MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18612

Date: August 7, 2018

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Dennis Orlowski reviewed the application. Please see Dennis's groundwater review and the Well Log.

Applicant's Well #1(CLAC 60359): Based on a review of the Well Report Applicant's Well #1 appears to protect the groundwater resource.

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

Groundwater Application Review Summary Form

Application # G- 18612

GW Reviewer DENNIS ORLOWSKI **Date Review Completed:** 8/6/2018

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:

[X] 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.

DI 8/6/18

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 8/6/2018

FROM: Groundwater Section Dennis Orlowski
Reviewer's Name

SUBJECT: Application G- 18612 Supersedes review of _____
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: **Trevor Arnold** County: **Clackamas**

A1. Applicant(s) seek(s) 0.33 cfs from three well(s) in the Willamette Basin, Molalla River subbasin

A2. Proposed use Nursery (2.29 acres) Seasonality: 1/1 – 12/31

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 60359	1	Bedrock	0.33	T5S/R2E-14 NE-NE	1200'S, 450' W fr NE cor S 14
2	Proposed	2	Bedrock	0.33	T5S/R2E-14 NE-NE	1500'S, 650' W fr NE cor S 14
3	Proposed	3	Bedrock	0.33	T5S/R2E-14 NE-NE	1500'S, 1000' W fr NE cor S 14

* 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	665	77	219	8/4/2004	308	0-259	+1-259	248-308	288-308	25-40	--	Air
2	640	TBD	TBD	TBD	*	*	*	*	*	TBD	TBD	TBD
3	640	TBD	TBD	TBD	*	*	*	*	*	TBD	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** The POU/POA location is approximately three miles east-southeast of Molalla, Oregon.

*Note: other than casing diameter and source aquifer ("sandstone conglomerate"), planned construction details for the two proposed Wells 2 and 3 are not provided with the application. Thus, for this review it was assumed that Wells 2 and 3 will be constructed similar to existing Well 1, CLAC 60359.

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 proposed POAs obtain/will obtain groundwater from a confined aquifer, and thus 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: **None.**
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) **7C (7-yrs measurements), medium water-use reporting**;
   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 _____ 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:** Proposed Well 1 (CLAC 60359) obtains groundwater from a 75-ft thick sandstone and conglomerate deposit that is overlain by several thick (40-100 ft) clay deposits interspersed with thinner beds of sand, sandstone, and gravel. These deposits likely correspond to the Sardine Formation, which is described as consisting predominantly of mudflow breccias and tuff deposits (the Rhododendron Formation is similarly described and is mapped in areas just to the east). The tuff appears to be interpreted in most driller's logs as "siltstone" or "fine sandstone", or "clay" when it has been sufficiently altered. In this area, the Sardine Formation is also reportedly interfingered with the Little Butte Volcanics, which consists of volcanic flows, pyroclastic rocks, and associated water-laid tuffs (Hampton, 1997; Conlon and others, 2005).

Large-scale groundwater use in this area is relatively low, with mostly domestic wells in the area, and thus available water-level data is also sparse. Data available from one nearby well, CLAC 55698, shows general stability over the past ~15 years, and particularly so in the past 4-5 years (see attached hydrograph).

The well yield reported on the proposed Well 1/CLAC 60359 log ranges from 25-40 gpm (~0.06 – 0.09 cfs). Yields reported on other nearby well logs are similar. Thus is it likely that the three proposed POAs will be required to produce the requested allocation of 0.33 cfs (~148 gpm).

There are known to be several other nearby domestic wells (e.g., CLAC 65933, CLAC 55224, CLAC 20536, CLAC 55698), plus likely additional domestic wells in the area for which records are not available. These wells obtain groundwater from similar depths and thus probably share one or more water-bearing zones. Therefore, despite the stability exhibited with the CLAC 55698 hydrograph, some degree of interference is anticipated from pumping of the proposed POAs. Consequently, if this permit is granted the conditions noted in Section B1d are recommended to protect other existing groundwater users.

