

Groundwater Application Review Summary Form

Application # G- 18519

GW Reviewer DENNIS ORLOWSKI

Date Review Completed: 8/16/2017

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☐ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☒ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

PROPOSED WELL 2, CLAC 72276 → NO SURFACE SEAL INDICATED ON LOG

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 08/16/2017
 FROM: Groundwater Section Dennis Orłowski
 SUBJECT: Application G- 18515 Supersedes review of _____
 Reviewer's Name
 Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525. Department staff review groundwater applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. This review is based upon available information and agency policies in place at the time of evaluation.*

A. GENERAL INFORMATION: Applicant's Name: Wayne and Amanda Staehely County: Clackamas

A1. Applicant(s) seek(s) 0.56 cfs from three well(s) in the Willamette Basin,
Pudding River subbasin

A2. Proposed use Nursery (72.6 acres) Seasonality: Year-round

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	CLAC 12273	1	Alluvium	0.560	T4S/R1E-34 NW-SE	3950' S, 1665' W fr NE cor S 34
2	CLAC 72276	2	Alluvium	0.560	T4S/R1E-34 NW-SE	2630' S, 2110' W fr NE cor S 34
3	Proposed	3	Alluvium	0.560	T4S/R1E-34 NE-SE	3545' S, 1200' W fr NE cor S 34

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	230	25	35	5/06/1986	285	0-20	0-285		91-185, 210-224, 255-279	300	240	Air
2	235		45	8/30/1961	108	Unknown	0-108		None	80	55	Unk
3	240	TBD	TBD	TBD	300	TBD	0-285		TBD	TBD	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** The proposed POAs and POU are approximately 4.5 miles northwest of Molalla, Oregon.

The applicant proposes to use two existing wells, CLAC 12273 and CLAC 72276, and a third proposed well not yet drilled, for year-round nursery use on 72.6 acres.

Note: the log for proposed POA Well 2, CLAC 72276, does not indicate the presence of a sealed surface interval; absent this information, it is likely not possible to determine if this well meets current OWRD well construction standards.

A5. ☒ **Provisions of the** Willamette Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☐ are, or ☒ are not, activated by this application. (Not all basin rules contain such provisions.)

Comments: The existing and proposed wells obtain/will obtain groundwater from a confined aquifer, so the pertinent basin rules (OAR 690-502-0240) do not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: Not applicable.

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. Based upon available data, I have determined that groundwater* for the proposed use:

- a. ☐ is over appropriated, ☒ is not over appropriated, or ☐ cannot be determined to be over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b. ☐ will not or ☐ will likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;
- c. ☐ will not or ☐ will likely to be available within the capacity of the groundwater resource; or
- d. ☒ will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource:
 - i. ☒ The permit should contain condition #(s) Medium water-use reporting, 7c (7-yrs. measurements);
 - ii. ☒ The permit should be conditioned as indicated in item 2 below.
 - iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

- B2.
- a. ☐ Condition to allow groundwater production from no deeper than _____ ft. below land surface;
 - b. ☐ Condition to allow groundwater production from no shallower than _____ ft. below land surface;
 - c. ☒ Condition to allow groundwater production only from the alluvial groundwater reservoir ~~between approximately~~ _____ ft. and _____ ft. below land surface;
 - d. ☐ Well reconstruction is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): _____

- B3. **Groundwater availability remarks:** The proposed POAs obtain/will obtain groundwater from water-bearing sand and gravel deposits of the Willamette Aquifer system. The sand and gravel layers typically occur as beds ranging from ~5-20 ft thick, with a total cumulative thickness of ~40-50 feet, and are regularly interspersed with low-permeability silt and clay layers of similar thickness. The uppermost water-bearing layers are overlain by approximately 30-40 ft of silt and clay deposits (Willamette Silt) (Conlon and others, 2005; Gannett and Caldwell, 1998).

Within approximately one mile of the proposed POA locations there are about 25 mostly irrigation and nursery groundwater rights with wells completed in the alluvial aquifer, with several more exempt (domestic) wells also likely in the area. Reported maximum yields in the nearby alluvial wells range up to ~1000 gpm, but are more typically on the order of 50-200 gpm.

Groundwater level data for several alluvial aquifer wells in the area shows relative long-term stability for at least the past 15-20 years (see attached hydrograph). However, seasonal fluctuations can be moderately, on the order of ~20 ft, so there is the potential for seasonal pumping interference.

