WATER RESOURCES DEPARTMENT MEMO February 26, 2015

TO: **Application G-** 17606

FROM: J. Hackett **- Groundwater Section**

SUBJECT: **Scenic Waterway Interference Evaluation**

_____ YES
__✓__ NO

The source of appropriation is within or above a Scenic Waterway

_____ YES
__✓__ NO

Use the Scenic Waterway condition (condition 7J)

_____ Per ORS 390.835, the Groundwater Section is able to calculate groundwater interference with surface water that contributes to a Scenic Waterway. The calculated interference distribution is provided below.

_____ Per ORS 390.835, the Groundwater Section is unable to calculate groundwater 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 flows necessary to maintain the free-flowing character of a scenic waterway.

DISTRIBUTION OF INTERFERENCE

Calculate interference as the monthly fraction of the annual consumptive use and fill in the table below. If interference cannot be calculated, per criteria in 390.839, do not fill in the table but check the "unable" option above, thus informing the Water Rights Section that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in the _____ Scenic Waterway by the following amounts, expressed as a proportion of the annual consumptive use pumped from the well.

Monthly Fraction of Annual Consumptive Use

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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date **February 26, 2015**

FROM: Groundwater Section **J. Hackett**
Reviewer's Name

SUBJECT: Application G- **17600** Supersedes review of **April, 9, 2013**
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: **Trent Weseman** County: **Hood River**

A1. Applicant(s) seek(s) **1** cfs from **0.33** well(s) in the **Hood River** Basin, **Middle Fork Hood River** subbasin Quad Map: **Dee**

A2. Proposed use **Irrigation of 26.5 acres** Seasonality: **March 1 – October 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	**HOOD 50173**	**1**	**Alluvium**	**0.33**	**01N/09E-24 SE SE**	**731' N, 39' W fr SE cor S 24**
2	**PROPOSED**	**2**	**Basalt**	**0.33**	**01N/09E-24 SE SE**	**820' N, 39' W fr SE cor S 24**
3						
4						
5						

* 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	**1442**	**39**	**8**	**8/21/1999**	**47**	**0 – 18**	**+1 – 38**	**------**	**------**	**100**	**-----**	**Air**
1			**10.4**	**9/21/2013**								
2	**1440**											

Use data from application for proposed wells.

A4. **Comments:** This re-review uses a different distance from well HOOD 50173 to the channel of Middle Fork Hood River than was used in the previous review (review by M. Norton on 4/9/2013). The distance used in the previous review was determined from the local topographic map (Dee 7.5 minute Quadrangle) that was published in 1974. The distance used in this review is from air photos taken in 2014. The air photos provide a better estimate of the river channel's current position. The applicant prefers to use the existing well producing water from the alluvial aquifer. The basalt well (#2) would only be constructed if Well #1 cannot be used because of hydraulic connection to the Middle Fork Hood River. No information was submitted for the construction of the basalt well.

Requested discharge rate is 148.1 gpm = 0.33 cfs.

A5. ☐ **Provisions of the** _____ 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: **NA**

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
Comments: **NA**

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

ALLUVIAL WELL – HOOD 50173

B1. **Based upon available data**, I have determined that ground water* 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) **7B – Interference, 7N - Annual WL (February/March), 7P – Well Tag, and large reporting with flow meter on each well**;
   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 land surface and the underlying basalt at about 120 feet below land surface;

d. ☐ **Condition** to allow production only from a single aquifer in the Columbia River Basalt groundwater reservoir;

e. ☐ **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): _____

_____

_____

_____

BASALT WELL – PROPOSED

B1. **Based upon available data**, I have determined that ground water* 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) **7B – Interference, 7N - Annual WL (February/March), 7P – Well Tag, and large reporting with flow meter on each well**;
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 **basalt** groundwater reservoir;

d. ☐ **Condition** to allow production only from a single aquifer in the Columbia River Basalt groundwater reservoir;

e. ☐ **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): _____

B5. **Groundwater availability remarks**: Based on water level data collected in the area, groundwater supplies appear to be fairly stable in both the basalt aquifer and the overlying alluvial aquifer. As development of groundwater supplies in this area are limited, water level and water use (flow meter) data are needed to document any impact to either aquifer.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Alluvial**	☒	☐
2	**Basalt (proposed well)**	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Groundwater levels rose above where water was encountered in wells developing both aquifers.

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	**Middle Fork Hood River**	**1435**	**1285**	**1400**	☒	☐	☐	☐	☒
	2	**Trout Creek**	**1435**	**1300**	**3350**	☒	☐	☐	☐	☒
2	1	**Middle Fork Hood River**		**1285**	**1400**	☐	☒	☐	☐	☒
	2	**Trout Creek**		**1300**	**3350**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Water levels in nearby alluvial wells are coincident with or above the elevations of local reaches of the Middle Fork Hood River and Trout Creek. This suggests hydraulic connection between the shallow groundwater streams and nearby surface water sources.

