

Groundwater Application Review Summary Form

Application # G- 18399

GW Reviewer DENNIS ORLOWSKI

Date Review Completed: 5/16/2017

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.

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 05/17/2017
 FROM: Groundwater Section Dennis Orłowski
 SUBJECT: Application G- 18399 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: Utokia Farms LLC (A. Teuscher) County: Clackamas

A1. Applicant(s) seek(s) 0.0356 cfs from one well(s) in the Willamette Basin,
Milk Creek subbasin

A2. Proposed use: Nursery (4.2 acres), Domestic, Storage 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 13612/50987	1	Alluvium	0.0356	T4S/R2E-5 SW-SE	**

* 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	580	160	110	09/07/1996	209	0-38	+1-70	0-150, 200-210	150-210	~14	51	Pump

Use data from application for proposed wells.

A4. **Comments:**

The requested rate (0.356 cfs, 16 gpm) is the combined total estimated for all three proposed uses.

*NOTE: applicant provided the CLAC 50987 log as the proposed POA, which is a deepening log; an additional search conducted for this review indicates that CLAC 13612 is the original well log corresponding to this deepening log.

**NOTE: the metes and bounds location provided in the application does not correspond at all to the tax lot parcel (1001), which is shown both on the application map and the well log (CLAC 50987) provided with the application. However, Clackamas County tax lot 1001 was confirmed as the general location for the proposed POA (corroborated owner's name and street address), with a hand-drawn application map showing a more specific well location on that tax lot parcel.

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 POA will produce groundwater from a confined aquifer and therefore the pertinent Willamette 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: Not applicable
 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) and 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:** The applicant's proposed POA is located near the southwestern edge of the upland plateau located south and east of Oregon City that divides the Portland Basin and the central Willamette Valley (Figure 1). In this upland area the Boring Lava rests unconformably on the eroded Pliocene Troutdale Formation, and is locally overlain by Quaternary gravel and mudflow deposits. The Troutdale Formation in this area is typically comprised of low permeability silts and clays, with some thin interbeds of water-bearing sand and fine gravel that provide local sources of groundwater (Gannett and Caldwell, 1998; Woodward and others, 1998; Conlon and others, 2005). Local well logs also indicate occasional interfingering of Boring Lava basalt with sedimentary deposits (typically clay and silt); the proposed POA is open to water-bearing portions of the Troutdale Formation, and possibly to a porous section of the Boring Lava. Other nearby wells obtain groundwater from only the Boring Lava or the Troutdale Formation, or possibly some combination of both.

Groundwater development in this area is limited, and thus groundwater level measurement data are likewise sparse. Furthermore, wells relatively close to each other but completed in different aquifers (e.g., Troutdale, Boring Lava) typically show static heads that vary greatly, on the order of up to several hundred feet (Figure 2). Water-bearing zones in each of these aquifers do not appear to be laterally extensive, due largely to the heavily dissected topography in this portion of the upland plateau.

Available groundwater level data for most area wells completed in both alluvial and Boring Lava basalt aquifers have been generally stable for the past 10-plus years. One exception is CLAC 57020, located about 2.3 miles northeast of the proposed POA and with a similar completion depth/aquifer type, that experienced more than a 22-ft decline from 2001 to 2008. Thus, despite the low requested allocation for this application and general groundwater level stability in the area, but because of the limited extent and low storage capacity of these aquifers, the following permit conditions are recommended to protect the resource:

- 7N: annual measurement condition
- Medium water-use reporting

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 (Troutdale Fm)/Boring Lava	☒	☐

Basis for aquifer confinement evaluation:

Well logs (CLAC 13612/50987) for the proposed POA and other nearby wells show static water levels above the principal water-bearing zone(s), typically tens of feet higher. Furthermore, the water-bearing unit in the proposed POA (clayey sand) is overlain by almost 200 feet of low-permeability silt and clay deposits. These facts indicate that the proposed POA obtains 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	Unnamed tributary to Parrott Creek	470	210-400	2100	☒	☐	☐	☐	☒
1	2	Milk Creek	470	180-200	6100	☒	☐	☐	☐	☒
1	3	Unnamed tributary to Buckner Creek	470	240-250	9500	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation:

The most recent groundwater level information for the proposed POA (470 ft msl) is from its 1996 deepening log (CLAC 50987). While it is possible that its static groundwater level is now somewhat lower (re: Section B3 discussion of CLAC 57020 declines), the conclusions of this analysis would not change because the nearby surface water elevations would still be appreciably below groundwater levels in the proposed POA (i.e., because the bottom of the proposed POA is at elevation 360 ft msl, which is still well above most of SW1 and all of SW2 and SW3).

Because the estimated groundwater elevation is above the surface water elevations of all three stream reaches, there is likely some hydraulic connection between groundwater and surface water over those reaches.

