 001	Continuous rito-reated r unping
"To" POA wells to	o Well Lake 687 (Tr	ransmissivity fr	om Morgan (1988)	and McFarland a	nd Ryals (19	91)): Used S	= 0.001			-			
440.007.00	45 000 00	0.00100	00.00	0.40	045.00	0.500.00	2.44	0.000.4	7 4000	0.0404			Continuous Dro Datad Durania
112,207.80	15,000.00	0.00100	83.96	0.19	245.00	2,560.00	3.14	0.0004	7.1388	0.6121	0 1511	LAKE 685	Commuous Pro-Rated Pumping
L		1	03.30	0.13	1	1		1	1	0.01	0.1311	1	

Drawdown Calcu	lations Using Their	s Equation											
Theis Equation:	s = [Q/(4*T*pi)][W(u = (r*r*S)/(4*T*t) W(u) = (-In u)-(0.5	(u)] 772157)+(u/1*1!)-(u*u/2*2!)+(u*u*u/;	3*3!)-(u*u*u*u/4*4!))+								
	s = drawdown (L) T = transmissivity S = storage coeffic pi = 3.141592654	(L*L/T) cient (dimensionl	less)		r = radial dis t = time (T) u = dimensio W(u) = well	stance (L) onless function							
Transmissivity	Transmissivity	Storage	Pumping Rate	Pumping Rate	Time	Distance	рі	u	W(u)	Drawdown	Drawdown	Well	Comments
T (and/ft)	T (#2/dov/)	Coefficient	Q (rol/min)	Q (#2/222)	t (dava)	r (feet)				S (feet)	Change s		
(gpa/it)	(Itz/day)	3	(gai/min)	(IIS/Sec)	(uays)	(leet)				(leet)	(leet)		
								Note : W(u) calculation v	alid when u <	7.1		
								`					
Note	: yellow grid areas	are where valu	es are calculated					7.0000	1.1545E-04				W(u) calculation test
"From" BOA wall	s to Silvor Lako (Tr	anemiesivity fr	om Morgan (1988)	and McEarland a	nd Pyale (10	91)): Lleod S	- 0 001						
TTOIL FOA Well	S to Silver Lake (11	ansinissivity in	onn worgan (1900)		iu ityais (13	sijj. Oseu S	- 0.001						
112,207.80	15,000.00	0.00100	169.99	0.38	30.00	88,605.00	3.14	4.3616	0.0024	0.0004		LAKE 691	Continuous Pumping at Full Rate
			169.99	0.38						0.00			
	O'lless Labor (Trees		(4000)										
"To" POA wells t	oSliver Lake (Trans	smissivity from	Morgan (1988) and	d Micharland and F	(1991)): Used S = 0.	001						
112.207.80	15.000.00	0.00100	169.99	0.38	30.00	84.460.00	3.14	3.9631	0.0040	0.0007		LAKE 685	Continuous Pumping at Full Rate
			169.99	0.38						0.00	0.0003		
"From" POA well	s to Silver Lake (Tr	ansmissivity fr	om Morgan (1988)	and McFarland an	nd Ryals (19	91)): Used S :	= 0.001						
112 207 80	15 000 00	0.00100	83.96	0.19	30.00	88 605 00	3 14	4 3616	0.0024	0.0002		LAKE 691	Continuous Pro-Rated Pumping
112,207.00	10,000.00	0.00100	83.96	0.19	00.00	00,000.00	0.14	1.0010	0.0021	0.00		EXACT OF 1	Continuedo Fre Plated Famping
"To" POA wells t	oSilver Lake (Trans	smissivity from	Morgan (1988) and	d McFarland and I	Ryals (1991))): Used S = 0.	001						
112 207 80	15 000 00	0.00100	92.06	0.10	20.00	84 460 00	2.14	2.0624	0.0040	0.0002	L		Continuous Dro Dated Duranian
112,207.80	15,000.00	0.00100	83.90	0.19	30.00	04,400.00	3.14	3.9031	0.0040	0.0003	0.0001	LAKE 005	Commuous Pro-Raled Pumping
L	1	1	03.30	0.13	1	1		1	1	0.00	0.0001	1	1

Drawdown Calcu	lations Using Theis	s Equation											
Theis Equation:	s = [Q/(4*T*pi)][W(u = (r*r*S)/(4*T*t) W(u) = (-In u)-(0.5	(u)] 772157)+(u/1*1!)-(u*u/2*2!)+(u*u*u/:	3*3!)-(u*u*u*u/4*4!))+								
	s = drawdown (L) T = transmissivity S = storage coeffic pi = 3.141592654	(L*L/T) cient (dimensionl	less)		r = radial dis t = time (T) u = dimensio W(u) = well	stance (L) onless function							