These factors indicate that water for the proposed use is likely available within the capacity of the resource, but if a permit is granted the recommended permit conditions should be included to monitor and protect the resource and other groundwater rights in the area.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040**C1. 690-09-040 (1): Evaluation of aquifer confinement:**

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	Alluvium (Willamette Aquifer)	☒	☐
2	Alluvium (Willamette Aquifer)	☒	☐
3	Alluvium (Willamette Aquifer)	☒	☐

Basis for aquifer confinement evaluation: The water-bearing zones in existing Wells 1 and 2/proposed Well 3 are/will be overlain by approximately 30-40 feet of low-permeability silts and clays (Willamette Silt). In the central Willamette Valley, Conlon and others (2005) report that fine-grained deposits (silt and clay) of 'more than 40 ft' thickness typically create confined conditions in the underlying water-bearing sand/gravel deposits. Furthermore, static groundwater levels in nearby wells are above the top of water-bearing units within the aquifer. These factors suggest that the proposed wells will obtain groundwater from a confined aquifer.

C2. 690-09-040 (2) (3): Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Wheeler Creek	195-205	160-200	3100	☒	☐	☐	☐	☒
1	2	Bear Creek	195-205	150-190	3670	☒	☐	☐	☐	☒
1	3	Creamery Creek	195-205	200-220	4950	☒	☐	☐	☐	☒
2	1	Wheeler Creek	195-205	160-200	1850	☒	☐	☐	☐	☒
2	2	Bear Creek	195-205	150-190	4930	☒	☐	☐	☐	☒
2	3	Creamery Creek	195-205	200-220	4000	☒	☐	☐	☐	☒
3	1	Wheeler Creek	195-205	160-200	2730	☒	☐	☐	☐	☒
3	2	Bear Creek	195-205	150-190	4025	☒	☐	☐	☐	☒
3	3	Creamery Creek	195-205	200-220	4450	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The estimated groundwater elevations in the alluvial aquifer are coincident with or just above the elevations of SW1, SW2 and SW3 within approximately one mile of each well. Furthermore, local water table maps indicate that groundwater in the alluvial aquifer system either flows towards (gaining reaches) or away from (losing reaches) local streams incised in the Willamette Silt (Conlon and others, 2003, 2005; Gannett and Caldwell, 1998). These facts indicate that the alluvial aquifer and local streams are hydraulically connected.

The depletion of local streams by proposed Well 1 will be attenuated, but not eliminated, by the low vertical hydraulic conductivity (permeability) of the Willamette Silt and other clays and silts that lie between the deeper sands and gravels and the stream beds. Net impacts will be relatively small at the onset of pumping, but will increase with time until a new equilibrium between local recharge and discharge is reached. At that time depletion is expected to be relatively constant throughout the year.

Water Availability Basin the well(s) are located within:

SW1, SW2: Pudding River > Molalla River – above Mill Creek (WID 151)

SW3: Molalla River > Willamette River – at mouth (WID 69796)

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1	☐	☐			☐	67.30	☐	<<25%	☐
1	2	☐	☐			☐	67.30	☐	<<25%	☐
1	3	☐	☐			☐	134.00	☐	<<25%	☐
2	1	☐	☐			☐	67.30	☐	<<25%	☐
2	2	☐	☐			☐	67.30	☐	<<25%	☐
2	3	☐	☐			☐	134.00	☐	<<25%	☐
3	1	☐	☐			☐	67.30	☐	<<25%	☐
3	2	☐	☐			☐	67.30	☐	<<25%	☐
3	3	☐	☐			☐	134.00	☐	<<25%	☐

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

	SW #		Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐

Comments: C3a: The Hunt 2003 analytical stream depletion model was used to estimate 30-day interference at SW1 (Wheeler Creek) caused by pumping Well 2 (worst-case scenario given relative proximity). Model results indicate that interference is expected to be much less than 25% of the maximum allocated pumping rate at 30 days. The model was not applied to the other scenarios because they are farther from respective streams, and thus, given a similar hydrogeologic setting, the estimated 30-day stream depletion percentages would be even less than that estimated for the Well 2/SW 1 scenario.

C3b: not applicable.

C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Intorf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													

(D) = (A) > (C)												
(E) = (A / B) x 100	%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: Not applicable.

C4b. **690-09-040 (5) (b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.**

- C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** _____

References Used: Application file: G-18515.

