

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date September 11, 2006
 FROM: Ground Water/Hydrology Section Michael Zwart
Reviewer's Name
 SUBJECT: Application G- 16606 Supersedes review of April 27, 2006
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 ground water 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: Paul and Dixie Schanno County: Wasco

- A1. Applicant(s) seek(s) 5.0 cfs from two well(s) in the Hood Basin,
Eightmile Creek subbasin Quad Map: Petersburg
- A2. Proposed use: Irrigation, 434.6 acres (P) Seasonality: March 1 to 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	Proposed	1	CRB	5.0	1N/14E-3 SE-NW	1420' S, 1785' E fr NW cor S 3
2	Proposed	2	CRB	5.0	1N/14E-4 SW-NE	2405' S, 1870' W fr NW cor S 3
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	725	200±	200±		350±	20-200*	20-200*		None			
2	530	200±	200±		350±	20-200*	20-200*		None			

Use data from application for proposed wells.

A4. **Comments:** *The revised construction indicates that the casing and seal depth could vary between these values. The application was later amended by letter from Larry Toll of Tenneson Engineering, dated July 26, 2006, which is cited here as a reference. This letter indicates that the applicants and their agent will work with the Department staff to develop, if possible, a basalt well that will not be found to have the potential for substantial interference with nearby surface water sources. The applicant's agent is aware that it is my opinion that the proposed wells will likely need to be cased and sealed deeper than 200 feet below land surface. See additional comments at C6.

A5. **Provisions of the Hood** Basin rules relative to the development, classification and/or management of ground water 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: _____
 Comments: _____

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

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 ground water 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 ground water 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 ground water resource; or
- d. will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource:
 - i. The permit should contain condition #(s) 7N, 7K* _____;
 - 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 ground water production from no deeper than _____ ft. below land surface;
- b. Condition to allow ground water production from no shallower than _____ ft. below land surface;
- c. Condition to allow ground water production only from the Basalt ground water 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 Ground Water 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. Ground water availability remarks: *Use condition 7K with the following modified language: Well 1 shall be continuously cased and continuously sealed to a minimum depth of 425 feet below land surface. Well 2 shall be continuously cased and continuously sealed to a minimum depth of 230 feet below land surface. The wells may not be completed in such a manner that they allow ground water to be developed from the Dalles Formation. If during well construction, it becomes apparent that the wells...

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
1,2	Basalt of the Columbia River Basalt Group	<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: Ground water in CRB aquifers typically exists under confined conditions, except where shallow water-bearing zones are hydraulically connected to overlying unconfined aquifers or surface water sources.

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	Spring Branch	525±	670	200	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Unn. Creek (McCoy?)	525±	600	1850	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Eightmile Creek	525±	280	5200	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	4	Fifteenmile Creek	525±	300	5800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Spring Branch	400±*	470	800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Unn. Creek (McCoy?)	400±*	500	2700	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	Eightmile Creek	400±*	280	1600	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	4	Fifteenmile Creek	400±*	270	4600	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Both Eightmile and Fifteenmile creeks are locally incised within the basalt rocks and the likely head relationship and presence of springs in the area strongly suggest that shallow basalt aquifers discharges to these creeks locally. *My estimate for head at well #2.

Water Availability Basin the well(s) are located within: 15mile Cr > Col R ab 8mile Cr (30410546) and 8mile Cr > 15mile Cr at mouth (71798).

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													
		%	%	%	%	%	%	%	%	%	%	%	%
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 ground water 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 Properly designed and constructed basalt wells, which develop deeper water-bearing zones, will not be hydraulically connected with the nearby creek reaches. The depth of casing and seal required to accomplish this will likely be greater than the maximum (200 ft.) originally proposed in the application, especially at well site #1, which is higher in elevation. My proposed minimum casing and seal depths are intended to limit the development of basalt water-bearing zones to below approximately 300 feet above mean sea level.**

References Used: Nearby well logs; nearby recent reviews; regional geologic mapping, esp. by Hodge, 1941; personal communication with Marc Norton & Brian Mayer; letter from Larry Toll dated July 26, 2006.