Transmissivity	Transmissivity	Storage	Pumping Rate	Pumping Rate	Time	Distance	рі	u	W(u)	Drawdown	Drawdown	Well	Comments
T (and/ft)	T (#2/dov)	Coefficient	Q (cal/min)	Q (#2/coc)	t (davc)	r (foot)				S (foot)	Change s		
(gpa/it)	(Itz/day)	3	(gai/min)	(Its/sec)	(uays)	(leet)				(leet)	(leet)		
								Note : W(u) calculation v	valid when u <	7.1		
									-				
Note	: yellow grid areas	are where valu	es are calculated					7.0000	1.1545E-04				W(u) calculation test
"From" POA well	s to Silver I ake (Tr	ansmissivity fr	om Morgan (1988)	and McFarland ar	nd Ryals (19	91)): Used S	= 0 001						
			om morgan (1000)				0.001						
112,207.80	15,000.00	0.00100	169.99	0.38	245.00	88,605.00	3.14	0.5341	0.5205	0.0904		LAKE 691	Continuous Pumping at Full Rate
			169.99	0.38						0.09			
	- Cilver Lake (Trees		Mannan (4000) and	d McCorlond and C	Duele (4004)		004						
TO POA wells to	oSliver Lake (Trans	smissivity from	Morgan (1988) and	a wicharland and r	Ryais (1991))): Usea 5 = 0.	001						
112,207.80	15,000.00	0.00100	169.99	0.38	245.00	84,460.00	3.14	0.4853	0.5780	0.1004		LAKE 685	Continuous Pumping at Full Rate
			169.99	0.38						0.10	0.0100		
"From" POA well	s to Silver Lake (Tr	ansmissivity fr	om Morgan (1988)	and McFarland an	nd Ryals (19	91)): Used S :	= 0.001						
112.207.80	15.000.00	0.00100	83.96	0.19	245.00	88.605.00	3.14	0.5341	0.5205	0.0446		LAKE 691	Continuous Pro-Rated Pumping
,			83.96	0.19						0.04			
"To" POA wells to	oSilver Lake (Trans	missivity from	Morgan (1988) and	d McFarland and I	Ryals (1991))): Used S = 0.	001						
112 207 80	15 000 00	0.00100	83.06	0.10	245.00	84 460 00	3 1/	0 4852	0.5780	0.0496	l	1 AKE 685	Continuous Pro-Pated Pumping
112,207.00	13,000.00	0.00100	83.96	0.19	240.00	04,400.00	5.14	0.4000	0.3780	0.05	0.0049	LANE 000	Continuous i 10-Nated Fullipling
L	1	1	23.00	5.10	1	1		-	1	0.00	0.0040		

Drawdown Calcu	lations Using Theis	Equation											
Theis Equation:	s = [Q/(4*T*pi)][W(u = (r*r*S)/(4*T*t) W(u) = (-In u)-(0.57	u)] 72157)+(u/1*1!))-(u*u/2*2!)+(u*u*u/:	3*3!)-(u*u*u*u/4*4!))+								
	s = drawdown (L) T = transmissivity (S = storage coeffic pi = 3.141592654	L*L/T) ient (dimensionl	ess)		r = radial dis t = time (T) u = dimensio W(u) = well	stance (L) onless function							
Transmissivity	Transmissivity	Storage	Pumping Rate	Pumping Rate	Time	Distance	pi	u	W(u)	Drawdown	Drawdown	Well	Comments
T (and/ft)	T (ft2/dov)	Coefficient	Q (gal/min)	Q (#2/222)	t (dava)	r (foot)				S (feet)	Change s		
(gpu/it)	(Itz/uay)	3	(gai/min)	(Its/sec)	(uays)	(leet)				(leet)	(leet)		
								Note : W(u) calculation v	valid when u <	7.1		
Note	yellow grid areas	are where valu	es are calculated					7.0000	1.1545E-04				W(u) calculation test
"From" BOA well	e to Paulina Mareh	(Transmissivity	from Morgan (19	88) and McEarland	d and Pyale	(1991)): Lleod	S = 0.001						
TTOIL FOA Well		(manshiissivity	y nom worgan (19		a ana ityais	(1991)). Used	5 - 0.001						
112,207.80	15,000.00	0.00100	169.99	0.38	30.00	102,735.00	3.14	5.8636	0.0004	0.0001		LAKE 691	Continuous Pumping at Full Rate
			169.99	0.38						0.00			
"T - " DOA	Deulius Mansh (T				Durle (44		0.004						
