PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **March 7, 2007**

FROM: Ground Water/Hydrology Section **Ivan Gall**
Reviewer's Name

SUBJECT: Application G- **16710** Supersedes review of **November 15, 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**: **Shady Cove Water Works, LLC** **County: JACK**

A1. Applicant(s) seek(s) **0.167** cfs from **3** well(s) in the **Rogue** Basin, _____ subbasin Quad Map: **Shady Cove (also Trail)**

A2. Proposed use: **Quasi-Municipal** Seasonality: **Restricted to 30 days use per year**

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	na	1	Bedrock	.267	34S/01W-16 NENW	490'S, 1525'E fr NW cor S 16
2	na	2	Bedrock	.267	34S/01W-16 NWNE	735' S, 2745'E fr NW cor S 16
3	JACK 32812	3	Bedrock	.267	34S/01W-16 NWNE	1030' S, 3210' E fr NW cor S 16
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	**1700**	**na**	**127**	**na**	**405**	**na**	**0-20?**	**na**	**na**	**13.5**	**42?**	
2	**1540**	**na**	**33.38**	**4/28/06***	**210**	**na**	**na**	**na**	**na**	**33**	**21?**	
3	**1520**	**90**	**8.37**	**4/28/06***	**160**	**0-18**	**+1-54**	**0-160**	**140-160**	**100+**	**na**	**A**

Use data from application for proposed wells.

A4. **Comments:** Well log provided for well #3, none for #1 and #2. March 13, 2006 letter from Cathy Holt details some well construction information for all 3 wells.
The applicant intends to use stored water from Lost Creek as a primary right, but wants a backup source and water for system flushing from wells. However, as the applicant has not asked for a limited period of use each calendar year, I have reviewed this as a year-round supplemental application. *Measured by Norm Daft, consultant; unable to meas. Static in well #1.

A5. ☒ **Provisions of the** Rogue 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) **7B, 7C, 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 **fractured bedrock** ground water reservoir;

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:** *** Applicant shall install and maintain a properly functioning, totalizing flow meter on each well. Monthly water use totals shall be submitted annually to OWRD.

****** Condition to allow use of the wells for no more than 30 days each calendar year.*** Long-term sustainable use of bedrock aquifer well yields without injury to other users in question if use is continuous.

Geology at the site is composed of Tertiary volcanics overlain by older alluvium (Hladky, 1992). Welded tuffs of Mosser Mountain (Tom) and Bond Creek (Tbc) overlie unit Toeu. Unit Toeu is composed of lower Oligocene to upper Eocene (?) interbedded volcanogenic conglomerate, mudstone, tuff, andesite, and basalt. The interbedded rocks of Toeu have not been mapped separately, and thickness ranges up to 1,500 feet. Maximum thickness of Tom and Tbc are 1,200 feet and 600 feet, respectively. Water level data exist for three wells, JACK 375, 563, and 645 (attached). Seasonal fluctuations for JACK 563 are less than 10 feet, which may reflect the wells proximity to the Rogue River, presence of overlying gravel, and shallow well seal. JACK 375 and 645 have seasonal water level fluctuations exceeding 40 and 15 feet, respectively. Nearby groundwater use will also impact the seasonal fluctuations.

The subject wells and others in Section 16 are likely completed in unit Toeu or the overlying Mosser Mountain tuff. Much of the groundwater flow likely occurs within interflow zones, contacts between units, and fractures within units. A northwest-trending fault is located in Section 16, and the fault itself or associated fracture may increase permeability locally. The aquifer(s) are likely progressively more confined with depth, due to the low vertical permeability of the volcanic flows and welded tuffs. Locally, faulting and fracturing may contribute to less confined conditions. Due to the confined conditions, water level response to pumping in distal wells will be rapid. The bedrock nature of the aquifer (fractures and interflow water-bearing zones) suggests that the aquifer storage capacity is limited. As such, the amount of water available for appropriation without injury to others, and the amount of groundwater available from this resource, is likely to be limited.

The 170 well logs in GRID for Section 16 indicate a wide range of yields (0-100+ gpm), and 18 well deepenings, 12 of which occurred in the last 15 years. The tax lots on which the subject wells lie have had multiple wells drilled on them over the years. No data exist to indicate the sustainable yield of wells in the area. I have spoken with some residents in the Shady Cove area over the last 8 years that were experiencing declining well yields. These problems could be a result of additional groundwater use in the area and/or decreases in well efficiency. Permit G-11070 is located in the SESW of sec. 16; no info available on their use or wells' yields.

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	**Bedrock**	☒	☐
2	**Bedrock**	☒	☐
3	**Bedrock**	☒	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Low vertical permeability of volcanic flow centers and welded tuffs, deeper depths of water-bearing zones. Changes locally to fracture density, or well proximity to faulting, may create semi-confined to unconfined conditions in some areas.

