PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date **June 15, 2010**

FROM: Groundwater/Hydrology Section **Marc Norton**
Reviewer's Name

SUBJECT: Application G- **17386** 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: **Todd Davis** County: **Wasco**

A1. Applicant(s) seek(s) **0.99** cfs from **2** well(s) in the **Hood River** Basin, **Eightmile/Fifteenmile Creeks** sub-basin Quad Map: **Dufur West**

A2. Proposed use: **Irrigation - 79.5 acres** Seasonality: **March 1st – October 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	**WASC 3414**	**1**	**CRBG**	**0.99**	**01S/13E-30 NW NE**	**2080' W, 160' E fr NE cor S 30**
2	**Proposed**	**2**	**CRBG**	**0.99**	**01S/13E-30 NW NE**	**2160' W, 40' E fr NE cor S 30**
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	**1230**	**82**	**-46.2**	**5/10/68**	**238**	**0 - 26**	**0 - 26**	**-------**	**--------**	**550**	**100**	**PT**
			-235	**4/3/69**	**238**	**0 – 165**	**0 – 165**	**-------**	**--------**	**368**	**150**	**PT**
			-128	**6/7/2010**								
2	**1230**	**82**	**10**		**110**	**-------**	**--------**	**--------**	**--------**	**220**		

Use data from application for proposed wells.

A4. **Comments: Bob Wood and I met with Todd Davis at the property on June 7, 2010. Mr. Davis explained that his first option would be to complete well #2 at a depth of about 110 feet to develop the upper water bearing zone cased and sealed off by well #1. His second option would be to construct a second well in the same aquifer as well #1 at approximately 176' – 233'. The third option would be to construct the well into a deeper aquifer. No specifics were discussed concerning the well construction for the third option.**

Requested discharge rate is 445 gpm = 0.99 cfs.

A5. ☒ **Provisions of the Hood River** 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:

A6. ☐ **Well(s) #** _____ , _____ , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **NA**
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 ground water resource:
   i. ☐ The permit should contain condition #(s) _____;
   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 water level in WASC 3414 has declined about 107 feet from 1969 to 2010, 235.62 feet above land surface to 128.64 feet above land surface. The amount of decline is consistent with many wells in basalt wells south of The Dalles. WASC 3416 is located about 6000 feet to the east of well #1. The amount of water level decline is similar between the two wells, about 110 feet over a similar time frame, but there is about 500 feet of difference between the water level elevations at the two wells. This large change in water levels in a fairly short distance may indicate folding, faulting or a change in stratigraphy.**

Option 2, constructing a shallower well, would be hydraulically connected to Eightmile Creek. While at the property, I measured the water level at the nearby domestic well that is probably developing water from the shallow aquifer. The water level is about 20 feet higher than when it was constructed in 1999.

Option 3, constructing a well into a deeper aquifer, would be a possibility. It would be hard to predict how deep the well would need to be so as to not develop water from the aquifer developed by the current irrigation well. The well would need to cased and sealed at a minimum, to a depth of about 300 feet. There is no guaranty that the deeper aquifer could supply water without having decline problems as seen in other wells. This could result in regulation to minimize impacts on the resource or senior groundwater users. If Mr. Davis is interested in constructing a deep well, a set of conditions would need to be developed to prevent hydraulic connection to Eightmile Creek and construct a well that does not allow borehole flow, up or down.

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	**CRBG**	☒	☐
2	**CRBG**	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: **Flowing artesian 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**	**Eightmile Creek**	**1358**	**1220**	**50**	☐	☒	☐	☐	☒
2	**1**	**Eightmile Creek – shallow well**	**1220**	**1220**	**50**	☒	☐	☐	☐	☒
2	**1**	**Eightmile Creek – deep well**	**????**	**1220**		☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: **The water level for the shallow well option was obtained from the well log for WASC 3414. If a deep well were constructed, it would be conditioned so that the final construction would prevent hydraulic connection with Eightmile Creek.**

Water Availability Basin the well(s) are located within: **EIGHTMILE CR > FIFTEENMILE CR - AB UNN STR**

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?
2	**1**	☒	☐	IS70252A	**17**	☒	**2.31**	☒	**> 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: ______

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:

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.