"To" POA wells to	o Paulina Marsh (Tr	ansmissivity fr	om Morgan (1988)	and McFarland a	nd Ryals (19	991)): Used S =	= 0.001						
112.207.80	15.000.00	0.00100	169.99	0.38	30.00	95.805.00	3.14	5.0992	0.0010	0.0002		LAKE 685	Continuous Pumping at Full Rate
,			169.99	0.38						0.00	0.0001		= = = = = = = = = = = = = = = =
"From" POA well	s to Paulina Marsh	(Transmissivity	y from Morgan (19	88) and McFarland	d and Ryals	(1991)): Used	S = 0.001						
112 207 80	15 000 00	0.00100	83.06	0.10	30.00	102 735 00	3 1/	5 8636	0.0004	0.0000		LAKE 601	Continuous Pro-Pated Pumping
112,207.00	10,000.00	0.00100	83.96	0.19	30.00	102,735.00	5.14	0.0000	0.0004	0.00		LARE 091	Continuous 110-Italed 1 difiping
"To" POA wells to	o Paulina Marsh (Tr	ansmissivity fr	om Morgan (1988)	and McFarland a	nd Ryals (19	991)): Used S	= 0.001						
110 007 00	45.000.00	0.00100				05.005.00		5 0005	0.0016	0.0004		1.41/5.005	
112,207.80	15,000.00	0.00100	83.96	0.19	30.00	95,805.00	3.14	5.0992	0.0010	0.0001	0.0001	LAKE 685	Continuous Pro-Rated Pumping
L		l	03.90	0.19	L					0.00	0.0001		

Drawdown Calcu	lations Using Thei	s Equation											
Theis Equation:	s = [Q/(4*T*pi)][W u = (r*r*S)/(4*T*t) W(u) = (-In u)-(0.5	(u)] 772157)+(u/1*1!)-(u*u/2*2!)+(u*u*u/:	3*3!)-(u*u*u*u/4*4!))+								
	s = drawdown (L) T = transmissivity S = storage coeffic pi = 3.141592654	(L*L/T) cient (dimensionl	less)		r = radial dis t = time (T) u = dimensio W(u) = well	stance (L) onless function							
Transmissivity	Transmissivity	Storage	Pumping Rate	Pumping Rate	Time	Distance	рі	u	W(u)	Drawdown	Drawdown	Well	Comments
T (and/ft)	T (#2/dou/)	Coefficient	Q (rol/min)	Q (#2/222)	t (dava)	r (faat)				S (feet)	Change s		
(gpa/it)	(Itz/day)	3	(gai/min)	(IIS/Sec)	(uays)	(leet)				(leet)	(leet)		
								Note : W(u) calculation v	valid when u <	7.1		
									-				
Note	: yellow grid areas	are where valu	es are calculated					7.0000	1.1545E-04				W(u) calculation test
"From" POA well	s to Paulina Marsh	(Transmissivity	v from Morgan (19	88) and McEarlan	d and Rvals	(1991))· Used	S = 0.001						
TTOM TOA WE		Transmissivit	y nom morgan (15			(1551)). 0300	0 - 0.001						
112,207.80	15,000.00	0.00100	169.99	0.38	245.00	102,735.00	3.14	0.7180	0.3613	0.0627		LAKE 691	Continuous Pumping at Full Rate
			169.99	0.38						0.06			
	Deulius Mansh (T				n d Davida (44		- 0.004						
"To" POA wells t	o Paulina Marsh (I	ransmissivity fr	rom Morgan (1988)	and Micharland a	ind Ryais (19	991)): Used S	= 0.001						
112.207.80	15.000.00	0.00100	169.99	0.38	245.00	95.805.00	3.14	0.6244	0.4328	0.0751		LAKE 685	Continuous Pumping at Full Rate
			169.99	0.38						0.08	0.0124		
"From" POA well	s to Paulina Marsh	(Transmissivity	y from Morgan (19	88) and McFarlan	d and Ryals	(1991)): Used	S = 0.001						
112 207 80	15 000 00	0.00100	83.96	0.19	245.00	102 735 00	3 14	0 7180	0.3613	0.0310		LAKE 691	Continuous Pro-Rated Pumping
112,207.00	10,000.00	0.00100	83.96	0.19	210.00	102,700.00	0.14	0.1100		0.03		Er itte oo i	Continuedo Fre Frated Famping
"To" POA wells t	o Paulina Marsh (T	ransmissivity fr	rom Morgan (1988)	and McFarland a	nd Ryals (19	91)): Used S	= 0.001						
110 007 80	15 000 00	0.00100	82.06	0.10	245.00	05 905 00	2.14	0.6244	0.4229	0.0274			Continuous Dro Dated Duranian