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	**Rogue River**	**1573**	**1380**	**4400**	☒	☐	☐	☐	☒
2	1	**Rogue River**	**1526**	**1380**	**3500**	☒	☐	☐	☐	☒
3	1	**Rogue River**	**1485**	**1380**	**2900**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Static water levels greater than surface water stage, Rogue River is regional groundwater discharge area. Some water-bearing zones on area well logs above the Rogue River stage.

Water Availability Basin the well(s) are located within: **ROGUE R > PACIFIC OCEAN - AB HOG CR**

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	☐	☐	**MF270**	**1200**	☐	**1020**	☐	**<25%****	☐
2	1	☐	☐	**MF270**	**1200**	☐	**1020**	☐	**<25%****	☐
3	1	☐	☐	**MF270**	**1200**	☐	**1020**	☐	**<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: This reach of the Rogue River has no instream water right. The WAB immediately downstream has a 1,200 CFS instream water right.

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: ** Insufficient aquifer parameter data exist to adequately simulate this fractured/faulted bedrock flow system using the simplified analytical model of Jenkins or Hunt. The apparent lack of pervasive fracturing, based on many low- to no-yield wells, makes it difficult to apply the concept of a continuum that is hydraulically equivalent to a porous medium.

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) **7J**;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** The Rogue River is a regional area of groundwater discharge, due to its incisement into the adjacent geologic units.

References Used: Hladky, Frank R., 1992. Geology and Mineral Resources Map of the Shady Cove Quadrangle, Jackson County, Oregon. Oregon Department of Geology and Mineral Industries GMS-52.
OWRD Grid well log database and Interactive Mapping tool.

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).**

Water Resources Department

MEMO

09/27, 2006

TO **Application G-** 16710

FROM **GW:** Ivan K. Gall
(Reviewer's Name)

SUBJECT **Scenic Waterway Interference Evaluation**

☒ Yes
☐ No

The source of appropriation is within or above a Scenic Waterway

☒ Yes
☐ No

Use the Scenic Waterway condition (Condition 7J).

PREPONDERANCE OF EVIDENCE FINDING: (Check box only if statement is true)

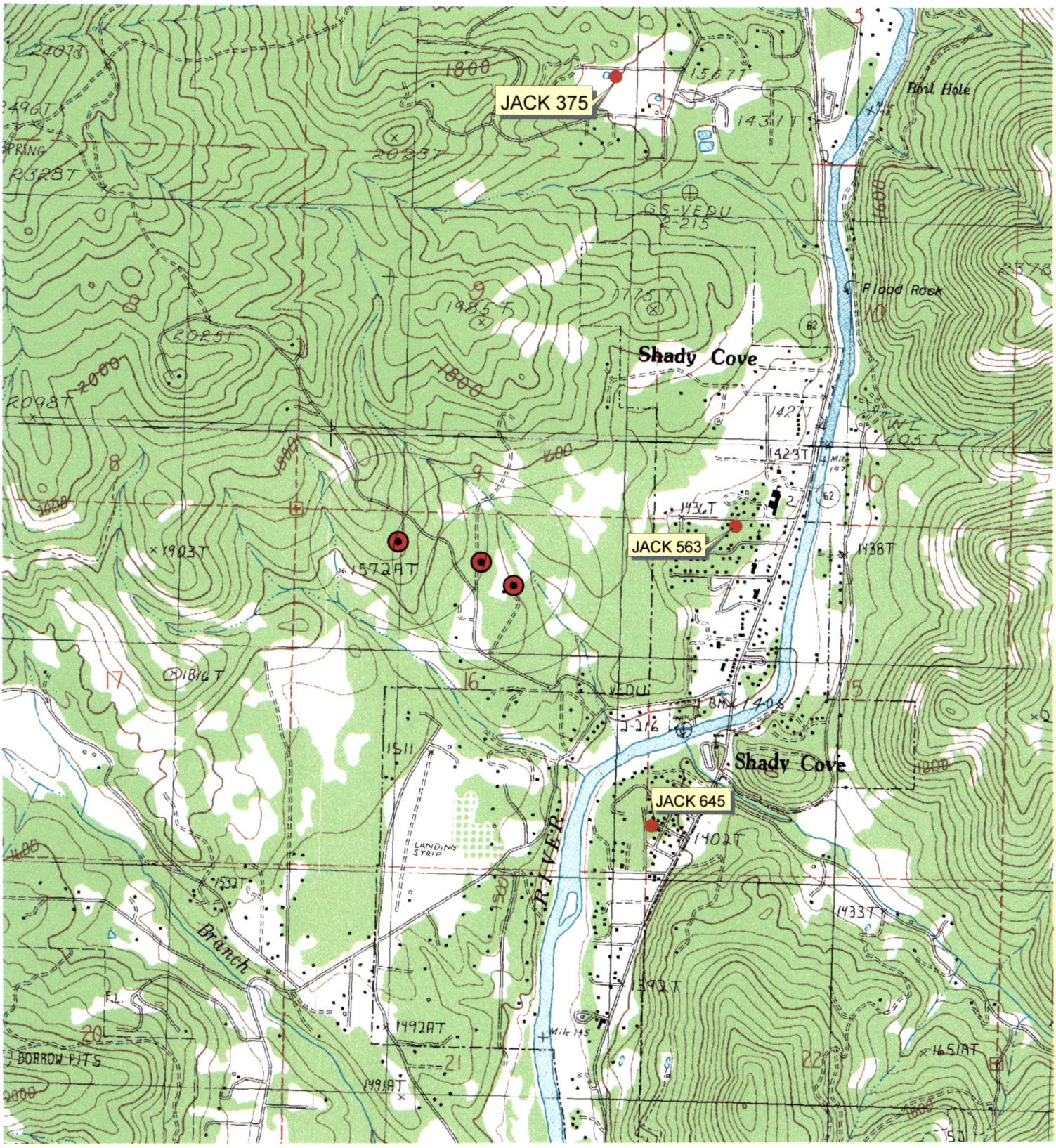
☒ At this time the Department is unable to find that there is a preponderance of evidence that the proposed use of ground water will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife.