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	**Sardine Fm (and possibly Little Butte Volcanics)**	☒	☐
2	**Sardine Fm (and possibly Little Butte Volcanics)**	☒	☐
3	**Sardine Fm (and possibly Little Butte Volcanics)**	☒	☐

Basis for aquifer confinement evaluation: On the log for Well 1 (CLAC 60359) log and other nearby wells, the static water levels are significantly above corresponding water-bearing zones. Furthermore, the deeper water-bearing sandstone, sand, and gravel deposits are overlain by at least several tens of feet of low-permeability clays and silts. These facts indicate confined conditions for the proposed wells.

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	1	**Sorenson Creek**	**420-450**	**420-580**	**2800**	☒	☐	☐	☐	☒
2	1	**Sorenson Creek**	**420-450**	**420-580**	**2750**	☒	☐	☐	☐	☒
3	1	**Sorenson Creek**	**420-450**	**420-580**	**3080**	☒	☐	☐	☐	☒
1	2	**Molalla River**	**420-450**	**360-380**	**3200**	☒	☐	☐	☐	☒
2	2	**Molalla River**	**420-450**	**360-380**	**3250**	☒	☐	☐	☐	☒
3	2	**Molalla River**	**420-450**	**360-380**	**2900**	☒	☐	☐	☐	☒
1	3	**Woodcock Creek**	**420-450**	**360-420**	**4300**	☒	☐	☐	☐	☒
2	3	**Woodcock Creek**	**420-450**	**360-420**	**4600**	☒	☐	☐	☐	☒
3	3	**Woodcock Creek**	**420-450**	**360-420**	**4550**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The estimated range of groundwater elevations is coincident with, or just above, the elevations of SW1, SW2 and SW3 within approximately one mile of the POA locations. These streams have incised through and thus intersect water-bearing deposits tapped by Well 1 (and to be tapped by Well 2 and Well 3). Furthermore, published groundwater maps indicate that groundwater flows towards and discharges to local streams (Gannett and Caldwell, 1998). These facts indicate hydraulic connection between the local aquifer system and SW1, SW2, and SW3. However, this connection is more direct/efficient with SW1 and SW3, both of which discharge to SW2 (Molalla River).

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

SW1, SW3: Milk Creek > Molalla River – at mouth (WID 131).
SW2: Molalla River > Willamette River – above Milk Creek (WID 70747)

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**	☐	☐	**MF131A**	**20.0**	☒	**8.92**	☒	**See comment**	☒
2	**1**	☐	☐	**MF131A**	**20.0**	☒	**8.92**	☒		☒
3	**1**	☐	☐	**MF131A**	**20.0**	☒	**8.92**	☒		☒
1	**2**	☐	☐	**IS70747A**	**78.70**	☐	**54.50**	☐		☐
2	**2**	☐	☐	**IS70747A**	**78.70**	☐	**54.50**	☐		☐
3	**2**	☐	☐	**IS70747A**	**78.70**	☐	**54.50**	☐		☐
1	**3**	☐	☐	**MF131A**	**20.0**	☒	**8.92**	☒		☒
2	**3**	☐	☐	**MF131A**	**20.0**	☒	**8.92**	☒		☒
3	**3**	☐	☐	**MF131A**	**20.0**	☒	**8.92**	☒		☒

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: an appropriate analytical model is not readily available to provide stream interference estimates at 30 days of pumping.

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 Interf.													
(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:

i. ☐ The permit should contain condition #(s)_____;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

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

References Used:

Application G-18596 file.

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.

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.

Hampton, E.R., 1972, Geology and Ground Water of the Molalla-Salem Slope Area, Northern Willamette Valley, Oregon: Geological Survey Water-Supply Paper 1997. 83 p.

US Geological Survey Molalla, Oregon Topographic Quadrangle Map.