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 ground water reservoir;
- c. permits the loss of artesian head;
- d. permits the de-watering of one or more ground water 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 Ground Water 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).**

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date April 27, 2006

FROM: Ground Water/Hydrology Section Michael Zwart
Reviewer's Name

SUBJECT: Application G- 16606 Supersedes review of N/A
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 ground water 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: Paul and Dixie Schanno County: Wasco

- A1. Applicant(s) seek(s) 5.0 cfs from two well(s) in the Hood Basin,
Eightmile Creek subbasin Quad Map: Petersburg
- A2. Proposed use: Irrigation, 434.6 acres (P) Seasonality: March 1 to 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	Proposed	1	CRB	5.0	1N/14E-3 SE-NW	1420' S, 1785' E fr NW cor S 3
2	Proposed	2	CRB	5.0	1N/14E-4 SW-NE	2405' S, 1870' W fr NW cor S 3
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	725	200±	200±		350±	20-200*	20-200*		None			
2	530	200±	200±		350±	20-200*	20-200*		None			

Use data from application for proposed wells.

A4. **Comments:** The application does not propose an aquifer, but includes a well log (WASC 51428) that appears to develop the Dalles Formation and underlying basalt. However, due to the lower elevation of these sites, I feel confident that the proposed depth will be adequate to develop the CRB aquifers. Also, this is likely the better choice of aquifer to secure the desired rate. Therefore, I am assuming that the wells will develop basalt aquifers. *The revised construction indicates that the casing and seal depth could vary between these values.

A5. **Provisions of the Hood** Basin rules relative to the development, classification and/or management of ground water 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: _____
 Comments: _____

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

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 ground water 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 ground water 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 ground water resource; or
- d. will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource:
 - i. The permit should contain condition #(s) 7C _____;
 - 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 ground water production from no deeper than _____ ft. below land surface;
- b. Condition to allow ground water production from no shallower than _____ ft. below land surface;
- c. Condition to allow ground water production only from the Basalt ground water 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 Ground Water 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. Ground water availability remarks: _____

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
1,2	Basalt of the Columbia River Basalt Group	<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: Ground water in CRB aquifers typically exists under confined conditions, except where shallow water-bearing zones are hydraulically connected to overlying unconfined aquifers or surface water sources.

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	Spring Branch	525±	670	200	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Unn. Creek (McCoy?)	525±	600	1850	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Eightmile Creek	525±	280	5200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	4	Fifteenmile Creek	525±	300	5800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Spring Branch	400±*	470	800	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Unn. Creek (McCoy?)	400±*	500	2700	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	Eightmile Creek	400±*	280	1600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	4	Fifteenmile Creek	400±*	270	4600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Both Eightmile and Fifteenmile creeks are locally incised within the basalt rocks and the likely head relationship and presence of springs in the area strongly suggest that basalt ground water discharges to these creeks locally. *My estimate for head at well #2.

Water Availability Basin the well(s) are located within: 15mile Cr > Col R ab 8mile Cr (30410546) and 8mile Cr > 15mile Cr at mouth (71798).

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	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	71798	5.12	<input checked="" type="checkbox"/>	3.74	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	71798	5.12	<input checked="" type="checkbox"/>	3.74	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	30410546	4.0	<input checked="" type="checkbox"/>	4.6	<input checked="" type="checkbox"/>	<25%	<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"/>

MJZ
5/3/06

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													
		%	%	%	%	%	%	%	%	%	%	%	%
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 applies to well #1 and Fifteenmile Creek. At this time, I believe that it is unnecessary to perform these calculations. See remarks below.

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 ground water 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 The findings made above were the result of the vague and rather shallow proposed well construction information provided in the application. Given that the depth to top of basalt is unknown and may be rather shallow, especially at well site #2, I made the presumption that the applicant intends to develop the shallowest water-bearing zones encountered at each site. These shallow zones are in hydraulic connection with the nearby reaches of Eightmile and Fifteenmile creeks. Properly designed and constructed basalt wells, which develop deeper water-bearing zones, can likely avoid the findings of PSI with the nearby creek reaches. The depth of casing and seal required to accomplish this will likely be greater than the maximum (200 ft.) proposed here, especially at well site #1, which is higher in elevation.**

References Used: Nearby well logs; nearby recent reviews; regional geologic mapping, esp. by Hodge, 1941; personal communication with Marc Norton & Brian Mayer.

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 ground water reservoir;
- c. permits the loss of artesian head;
- d. permits the de-watering of one or more ground water 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 Ground Water Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

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

(Enforcement Section Signature)

_____, 200_____

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

12	1.60	5.46	3.84	0.00	0.00	0.00	0.00	10.90
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DETAILED REPORT OF INSTREAM REQUIREMENTS
 Water Availability as of 4/27/2006 for
 FIFTEENMILE CR > COLUMBIA R - AT MOUTH

Watershed ID #: 70262 Basin: HOOD Exceedance Level: 80
 Time: 14:45 Date: 04/27/2006