FLOW REDUCTION: *(To be filled out only if Preponderance of Evidence box is not checked)*

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

G-16710 Shady Cove Waterworks



PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **November 15, 2006**

FROM: Ground Water/Hydrology Section **Ivan Gall**
Reviewer's Name

SUBJECT: Application G- **16710** Supersedes review of **NA**
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Use data from application for proposed wells.

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d. ☐ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource: (AW)
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		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Low vertical permeability of volcanic flow centers and welded tuffs, deeper depths of water-bearing zones. Changes locally to fracture density, or well proximity to faulting, may create semi-confined to unconfined conditions in some areas.

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1	**1**	**Rogue River**	**1573**	**1380**	**4400**	☒	☐	☐	☐	☒
2	**1**	**Rogue River**	**1526**	**1380**	**3500**	☒	☐	☐	☐	☒
3	**1**	**Rogue River**	**1485**	**1380**	**2900**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Static water levels greater than surface water stage, Rogue River is regional groundwater discharge area. Some water-bearing zones on area well logs above the Rogue River stage.

Water Availability Basin the well(s) are located within: ROGUE R > PACIFIC OCEAN - AB HOG CR

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**	☐	☐	**MF270**	**1200**	☐	**1020**	☐	**<25%****	☐
2	**1**	☐	☐	**MF270**	**1200**	☐	**1020**	☐	**<25%****	☐
3	**1**	☐	☐	**MF270**	**1200**	☐	**1020**	☐	**<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: This reach of the Rogue River has no instream water right. The WAB immediately downstream has a 1,200 CFS instream water right.

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: ** Insufficient aquifer parameter data exist to adequately simulate this fractured/faulted bedrock flow system using the simplified analytical model of Jenkins or Hunt. The apparent lack of pervasive fracturing, based on many low- to no-yield wells, makes it difficult to apply the concept of a continuum that is hydraulically equivalent to a porous medium.

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) **7J**;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** The Rogue River is a regional area of groundwater discharge, due to its incisement into the adjacent geologic units.

References Used: Hladky, Frank R., 1992. Geology and Mineral Resources Map of the Shady Cove Quadrangle, Jackson County, Oregon. Oregon Department of Geology and Mineral Industries GMS-52.
OWRD Grid well log database and Interactive Mapping tool.

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).**

Water Availability as of 9/26/2006 for

ROGUE R > PACIFIC OCEAN - AB HOG CR

Watershed ID #: 31530708 Basin: ROGUE Exceedance Level: 80

Time: 17:14 Date: 09/26/2006

Select an Item Number for More Details

Item #	Watershed ID #	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sto
1	266	YES	YES	YES	YES	YES	YES	NO	NO	NO	YES	NO	YES	YES
2	31531008	NO	YES	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
3	31531001	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
4	31531002	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
5	31530801	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
6	268	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
7	270	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES
8	31530708	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES

STREAM NAMES

Water Availability as of 9/26/2006 for

ROGUE R > PACIFIC OCEAN - AB HOG CR

Watershed ID #: 31530708 Basin: ROGUE Exceedance Level: 80

Time: 17:14 Date: 09/26/2006

Item	Watershed ID	Stream Name
1	266	ROGUE R > PACIFIC OCEAN - AT MOUTH
2	31531008	ROGUE R > PACIFIC OCEAN - AB SHASTA COSTA CR
3	31531001	ROGUE R > PACIFIC OCEAN - AB MEADOW CR
4	31531002	ROGUE R > PACIFIC OCEAN - AB GRAVE CR
5	31530801	ROGUE R > PACIFIC OCEAN - AB APPLEGATE R
6	268	ROGUE R > PACIFIC OCEAN - AB FALL CR
7	270	ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000
8	31530708	ROGUE R > PACIFIC OCEAN - AB HOG CR

DETAILED REPORT OF **INSTREAM** REQUIREMENTS

Water Availability as of 9/26/2006 for

ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000

Watershed ID #: 270 Basin: ROGUE Exceedance Level: 80

Time: 17:14 Date: 09/26/2006

	ISWRs						
APP #	MF 269	MF 270	0	0	0	0	0	MAXIMUM
Status	Cert.	Cert.						
1	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
2	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
3	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
4	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
5	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
6	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
7	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
8	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
9	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
10	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
11	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00
12	1000.00	1200.00	0.00	0.00	0.00	0.00	0.00	1200.00

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Water Availability as of 9/26/2006 for

ROGUE R > PACIFIC OCEAN - AB HOG CR

Watershed ID #: 31530708 Basin: ROGUE Exceedance Level: 80

Time: 17:14 Date: 09/26/2006

Month	Natural Stream Flow	Consumptiv Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Require-ments	Net Water Available
1	1860.00	642.00	1220.00	0.00	0.00	1220.00
2	2260.00	1460.00	806.00	0.00	0.00	806.00
3	2300.00	1230.00	1080.00	0.00	0.00	1080.00
4	2420.00	716.00	1700.00	0.00	0.00	1700.00
5	2500.00	159.00	2340.00	0.00	0.00	2340.00
6	1670.00	253.00	1420.00	0.00	0.00	1420.00
7	1250.00	259.00	991.00	0.00	0.00	991.00
8	1080.00	254.00	827.00	0.00	0.00	827.00
9	**1020.00**	241.00	780.00	0.00	0.00	780.00
10	1080.00	95.70	984.00	0.00	0.00	984.00
11	1210.00	140.00	1070.00	0.00	0.00	1070.00
12	1620.00	156.00	1460.00	0.00	0.00	1460.00
Stor-50%	1640000	333200	1310000	0	0	1310000

DETAILED REPORT OF **INSTREAM R**EQUIREMENTS
Water Availability as of 9/26/2006 for
ROGUE R > PACIFIC OCEAN - AB HOG CR

Watershed ID #: 31530708 Basin: ROGUE Exceedance Level: 80
Time: 17:14 Date: 09/26/2006

	ISWRs							
APP #	0	0	0	0	0	0	0	MAXIMUM
Status								
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

April 28, 2006

#3 10 - 1.1 = 8.9 @0840
MP + 0.53

#2 35 - 0.22 = 34.78
MP + 1.4

#1 (8") MP + 0.42 Floor
Floor 0.2 above LSD

#3 TL-200 A
N 42° 37' 08.4"
W 122° 49' 27.2"

#2 N 42° 37' 11.3" 200 B
W 122° 49' 33.5"

#1 N 42° 37' 13.7" 203
W 122° 49' 49.7"

From Norm Daft
Water level and GPS locations
for 3 wells
Groundwater app.# G-16710
Shady Cove Waterworks

NKB

#3	#2
8.9	34.78
-0.53	1.40
8.37	33.38

Well Location	34.08S1.08W4DDB2
Oregon Water Resources Department Well Log ID	JACK 375
Oregon Water Resources Department State Observation Well Number	----
Well depth, in feet below land surface	
Land surface elevation, in feet above mean sea level	1603
Primary use of well	not determined