112,207.60	15,000.00	0.00100	83.90	0.19	245.00	90,000.00	3.14	0.0244	0.4326	0.0371	0.0061	LANE 000	Continuous Pro-Rated Pumping
l	1	1	00.00	0.15	1	1		1	1	0.04	0.0001	1	1

NOTICE TO WATER WELL CONTRACTOR 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. WATER WEL STATE OF (Please type) (Do not write al	LL REPORT OREGON State Well P or print) State Permi	vo. 265/18E-31bb
(1) OWNER:	(10) LOCATION OF WELL:	
Name Morrin Minted	County Jake Driller's wel	l number 93
Address PD Jox 240 View Molel	MW 1/4 MW1/4 Section 3/ T.26	S R. BE W.M.
Thousenes Velley Wegon 77638	Bearing and distance from section or subdi	vision corner
(2) TYPE OF WORK (check):		
New Well 😰 Deepening 📋 Reconditioning 🗋 Abandon 🗌		
If abandonment, describe material and procedure in Item 12.	(11) WATER LEVEL: Completed	well.
(3) TYPE OF WELL: (4) PROPOSED USE (check):	Depth at which water was first found	251 ft.
Rotary Driven D Domestic D Industrial D Municipal	Static level 2.3 ft. below lar	nd surface. Date Char Z3 - 86
Dug Bored I Irrigation F Test Well Other	Artesian pressure lbs. per so	uare inch. Date
CASING INSTALLED: Threaded Welded	(12) WELL LOG: Diameter of we	Il below casing 10 "
"Diam. from	Depth drilled 361 ft. Depth of con	mpleted well 360 ft.
"Diam. from	Formation: Describe color, texture, grain si	ze and structure of materials;
It. W It. Gage	and show thickness and nature of each str with at least one entry for each change of for	atum and aquifer penetrated, mation Report each change in
PERFORATIONS: Perforated? [] Yes D No.	position of Static Water Level and indicate p	principal water-bearing strata.
1 of perforator used	MATERIAL	From To SWL
Size of perforations in. by in.	Brown same ton soil	0 2
perforations from ft. to ft.	Brown Sandy Clay	2 25
ft. to ft.	Green clay	25 250
ft. to ft.	white pumus w/p	250251
(7) SCREENS	Green day	251 306
Well screen installed? [] Yes [] Yo	white pumos up	306311
Type Model No	Green Clay	311 334
Diam. Slot size Set from ft to ft	white pomos with	334 340
Diam Slot size	white ALLAN WA	255 273
	Green Glay	357 361 23
(8) WELL TESTS: Drawdown is amount water level is lowered below static level		
Was a pump test made? 🗌 Yes 🚺 No If yes, by whom?	BEOSIMER	
Yield: gal./min. with ft. drawdown after hrs.		1. 12 1.000
<u> </u>		W RCFS DEF
	MATER RECOURCES PERT	CHEGON
Bailer test (200 gal./min) with ft. drawdown after / hrs.	WATER RESOURCES DEPT	
Artesian flow g.p.m.	OMPARIA	
Temperature of water Depth artesian flow encountered ft.	Work started (1+ A 2 7 19 8/2 Com	lated day i/ 72 180
CONTRACTOR	Date well drilling machine moved off of well	1 1 2 100
() CONSTRUCTION:	Date wen diming machine moved off of we	1 april 241900
Well seal-Material used	Drilling Machine Operator's Certificatio	on:
Well sealed from land surface to	Materials used and information report	ed above are true to my
Diameter of well hore helow seel // in	best knowledge and belief.	and is no
Number of sacks of cement used in well seal 55	(Drilling Machine Operator)	Date (19/06 +) 19/0
How was cement grout placed?	Drilling Machine Operator's License No	. 1307
<i>y</i>	Water Well Contractor's Certification.	
