

Water Resources Department

MEMO

Nov 18, 2003

superceded

TO Application G- 16059

FROM GW: IVAN 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

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WATER RESOURCES DEPT
SALEM, OREGON

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date November 18, 2003

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

SUBJECT: Application G- 16059 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: Hoffmann Innov. Land Group LLC County: Jackson

A1. Applicant(s) seek(s) 0.466 cfs from 2 well(s) in the Rogue Basin,
Bear Creek subbasin Quad Map: Ashland and Talent

A2. Proposed use: Irrigation (30 acres), livestock, domestic Seasonality: Dom/Lvstck year round, irrigation 4/1 to 10/31

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	Flooded Mine	1	Bedrock	0.377	39S/01E-7bc	1822' S, 281' E fr SW cor S 06
2	Proposed	2	Bedrock	0.089	39S/01E-6ca	1500' N, 1885' E fr SW cor S 06
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	3080	NA	NA	NA	900	NA	NA	NA	NA	NA	NA	NA
2	2470	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Use data from application for proposed wells.

A4. Comments: Well #2 is proposed, no construction details provided. Well #1 is the Ashland Mine; limited data available as to depth and extent of shafts/tunnels. Old drawings with application and from Tom Ferrero suggest that main mine shaft is 900 feet deep. Some tunnels appear to range in length from 125 ft to over 500 ft.

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: Bear Creek Basin portion of Rogue Basin Plan

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, 7F, 7J;
 - 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:** ** Require the applicant to install and maintain a properly functioning, totalizing flow meter on each well.

Geology at the site is composed of the Upper Jurassic to Lower Cretaceous, quartz diorite Ashland pluton. Groundwater availability is generally a function of fracture density, and appears to be highly variable (based on well logs). The degree of weathering on the Ashland pluton in this area appears to be approximately 10 to 55 feet thick, where the weathered zones will often tend to provide additional groundwater storage and help to maintain well yields during dry months. Given the well logs for section 6, there is only one deepening, but several reconditioning of wells, probably a result of caving along weathered portions of fractures. Well log data suggest that well yields fall into two populations; low-yielding (less than 5 gpm) and high yielding (30 gpm or more).

Although exact mine tunnel/shaft details are unavailable, and likely to remain so, this "well" encompasses a substantially large area relative to a drilled well. The tunneling has very likely connected and commingled groundwater from different fractures, possibly different water bearing zones. The mine profile section suggests that there is a north-south tunnel system that is 1,700 feet in length, with vertical shafts exceeding 1,000 feet in depth. Ferrero puts the water level elev. at approx. 3,280 feet. The east-west tunnel extent is difficult to approximate from the drawing, but appears to be at least 500 ft to 700 ft in length. Info from Ferrero suggests that the water production (yield) of the mine may be climate dependent, with a substantially lower yield following drought years. The likely interconnection created by the mining greatly increases the chances of impact to nearby groundwater users.

Ferrero Geologic conducted aquifer testing in support of Application G-15102 in June 2000. Results showed 36 feet of drawdown in an observation well located 123 feet away from pumping 40 gpm for 24 hours. More distal obs. wells appeared to show no water level response to pumping.

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	☐	☒
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: For "Well #1", extensive tunneling and shafts have likely connected different water-bearing zones. Some gravity flow of groundwater occurring into the Wrights Creek drainage (as per Ferrero, pers. comm., 2003). Groundwater in upper mine areas reportedly draining into lower shafts and tunnels, or into Wrights Cr drainage (Ferrero, 2003). Incised drainages suggest aquifer connected to atmospheric discharge, supported by year-round stream flow in area. However, Ferrero also reports drilling he conducted in the 1980's that encountered artesian conditions in area.

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	Trib. to Wrights Creek	3280*	3080	50	☐	☐	☒	☒	☐
1	2	Bear Creek	3280*	1,705	10,500	☒	☐	☐	☐	☒
1	3	Wagner Creek	3280*	2,800	2,600	☒	☐	☐	☐	☒
2	1	Trib. to Wrights Creek	NA	2,420	500	☐	☐	☒	☒	☐
2	2	Bear Creek	NA	1,705	7,000	☒	☐	☐	☐	☒
2	3	Wagner Creek	NA	2,800	6,200	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: *From Ferrero, pers. comm., 2003. Bear Creek is major drainage in area, which is deeply incised into local geology. Groundwater elevations appear substantially higher than surface water elevations of nearby drainages. Extensive tunneling of Well #1 makes it likely connected to Wagner Creek; not an issue with proposed drilled well #2. Wrights Cr flows year-round, at least at lower elevations, as do Wagner and Bear Creeks, indicating groundwater discharge into streams from the aquifer(s).