APP #	IS 70262	MF 190	0	0	0	0	0	0	MAXIMUM
Status	Cert.	Cert.							
1	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
2	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
3	13.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00
4	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
5	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
6	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
7	13.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00
8	12.90	13.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00
9	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
10	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
11	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
12	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Water Availability as of 4/27/2006 for
 EIGHTMILE CR > FIFTEENMILE CR - AT MOUTH

Watershed ID #: 71798 Basin: HOOD Exceedance Level: 80
 Time: 14:45 Date: 04/27/2006

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
1	16.10	0.27	15.80	3.48	10.00	2.35
2	40.20	0.35	39.80	15.90	10.00	13.90
3	44.50	0.39	44.10	22.90	15.00	6.21
4	43.80	6.75	37.00	6.90	26.00	4.15
5	33.80	18.00	15.80	5.37	26.00	-15.60
6	21.10	15.00	6.14	5.14	26.00	-25.00
7	6.82	4.48	2.34	1.37	10.80	-9.83
8	3.74	2.31	1.43	0.69	5.12	-4.38
9	4.22	2.38	1.84	0.91	7.68	-6.76
10	5.76	0.25	5.51	1.14	8.37	-4.00
11	8.48	0.25	8.23	1.55	10.00	-3.32
12	9.00	0.26	8.74	1.60	10.00	-2.86
Stor-50%	25900	3070	22900	4000	9950	11300

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES

Water Availability as of 4/27/2006 for
 EIGHTMILE CR > FIFTEENMILE CR - AT MOUTH

Watershed ID #: 71798 Basin: HOOD Exceedance Level: 80
 Time: 14:45 Date: 04/27/2006

Mo	Storage	Irrig	Munic	Ind/Man	Commer	Domest	Agricul	Other	Total
1	0.03	0.00	0.00	0.05	0.00	0.12	0.08	0.00	0.27
2	0.11	0.00	0.00	0.05	0.00	0.12	0.08	0.00	0.35
3	0.15	0.00	0.00	0.05	0.00	0.12	0.08	0.00	0.39
4	0.05	6.46	0.00	0.05	0.00	0.12	0.08	0.00	6.75

12	1.60	5.46	3.84	0.00	0.00	0.00	0.00	10.90
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DETAILED REPORT OF INSTREAM REQUIREMENTS
 Water Availability as of 4/27/2006 for
 FIFTEENMILE CR > COLUMBIA R - AT MOUTH

Watershed ID #: 70262 Basin: HOOD Exceedance Level: 80
 Time: 14:46 Date: 04/27/2006

-----ISWRs-----									
APP #	IS 70262	MF 190	0	0	0	0	0	0	MAXIMUM
Status	Cert.	Cert.							
1	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
2	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
3	13.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00
4	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
5	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
6	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
7	13.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00
8	12.90	13.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00
9	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
10	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
11	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
12	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION
 Water Availability as of 4/27/2006 for
 FIFTEENMILE CR > COLUMBIA R - AB EIGHTMILE CR

Watershed ID #: 30410546 Basin: HOOD Exceedance Level: 80
 Time: 14:46 Date: 04/27/2006

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
1	18.30	0.55	17.80	28.70	4.00	-14.90
2	51.30	0.57	50.70	43.50	4.00	3.23
3	51.60	0.56	51.00	32.20	13.00	5.84
4	42.40	12.40	30.00	17.00	20.00	-7.05
5	50.50	33.20	17.20	6.18	20.00	-8.93
6	33.00	28.00	5.03	0.92	20.00	-15.90
7	8.35	8.69	-0.35	0.00	13.00	-13.30
8	4.92	4.71	0.21	0.00	13.00	-12.80
9	4.60	4.83	-0.24	0.00	4.00	-4.24
10	5.80	0.52	5.28	1.70	4.00	-0.42
11	8.61	0.52	8.09	3.35	4.00	0.74
12	11.70	0.53	11.20	9.30	4.00	-2.13
Stor-50%	30900	5753	25200	8500	7450	10600

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES
 Water Availability as of 4/27/2006 for
 FIFTEENMILE CR > COLUMBIA R - AB EIGHTMILE CR

Watershed ID #: 30410546 Basin: HOOD Exceedance Level: 80
 Time: 14:46 Date: 04/27/2006

Mo	Storage	Irrig	Munic	Ind/Man	Commer	Domest	Agricul	Other	Total
1	0.03	0.00	0.38	0.00	0.00	0.05	0.09	0.00	0.55
2	0.05	0.00	0.38	0.00	0.00	0.05	0.09	0.00	0.57
3	0.04	0.00	0.38	0.00	0.00	0.05	0.09	0.00	0.56
4	0.04	11.90	0.38	0.00	0.00	0.05	0.09	0.00	12.50