OWRD water level database, includes reported water levels, accessed 8/3/2018.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

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

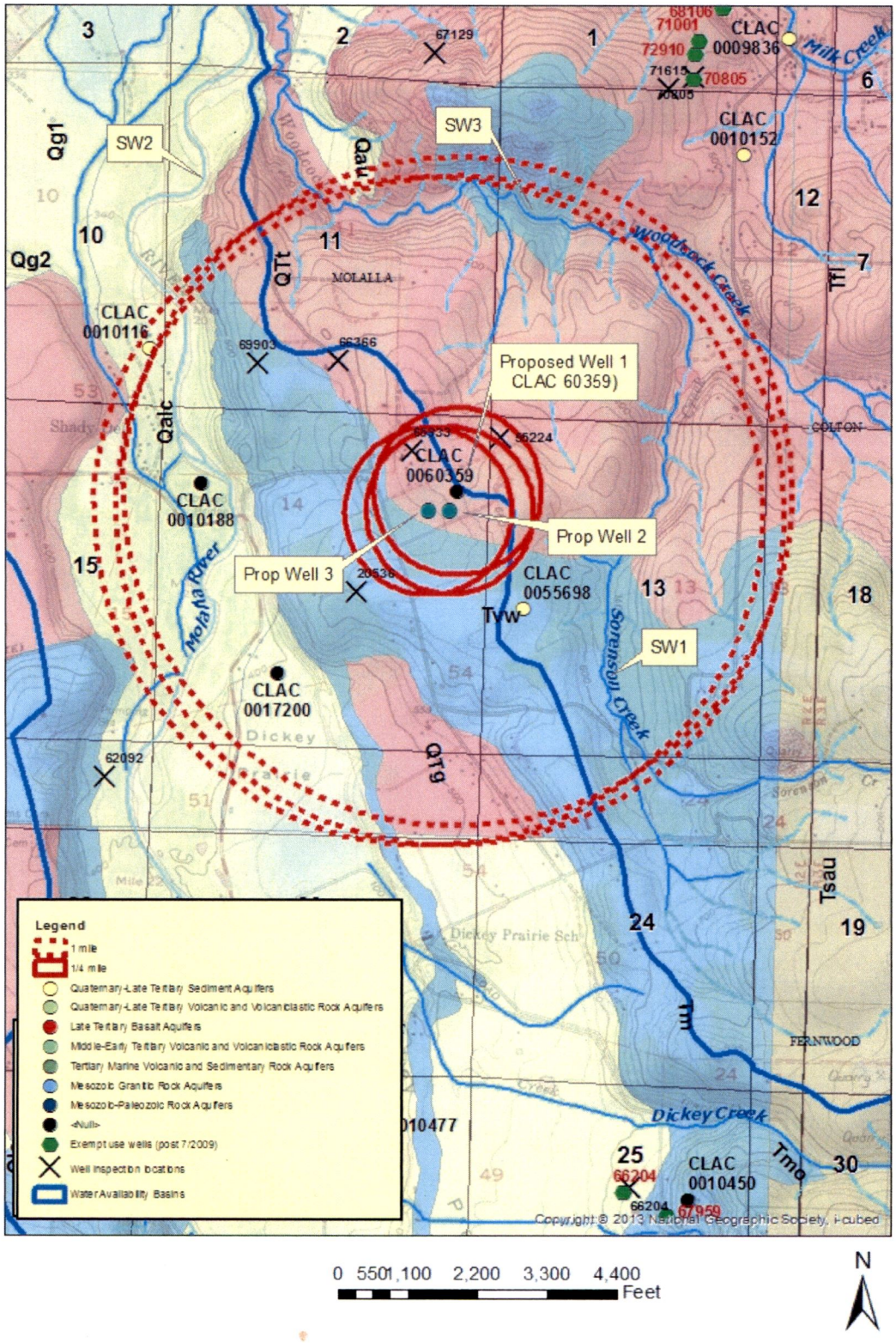
a. ☐ review of the well log;
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____
_____

D3. **THE WELL construction deficiency or other comment is described as follows:** _____
_____
_____
_____
_____