Water Availability Basin the well(s) are located within: Bear Creek #70993

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	☒	☐	NA	NA	☐	NA	☐	14*	☒
1	3	☐	☐	73047	2.0	☒	1.29	☒	0*	☒
2	1	☒	☐	NA	NA	☐	NA	☐	0*	☒
		☐	☐			☐		☐		☐

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?
	1		☐	NA	NA	☐	NA	☐	14*	☐
	3		☐	73047	2.0	☒	1.29	☒	0*	☒
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: *Used Jenkins model to estimate impact. Note it is simplified analytical model with many assumptions not met. However, an attempt was made to adjust aquifer K (down) and Sy (up) to help deal with limitations of model. Hunt model not used due to lack of data on streams and streambeds. At distances greater than 1,000 feet, using these K and Sy values, the apparent stream depletion is zero.

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
1	2	%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS					.15	.15	.15	.15	.15	.15	.15		
Interference CFS	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2	%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS					.04	.04	.04	.04	.04	.04	.04		
Interference CFS	0	0	0	0	0	0	0	0	0	0	0	0	0
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
(A) = Total Interf.	0	0	0	0	0	0	0	0	0	0	0	0	0
(B) = 80 % Nat. Q	107	129	129	105	84	61	28	19	17	18	30	65	
(C) = 1 % Nat. Q													
(D) = (A) > (C)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
(E) = (A / B) x 100	0 %	0%	0 %	0 %	0 %	0 %	0 %	0%	0%	0 %	0%	0%	0%

(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: Several water rights exist on Wrights Cr and its tribs and springs. According to Larry Menteer, Jackson Cty. Watermaster, John Billings has made a call on water from Wrights Cr. every few years or more frequently; Menteer believes that continued development of domestic wells has impacted flows in Wrights Cr.

Impacts to flows in Bear Creek will likely be present as this is the largest drainage in the area (most incised into local geology). However, given the model assumptions, and "short-term" impact assessment, the model results indicate no impact to Bear Creek within one season of pumping.

**A visit to Wrights Cr near Ashland by Obie Strickler, stream walker for OWRD, indicated flows in September 2003 of approximately 0.3 to 0.4 cfs at Hwy. 99. Visible flow on the east branch of 0.3 to 0.4 cfs, could hear flow on the middle branch but access too limited for estimate, no access for the western branch. These surface water flows this late in the dry season indicate that groundwater discharges into the surface water, even in this small drainage.

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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions** Given the limited data in the area, it is difficult to evaluate the potential impact to surface water. It seems likely, given the incised nature of the streams into the fractured bedrock, that the aquifer(s) is hydraulically connected to the streams. Additionally, the fractured bedrock aquifer likely has a low storage value. The quartz diorite has very little primary porosity and permeability. Although low K and high Sy values were used to help offset the unmet assumptions of the Jenkins model, these in no way reflect the actual aquifer parameter values. Certainly the K will be greater in order to provide the applicant with the proposed rate and duty.

References Used: OWRD GRID well log database and Interactive Mapping.

US Geological Survey, Ashland and Talent 1:24,000 topographic maps, 1983 provisional editions.

Ferrero, Tom, personal communications, September 2003.

Domenico, P.A., and F.W. Schwartz, 1990. Physical and chemical hydrogeology. John Wiley and Sons, Inc.

Freeze, R.A., and J.A. Cherry, 1979. Groundwater. Prentice-Hall, New Jersey.

D1. Well #: _____ Logid: _____

a. ☐ review of the well log,
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____

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) _____

b. ☐ I don't know if it met standards at the time of construction.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

[illegible]

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 June 28, 2004

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

SUBJECT: Application G- 16059 Supersedes review of November 18, 2003
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: Hoffman Innov. Land Grp. County: Jackson

A1. Applicant(s) seek(s) 0.466 cfs from 2 well(s) in the Rogue Basin,
Bear Creek subbasin Quad Map: Ashland and Talent

A2. Proposed use: Irrigation (30 ac), livestock, domestic Seasonality: Dom/Lvstck yr round, Irrig. 4/1-10/31

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	Flooded Mine	1	Bedrock	0.377	39S/01E-7bc	1822' S, 281' E fr SW cor S 06
2						
3	JACK 56571	2	Bedrock	.089	39S/01E-6ca	*1600' N, 1650' E fr SW cor S 06
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	3080	NA	**	NA	900	NA	NA	NA	NA	NA	NA	
2	2500	134	74	12-5-03	242	50	78.5	10-212	92-212	125+	NA	Air
2			66.91	6-9-04								

Use data from application for proposed wells.

A4. **Comments:** * Actual location of drilled well differs from proposed location on application.

** Ferrero estimates water level elevation in mine to be approximately 3,000 to 3,010 feet, and water level reportedly fluctuates less than one foot seasonally.

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: Bear Creek basin portion of Rogue Basin Plan

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:
- ☒ The permit should contain condition #(s) 7B, 7C*, 7F, 7J;
 - ☐ The permit should be conditioned as indicated in item 2 below.
 - ☒ 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:** * Require water level measurements and reporting on the drilled well only.