	This well was drilled under my find	solicition and this powert is
Was a drive shoe used?	true to the best of my knowledge and	belief.
was a urive snoe useu: I res ly No Plugs Size: location ft.	Name Tyle Olama	
Type of water?	(Person, firm or corporation)	(Type or print)
Type of water: Gepin of strata	Aduress Ministerio	· (~, 7/(L)
Wet well group packed?	[Signed] Tyle Odland	
was went gravet packed? [] Yes [2 No _ Size of gravel:	(Water Well Co	ontractor)
Graver placed from ft.	Contractor's License No. 670 Date	476 × T , 1980
(USE ADDITIONAL SH	EETS IF NECESSARY)	SP*45658-119

		λ.		
WATER WELL REPORT APR 3 198	1 C CO N. R. State Well No	26578	. <u>~_</u> 3{	31,1
STATE OF OREGON WATER DESCURCES	S DEPT		•••••	
WATER RESOURCES	N State Permit No.			
SALEM, ONEG				
(I) OWNER:	(10) LOCATION OF WELL:		10	-
Name IEVY NOTZIGEV	County Lane Driller's well	number	14	3
Address	<u>NW ¼ SW ¼ Section 31 T.26.5</u>	<u>R. 8 E</u>	<u> </u>	<u>W.M.</u>
<u>City</u> State	Tax Lot # Lot Blk	Subo	livision	·
(2) TYPE OF WORK (check):	Address at well location:			
New Well Deepening Reconditioning Abandon				
If abandonment, describe material and procedure in Item 12.	(11) WATER LEVEL: Completed w	ell.		
(3) TYPE OF WELL: (4) PROPOSED USE (check):	Depth at which water was first found 35-6	·······		<u>ft.</u>
Rotary Air M Driven D Demestic D Industrial D Municipal	Static level 2 2 ft. below la	and surface.	Date /	narch 18
Rotary Mud Dug Dirigation Test Well Other	Artesian pressure lbs. pe	r square inc	h. Date	·····
+ 🗆 Bored 🗌 Thermal: Withdrawal 🗆 Reinjection 🗆	(12) WELLLOG: Diameter of well below	casingl.	0"	
(5) CASING INSTALLED: Steel	Depth drilled 33 / ft. Depth of	completed w	/ell 5	<u>37 ft.</u>
14 D Threaded Welded	Formation: Describe color, texture, grain size and struthickness and nature of each stratum and equifer none	icture of ma	aterials;	; and show
	for each change of formation. Report each change in p	position of S	static W	ater Level
	and indicate principal water-bearing strata.			
✓ LINER INSTALLED:	MATERIAL	From	То	SWL
	Sandy Brown soil	0	4	
(6) PERFORATIONS: Perforated? \Box Yes V No	Brown clay	4	17	
Type of perforator used	Green day	17 1	50	
Size of perforations in. by in.	Gray Clay	150 2	281	·····
perforations from ft. to ft.	Green day	2813	100	
	Brown day	3003	44	
perforations from ft. to ft.	Brown shale	3463	56	
(7) SCREENS: Well screen installed?	Brotten shale 1/0	306 3	360	<u>, , , , , , , , , , , , , , , , , , , </u>
Manufacturer's Name	bake a chale	300 C	1.83	<u>~</u>
Type	Bothum chale	400 7	497	22_
Diam. Slot Size	Broken aray har It in	4985	77	
Diam	- Julien July case. D	L LO V	-02	
(8) WELL TESTS: Drawdown is amount water level is lowered				
below static level				
a pump test made? Yes No If yes, by whom?				
reid: gal./min. with ft. drawdown after hrs.				