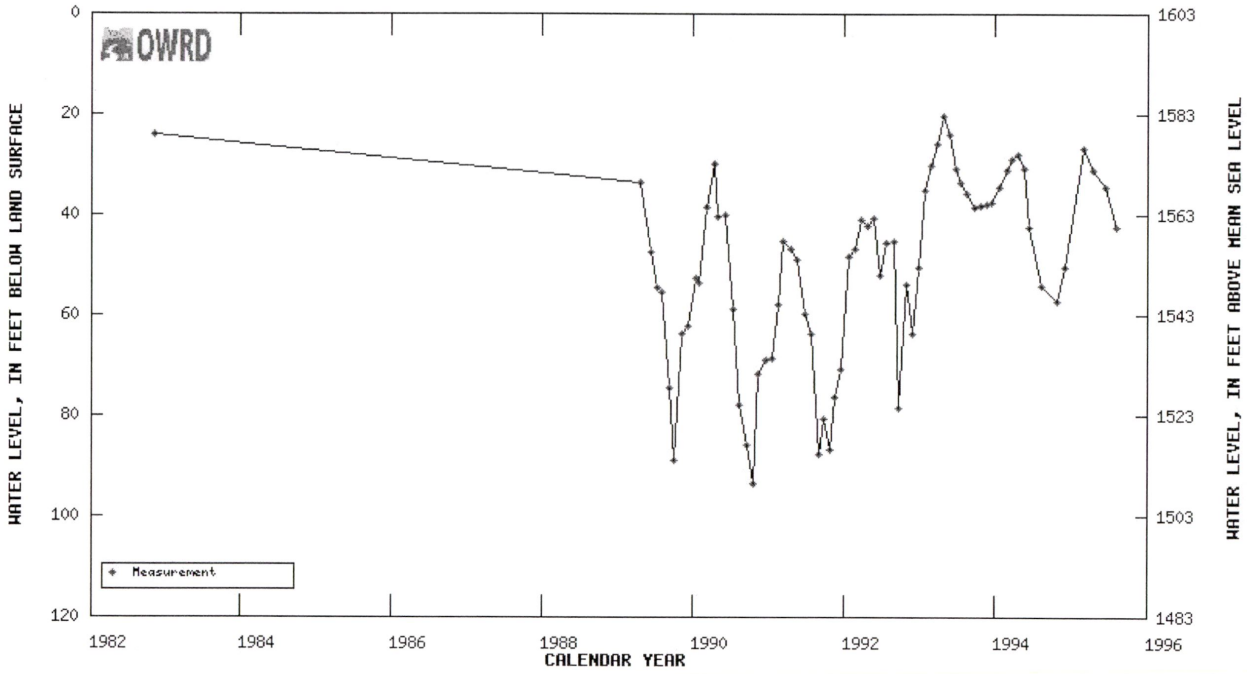


Table showing water-level data for State Well JACK 375

WATER WELL REPORT
STATE OF OREGON

JACK 375

RECEIVED
NOV 16 1982
WATER RESOURCES DEPT.
SALEM, OREGON

PLEASE TYPE or PRINT IN INK

State Well No. 34S/1W-4ac
State Permit No. ....

(1) OWNER:
Name CHARLOTTE PULLEN
Address 1511 PIPELINE #98
City CHINO State CA.

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary Air ☒ Driven ☐
Rotary Mud ☐ Dug ☐
Cable ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐
Thermal: Withdrawal ☐ Reinjection ☐

(5) CASING INSTALLED:
Steel ☒ Plastic ☐
Threaded ☐ Welded ☒
6" Diam. from 0 ft. to 20 ft. Gauge .250
....." Diam. from .... ft. to .... ft. Gauge ....

LINER INSTALLED:
4" Diam. from 0 ft. to 226 ft. Gauge ....

(6) PERFORATIONS:
Perforated? ☒ Yes ☐ No
Type of perforator used Saw
Size of perforations 1/8 in. by 8 in.
~~84~~ perforations from ~~120~~ ft. to ~~?~~ ft.
96 perforations from 126 ft. to 206 ft.
.... perforations from .... ft. to .... ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot Size .... Set from .... ft. to .... ft.
Diam. .... Slot Size .... Set from .... ft. to .... ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
Air test 18 gal./min. with drill stem at 226 ft. 1 hrs.
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered .... ft.

(9) CONSTRUCTION:
Special standards: Yes ☐ No ☒
Well seal—Material used Portland Cement 5% Bentonite
Well sealed from land surface to 18 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 3 sacks
How was cement grout placed? Pressure Grout Tremie Pipe

Was pump installed? NO Type .... HP .... Depth .... ft.
Was a drive shoe used? ☐ Yes ☒ No Plugs .... Size: location .... ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of Water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel: ....
Gravel placed from .... ft. to .... ft.

(10) LOCATION OF WELL:
County JACKSON Driller's well number
SW ¼ NE ¼ Section 4 T. 34 R. 1W W.M.
Tax Lot # Lot Blk Subdivision
Address at well location: ACROSS FROM STEADMAN WAY OFF OF RAGSDALE RD. TRAIL, OR.