** Require the applicant to install and maintain a properly functioning, totalizing flow meter on both POAs.

Geology at the site is composed of the Upper Jurassic to Lower Cretaceous quartz diorite Ashland pluton. The degree of weathering on the pluton in this area appears to be approximately 10 to 55 feet; the weathered zones will often provide additional groundwater storage and help to maintain well yields during dry months. Fracture size and density will control well yield and groundwater availability, and, based on well logs in the area, appear to be highly variable. Many of the well logs (data attached) indicate multiple water-bearing zones at different depths. ~20% of well logs report yields of 2 gpm or less, more than half of the wells report yields exceeding 5 gpm, about 25% report yields exceeding 20 gpm, and 5 wells have yields reported at or above 100 gpm. Logs JACK 20268?, 31098?, 31733?, 32266, 33612?, 54641?, 56178?, and 56571 suggest or indicate multiple water bearing zones with the same static water level. This indicates that the degree of aquifer fracturing is pervasive enough to hydraulically connect fractures at different depths. Shallow and deeper groundwater, at least in these locations, is likely hydraulically connected. One exception is JACK 20269, which indicates two water-bearing zones with different water levels. Of the well logs in section 6, one deepening and several reconditionings (caving problems at depth, possibly a result of severe fracturing/shearing or deep localized weathering?) were completed.

Construction of the mine shaft results in this "well" encompassing a large area relative to a drilled well. The mine was constructed along a 40-degree east dipping fault that was mineralized. Vertical shafts are at least 900 feet deep, and total tunneling exceeds 11,000 feet (7-24-03 Cannon letter). The tunneling has likely connected and commingled groundwater from different fractures. This contention is supported by the degree of fracturing suggested by well log data in the area, and no data to suggest differently near the mine. Without carefully looking at water level elevations in the different wells in the area, it is difficult to ascertain if there are discrete water bearing zones, or if the system is sufficiently fractured to connect all of the different fractures. Info from Ferrero suggests that the groundwater yield of the mine may be climate dependent, with substantially lower yields following years of below average precipitation.

Aquifer test data for the area: Application G-15102, conducted by Ferrero Geologic in June 2000. Results showed 36 feet of drawdown in an observation well located 123 feet from the pumping well after pumping 40 gpm for 24 hours. More distal wells appeared to show no water level response to pumping. Pumping well for G-15102 was located approximately 4,500 and 8,200 feet northeast of this applicants' drilled well and mine, respectively.

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	☐	☒

Basis for aquifer confinement evaluation: Well logs in the area do not clearly indicate the degree of aquifer confinement. Reported static water levels often rise above the depth of the water-bearing zones, suggesting some confinement. However, in my experience, local drillers often fail to accurately log the first occurrence of saturated material, instead logging the first useable quantity of water. The deep incisement of local drainages, and year-round flow in lower sections of the streams, indicates groundwater discharge under atmospheric pressure and unconfined conditions at these locations. Similar static water levels for different water-bearing zones indicate vertical fracturing within the bedrock aquifer. Aquifer confinement may increase with depth, but it is a continuum, and because of pervasive fracturing the overall system will behave as unconfined. No flowing artesian wells were reported for section 6 or 7 in GRID. Ferrero reports drill holes intersecting the fault have tapped high-pressure flowing artesian wells.

C2. 690-09-040 (2) (3): Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Trib. To Wrights Cr	3000	2320	4,200	☒	☐	☐	☐	☒
2	1	Trib. To Wrights Cr	2433	2320	1,400	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Bear Cr is the major drainage in the area, and is deeply incised into local geology, as are many of the tributaries. Because of the generally low yielding properties of the bedrock aquifer, only nearby streams were evaluated for hydraulic connection. Groundwater elevations at the subject site are substantially higher than surface water elevations in the Wrights Creek tributary. Site visit on 6-9-04 to assess location of flow in unnamed trib. to Wrights Cr indicated flow (~5 gpm) begins near the northeast edge of subject property ~1,400 ft from the drilled well, below the access gate, and at an elevation of ~ 2,320 feet. Wrights Cr at Hwy. 99 flows year-round, indicating groundwater discharge to surface water as summer baseflow. No evidence (w/ exception of JACK 20269) in the well log database or local geology suggests presence of perched water tables or any separation between shallow and deeper groundwater. Steep hydraulic gradient between mine water level and drilled well suggest component of groundwater flow to north or different water-bearing zones.

Water Availability Basin the well(s) are located within: Bear Creek #70993

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	☐	☐	NA	NA	☐	17.10 ^a	☒	<25% ^c	☒
2	1	☐	☐	NA	NA	☐	17.10 ^b	☒	<25% ^c	☒

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: a 17.10 cfs is the 80% exceedance flow for Bear Creek, the limiting water availability basin. Q is distributed on application (0.376 cfs for mine, 0.089 cfs for well), but the 125 gpm yield of new drilled well may make that POA the primary source (as per applicant).

b 1% of 17.10 cfs is 0.17 cfs = 76 gpm; if this rate is exceeded the potential for substantial interference with Bear Creek and its tributaries is assumed. Thus in C3a above, if the application were amended to reduce the total Q from wells #1 (mine) and #2 (drilled well) to 76 gpm or less, then the potential for substantial interference is not found.

C An appropriate tool to conduct this analysis, short of a 3D-flow model, does not exist.

