

Groundwater Application Review Summary Form

Application # G- 18514

GW Reviewer Phil Marcy Date Review Completed: 8/1/2017

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.

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).

WATER RESOURCES DEPARTMENT

MEMO

8/1, 2017

TO: Application G- 18514

FROM: GW: Phil Marcy
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES
The source of appropriation is within or above a Scenic Waterway
 NO

YES
Use the Scenic Waterway condition (Condition 7J)
 NO

Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in Clackamas Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.082	0.082	0.083	0.084	0.084	0.084	0.084	0.084	0.084	0.083	0.083	0.083

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 07/31/2017
 FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
 SUBJECT: Application G- 18514 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: Sandra and Ron Myers County: Clackamas

- A1. Applicant(s) seek(s) 0.07 cfs from 1 well(s) in the Willamette Basin,
Eagle Creek subbasin
- A2. Proposed use Irrigation (2 acres) Seasonality: March 1st – October 31st (245 days)
- 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 54273	1	Alluvium	0.07	2S/4E-31 SW-NW	1100'N, 1850'E fr W ¼ cor, S 31
2						
3						

* 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	336	25	135	135' BLS	280	0-70, 180-205	+1-205	80-280	220-280	30	NA	Air

Use data from application for proposed wells.

- A4. **Comments:** The applicant proposes to irrigate 2 acres from CLAC 54273, which is also being used for domestic supply.
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- 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: Well is in a confined aquifer, so pertinent basin rules do not apply.
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- A6. **Well(s) #** _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: _____
-

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) 7N Annual Measurement Condition;
 - 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:** The measured water level elevation in the applicant’s well (CLAC 54273) corresponds to that of nearby CLAC 56693, which showed reasonably stable water levels over a period of 10 years, from 2002-2012 (see attached hydrograph). Other nearby wells, however, have shown moderate declines over the same period (CLAC 54178 and CLAC 56492), which average roughly one foot per year. Despite the relatively small proposed rate on this application, further development should be approached with caution, therefore condition 7N is recommended if a permit is issued to track changes within the alluvial aquifer system at this location. The potential to cause injury to nearby water rights appears minimal, based upon the rate requested, the distance to nearby rights, and the maximum yield of the applicant’s well.

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	Basin-fill alluvium	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: The applicant's well is completed in saturated fine-grained sediments, producing from lenses of sand, and has a static water level far above the elevation of the water-bearing zone.

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	Eagle Creek	201	214	2070	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Clackamas River	201	194	2740	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Goose Creek	201	330	3715	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: The presence of fine-grained lithologies above the water-bearing zone significantly delay the effects of pumping at the proposed POA well, and render the hydraulic connection to be relatively inefficient, but there is likely vertical migration of groundwater between productive sand and gravel lenses and nearby surface waters.

Water Availability Basin the well(s) are located within: Clackamas R > Willamette R – At Mouth (ID #80)
Eagle Cr > Clackamas R – At Mouth (ID# 96) *This WAB is less than ¼ mile from the proposed POA well, and will likely be affected by groundwater pumping, so will be considered in this review.

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	<input type="checkbox"/>	<input type="checkbox"/>	MF96A	40	<input type="checkbox"/>	16.2	<input type="checkbox"/>	<<25%	<input type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	MF80A	400	<input type="checkbox"/>	822	<input type="checkbox"/>	<<25%	<input type="checkbox"/>
1	3	<input type="checkbox"/>	<input type="checkbox"/>	MF80A	400	<input type="checkbox"/>	822	<input type="checkbox"/>	<<25%	<input type="checkbox"/>

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?
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: Even at full capture, where all water pumped from a well is intercepted from nearby surface waters, the maximum pumping rate would not exceed 1% of 80% of the minimum perennial stream flow for these water availability basins, therefore, expected interference at 30 days was not calculated, and is expected to be much less than 25% of the total pumping rate after 30 days.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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: This section does not apply.