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

Conlon, T.D., Lee, K.K., and Risley, J.R., 2003, Heat tracing in streams in the central Willamette Basin, Oregon, in Stonestrom, D.A. and Constantz, Jim, eds., Heat as a tool for studying the movement of groundwater near streams: U.S. Geological Survey Circular 1260, chapter 5, p. 29-34.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 2 Logid: CLAC 72276

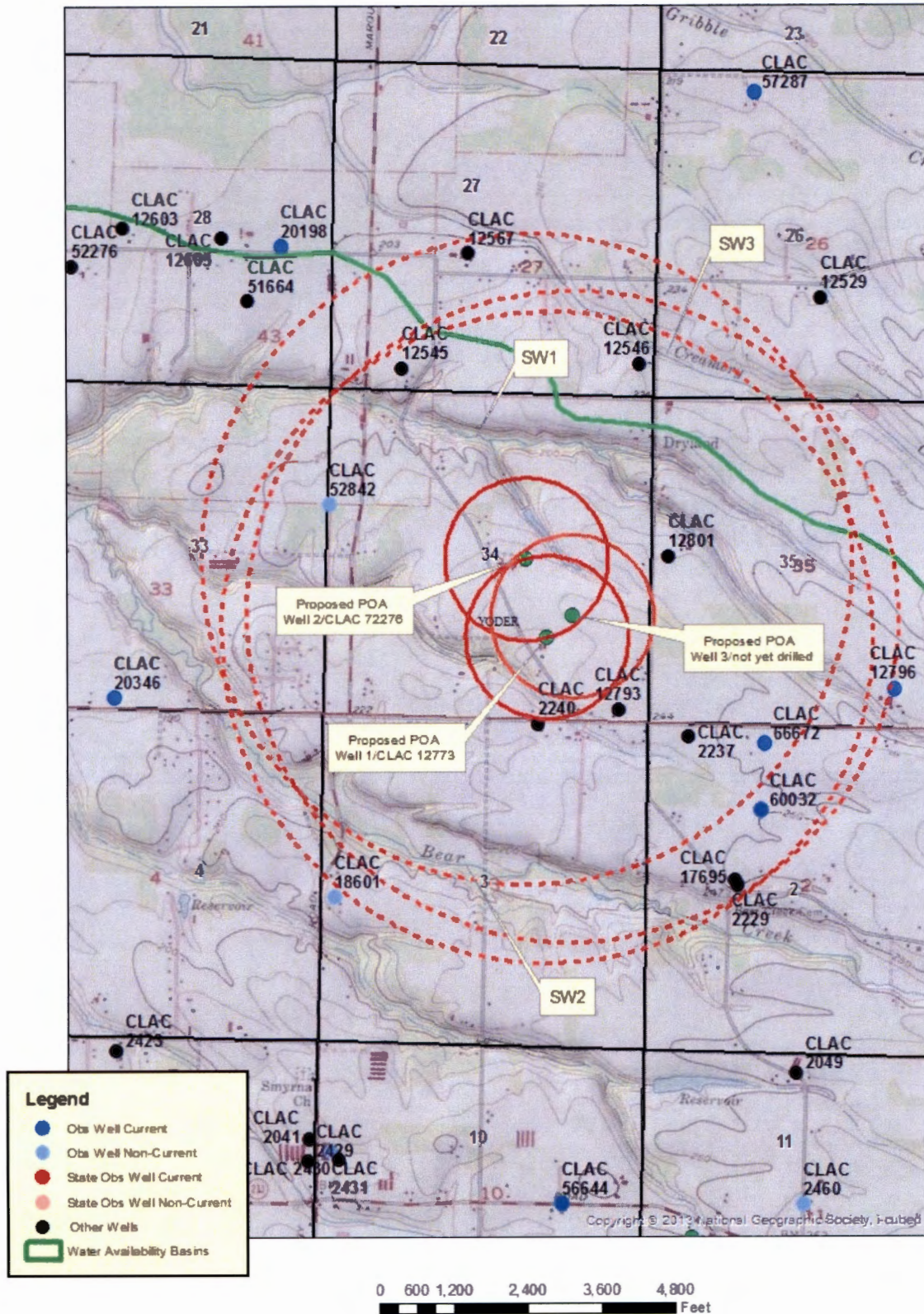
D2. **THE WELL does not appear to meet current well construction standards based upon:**

- a. ☒ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** The log for Well 2, CLAC 72276, does not indicate the presence of a surface seal.