Aintent 1600 - Their still hill - 177 - 1				
Rif test 1600 gai. min. with drill stem at 3.37 it. 1 hrs.	·			
Baner test gat./min. with it. drawdown after hrs.				
Perpendicute of water Donth artesian flow ancountered ft				
	Work started March 16 19 7 Complete	<u>a mar</u>	<u>eh 1</u>	5 19 81
(9) CONSTRUCTION: Special standards: Yes D No V	Date well drilling machine moved off of well	<u>ch l</u> e	1	1981
Well sealMaterial used	Drilling Machine Operator's Certification:			
Diameter of well have to bettern of seel	This well was constructed under my direct s	upervision	. Mater	rials used
Diameter of well hore below seel	[Signed] Stan L- Ada ms	Data /	norl	9 10 81
Number of sacks of cement used in well seal 4.6 sacks	(Drilling Machine Operator)	ハク		U 10 M.(
How was cement grout placed? Dressure grouted	Drilling Machine Operator's License No			
1	Water Well Contractor's Certification:			
	This well was drilled under my jurisdiction	and this p	report	is true to
Was pump installed?	the best of my knowledge and belief.			
Was a drive shoe used? Yes No Plugs	Name	}	(Type or	pri a t/
Did any strata contain unusable water? 🗆 Yes 💆 No	Address J. Dox 467 Choise	ment.	Oa	lley E
Type of water? depth of strata	[Signed] The later of the second		976	3815
Wetnod of sealing strata off	(Water Well Contract	or) 1 4	••••	·····(.).
masswerr graver packet: Ites Ly NO Size of gravel: Gravel placed from ff to ft	Contractor's License No. 6. 7.Q. Date. Me	<u>~~~</u>	•••••	, 19. 3./ .
				······
The original and first copy of this report are to be filed with the	WALEN, RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.		SP	~12658-690

	101
MATER RESOURCE	EDEPT - 2/25/18F-3/20
WATER WELL REPORT	GON State Well No. ACTOR ST au
STATE OF OREGON $V_{\rm IN}$ JUNO 1 1981	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
WATER RESOURCES	DFPT State Permit No.
SALEM OREGO	921. N
(1) OWNER.	
(I) OWNERG	(10) LUCATION OF WELL:
Name NOJ 21991	County La Ile Driller's well number D 6
Address for to H 3 1	$\underline{\eta}$ $\underline{\zeta}$
City Mitedlines / aller State Mil	Tax Lot # Lot Blk Subdivision Address at well leastion:
(2) TYPE OF WORK (check): //	Autress at wen location.
New Well 🗹 Deepening 🗆 Reconditioning 🗆 Abandon 🗆 🔤	
If abandonment, describe material and procedure in Item 12.	(11) WATER LEVEL: Completed well.
(3) TYPE OF WELL: (4) PROPOSED USE (check):	Depth at which water was first found TNO ft.
Rotary Air D Driven D Domestic D. Industrial D Municipal D	Static level 2/72 It. below land surface. Date May 1/
Rotary Mud 🗋 Dug 📋 Irrigation 🐼 Test Well 🗋 Other	Artesian pressure los, per square inch. Date
Bole Bored I Thermal: Withdrawal Reinjection	(12) WELL LOG: Diameter of well below casing 1
(5) CASING INSTALLED: Steel Plastic D	Depth drilled <u>5</u> <u>0</u> ft. Depth of completed well <u>5</u> <u>//</u> ft.
(↓ "Bin to Welded Ω Welded Ω	thickness and nature of each stratum and aquifer penetrated, with at least one entry
"Diam from the from t	for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strate
	MATERIAL From To SWL
ft. Gauge	Discon sanay soil 0 2
(6) PERFORATIONS: Perforated? Yes V No	Greenich law 18 110
Type of perforator used	Prosicional Administra
Size of perforations in. by in.	brown Shale - med 449512 211/2
perforations from ft. to ft.	Broken seams W/B
perforations from	Gray husalt-hard, 510 531
	Broken basalt layered 331 533 2142
(7) SCREENS: Well screen installed? \Box Yes \checkmark No	with hard solid Basalf
Manufacturer's Name	u/B
Type	· · · · · · · · · · · · · · · · · · ·
Diam. Slot Size	
Diam. Slot Size	
(8) WELL TESTS:	
Was a pump test made? \Box Yes \blacksquare No If yes, by whom?	· · · · · · · · · · · · · · · · · · ·
.1: gal/min. with ft. drawdown after hrs.	