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:** In the vicinity of the wells in this application, approximately 55-60 feet of coarse-grained alluvium overlies nearly 400 feet of undifferentiated fine-grained sediments as defined by Swanson and others (1993). The applicant's well is completed to produce from sand lenses beneath a sequence of fine grained sediments at 240-275 feet in depth. The connection between surface water and ground water via the fine-grained sediments exists but is likely very inefficient. Because nearby logs describe water encountered 20-30 feet below land surface in the coarser alluvium, it is likely that lithologies below that zone are saturated, although the permeability of the finer sediments is much lower than in the gravel and in the sandy lenses within the fine-grained sediments. The recharge to the undifferentiated fine-grained sediments is most likely from seepage from the overlying saturated coarse-grained alluvium and from streams.

References Used: Application file G-18514, application review G-16238, OWRD water level database

Swanson, R.D., Mcfarland, W.D., Gonthier, J.B., and Wilkinson, J.M, 1993, A description of hydrogeologic units in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water-Resources Investigations Report 90-4196, 56 p., 10 sheets, scale 1:100,000 (1993).

USGS Estacada, Oregon 7.5 minute topographic map, 1961, photorevised 1970 and 1975.

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:** _____

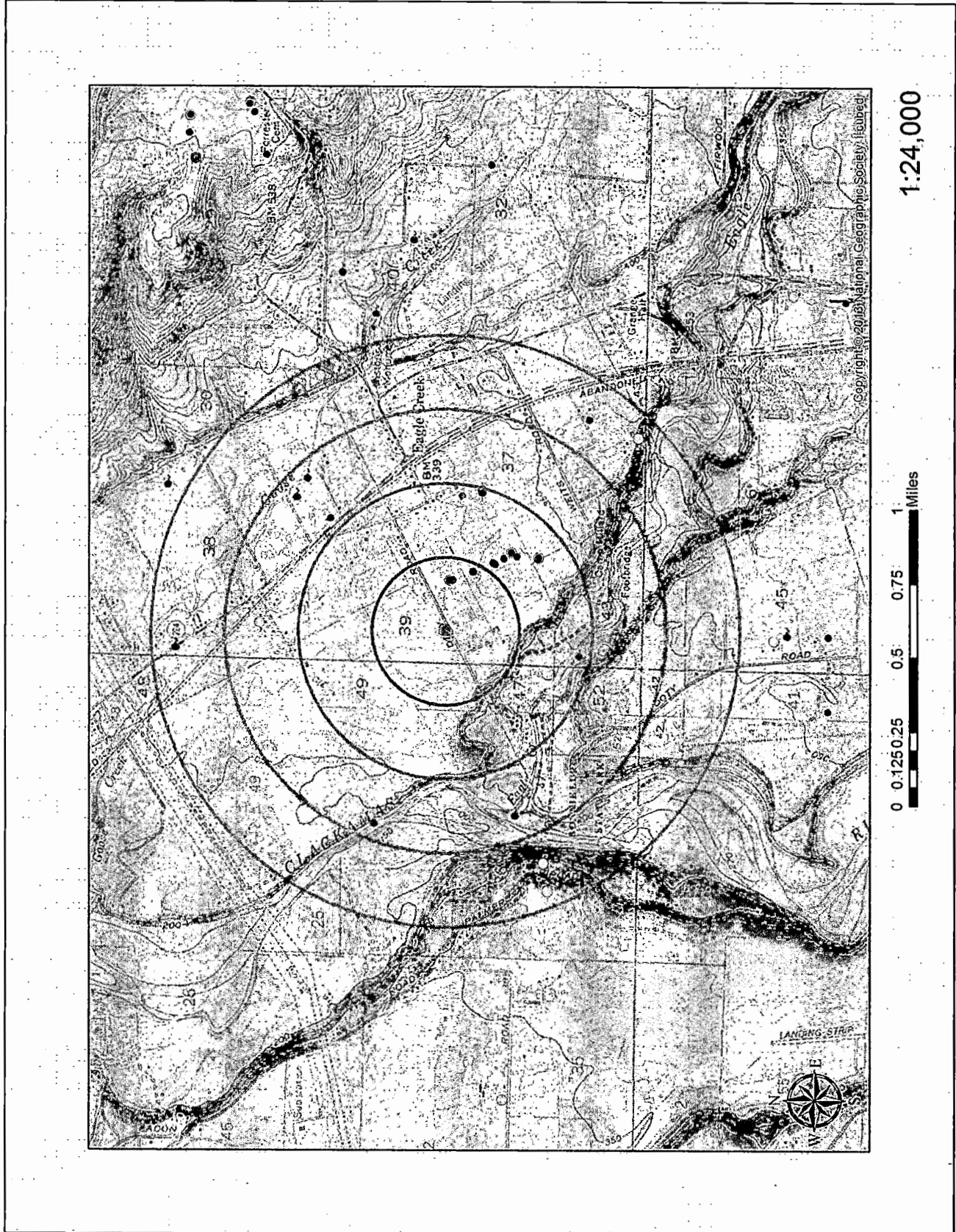
D4. Route to the Well Construction and Compliance Section for a review of existing well construction.