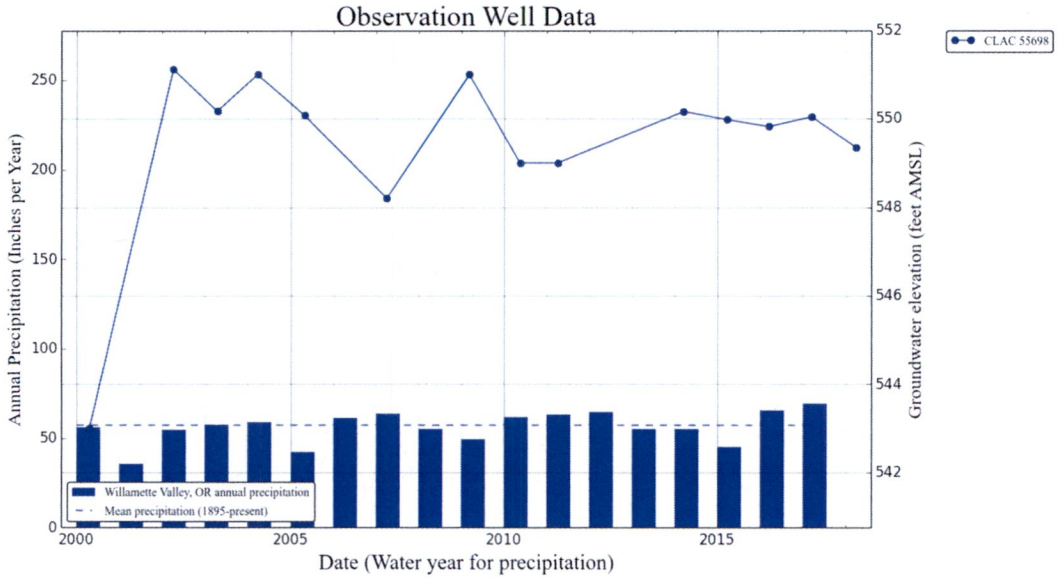
D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Well Location Map

Application G-18612, Arnold
T5S, R2E - Section 14



Water-Level Trends in Nearby Well



Water Availability Tables

Oregon Water Resources Department
Water Availability Analysis

Main Help
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Water Availability Analysis
Detailed Reports

MILK CR > MOLALLA R - AT MOUTH
WILLAMETTE BASIN
Water Availability as of 8/3/2018

Watershed ID # 131 (Map)
Date 8/3/2018

Exceedance Level 80%
Time 12:31 PM

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	124.00	2.10	122.00	0.00	85.00	36.90
FEB	117.00	1.98	115.00	0.00	85.00	30.00
MAR	121.00	1.68	119.00	0.00	85.00	34.30
APR	91.50	1.92	89.60	0.00	85.00	4.58
MAY	58.20	5.04	54.20	0.00	85.00	-30.80
JUN	25.50	7.50	19.00	0.00	60.00	-41.00
JUL	10.80	12.70	1.93	0.00	40.00	-41.90
AUG	8.92	10.50	1.55	0.00	20.00	-21.60
SEP	8.95	4.65	4.30	0.00	20.00	-15.70
OCT	15.20	1.69	13.50	0.00	40.00	-26.50
NOV	32.20	1.55	30.70	0.00	85.00	-54.30
DEC	93.00	2.21	89.80	0.00	85.00	4.79
ANN	93,600.00	3,250.00	90,400.00	0.00	46,700.00	48,700.00

Oregon Water Resources Department
Water Availability Analysis

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Water Availability Analysis
Detailed Reports

MOLALLA R > WILLAMETTE R - AB MILK CR
WILLAMETTE BASIN
Water Availability as of 8/3/2018

Watershed ID # 70747 (Map)
Date 8/3/2018

Exceedance Level 80%
Time 12:32 PM

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	631.00	1.28	630.00	0.00	300.00	330.00
FEB	541.00	1.27	540.00	0.00	300.00	240.00
MAR	569.00	1.30	568.00	0.00	300.00	268.00
APR	591.00	1.57	589.00	0.00	300.00	289.00
MAY	466.00	4.87	461.00	0.00	300.00	161.00
JUN	207.00	6.85	200.00	0.00	200.00	0.15
JUL	85.90	12.10	73.80	0.00	100.00	-26.20
AUG	55.70	9.81	45.90	0.00	78.70	-32.80
SEP	54.50	4.00	50.50	0.00	88.90	-38.40
OCT	90.40	1.38	89.00	0.00	166.00	-77.00
NOV	273.00	1.25	272.00	0.00	300.00	-28.30
DEC	560.00	1.29	559.00	0.00	300.00	259.00
ANN	454,900.00	2,850.00	451,000.00	0.00	165,000.00	287,000.00