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

SW1: Willamette River > Columbia River – at mouth

SW2 & SW3: Milk Creek > Molalla River – at mouth (Figure 3)

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	☐	☐	MF181A	1500	☐	4890	☐	<<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: SW1 (unnamed tributary to Parrott Creek) is located within the Willamette River WAB. Because the requested pumping allocation is extremely low relative to Willamette River flows, it was concluded that potential stream interference at 30 days is much less than 25% (and that stream depletion modeling to substantiate this conclusion was not warranted).

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													
		%	%	%	%	%	%	%	%	%	%	%	%
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:

C4a: the WAB for SW2 and SW3 is the Milk Creek > Molalla River – at mouth. For this WAB, 1% of the lowest natural flow is 0.0892 cfs (August). Because this exceeds the requested allocation of 0.0356 cfs, this evaluation is not required.

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:**C1 (690-09-040 (1))**

The proposed POA, existing well CLAC 13612/50987, produces groundwater from a confined aquifer.

C2 (690-09-040 (2) (3))

The proposed POA is assumed to be hydraulically connected to SW1, SW2 and SW3.

C3a, C3b (690-09-040 (4))

C3a: evaluated only for SW1 (< 1 mile), no PSI.

C3b: not applicable.

C4a (690-09-040 (5))

Lowest 1% natural flow exceeds requested allocation, therefore evaluation not required.

References Used:

Application file: G-18399

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.

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 #: _____ 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.**