D4. ☒ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Well Location Map

Application G-18515 Staehely
T4S, R1E Section 34

Water Availability Tables

Water Availability Analysis Detailed Reports

PUDDING R > MOLALLA R - AB MILL CR
WILLAMETTE BASIN

Water Availability as of 8/16/2017

Watershed ID # 151 (Map)
Date 8/16/2017

Exceedance Level 80%
Time 11 09 AM

Water Availability Calculation

Consumptive Uses and Storages

Instream Flow Requirements

Reservations

Water Rights

Watershed Characteristics

Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	1,040.00	124.00	916.00	0.00	36.00	880.00
FEB	1,100.00	114.00	1,070.00	0.00	36.00	1,030.00
MAR	1,010.00	75.70	934.00	0.00	36.00	899.00
APR	787.00	51.50	735.00	0.00	36.00	699.00
MAY	425.00	48.90	376.00	0.00	36.00	340.00
JUN	224.00	69.90	154.00	0.00	36.00	118.00
JUL	109.00	110.00	0.97	0.00	36.00	-37.00
AUG	71.00	90.20	-19.20	0.00	36.00	-55.20
SEP	67.30	51.40	15.90	0.00	36.00	20.10
OCT	91.60	11.00	80.60	0.00	36.00	44.60
NOV	363.00	48.30	315.00	0.00	36.00	279.00
DEC	957.00	118.00	839.00	0.00	36.00	803.00
ANN	705,000.00	55,100.00	651,000.00	0.00	26,100.00	627,000.00

Water Availability Analysis Detailed Reports

MOLALLA R > WILLAMETTE R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 8/16/2017

