



**PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS**

**TO:** Water Rights Section Date 8 October 2009  
**FROM:** Ground Water/Hydrology Section K. Lite  
Reviewer's Name  
**SUBJECT:** Application G- 17217 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 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 Hermreck at the Y Ranch, LLC County: Crook

- A1. Applicant(s) seek(s) (898 gpm) 2.0 cfs from 1 well(s) in the Deschutes Basin,  
South Fork Crooked River (Beaver Creek) subbasin Quad Map: Paulina
- A2. Proposed use: 2.0 cfs Irrigation (162.5 acres primary) Seasonality: 15 May – 15 October
- A3. Well and aquifer data (**attach and number logs for existing wells; mark proposed wells as such under logid**):

Well 1	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
<b>1</b>	<b>Croo 2846</b>	<b>1</b>	<b>Basalt</b>	<b>2.0</b>	<b>17S/23E-sec 01 ADB</b>	<b>1420' S, 1220' E fr NW cor S 01</b>

\* 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
<b>1</b>	<b>3755</b>	<b>120</b>	<b>20</b>	<b>9/30/75</b>	<b>150</b>	<b>0-25</b>	<b>+1.5-25</b>			<b>1800</b>		<b>P</b>

Use data from application for proposed wells.

A4. **Comments:** The well is located near Alkali Creek, an intermittent tributary to Beaver Creek /Crooked River. The well is constructed into water-bearing zones within basalt. The basalt is likely Picture Gorge Basalt.

A5.  **Provisions of the** Deschutes 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: The well is located outside the USGS Deschutes Ground Water Study Area.

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) 7B AND 7N;
  - 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 \_\_\_\_\_ 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:** \_\_\_\_\_

**Condition with 7B and 7N**

**A large amount of groundwater has been, and is being permitted in a relatively small area of the Paulina Basin. The sustainability of the resource in the area, given the new development, is unknown. The groundwater resource is likely relatively small (in area) within the Paulina Basin. There are no State Observation Wells in the vicinity of the new development.**

**Alluvium, other sediments, and tuffaceous sedimentary rocks overly basalt in the area. The basalt is likely vertically fractured, and ground water in the basalt may be hydraulically connected to the overlying sediments, when saturated, and subsequently to surface water. The canyon of Beaver Creek is locally cut in Picture Gorge Basalt, and likely provides an interconnection with surface water.**

**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	Basalt	<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"/>

Basis for aquifer confinement evaluation: \_\_\_\_\_

The groundwater flow system is characterized as generally unconfined with discontinuous low permeability layers causing local (discontinuous) confinement. The basalt water-bearing zone in the well is likely vertically fractured as evidenced by discrete water-bearing zones with similar hydraulic head in area wells. Widely-spaced (>100 ft) water-bearing zones in basalt at an area well (CROO 53636) with coincident hydraulic head also indicate vertical connectivity between the zones.

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 1/4 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	Beaver Creek	3755	3700	9,000	<input checked="" type="checkbox"/>	<input 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"/>

Basis for aquifer hydraulic connection evaluation: The elevation of the hydraulic head in the well is slightly above the surface water elevation, however, the aquifer unit (Picture Gorge Basalt) is not exposed at the nearest reach.

Water Availability Basin the well(s) are located within: BEAVER CR > CROOKED R - AT MOUTH



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.

<b>Non-Distributed Wells</b>													
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													
<b>Distributed Wells</b>													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
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:** \_\_\_\_\_

**The well is likely impacting surface water somewhere along Beaver Creek. However, the locally confined nature of the aquifer unit and lack of nearby connectivity preclude the use of the available analytical models to evaluate the interference.**

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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: \_\_\_\_\_

**If a permit is issued: condition with 7B, 7N, and 7J.**

References Used: \_\_\_\_\_

**Application File: G-17217**

**Thayer, T. P. 1966. Geologic map of the Canyon City quadrangle, northeastern Oregon: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-447.**

**Swanson, D.A. 1969. Reconnaissance geologic map of the east half of the Bend quadrangle, Crook, Wheeler, Jefferson, Wasco, and Deschutes Counties, Oregon: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-568.**

**Gonthier, J.B. 1985. A description of aquifer units in eastern Oregon: U.S. Geological Survey Water Resources Investigations Report 84-4095, 39 p., maps.**

**Walker, G. W. (editor) 1990. Geology of the Blue Mountains region of Oregon, Idaho, and Washington; Cenozoic geology of the Blue Mountains region: U.S. Geological Survey Professional Paper 1437, 135 p.**

**Paulina quadrangle map (USGS map, 1:24,000 scale), Dayville quadrangle map (USGS map, 1:100,000 scale).**

**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.

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**THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL**

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

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_, 200\_\_\_\_.  
(Enforcement Section Signature)

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

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