(11) WATER LEVEL: Completed well.
Depth at which water was first found 135 ft.
Static level 24 ft. below land surface. Date 9 Nov 82
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6
Depth drilled 226 ft. Depth of completed well 226 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Soil Brown	0	2	
Clay Brown	2	12	
Claystone Brown	12	16	
Claystone Blue	16	43	
Claystone Blue/Gray	43	56	
Claystone Blue/Red	56	58	
Claystone Blue/Gray	58	61	
Claystone Blue/Red	61	64	
Claystone Blue/Gray	64	78	
Claystone Red/Brown	78	82	
Claystone Blue	82	106	
Claystone Blue/Gray	106	108	
Basalt Blue	108	131	
Claystone Red Brown	131	136	
Claystone Blue	136	226	24

Work started 9 Nov 1982 Completed 9 Nov 1982
Date well drilling machine moved off of well 9 Nov 1982

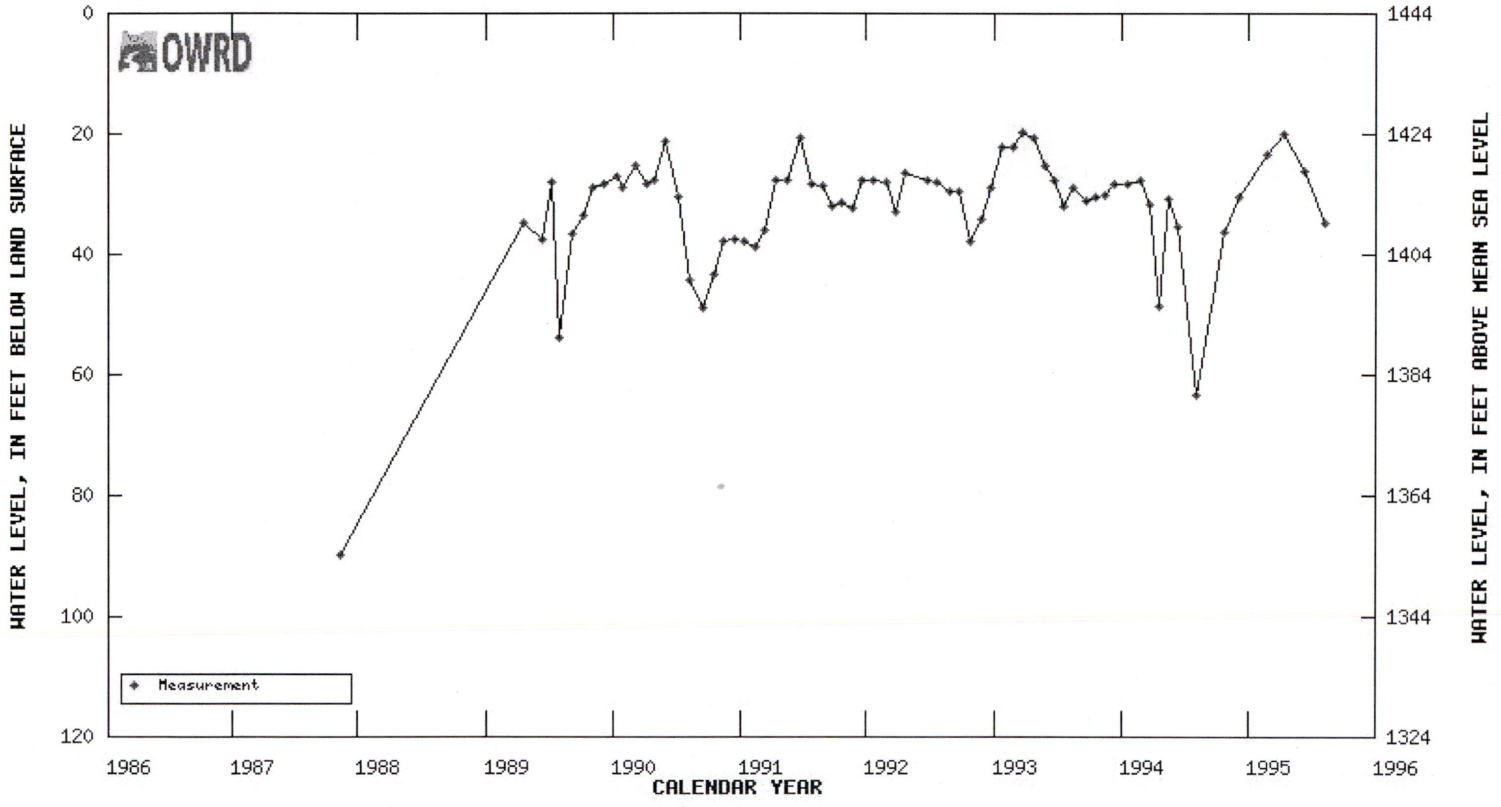
(unbonded) Water Well Constructor Certification (if applicable):
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] [signature] Date 9 Nov, 1982