Observation Well Data

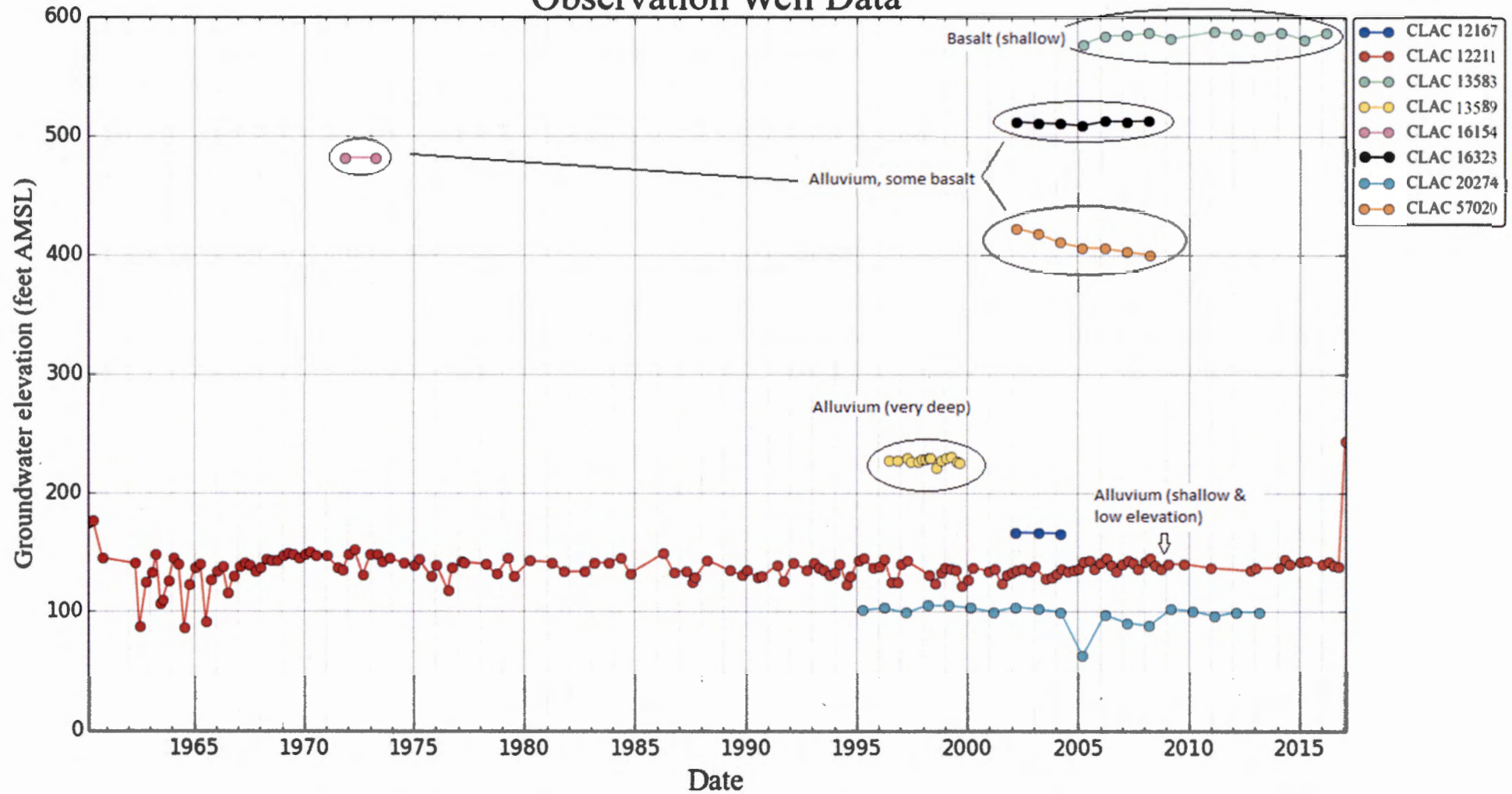


Figure 2 Hydrograph – area wells (static only)

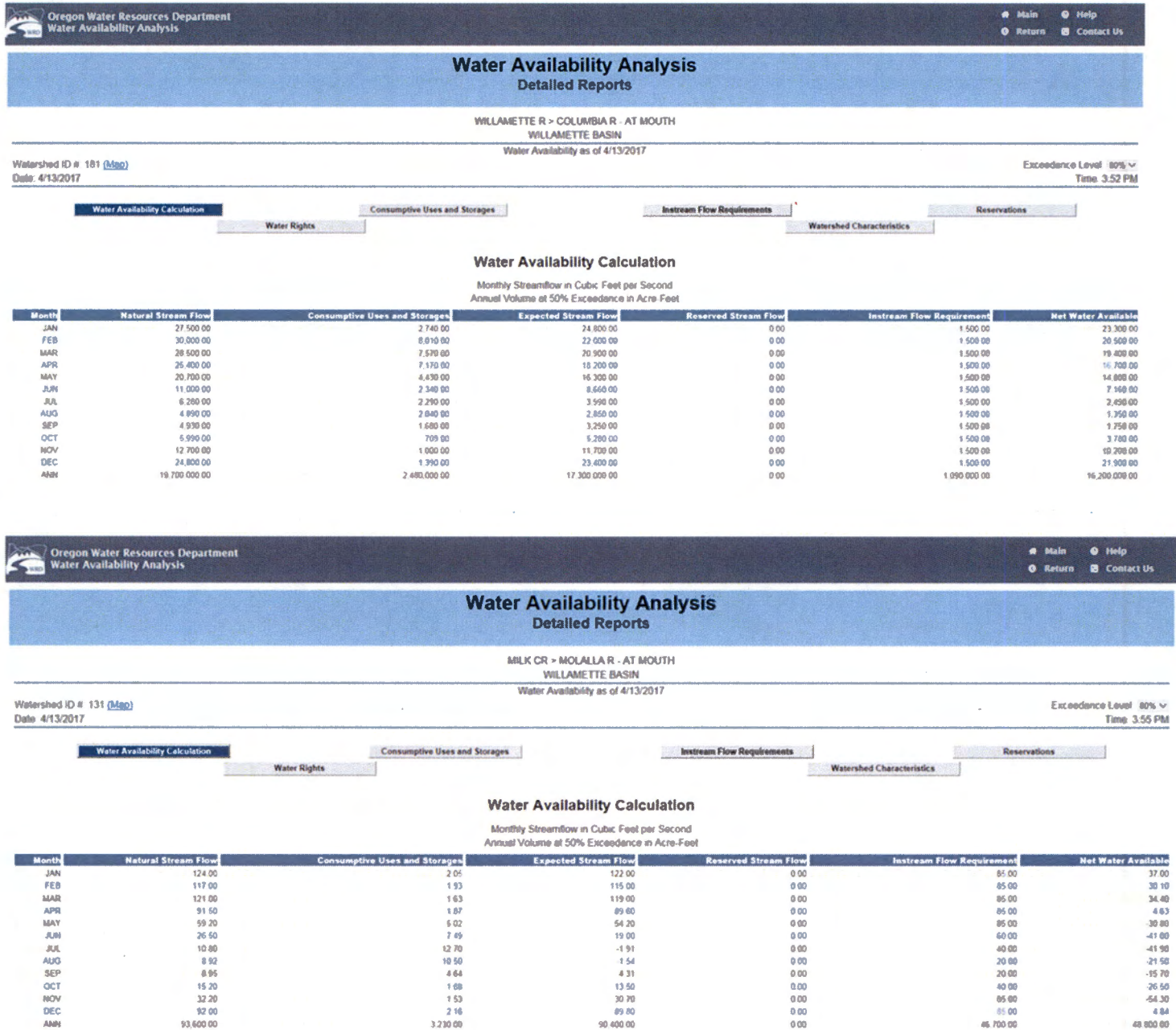


Figure 3 Water availability tables