Watershed ID # 69790 (Map)
Date 8/16/2017

Exceedance Level 80%
Time 11 11 AM

Water Availability Calculation

Consumptive Uses and Storages

Instream Flow Requirements

Reservations

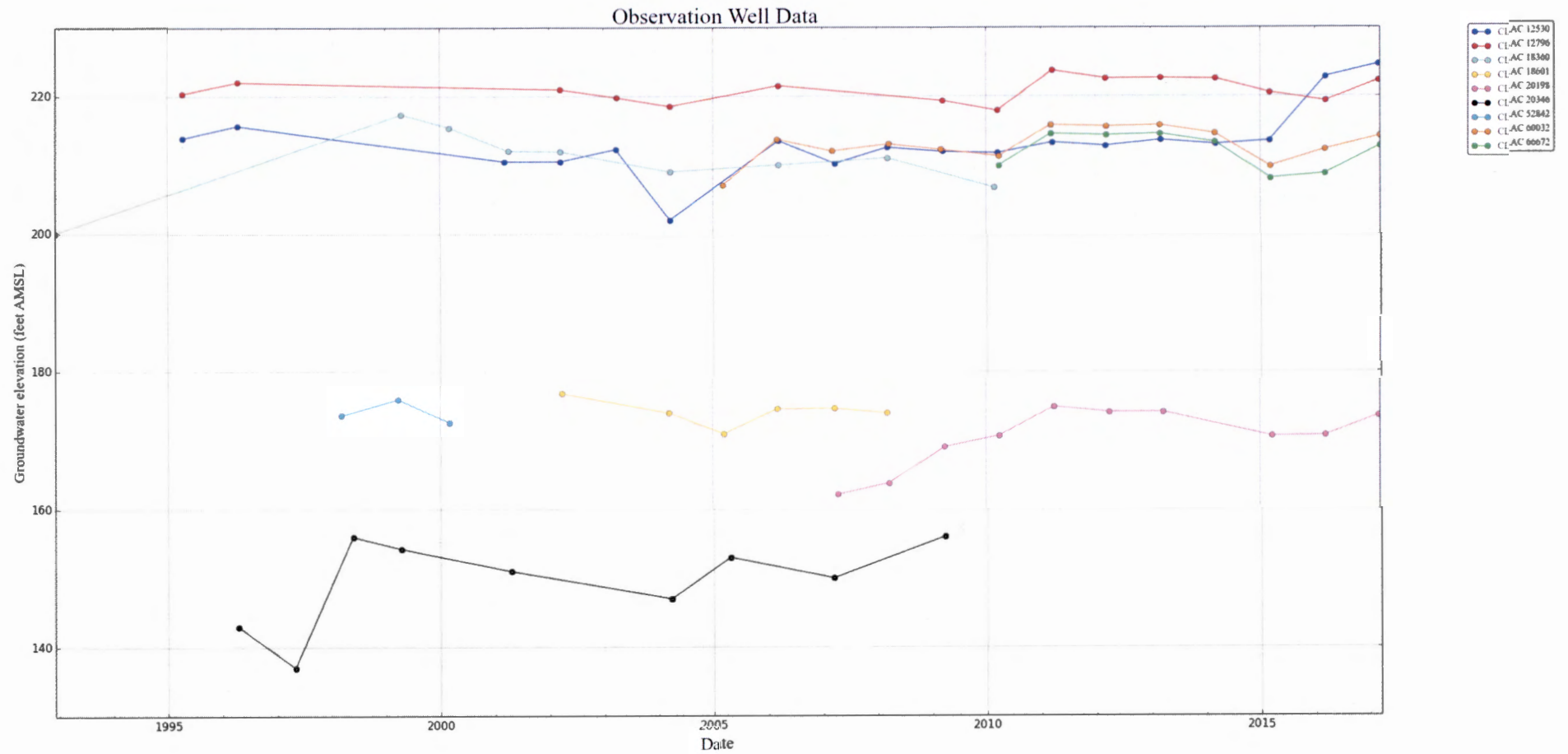
Water Rights

Watershed Characteristics

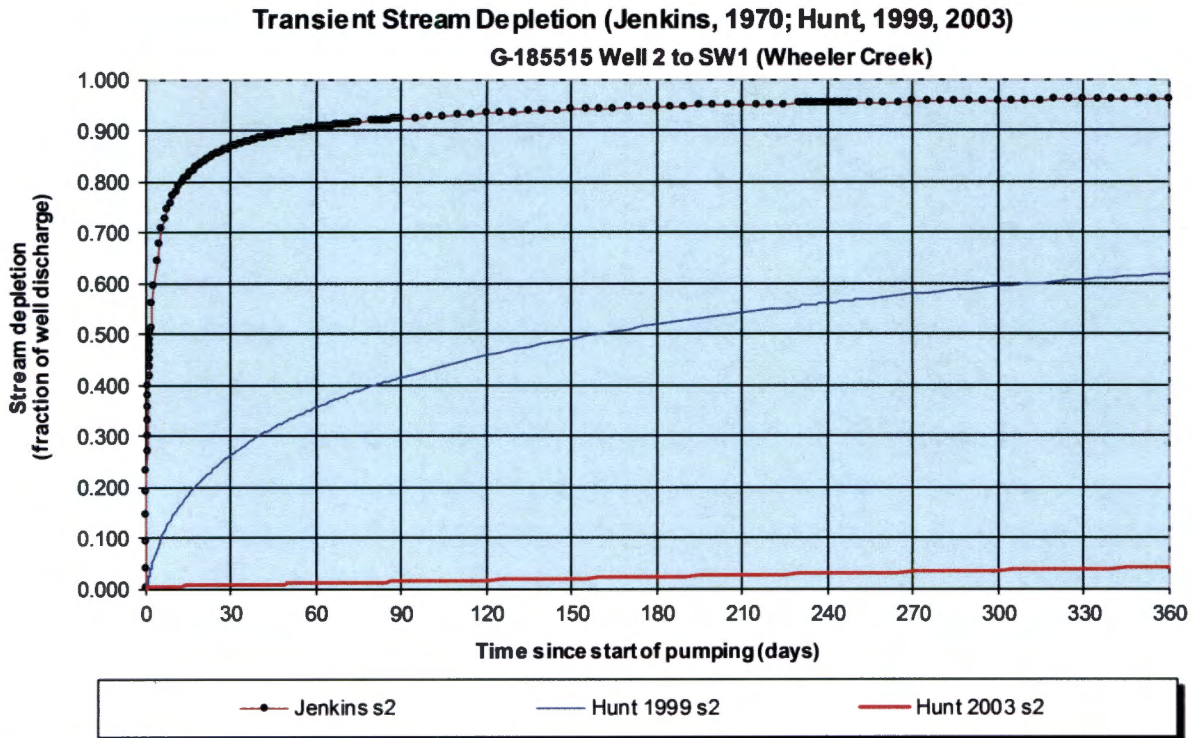
Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	1,870.00	163.00	1,720.00	0.00	500.00	1,220.00
FEB	2,010.00	143.00	1,870.00	0.00	500.00	1,370.00
MAR	1,830.00	111.00	1,720.00	0.00	500.00	1,220.00
APR	1,530.00	84.00	1,450.00	0.00	500.00	945.00
MAY	927.00	96.00	832.00	0.00	500.00	332.00
JUN	431.00	116.00	315.00	0.00	500.00	185.00
JUL	204.00	180.00	24.30	0.00	200.00	-176.00
AUG	139.00	151.00	12.00	0.00	100.00	-112.00
SEP	134.00	80.00	54.00	0.00	150.00	-96.00
OCT	188.00	38.30	150.00	0.00	450.00	-300.00
NOV	637.00	78.60	558.00	0.00	500.00	58.40
DEC	1,700.00	148.00	1,550.00	0.00	500.00	1,050.00
ANN	1,320,000.00	83,200.00	1,240,000.00	0.00	295,000.00	967,000.00