Air test 1400 gal./min. with drill stem at 583 ft. hrs.	
Bailer test gal/min. with ft. drawdown after hrs.	
Artesian flow g.p.m.	
Depth artesian flow encountered ft.	Work started May 23 19 81 Completed May 27 1981
(9) CONSTRUCTION: Special standards: Yes D No	Date well drilling machine moved off of well may 28 1981
Well seal-Material used	Drilling Machine Operator's Certification:
Well sealed from land surface to ft.	This well was constructed under my direct supervision. Materials used
Diameter of well bore to bottom of seal	and information reported above are true to my best knowledge and belief.
Diameter of well bore below seal \dots 10^{-1} \dots 10^{-1}	(Drilling Machine Operator) 12 07
How was compart mout placed?	Drilling Machine Operator's License No
now was cement group placed.	Water Well Contractor's Certification:
	This well was drilled under my jurisdiction and this report is true to
Was pump installed?	the best of my knowledge and belief.
Was a drive shoe used? 🗆 Yes 📢 No 🔄 Plugs Size: location	Name
Did any strata contain unusable water? 🗋 Yes 🗹 No	Address Star Kt. Alver Jelle One 97638
Type of Water? depth of strata	10 mail a fella fella
Method of sealing strata off	(Water Well Contractor)
Was well gravel packed? Ves V No Size of gravel:	Contractor's License No. 6. 70 Date Mory 2. 7. 19.8/
NOTICE TO WARE WARE A COOP	
The original and first copy of this report	WALLER RESOURCES DEPARTMENT, V SP*12658-690 SALEM, OREGÖN 97310
are to be filed with the	within 30 days from the date of well completion.

WATER WELL REPORT	VEU 1981 State Well No. Las 185-32 State Permit No.
(1) OWNER: (1)	(10) LOCATION OF WELL:
Name I GRY WATZ GOV	County (6 TP Drillov's well sumher) G
Address Plant A Vertice	UP 4 (11 4 Sortion 27 T 765 P 186 WW
Gin POL: 4.57 State DAD	$\frac{1}{12} \frac{1}{12} \frac$
Grave L 71	Address at well location
(2) TYPE OF WORK (check):	
If abandonment, describe material and procedure in Item 12.	(11) WATER LEVEL: Completed well.
	Depth at which water was first found 400 ft.
(3) I IPE OF WELL: (4) PROPOSED USE (cneck):	Static level 15 12 ft. below land surface. Date
Rotary Air M Driven D Domestic D Industrial D Municipal D	Artesian pressure lbs. per square inch. Date
ie Bored Dug Thermal: Withdrawal Reinjection	(12) WELLLOG: Diameter of well below casing 101
(5) CASING INSTALLED: Steel 😼 Plastic 🗆	Depth drilled 43, ft. Depth of completed well 43, ft.
Threaded U Welded X 	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.
LINER INSTALLED:	MATERIAL From To SWL
" Diam. from ft. to ft. Gauge	brown soil D 2
	bown clay a ad
Type of perforator used	Oreen cloy 20 311
Size of perforations in by in	pund seam 311 312
nonformations from the to the	arey clou 312 4th
norferations from the to the	Veni broken arey pagalt 14/06/422/18/2
perforations from the to the	
(i) Southinks. wen screen instanct: if is the instanct: Manufacturer's Name	
Has a nump tost made? Vog No. If yos hy whom?	
d: gal/min with ft drawdown after hrs	
Air test 11000 gal./min. with drill stem at 422 ft. 1 hrs.	
Bailer test gal/min. with ft. drawdown after hrs.	
tesian flow g.p.m.	
Depth artesian flow encountered ft.	
