

Groundwater Application Review Summary Form

Application # G- 18842

GW Reviewer J. Hackett Date Review Completed: 8/26/2019

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 August 26, 2019
 FROM: Groundwater Section J. Hackett
 Reviewer's Name
 SUBJECT: Application G- 18842 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: Umatilla Ready Mix, Inc. County: Umatilla

A1. Applicant(s) seek(s) 1.0 cfs from 1 well(s) in the Umatilla Basin,
 _____ subbasin

A2. Proposed use Industrial - Mining Seasonality: January 1st – December 31st

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	Proposed	1	Basalt - CRBG	1.0	5N/29E-23 NW-NE	1035' S, 2145' W fr NE cor S 23
2						
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	469				600 est.	?	?	?	?			

Use data from application for proposed wells.

A4. **Comments:** _____

A5. **Provisions of the Umatilla Basin – Columbia-Umatilla Sub.** 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 well, if properly cased and sealed into a single CRBG aquifer as conditioned below, will not be hydraulically connected to surface water.

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; Large 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 a single aquifer within the Columbia River Basalt Group 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 well is located in an area that contains basalt flows of the Columbia River Basalt Group (CRBG) from land surface to depths of several thousand feet. Within the CRBG, most water occurs in confined aquifers that occupy thin rubble zones (interflow zones) at the contacts between lava flows. The interiors of the basalt flows generally have low porosity and permeability and act as confining beds. This geometry generally produces a stack of thin aquifers (interflow zones) separated by thick confining beds (flow interiors). The low permeability of the basalt flow interiors probably limits the natural vertical connection between overlying aquifers.

Surficial geologic mapping (Madin and Geitgy, 2007) and geologic cross-sections (Wozniak, 1995) indicate that the proposed well should encounter the Umatilla Member of the Saddle Mountains Basalt Formation from land surface to a depth of approximately 70 feet (elevation 470 to 400 feet above mean sea level (msl)). Beneath the Umatilla Member, the well will likely encounter multiple flows of the Frenchman Springs Member of the Wanapum Basalt Formation. Locally, the total thickness of the Frenchman Springs Member is approximately 700 feet and is found between elevations of 400 feet above msl and 300 feet below msl.

Driller’s logs for nearby wells report multiple water-bearing zones (WBZs) in the Frenchman Springs Member (see logs for UMAT 5255, UMAT 55889, and UMAT 57027). An upper WBZ is found between elevations of 100 and 200 feet above msl and a lower WBZ is found between elevations of 100 and 200 feet below msl. Production from the upper WBZ is limited to 10-40 gallons per minute (gpm), while wells producing from the lower WBZ report yields ranging from 150-400 gpm.

The applicant has not proposed a case and seal depth on the proposed POA and has requested a maximum pumping rate of 448.8 gpm (1 cubic foot per second). Both the proposed construction and the requested rate raise several concerns. First, the proposed construction will not meet current OWRD well construction standards as it will allow commingling of the upper and lower WBZs. Also, the requested maximum pumping rate will not likely be available from the upper WBZ as no wells currently completed in the upper WBZ report yields greater than 40 gpm, and some wells report yields of less than 10 gpm. In order to protect the groundwater resource and nearby groundwater users, I recommend the following conditions:

Special Condition #1:

Groundwater production in any well drilled under this permit shall be limited to a single aquifer in the Columbia River Basalt Group lavas. The well(s) shall be cased and sealed into hard basalt below an elevation of approximately 100 feet below mean sea level or cased and sealed to sufficient depth to ensure that the open interval is no shallower than the deeper water-bearing zone in the Frenchman Springs Member of the Columbia River Basalt Group. The open interval in the well(s) shall be no greater than 100 feet except as noted below. Open interval means the total length of borehole that is not behind sealed casing. The borehole above the open interval shall be continuously cased and sealed to land surface. A larger open interval may be approved by the Department if the applicant can demonstrate, using packer tests or other suitable methods, that the hydraulic heads of water-bearing zones in the proposed open interval are equivalent or if the applicant can demonstrate that the open interval is part of a continuous zone of interconnected porous materials such as a sequence of pillow lavas or a hyaloclastite complex.

Special Condition #2:

The permittee shall instruct the well constructor to contact the Ground Water Section of the Water Resources Department prior to drilling the well to arrange for the collection of drill cuttings.

Multiple horizontal lines for additional text or conditions.

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	Columbia River Basalt*	<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: CRBG aquifers are generally under confined conditions in this area, particularly aquifers in deeper basalt flows that do not outcrop nearby. Well logs from nearby CRBG wells show static water levels much higher than depths where water is encountered (see UMAT 55889) indicating confined conditions.

* This evaluation assumes that the well will be constructed as listed in the conditions B2(c).

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	Cold Springs Wash	340	400-350	2200	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Columbia River	340	340	5270	<input type="checkbox"/>	<input checked="" 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"/>
						<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"/>	<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 hydraulic connection evaluation: The proposed well will be conditioned to produce from a single CRBG aquifer that will be several hundred feet below the base of both Cold Springs Wash and the Columbia River and so not hydraulically connected.

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

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

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													
(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: Madin, I. P. and R. P. Geitgey, 2007. Preliminary Geologic Map of the Umatilla Basin, Morrow and Umatilla Counties, Oregon. Open-File Report O-07-17. State of Oregon – Dept. of Geology And Mineral Industries.

"Columbia River Basalt Stratigraphy in the Pacific Northwest". USGS – Oregon Water Science Center website. http://or.water.usgs.gov/projs_dir/crbg/. Accessed July 2019

Wozniak, K.C., 1995 Chapter 2: Hydrogeology of the Lower Umatilla Basin. In Grondin G.H. et al., Hydrogeology, Groundwater Chemistry and Land Uses in the Lower Umatilla Basin Groundwater Management Area, Oregon Department of Environmental Quality, 601 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.**

Water Availability Tables

**Water Availability Analysis
Detailed Reports**

**COLD SPRINGS WASH > COLUMBIA R - AT MOUTH
UMATILLA BASIN**

Water Availability as of 7/30/2019

Watershed ID #: 30710340 ([Map](#))

Exceedance Level: ▼

Date: 7/30/2019

Time: 3:52 PM

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	0.71	0.22	0.49	0.00	0.00	0.49
FEB	3.26	0.78	2.48	0.00	0.00	2.48
MAR	8.64	2.78	5.86	0.00	0.00	5.86
APR	2.05	2.54	-0.49	0.00	0.00	-0.49
MAY	0.29	3.42	-3.13	0.00	0.00	-3.13
JUN	0.11	4.11	-4.00	0.00	0.00	-4.00
JUL	0.06	4.87	-4.81	0.00	0.00	-4.81
AUG	0.02	4.14	-4.12	0.00	0.00	-4.12
SEP	0.00	2.74	-2.74	0.00	0.00	-2.74
OCT	0.00	0.00	0.00	0.00	0.00	0.00
NOV	0.00	0.00	0.00	0.00	0.00	0.00
DEC	0.15	0.09	0.06	0.00	0.00	0.06
ANN	4,620.00	1,560.00	4,180.00	0.00	0.00	4,180.00

Well Location Map

G-18842, Umatilla Ready Mix, Inc.

1:24,000 scale