Water-Level Trends in Nearby Wells (static only)

Analytical Stream Depletion Model Results (Hunt, 2003)



Output for Stream Depletion, Scenerio 2 (s2):						Time pump on (pumping duration) = 365 days							
Days	30	60	90	120	150	180	210	240	270	300	330	360	
J SD	86.6%	90.5%	92.2%	93.3%	94.0%	94.5%	94.9%	95.2%	95.5%	95.7%	95.9%	96.1%	
H SD 1999	26.2%	35.5%	41.4%	45.7%	49.0%	51.8%	54.1%	56.0%	57.8%	59.3%	60.6%	61.8%	
H SD 2003	0.74%	1.05%	1.37%	1.69%	2.01%	2.33%	2.64%	2.95%	3.26%	3.56%	3.85%	4.14%	
Qw, cfs	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	0.560	
H SD 99, cfs	0.147	0.199	0.232	0.256	0.275	0.290	0.303	0.314	0.323	0.332	0.339	0.346	
H SD 03, cfs	0.004	0.006	0.008	0.009	0.011	0.013	0.015	0.017	0.018	0.020	0.022	0.023	

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate of well	Qw	0.56	0.56	0.56	cfs
Time pump on (pumping duration)	tpon	365	365	365	days
Perpendicular from well to stream	a	1850	1850	1850	ft
Well depth	d	108	108	108	ft
Aquifer hydraulic conductivity	K	10	50	100	ft/day
Aquifer saturated thickness	b	40	40	40	ft
Aquifer transmissivity	T	400	2000	4000	ft*ft/day
Aquifer storativity or specific yield	S	0.001	0.001	0.001	
Aquitard vertical hydraulic conductivity	Kva	0.1	0.1	0.1	ft/day
Aquitard saturated thickness	ba	35	35	35	ft
Aquitard thickness below stream	babs	10	10	10	ft
Aquitard porosity	n	0.2	0.2	0.2	
Stream width	ws	20	20	20	ft
Streambed conductance (lambda)	sbc	0.200000	0.200000	0.200000	ft/day
Stream depletion factor	sdf	8.556250	1.711250	0.855625	days
Streambed factor	sbfb	0.925000	0.185000	0.092500	
input #1 for Hunt's Q_4 function	t'	0.116874	0.584368	1.168736	
input #2 for Hunt's Q_4 function	K'	24.446429	4.889286	2.444643	
input #3 for Hunt's Q_4 function	epsilon'	0.005000	0.005000	0.005000	
input #4 for Hunt's Q_4 function	lamda'	0.925000	0.185000	0.092500	

CLAC 72276

CLAC 72276

File Original and
First Copy with the
STATE ENGINEER,
SALEM, OREGONWATER WELL REPORT
STATE OF OREGON

State Well No. _____

State Permit No. _____

(1) OWNER:

Name Levis Mossey
Address Rt 2 Box 370 Canby Ore

(2) LOCATION OF WELL:

County Clackamas Owner's number, if any—
Tax Lot 5413 Section 34 T. 4S R. 1E W.M.
Bearing and distance from section or subdivision corner 340102251
at angle corner on west side of Property
Known as Tax Lot 5413

(3) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(6) CASING INSTALLED:

Threaded ☐ Welded ☒
6.00 Diam. from 0 ft. to 108 ft. Gage 1875
" Diam. from _____ ft. to _____ ft. Gage _____
" Diam. from _____ ft. to _____ ft. Gage _____

(7) 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.
perforations from _____	ft.	to _____	ft.
perforations from _____	ft.	to _____	ft.

(8) 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.