Water Availability Tables

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION						
Watershed ID #: 80		CLACKAMAS R > WILLAMETTE R - AT MOUTH			Exceedance Level: 80	
Time: 4:38 PM		Basin: WILLAMETTE			Date: 07/31/2017	
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	2,670.00	326.00	2,340.00	0.00	1,000.00	1,340.00
FEB	2,900.00	361.00	2,540.00	0.00	1,000.00	1,540.00
MAR	2,800.00	330.00	2,470.00	0.00	1,000.00	1,470.00
APR	3,010.00	399.00	2,610.00	0.00	1,000.00	1,610.00
MAY	2,740.00	397.00	2,340.00	0.00	1,000.00	1,340.00
JUN	1,620.00	309.00	1,310.00	0.00	1,000.00	311.00
JUL	980.00	309.00	671.00	0.00	1,000.00	-329.00
AUG	822.00	294.00	528.00	0.00	890.00	-362.00
SEP	833.00	282.00	551.00	0.00	890.00	-339.00
OCT	882.00	276.00	606.00	0.00	1,000.00	-394.00
NOV	1,630.00	323.00	1,310.00	0.00	1,000.00	307.00
DEC	2,650.00	328.00	2,320.00	0.00	1,000.00	1,320.00
ANN	2,110,000	237,000	1,870,000	0	711,000	1,200,000

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION						
Watershed ID #: 96		EAGLE CR > CLACKAMAS R - AT MOUTH			Exceedance Level: 80	
Time: 4:39 PM		Basin: WILLAMETTE			Date: 07/31/2017	
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	233.00	0.55	232.00	0.00	125.00	107.00
FEB	235.00	0.52	234.00	0.00	125.00	109.00
MAR	241.00	0.50	241.00	0.00	125.00	116.00
APR	279.00	0.57	278.00	0.00	125.00	153.00
MAY	271.00	1.19	270.00	0.00	125.00	145.00
JUN	132.00	1.66	130.00	0.00	100.00	30.30
JUL	54.50	2.90	51.60	0.00	100.00	-48.40
AUG	22.20	2.19	20.00	0.00	40.00	-20.00
SEP	16.20	0.95	15.30	0.00	40.00	-24.70
OCT	19.60	0.48	19.10	0.00	40.00	-20.90
NOV	74.90	0.49	74.40	0.00	125.00	-50.60
DEC	245.00	0.57	244.00	0.00	125.00	119.00
ANN	197,000	762	196,000	0	72,000	129,000

Well Location Map



Water-Level Trends in Nearby Wells