(9) CONSTRUCTION:	Work started Hpr(0 19 8 Completed Apr(0 196)
Well seel Material word CCOCO4	Date wen di minig machine moved on or wen Harri 200 1901
Well sealed from land surface to 100	Drilling Machine Operator's Certification:
Diameter of well have to better of seel $\sqrt{7}$ in	This well was constructed under my direct supervision. Materials used
Diameter of well here halow each 10^{0} in	[Signed]
Number of contract used in well and	(Drilling Machine Operator)
How was cement grout placed?	Drilling Machine Operator's License No
	water Well Contractor's Certification:
	This well was drilled under my jurisdiction and this report is true to
was pump installed?	Name Lyle alerus
was a drive shoe used? U Yes RNo Plugs	(Type or print)
Type of Water?	Address wear M. Kilver Vakile Dure 91635
A spectra depth of sealing strate off	[Signed] Jula Channe
Was well araval nackad?	(Water Well Contractor)
Gravel placed from the to the fit	Contractor's License No. 4. 7. U. Date
The original and first copy of this report	SALEM, OREGON 97310 within 30 days from the date of well completion.

WATER WELL REPORT	RECEIVED State Well No. 265/18E. 3200
(0°691 w	State Permit No
(1) OWNER:	(10) LOCATION OF WELL:
(1) UNITED Defiger	County LOKO Deillows well sumshare 197
Address NAX CLE7	VE4 SECTION 32 T 265 B / TE WM
City (hVist n 155 Valley State OKE	Tax Lot # Lot Blk Subdivision
	Address at well location:
(2) TYPE OF WORK (check):	
New Well 🗙 Deepening 🗆 Reconditioning 🗆 Abandon 🗆	(11) WATER LEVEL: Completed well
If abandonment, describe material and procedure in Item 12.	Danth at which water was first found
(3) TYPE OF WELL: (4) PROPOSED USE (check):	Static level 22% ft below land surface Date
Rotary Air Driven 🗆 Domestic 🗆 Industrial 🗆 Municipal 🗆	Artesian pressure lbs. per square inch. Date
Rotary Mud Dug Inrigation Inrigation Inrigation Image: Sored Image: Sored Image: Sored Image: Sored Image: Sored	(12) WELLLOG: Diameter of well below casing
(5) CASING INSTALLED: Steel	Depth drilled 483 ft. Depth of completed well 483 ft. Formation: Describe color, texture, grain size and structure of materials; and show
14" Diam. from	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.
LINER INSTALLED:	MATERIAL From To SWL
"Diam. from	Brass soil O 2
	Brown clay & 28
(0) PERFORATIONS: Perforated? L Yes LY No	grey clay-0 28 52
Size of perforations in. by in.	green day Ba 223
perforations from	gray clay puny seams a35 ales
perforations from	green clay aug 315
ft. to ft.	Droken grey possili 70 313 320 2212
(7) SCREENS: Well screen installed? Ves KNo	hard arey denied shill 330190
Manufacturer's Name	are I ment boren hips thing 482 mb
Type Model No	gree access order of the add
Diam Slot Size Set from	
Diam. Slot Size	
(8) WELL TESTS: Drawdown is amount water level is lowered below static level	
Wes a pump test made? \Box Yes λ No If yes, by whom?	· · · · · · · · · · · · · · · · · · ·
d: gal./min. with ft. drawdown after hrs.	
11 11 11 11	
Air test 1400 gal./min. with drill stem at 483 ft. hrs.	
Bailer test gal./min. with ft. drawdown after hrs.	
Artesian flow g.p.m.	
Depth artesian flow encountered	Work started May 28 1981 Completed May 30 1981
(9) CONSTRUCTION: Special standards: Yes D No 🕅	Date well drilling machine moved off of well 198
Well seal—Material used	Drilling Machine Operator's Certification:
Well sealed from land surface to	This well was constructed under my direct supervision. Materials used
Diameter of well here below seel 10 834 in	[Signed] J. C. Coleman Date in a light
Number of sacks of cement used in well seal 440 sacks	(Drilling Machine Operator)
How was cement grout placed? pressure grouted	Drilling Machine Operator's License No7
	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.
was pump installed?	Name Jug Calland
r_{10} any strata contain unusable water? \Box Yes χ No	Address of Caro Control (Dype or print)
Type of Water? depth of strata	TO MO
Method of sealing strata off	[Signed]
Was well gravel packed? Ves X No Size of gravel:	Contractor's License No. 6.90 Date 11, 19.81
Gravel placed from ft. to ft.	//
NOTICE TO WATER WELL CONTRACTOR The original and first copy of this report are to be filed with the	WATER RESOURCES DEPARTMENT, SP*12658-690 SALEM, OREGON 97310 within 30 days from the date of well completion.