Water Availability Basin the well(s) are located within:#71793: M FK HOOD R > E FK HOOD R – AT MOUTH; #189:E FK HOOD R > HOOD R – AB M FK HOOD R

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	☐	☐	**IS71793A**	**100**	☐	**136**	☐	**<25%**	☐
1	2	☐	☐	**n/a**		☐	**134**	☐	**<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: Modeling in similar circumstances indicates that due to fine-grained sediments in the stream channel, pumping impacts on local streams will be less than 25% of the 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													

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: _____

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: McClaughry, J. D., T. J. Wiley, R. M. Conrey, C. B. Jones, and K. E. Lite Jr. 2012. Digital Geologic Map of the Hood River Valley, Hood River and Wasco Counties, Oregon. Oregon Dept. of Geology and Mineral Industries, Open File Report 0-12-03.

D. WELL CONSTRUCTION, OAR 690-200

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

D2. **THE WELL does not 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**:
- a. ☐ constitutes a health threat under Division 200 rules;
- b. ☐ commingles water from more than one groundwater reservoir;
- c. ☐ permits the loss of artesian head;
- d. ☐ permits the de-watering of one or more groundwater reservoirs;
- e. ☐ other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

D5. **THE WELL**
- a. ☐ **was**, *or* ☐ **was not** constructed according to the standards in effect at the time of original construction or most recent modification.
- b. ☐ I don't know if it met standards at the time of construction.

D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Groundwater Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. ☐ Well construction deficiency has been corrected by the following actions: _____

_____ _____, 200____.

(Enforcement Section Signature)

D8. ☐ **Route to Water Rights Section (attach well reconstruction logs to this page).**

Well Location Map

Water Availability Tables

M FK HOOD R > E FK HOOD R - AT MOUTH
HOOD BASIN

Water Availability as of 2/26/2015

Watershed ID #: 71793 (Map)

Exceedance Level:

Date: 2/26/2015

Time: 9:44 AM

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	216.00	4.77	211.00	0.00	150.00	61.20
FEB	222.00	4.77	217.00	0.00	150.00	67.20
MAR	212.00	14.20	198.00	0.00	150.00	47.80
APR	187.00	18.80	168.00	0.00	221.00	-52.80
MAY	222.00	31.50	191.00	0.00	246.00	-55.50
JUN	190.00	49.20	141.00	0.00	233.00	-92.20
JUL	177.00	63.70	113.00	0.00	150.00	-36.70
AUG	144.00	60.50	83.50	0.00	140.00	-56.50
SEP	144.00	38.00	106.00	0.00	100.00	6.00
OCT	136.00	19.00	117.00	0.00	116.00	1.04
NOV	164.00	13.00	151.00	0.00	145.00	5.96
DEC	193.00	10.30	183.00	0.00	150.00	32.70
ANN	161,000.00	19,900.00	141,000.00	0.00	118,000.00	28,700.00

Detailed Report of Instream Flow Requirements

Instream Flow Requirements in Cubic Feet per Second

Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MF193A	CERTIFICATE	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
IS71793A	CERTIFICATE	150.00	150.00	150.00	221.00	246.00	233.00	150.00	140.00	100.00	116.00	145.00	150.00
Maximum		**150.00**	**150.00**	**150.00**	**221.00**	**246.00**	**233.00**	**150.00**	**140.00**	**100.00**	**116.00**	**145.00**	**150.00**

E FK HOOD R > HOOD R - AB M FK HOOD R
HOOD BASIN

Water Availability as of 2/26/2015

Watershed ID #: 189 (Map)

Exceedance Level:

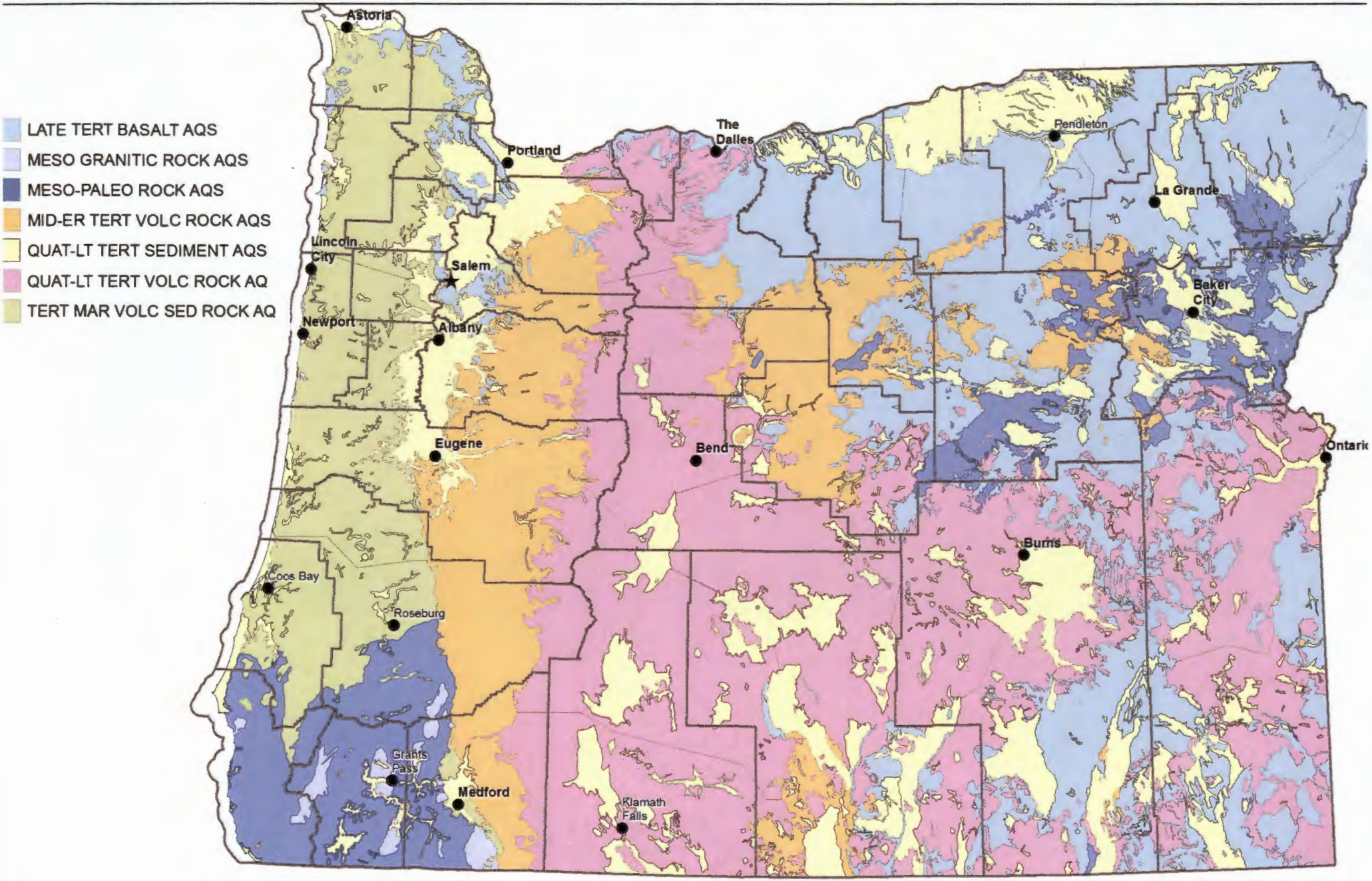
Date: 2/26/2015

Time: 9:32 AM

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	207.00	13.70	193.00	130.00	100.00	-37.00
FEB	268.00	17.50	250.00	136.00	100.00	14.00
MAR	286.00	34.90	251.00	122.00	100.00	28.70
APR	288.00	57.50	231.00	106.00	150.00	-25.90
MAY	308.00	105.00	203.00	117.00	150.00	-63.20
JUN	253.00	151.00	102.00	86.60	150.00	-134.00
JUL	206.00	161.00	44.50	0.00	100.00	-55.50
AUG	152.00	149.00	2.77	0.00	100.00	-97.20
SEP	146.00	109.00	36.90	0.00	100.00	-63.10
OCT	134.00	60.00	74.00	0.00	150.00	-76.00
NOV	163.00	17.80	145.00	45.50	150.00	-50.40
DEC	190.00	12.50	178.00	88.80	150.00	-61.30
ANN	206,000.00	53,900.00	152,000.00	50,000.00	90,600.00	22,000.00


LATE TERT BASALT AQS
MESO GRANITIC ROCK AQS
MESO-PALEO ROCK AQS
MID-ER TERT VOLC ROCK AQS
QUAT-LT TERT SEDIMENT AQS
QUAT-LT TERT VOLC ROCK AQ
TERT MAR VOLC SED ROCK AQ
Astoria
Portland
The Dalles
Pendleton
La Grande
Lincoln City
Salem
Baker City
Newport
Albany
Eugene
Bend
Ontario
Burns
Coos Bay
Roseburg
Grants Pass
Medford
Klamath Falls