CLAC 60359

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

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

Westerberg Drilling, Inc.
36728 S. Kropf Rd.
Molalla, OR 97038

WELL I.D. # L 59816
START CARD # 166730

(1) LAND OWNER Well Number
Name Mike Graves
Address PO Box 531
City Molalla State OR Zip 97038

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

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

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

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes XX No Depth of Completed Well 308 ft.
Explosives used ☐ Yes XX No Type Amount

HOLE Diameter	From	To	Material	SEAL From	To	Sacks or pounds
10"	0	259	Cement	0	259	110 sacks
6 1/8"	259	308				

How was seal placed: Method ☐ A ☐ B XX 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:	6"	+1	259	.250	XX	☐	XX	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4 1/2"	248	308	CL200	☐	XX	screwed	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside XX Outside ☐ None
Final location of shoe(s) 259.5

(7) PERFORATIONS/SCREENS:
XX Perforations Method Saw cut
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
288	308	1/8x3	120			☐	XX
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer XX Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
40	N/A	308'	1 hr.
25	N/A	255'	.25-hr.

Temperature of water 56° Depth Artesian Flow Found
Was a water analysis done? XX Yes By whom Driller
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:
Iron <1.0 hard 5 grains

RECEIVED
AUG 12 2004
WATER RESOURCES DEPT
SALEM, OREGON

(9) LOCATION OF WELL by legal description:
County Clackamas Latitude Longitude
Township 5S N or S Range 2E E or W. WM.
Section 14 NE 1/4 NE 1/4
Tax Lot 1220 Lot Block Subdivision
Street Address of Well (or nearest address) 32280 S. Wright Rd.

(10) STATIC WATER LEVEL:
219 ft. below land surface. Date 8-4-04
Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES:
Depth at which water was first found 77'

From	To	Estimated Flow Rate	SWL
77'	92'	2 gpm	N/A
113'	129'	5 gpm	N/A
268'	308'	40 gpm	219'

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
soil brown	0	2	
clay grey	2	6	
clay brown gritty	6	9	
clay brown firm	9	43	
gravel & sand cemntd brn	43	59	
siltstone brown med	59	77	
sand brown cemented	77	92	
clay blue grey stiff	92	113	
sand & gravel fine to	113		
med cemented grey		129	
clay blue sticky	129	133	
clay brown sticky	133	147	
clay red brown gritty	147	173	
clay tan med	173	204	
clay grey med	204	221	
clay blue gritty	221	229	
clay grey	229	233	
sandstone conglom. gry	233	251	
continued on page 2			

Date started 7-22-04 Completed 8-4-04

(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.
Signed Daniel R. Stadel WWC Number 1487
Date 8-9-04

(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.
Signed Steven M. Stadel WWC Number 688
Date 8-9-04

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

CLAC 60359

36728 S. Kropf Rd., Molalla, OR 97038 • Phone: (503) 829-2526 FAX (503) 829-7514

WELL ID# L 59816
OWNER: Mike Graves
ADDRESS: PO Box 531
CITY/STATE/ZIP: Molalla, OR 97038

WELL ADDRESS: 32280 S. Wright Rd. Molalla, OR 97038
COUNTY Clackamas TOWNSHIP 5S RANGE 2E
SECTION 14 NE 1/4 NE 1/4 TAX LOT 1220

(12) WELL LOG INFO. CONT'D FROM PREVIOUS PAGE:

MATERIAL	FROM	TO	SWL
sandstone grey med to hard	251	268	
sandstone conglomerate grey	268	308	

Westerberg Drilling, Inc.
36728 S. Kropf Rd.
Molalla, OR 97038

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