(9) CONSTRUCTION:

Was well gravel packed? ☐ Yes ☒ No Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.
Was a surface seal provided? ☐ Yes ☐ No To what depth? _____ ft.
Material used in seal—
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(10) WATER LEVELS:

Static level 44 ft. below land surface Date 8-30-61
Artesian pressure _____ lbs. per square inch Date _____

Log Accepted by: _____

[Signed] Levis Mossey Date 8-31, 1961
(Owner)

(11) WELL TESTS:

Drawdown is amount water level is lowered below static level.

Was a pump test made? ☒ Yes ☐ No If yes, by whom? Driller
Yield: 80 gal./min. with 5.5 ft. drawdown after 4 hrs.

Bailer test gal./min. with _____ ft. drawdown after _____ hrs.

Artesian flow g.p.m. Date _____

Temperature of water 53 Was a chemical analysis made? ☐ Yes ☒ No

(12) WELL LOG:

Diameter of well 5 7/8 inches.Depth drilled 109 ft. Depth of completed well 108 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.

MATERIAL	FROM	TO
Topsoil	0	3
Brown clay	3	28
Blue silt	28	37
Cement gravel (Brown)	27	64
Brown clay	64	67
Cement gravel	67	77
Brown clay	77	83
Cement gravel	83	95
Loose gravel (20 gpm)	95	96
Brown clay	96	104
Loose gravel (water 9 m3)	104	104

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JUN 27 2015

WATER RESOURCES DEPT
SALEM, OREGON

Hardness

P.H. 7.2

Iron (Trace)

Work started 8-23 1961 Completed 8-30 1961

(13) PUMP:

Manufacturer's Name _____

Type: _____ H.P. _____

Well Driller's Statement:

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

NAME S. W. Beck Well Drilling
(Person, firm, or corporation) (Type or print)Address Rt. 3 Box 45 CanbyDriller's well number 504[Signed] John W Beck
(Well Driller)License No. 95 Date 8-30, 1961

(USE ADDITIONAL SHEETS IF NECESSARY)

CLAC 72276

CLAC 72276

Well #2

File Original and
First Copy with the
STATE ENGINEER,
SALEM, OREGON

WATER WELL REPORT

STATE OF OREGON

State Well No.

State Permit No.

(1) OWNER:

Name Levis Massey
Address Rt 2 Box 370 Canby Ore

(2) LOCATION OF WELL:

County Clackamas Owner's number, if any—
Tax Lot 5413 Section 34 T. 4S R. 1E W.M.
Bearing and distance from section or subdivision corner 36010235T
of angle corner on west side of property
Known as Tax Lot 5413

(11) WELL TESTS:

Drawdown is amount water level is
lowered below static level.
Was a pump test made? ☒ Yes ☐ No If yes, by whom? Driller
Yield: 80 gal./min. with 55 ft. drawdown after 4 hrs.

Bailer test gal./min. with ft. drawdown after hrs.

Artesian flow g.p.m. Date

Temperature of water 53 Was a chemical analysis made? ☐ Yes ☒ No

(12) WELL LOG:

Diameter of well 5 7/8 inches.
Depth drilled 109 ft. Depth of completed well 108 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.

MATERIAL	FROM	TO
Topsoil	0	3
Brown clay	3	28
Blue silt	28	37
Cement gravel (Brown)	27	64
Brown clay	64	67
Cement gravel	67	79
Brown clay	79	83
Cement gravel	83	95
Loose gravel (20 g/m)	95	96
Brown clay	96	104
Loose gravel (water 9 m/s)	104	104

(3) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(6) CASING INSTALLED:

Threaded ☐ Welded ☒
6.00 Diam. from 0 ft. to 108 ft. Gage 1875
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(7) 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.
perforations from	ft. to	ft.
perforations from	ft. to	ft.

(8) 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.

(9) CONSTRUCTION:

Was well gravel packed? ☐ Yes ☒ No Size of gravel:

Gravel placed from ft. to ft.

Was a surface seal provided? ☐ Yes ☐ No To what depth? ft.

Material used in seal—

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? Depth of strata

Method of sealing strata off

(10) WATER LEVELS:

Static level 44 ft. below land surface Date 8-30-61

Artesian pressure lbs. per square inch Date

Log Accepted by:

[Signed] Levis Massey Date 8-31, 1961
(Owner)

(13) PUMP:

Manufacturer's Name

Type: H.P.