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													
(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:

Groundwater interference with surface water was evaluated on the unnamed tributary to Wrights Creek only. This evaluation takes into account that low-yield rocks, such as the various fractured bedrock-types that underlie the Bear Creek drainage, are typified by localized flow systems (i.e., recharged and discharged locally). While groundwater discharge undoubtedly occurs in the distant mainstem Bear Creek and other major drainages (such as Wagner Creek), tools to evaluate actual impacts at those distances and in this geologic regime are not available.

Several water rights exist on Wrights Creek and its tributaries and springs. According to Larry Menteer, Jackson County watermaster, John Billings has made a call on water from Wrights Creek (1869, 1873-4 rights) every few years, or more frequently, believing that development of domestic wells has impacted flows in Wrights Cr. Impacts to Bear Creek flows will likely increase with continuing groundwater development as this is the largest (most incised) drainage in the area and the lowest point for local groundwater discharge. However, model results would likely indicate no impact to mainstem Bear Creek within one year of pumping.

A visit to Wrights Cr by Obie Strickler, stream walker for OWRD, indicated flows at Hwy. 99 in September 2003 of approximately 0.3 to 0.4 cfs (visual estimate). Visible flow on the east branch of 0.3 to 0.4 cfs was observed, and O.S. could hear flow on the middle branch but access was too limited for an estimate, no access available for the western branch. These surface water flows this late in the dry season indicate that groundwater discharges into surface water, even in this small drainage.

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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions** Given the limited data in the area, and the nature of fractured bedrock aquifers, it is difficult to evaluate the potential impact to surface water. The water in the streams observed during the dry months is groundwater, so groundwater does discharge to the streams. The low storage property of the fractured bedrock aquifer (the quartz diorite has low primary porosity and permeability) results in a transmission of the pumping response over greater distances than observed in alluvial aquifers. Although low hydraulic conductivity and high specific yield values were used to help offset the unmet assumptions of the Jenkins analytical model, these values in no way reflect the actual aquifer parameter values.

References Used: OWRD GRID well log database and online Interactive Mapping.

US Geological Survey, Ashland and Talent 1:24,000 topographic maps, 1983 provisional editions.

Ferrero, Tom, September 2003 to June 2004 personal communications.

Domenico, P.A., and F.W. Schwartz, 1990. *Physical and Chemical Hydrogeology*. John Wiley and Sons, Inc.

Freeze, R.A., and J.A. Cherry, 1979. *Groundwater*. Prentice-Hall, New Jersey.

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).**

DEC 12 2003

STATE OF OREGON
WATER SUPPLY WELL REPORT WATER RESOURCES DEPT
(as required by ORS 537.765) SALEM, OREGON

WELL I.D. # L 67129
START CARD # 158678

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER Well Number
Name HOFFMAN INNOVATIVE LAND GROUP LLC
Address 1764 ASHLAND MINE RD
City ASHLAND State OR Zip 97520

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 198 1/2 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE SEAL
Diameter From To Material From To Sacks or pounds
10" 0 78 1/2 BEAR CHIPS 68 73 3 SACKS
6" 78 1/2 242 _____ 0 68 29 1/3 SACKS

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other PURSED DRY

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" 4 1/2 78 1/2 0.250 ☒ ☐ ☒ ☐
Liner: 4" -10 1/2 212 1/2 160 ☐ ☒ ☒ ☐

Drive Shoe used ☐ Inside ☒ Outside ☐ None
Final location of shoe(s) 78 1/2

(7) PERFORATIONS/SCREENS:
☐ Perforations Method _____
☒ Screens Type SLOTTED Material PK 50221

From To Slot size Number Diameter Tele/pipes size Casing Liner
92 212 1/2 0.032 _____ _____ ☐ ☒

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing
Yield gal/min Drawdown Drill stem at Time
125+ _____ 242 1 hr.
80 _____ 142 1/4 hr
105 _____ 162 1/4 hr

Temperature of water 56° 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 TAJALSON Latitude _____ Longitude _____
Township 39S N or S Range 1E E or W. WM.
Section 6 NE 1/4 SW 1/4
Tax Lot 1600 Lot _____ Block _____ Subdivision _____

Street Address of Well (or nearest address)
2155 ASHLAND MINE RD

(10) STATIC WATER LEVEL:
74 ft. below land surface. Date 12-5-03
Artesian pressure _____ lb. per square inch Date _____

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

From	To	Estimated Flow Rate	SWL
<u>134</u>	<u>138</u>	<u>9 2/3</u>	<u>74</u>
<u>156</u>	<u>158</u>	<u>60+</u>	<u>74</u>
<u>171</u>	<u>176</u>	<u>30</u>	<u>74</u>
<u>190</u>	<u>201</u>	<u>25</u>	<u>74</u>