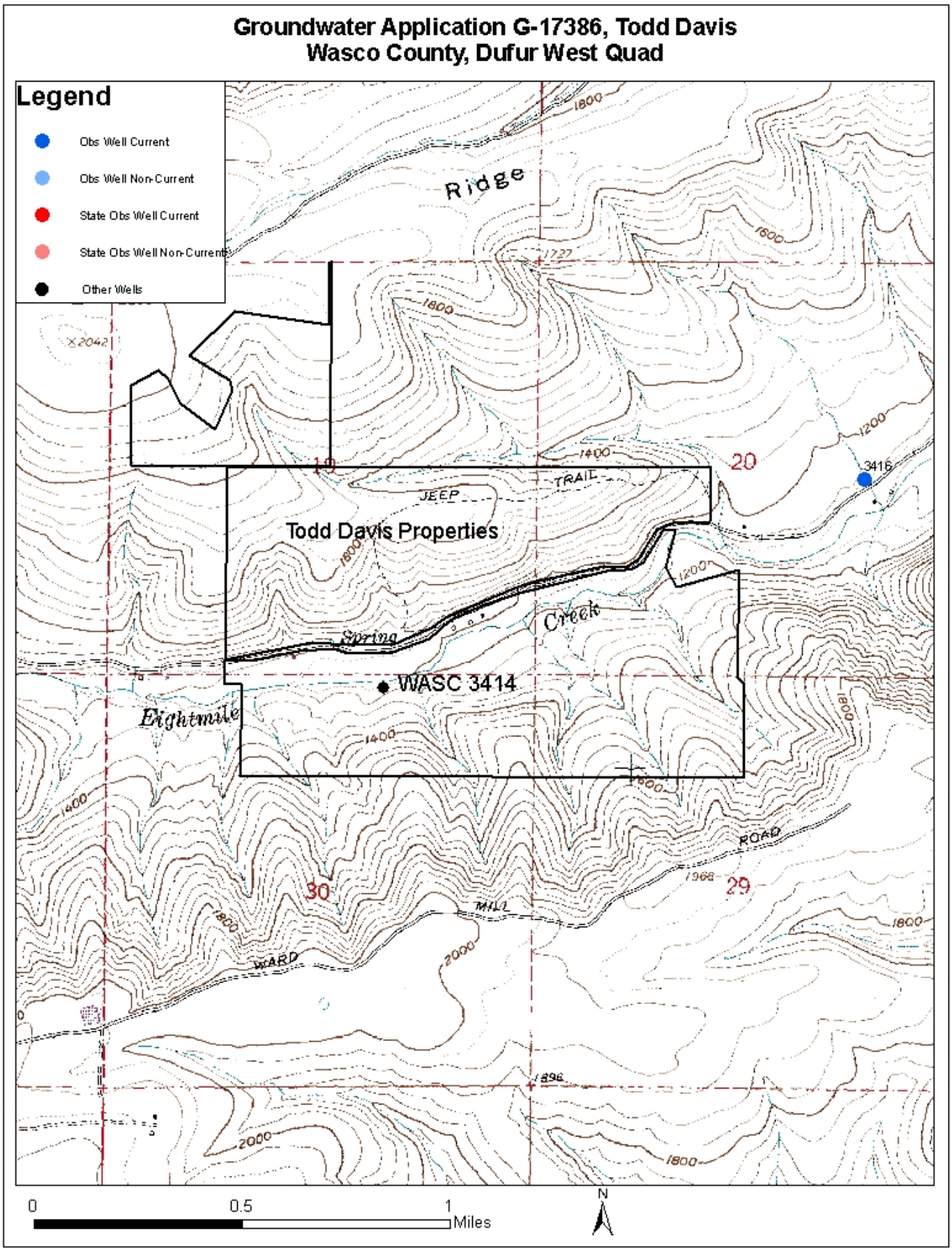
D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Groundwater Section.

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).**


Groundwater Application G-17386, Todd Davis
Wasco County, Dufur West Quad
Legend
Obs Well Current
Obs Well Non-Current
State Obs Well Current
State Obs Well Non-Current
Other Wells
Todd Davis Properties
WASC 3414
3416
Ridge
Spring
Creek
Eightmile
JEEP
TRAIL
MILL
ROAD
WARD
19
20
30
29
0
0.5
1
Miles
N

Water Availability Analysis
Detailed Reports

EIGHTMILE CR > FIFTEENMILE CR - AB UNN STR
HOOD BASIN

Water Availability as of 6/14/2010

Watershed ID #: 70252

Exceedance Level: 80%

Date: 6/14/2010

Time: 4:48 PM

Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

Water Availability Calculation

Monthly Streamflows in Cubic Feet per Second
Storage 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	3.99	0.18	3.81	3.47	7.00	-6.66
FEB	16.60	0.25	16.40	15.90	7.00	-6.51
MAR	16.20	0.28	15.90	22.90	10.00	-17.00
APR	18.40	5.39	13.00	6.85	17.00	-10.80
MAY	21.40	14.50	6.92	5.33	17.00	-15.40
JUN	16.40	12.00	4.42	5.11	17.00	-17.70
JUL	4.39	3.58	0.81	1.36	10.00	-10.60
AUG	2.31	1.83	0.48	0.79	10.00	-10.30
SEP	3.00	1.89	1.11	0.91	7.00	-6.80
OCT	3.91	0.17	3.74	1.14	7.00	-4.39
NOV	4.90	0.17	4.73	1.54	7.00	-3.81
DEC	4.17	0.17	4.00	1.67	7.00	-4.67
STO	11,300.00	2,440.00	8,870.00	4,000.00	7,430.00	816.00

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
IS70252A	CERTIFICATE	7.00	7.00	10.00	17.00	17.00	17.00	10.00	10.00	7.00	7.00	7.00	7.00
Maximum		7.00	7.00	10.00	17.00	17.00	17.00	10.00	10.00	7.00	7.00	7.00	7.00