Bonded Water Well Constructor Certification:
Bond U 0951462 (number) Issued by: UNITED PACIFIC (Surety Company Name)
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name MARTINSON WELL DRILLING, INC. (Person, firm or corporation) (Type or print)
Address P.O. BOX 680 EAGLE POINT, OR.
[Signed] Ronald J Martinson (Water Well Constructor)
Date 11-15, 1982

NOTICE TO WATER WELL CONSTRUCTOR
The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

SP*45292-690

Well Location	34.00S1.00W15BBA
Oregon Water Resources Department Well Log ID	JACK 563
Oregon Water Resources Department State Observation Well Number	----
Well depth, in feet below land surface	
Land surface elevation, in feet above mean sea level	1444
Primary use of well	not determined



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DEC - 2 1987

WATER RESOURCES DEPT.
SALEM, OREGON

JACK 563

34S/1W-15

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

Well Number: WL 1287

(1) OWNER:
Name JACK STEWART
Address 162 SCHOOL HOUSE LANE
City SHADY COVE, State ORE Zip 97539

(2) TYPE OF WORK:
[X] New Well [ ] Deepen [ ] Recondition [ ] Abandon

(3) DRILL METHOD
[X] Rotary Air [ ] Rotary Mud [ ] Cable
[ ] Other

(4) PROPOSED USE:
[X] Domestic [ ] Community [ ] Industrial [ ] Irrigation
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval Yes [ ] No [X] Depth of Completed Well 247 ft.
Explosives used Yes [ ] No [X] Type ____ Amount ____

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10"	0	20	BENTONITE	0	20	13 SACKS
6"	20	247				

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other TAMPED, POURED (BENTONITE GRANUALS)
Backfill placed from ____ ft. to ____ ft. Material ____
Gravel placed from ____ ft. to ____ ft. Size of gravel ____

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6"	0	47	.250	X		X	
Liner:	4"	0	247			X		X
							X	

Perforation location of shoe(s) 47

(7) PERFORATIONS/SCREENS:
[X] Perforations Method SAW
[ ] Screens Type ____ Material ____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
80	120	1X8	X8	40			X
167	210	1X8	X8	50			X

(8) WELL TESTS: Minimum testing time is 1 hour
[ ] Pump [ ] Bailer [X] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
7 GPM	137	247	1 hr.

Temperature of water ____ Depth Artesian Flow Found ____
Was a water analysis done? [ ] Yes By whom ____
Did any strata contain water not suitable for intended use? [ ] Too little
[ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other ____
Depth of strata: ____

(9) LOCATION OF WELL by legal description:
County JACKSON Latitude ____ Longitude ____
Township 34N N or S, Range 1W E or W, WM.
Section 15 ¼ ¼
Tax Lot 101 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) 161 SCHOOL HOUSE LA
SHADY COVE, ORE 97539

(10) STATIC WATER LEVEL:
90 ft. below land surface. Date 11-10-87
Artesian pressure ____ lb. per square inch. Date ____

(11) WATER BEARING ZONES:
Depth at which water was first found 96

From	To	Estimated Flow Rate	SWL
96	97	7 GPM	90

(12) WELL LOG:
Ground elevation ____

Material	From	To	SWL
SOIL, BROWN	0	1	
CLAY, BROWN	1	21	
GRAVEL, SMALL	21	43	
CLAY, BLUE	43	71	
CLAYSTONE, BLUE	71	108	
CLAYSTONE, RED, SOFT	108	137	
CLAYSTONE, BLUE	137	219	
CLAYSTONE, BLUE, SOFT	219	247	90

Date started 11-9-87 Completed 11-10-87

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

WWC Number ____
Signed ____ Date ____

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. all work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1207
Signed Joaquin Medina Date 11-10-87

WHITE COPIES - WATER RESOURCES DEPARTMENT YELLOW COPY - CONSTRUCTOR PINK COPY - CUSTOMER 9809C 10/86

Well Location	34.00S1.00W15CCB1
Oregon Water Resources Department Well Log ID	JACK 645
Oregon Water Resources Department State Observation Well Number	----
Well depth, in feet below land surface	
Land surface elevation, in feet above mean sea level	1385
Primary use of well	not determined