(12) WELL LOG:
Ground Elevation _____

Material	From	To	SWL
<u>CLAY BROWN</u>	<u>0</u>	<u>15</u>	
<u>GRANITE BROWN WEATH.</u>	<u>15</u>	<u>36</u>	
<u>GRANITE GREY w/ WH.</u>	<u>36</u>		
<u>QUARTZ & BROWN CLASTS</u>			
<u>PUNKY TO 70 THEN FINE</u>			
<u>(SLURRY LOOKS GREEN</u>			
<u>RATHER THAN GREY)</u>			
<u>GRANITE DECOMP. OR</u>	<u>134</u>		
<u>SHEARED GREY/BROWN</u>		<u>138</u>	
<u>DIORITE DECOMP./SHEARED</u>	<u>138</u>		
<u>DARK GREY</u>		<u>156</u>	
<u>GRANITE GREY & BROWN</u>	<u>156</u>		
<u>BROKEN DECOMP./SHEARED</u>		<u>164</u>	
<u>GRANITE GREY/WHITE</u>	<u>164</u>		
<u>DECOMP./SHEARED</u>		<u>190</u>	
<u>GRANITE BROWN/ORGANIC</u>	<u>190</u>		
<u>WHITE/GREY DECOMP.</u>		<u>242</u>	
<u>CAVING IN PLACES</u>			

Date started 12-2-03 Completed 12-5-03

(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 water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

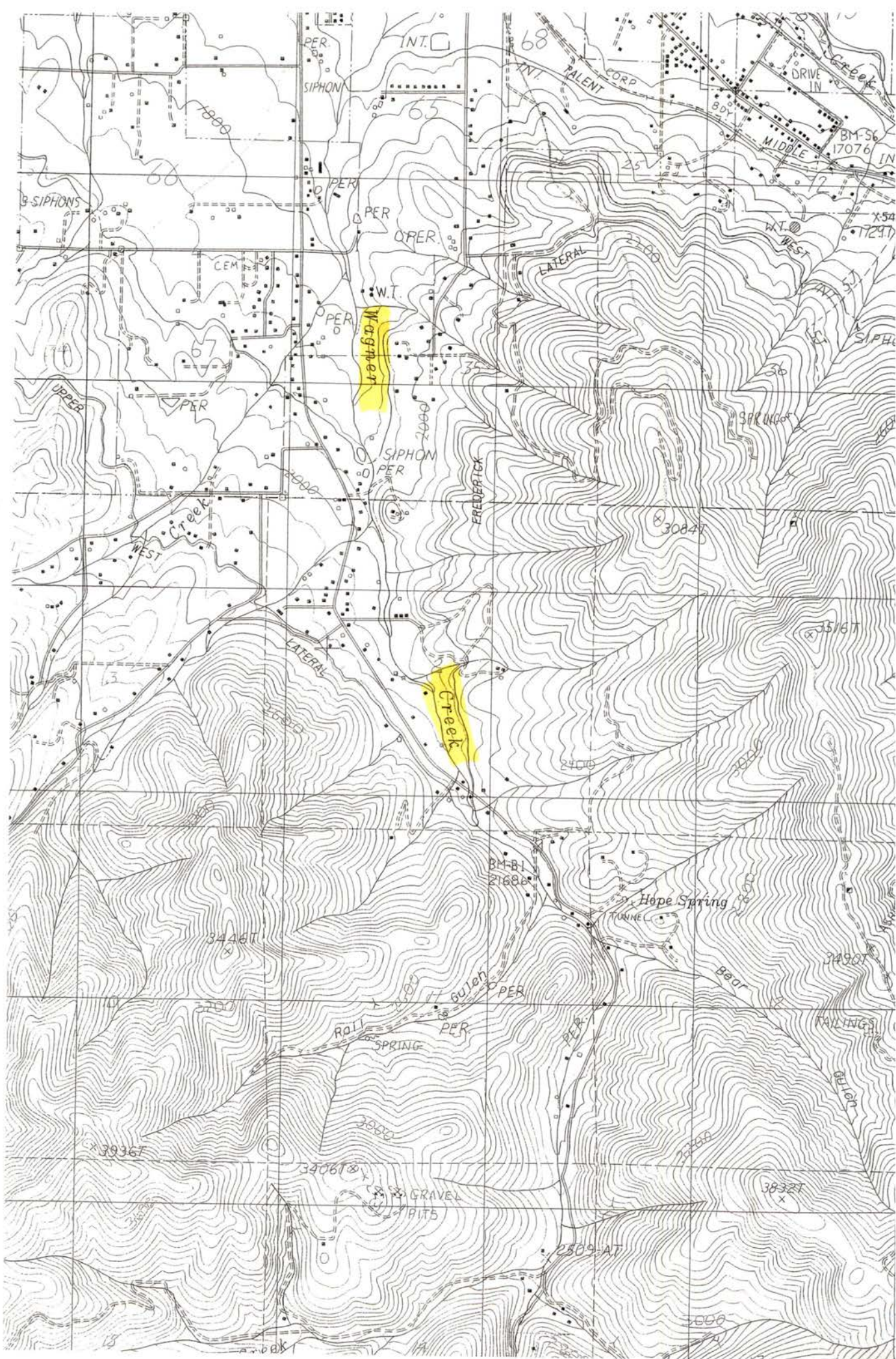
Signed Frank K... WWC Number 796
Date 12-7-03