Well Driller's Statement:

This well was drilled under my jurisdiction and this report is
true to the best of my knowledge and belief.NAME S. W. Beck Well Drilling
(Person, firm, or corporation) (Type or print)Address Rt 3 Box 45 CanbyDriller's well number 504[Signed] John W Beck
(Well Driller)License No. 95 Date 8-30, 1961

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

RECEIVED

MAY 20 1986

PLEASE TYPE or PRINT IN INK

WATER RESOURCES DEPT.

(for official use only)

(1) OWNER:

SALEM, OREGON

Name STEVE GERMANY

Address JACKSON RD

City CANBY

State Oregon

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary Air ☐ Cable Rig ☐ Driven ☐

Rotary Mud ☐ Dug ☐

Cable ☒ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐

Irrigation ☒ Withdrawal ☐ ReInjection ☐

Piezometric ☐ Grounding ☐ Test ☐

(5) CASING INSTALLED:

Steel ☒ Plastic ☐

Threaded ☐ Welded ☒

8" Diam. from 0 ft. to 285 ft. Gauge 25

8" Diam. from 0 ft. to 285 ft. Gauge 25

LINER INSTALLED:

Steel ☐ Plastic ☐

Threaded ☐ Welded ☐

8" Diam. from 0 ft. to 285 ft. Gauge 25

(6) PERFORATIONS:

STAR Perforated? ☐ Yes ☐ No

Size of perforations 1.5 in. by 3/8 in.

530 perforations from 94 ft. to 185 ft.

205 perforations from 240 ft. to 224 ft.

350 perforations from 255 ft. to 279 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?

300 gal./min. with 240 ft. drawdown after 5 hrs.

Air test 300 gal./min. with 275 ft. drawdown after 5 hrs.

Bailer test gal./min. with ft. drawdown after hrs.

Artesian flow g.p.m.

Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Special standards: Yes ☐ No ☒

Well seal—Material used Granular Bentonite

Well sealed from land surface to 20 ft.

Diameter of well bore to bottom of seal 12 in.

Diameter of well bore below seal 8 in.

Amount of sealing material 43 sacks ☒ pounds ☐

How was cement grout placed? Granular Bentonite Method

Was pump installed? No Type HP Depth ft.

Was a drive shoe used? ☒ Yes ☐ No Plug Size: location ft.

Did any strata contain unusable water? ☐ Yes ☒ No

Type of Water? depth of strata ft.

Method of sealing strata off

Was well gravel packed? ☐ Yes ☒ No Size of gravel: ft.

Gravel placed from ft. to ft.

(10) LOCATION OF WELL by legal description:

County CLACKAMAS SW 1/4 NE 1/4 of Section 34

Township 4S Range 1E (Township is North or South) (Range is East or West) WM.

Tax Lot Lot Block Subdivision

MAILING ADDRESS OF WELL (or nearest address)

Same

(11) WATER LEVEL of COMPLETED WELL:

Depth at which water was first found 25 ft.

Static level 35 ft. below land surface. Date May 06, 1986

Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 8 in.

Depth drilled 285 ft. Depth of completed well 285 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
TOPSOIL	1	3	
CLAY BN	3	23	
CLAY GREY	23	26	
CEMENT GRAVEL	26	85	
CLAY TAN	85	91	
CEMENT GRAVEL	91	100	
CLAY TAN	100	116	
CEMENT GRAVEL	116	136	
CLAY GREY	136	157	
CEMENT GRAVEL	157	163	
CLAY GREY	163	174	
CEMENT GRAVEL	174	185	
CLAY BLUE	185	210	
SAND CLAY LAYERS	210	224	
SILT BLACK	224	235	
CLAY BLUE	235	255	
SAND LAYERS IN GREEN CLAY	255	265	
SAND LAYERS GREY CLAY	265	281	
CLAY	281	285	

note: Depth measured from top of well (ie. 1' above ground level)

Date work started Apr 07 86 /completed May 06 86

Date well drilling machine moved off of well May 07 19 86

(unbonded) Water Well Constructor Certification (if applicable):

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

(bonded) Water Well Constructor Certification:

Bond 5834200 Issued by: Thomas Haun

(number) (Surety Company Name)

On behalf of BECK WELL DRILLING

(type or print name of Water Well Constructor)

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

(Signed) Richard Beck

(Water Well Constructor)

(Dated) May 7, 1986

NOTICE TO WATER WELL CONSTRUCTOR

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.

SP#46886-690