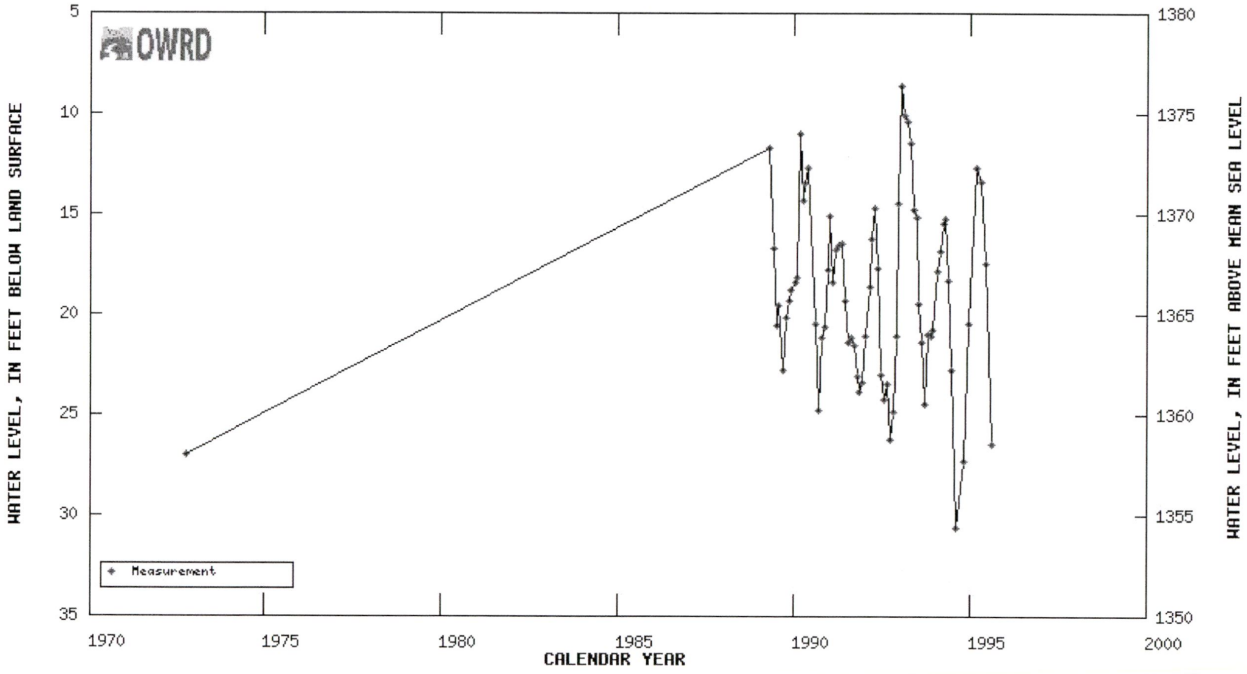

Table showing water-level data for State Well JACK 645

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
OCT 2 - 1972
STATE ENGINEER
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

Kettering
JACK
645

State Well No. 34S/1W-15 d
State Permit No.

(1) OWNER:
Name John Fugate
Address 103 BIRCH ST. P.O. Box 926
SHADY COVE, ORE

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(5) CASING INSTALLED:
Threaded [ ] Welded [X]
6" Diam. from 0 ft. to 19 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? [ ] Yes [X] No.
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [ ] Yes [X] No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " "
" " "
Bailer test 20 gal./min. with 75 ft. drawdown after 1 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

Air Return

(9) CONSTRUCTION:
Well seal—Material used Bentonite
Well sealed from land surface to 18 ft.
Diameter of well bore to bottom of seal 9 5/8 in.
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal — sacks
Number of sacks of bentonite used in well seal 1½ sacks
Brand name of bentonite NATIONAL-BAROID
Number of pounds of bentonite per 100 gallons of water 800 lbs./100 gals.
Was a drive shoe used? [X] Yes [ ] No Plugs Size: location ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [ ] Yes [X] No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County JACKSON Driller's well number
¼ SE ¼ Section 15 T. 34S R. 1 W W.M.
Bearing and distance from section or subdivision corner
APPRO. 150' N. AND 100' E. FROM S.E. CORNER.

(11) WATER LEVEL: Completed well.
Depth at which water was first found 31 ft.
Static level 27 ft. below land surface. Date 9-27-72
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 6"
Depth drilled 102 ft. Depth of completed well 102 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. *Report each change in position of Static Water Level and indicate principal water-bearing strata.*

MATERIAL	From	To	SWL
Soil, Brown	0	1	
Boulders, Med Brown	1	13	
Claystone, Brown	13	21	
Claystone, Blue (Hard)	21	30	
Claystone, Red	30	32	
Basalt, Blue (Hard)	32	51	
Claystone, Red	51	77	
Basalt, Blue (Hard)	77	86	
Claystone, Red	86	87	
Claystone, Blue	87	102	27

Work started 9-26 1972 Completed 9-27 1972
Date well drilling machine moved off of well 9-27 1972

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Donald Martinson (Drilling Machine Operator) Date 9-27, 1972
Drilling Machine Operator's License No. 622

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name MARTINSON WELL DRILLING (Person, firm or corporation) (Type or print)
Address 81 BALL RD. EAGLE POINT, ORE.
[Signed] J.W. Martinson (Water Well Contractor)
Contractor's License No. 406 Date 9-27, 1972

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119