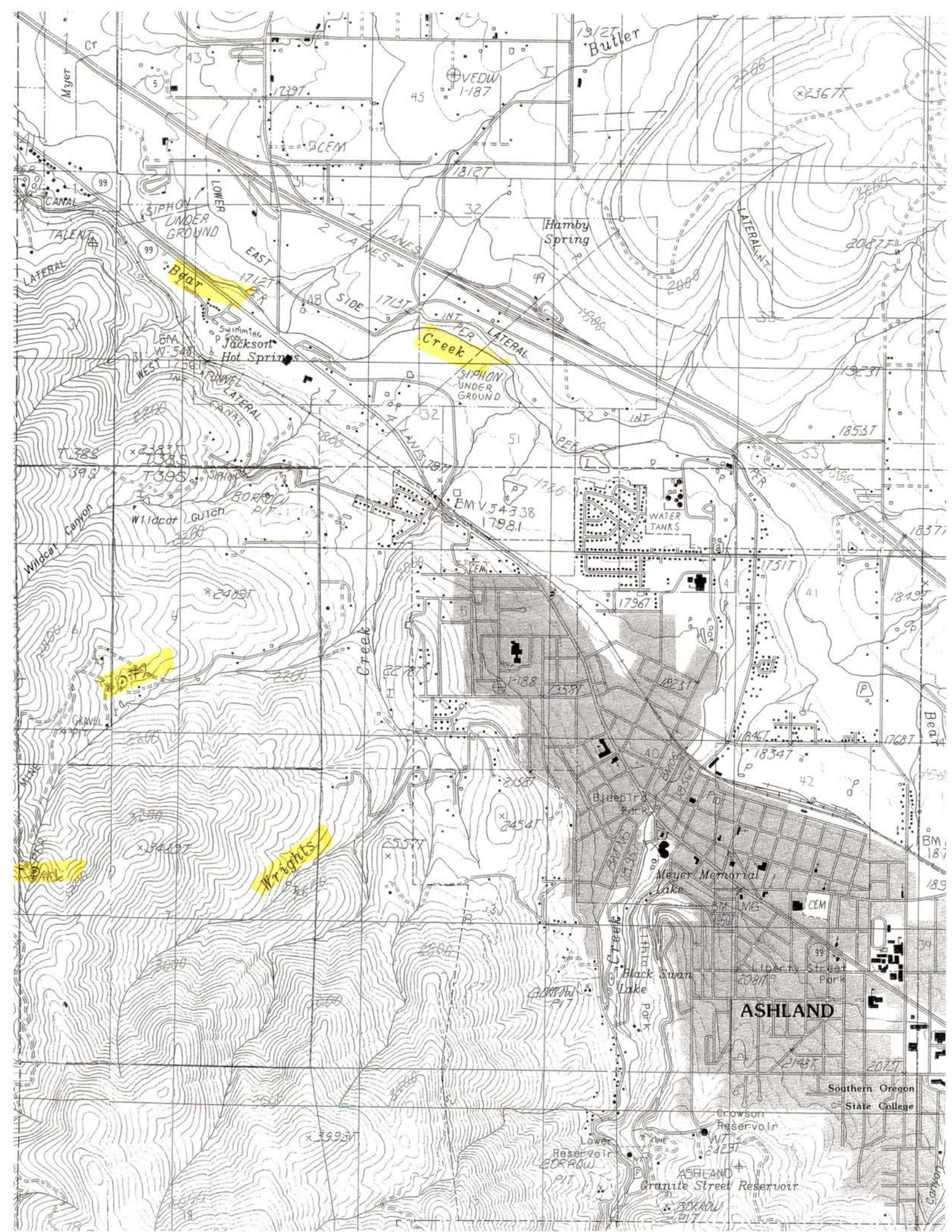
(bonded) Water Well Constructor Certification:

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 water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed Pioneer Drilling WWC Number 796
Date 12-7-03

ORIGINAL - WATER RESOURCES DEPARTMENT FIRST COPY - CONSTRUCTOR SECOND COPY - CUSTOMER
* INITIAL INSTALLATION OF LINER LAYS AT 158-199 FEET. CLEARED HOLE TO 206 FT, LOWERED LINER TO 212+ FT BUT LINER IS OBSTRUCTED AT 198+ FT.





G16059A.xls

Well #1 to Wrights Cr trib.

Input Data:

Variable	Name	Minimum	"Best"	Maximum	Unit
Well Owner or Well Number	Well		G-16059		
X Coord. for X-Section (Head Distribution)	x		0		[ft]
Perpendicular Distance From Well to Stream	a		(50)		[ft]
Net Steady Pumping Rate	Q		169		[gpm]
Hydraulic Conductivity	K	0.07	0.7	7	[gpd/ft*ft]
Aquifer Thickness	b	200	200	200	[ft]
Well Depth	d		900		[ft]
Storativity	S		(0.10000)		
Effective porosity	n		0.10000		
Hydr. Grad. Perpend. to Stream (must be > 0)	i	0.01000	0.01000	0.01000	
Time Since Pumping Started	time		30.00		[days]

D&S provide range of 7-110
gpd/ft² for weathered
granite
relatively high for
fractured rock w/ low
primary porosity

Output Data:

General Output:

Transmissivity	T	14	140	1,400	[gpd/ft]	= K*b
Hydraulic Conductivity	K	0	1	7	[gpd/ft*ft]	
		0	0	1	[ft/day]	
		3.28E-08	3.28E-07	3.28E-06	[m/s]	
Average linear velocity	ALV	0.00	0.01	0.09	[ft/day]	= K*i/n
		0.34	3.42	34.18	[ft/yr]	
Ambient Flux at River per Foot	dQ	0.0001	0.0010	0.0097	[gpm/ft]	= K*b*i

Transient Stream Depletion Output:

k	SDTr_k	1.1131	0.1113	0.0111		= ((a^2*S)/(4Tt))*7.48
Transient Stream Depletion (Theis/Jenkins)	SDTr	(14%)	(64%)	(88%)		= erfc SQRT(a*a*S)/4Tt)
Transient Induced Infiltration (Theis/Jenkins)	IITr					

Steady-State Stream Depletion:

Dimensionless Pumping Rate ($\beta \geq 1 \Rightarrow$ velocity divide has reached stream)	Beta, β	11066.27	1106.63	110.66		= Q/(K*b*i*a)
SQRT(Beta-1)		105.19	33.25	10.47		
Critical pumping rate	Qc	0	0	2	[gpm]	= K*b*i*a
Dist. fr Well to Velocity Divide at Steady State	r _{vd}	50	50	50	[ft]	= a-(a*SQRT(1- β))
Steady-State Stream Depletion (Wilson & Linderfelt)		100%	100%	100%		
Steady-State Induced Infiltration (Wilson & Linderfelt)		99%	96%	88%		= (2/)*(-SQRT(β -1)/ β +ATAN((

G16059A.xls

Well #1 to Wagner Cr

Input Data:

Variable	Name	Minimum	"Best"	Maximum	Unit
Well Owner or Well Number	Well		G-16059		
X Coord. for X-Section (Head Distribution)	x		0		[ft]
Perpendicular Distance From Well to Stream	a		(2,600)		[ft]
Net Steady Pumping Rate	Q		169		[gpm]
Hydraulic Conductivity	K	0	1	7	[gpd/ft*ft]
Aquifer Thickness	b	200	200	200	[ft]
Well Depth	d		900		[ft]
Storativity	S		0.10000		
Effective porosity	n		0.10000		
Hydr. Grad. Perpend. to Stream (must be > 0)	i	0.01000	0.01000	0.01000	
Time Since Pumping Started	time		30.00		[days]

Output Data:

General Output:

Transmissivity	T	14	140	1,400	[gpd/ft]	= K*b
Hydraulic Conductivity	K	0	1	7	[gpd/ft*ft]	
		0	0	1	[ft/day]	
		3.28E-08	3.28E-07	3.28E-06	[m/s]	
Average linear velocity	ALV	0.00	0.01	0.09	[ft/day]	= K*i/n
		0.34	3.42	34.18	[ft/yr]	
Ambient Flux at River per Foot	dQ	0.0001	0.0010	0.0097	[gpm/ft]	= K*b*i

Transient Stream Depletion Output:

k	SDTr_k	3009.8095	300.9810	30.0981		= ((a^2*S)/(4Tt))^7.48
Transient Stream Depletion (Theis/Jenkins)	SDTr	#NUM!	0%	0%		= erfc SQRT(a*a*S)/4Tt)
Transient Induced Infiltration (Theis/Jenkins)	IITr					

Steady-State Stream Depletion:

Dimensionless Pumping Rate (β >= 1 ==> velocity divide has reached stream)	Beta, β	212.81	21.28	2.13		= Q/(K*b*i**a)
SQRT(Beta-1)		14.55	4.50	1.06		
Critical pumping rate	Qc	1	8	79	[gpm]	= K*b*i**a
Dist. fr Well to Velocity Divide at Steady State	r _{vd}	2600	2600	2600	[ft]	= a-(a*SQRT(1-β))
Steady-State Stream Depletion (Wilson & Linderfelt)		100%	100%	100%		
Steady-State Induced Infiltration (Wilson & Linderfelt)		91%	73%	20%		= (2/)*{-SQRT(β-1)/β+ATAN[(

G16059A.xls

Well #2 to Wrights Cr trib

Input Data:

Variable	Name	Minimum	"Best"	Maximum	Unit
Well Owner or Well Number	Well		G-16059		
X Coord. for X-Section (Head Distribution)	x		0		[ft]
Perpendicular Distance From Well to Stream	a		500		[ft]
Net Steady Pumping Rate	Q		169		[gpm]
Hydraulic Conductivity	K	0	1	7	[gpd/ft*ft]
Aquifer Thickness	b	200	200	200	[ft]
Well Depth	d		900		[ft]
Storativity	S		0.10000		
Effective porosity	n		0.10000		
Hydr. Grad. Perpend. to Stream (must be > 0)	i	0.01000	0.01000	0.01000	
Time Since Pumping Started	time		30.00		[days]

Output Data:

General Output:

Transmissivity	T	14	140	1,400	[gpd/ft]	= K*b
Hydraulic Conductivity	K	0	1	7	[gpd/ft*ft]	
		0	0	1	[ft/day]	
		3.28E-08	3.28E-07	3.28E-06	[m/s]	
Average linear velocity	ALV	0.00	0.01	0.09	[ft/day]	= K*i/n
		0.34	3.42	34.18	[ft/yr]	
Ambient Flux at River per Foot	dQ	0.0001	0.0010	0.0097	[gpm/ft]	= K*b*i

Transient Stream Depletion Output:

k	SDTr_k	111.3095	11.1310	1.1131		= ((a^2*S)/(4Tt))^7.48
Transient Stream Depletion (Theis/Jenkins)	SDTr	0%	0%	14%		= erfc SQRT(a*a*S)/4Tt)
Transient Induced Infiltration (Theis/Jenkins)	IITr					

Steady-State Stream Depletion:

Dimensionless Pumping Rate (β >= 1 ==> velocity divide has reached stream)	Beta, β	1106.63	110.66	11.07		= Q/(K*b*i**a)
SQRT(Beta-1)		33.25	10.47	3.17		
Critical pumping rate	Qc	0	2	15	[gpm]	= K*b*i**a
Dist. fr Well to Velocity Divide at Steady State	rwd	500	500	500	[ft]	= a-(a*SQRT(1-β))
Steady-State Stream Depletion (Wilson & Linderfelt)		100%	100%	100%		
Steady-State Induced Infiltration (Wilson & Linderfelt)		96%	88%	62%		= (2/)*{-SQRT(β-1)/β+ATAN[(

Table 3.2
Representative values of hydraulic conductivity for various rock types

Material	Hydraulic conductivity (m/sec)
SEDIMENTARY	
Gravel	3×10^{-4} – 3×10^{-2}
Coarse sand	9×10^{-7} – 6×10^{-3}
Medium sand	9×10^{-7} – 5×10^{-4}
Fine sand	2×10^{-7} – 2×10^{-4}
Silt, loess	1×10^{-9} – 2×10^{-5}
Till	1×10^{-12} – 2×10^{-6}
Clay	1×10^{-11} – 4.7×10^{-9}
Unweathered marine clay	8×10^{-13} – 2×10^{-9}
SEDIMENTARY ROCKS	
Karst and reef limestone	1×10^{-6} – 2×10^{-2}
Limestone, dolomite	1×10^{-9} – 6×10^{-6}
Sandstone	3×10^{-10} – 6×10^{-6}
Siltstone	1×10^{-11} – 1.4×10^{-8}
Salt	1×10^{-12} – 1×10^{-10}
Anhydrite	4×10^{-13} – 2×10^{-8}
Shale	1×10^{-13} – 2×10^{-9}
CRYSTALLINE ROCKS	
Permeable basalt	4×10^{-7} – 2×10^{-2}
Fractured igneous and metamorphic rock	8×10^{-9} – 3×10^{-4}
Weathered granite	3.3×10^{-6} – 5.2×10^{-3}
Weathered gabbro	5.5×10^{-7} – 3.8×10^{-6}
Basalt	2×10^{-11} – 4.2×10^{-7}
Unfractured igneous and metamorphic rocks	3×10^{-14} – 2×10^{-10}
To convert meters per second to	
cm/sec	Multiply by 10^2
(gal/day)/ft ²	2.12×10^6
ft/sec	3.28
ft/yr	1×10^8
darcy	1.04×10^5
ft ²	1.1×10^{-6}
cm ²	1×10^{-3}
To convert any of the above to meters per second	Divide by the appropriate number above

Domenico & Schwartz, 1990.

SPEC. CAPAC.

GALI

makes it clear that large head changes over extensive areas are required to produce substantial water yields from confined aquifers.

Transmissivities and storativities can be specified for aquitards as well as aquifers. However, in most applications, the vertical hydraulic conductivity of an aquitard has more significance than its transmissivity. It might also be noted that in clay aquitards, $\alpha \gg \beta$, and the $n\beta$ term in the definition of storativity [Eq. (2.63)] and specific storage [Eq. (2.60)] becomes negligible.

It is possible to define a single formation parameter that couples the transmission properties T or K , and the storage properties S or S_s . The *hydraulic diffusivity* D is defined as

$$D = \frac{T}{S} = \frac{K}{S_s} \quad (2.64)$$

The term is not widely used in practice.

The concepts of *transmissivity* T and *storativity* S were developed primarily for the analysis of well hydraulics in confined aquifers. For two-dimensional, horizontal flow toward a well in a confined aquifer of thickness b , the terms are well defined; but they lose their meaning in many other groundwater applications. If a groundwater problem has three-dimensional overtones, it is best to revert to the use of *hydraulic conductivity* K and *specific storage* S_s ; or perhaps even better, to the fundamental parameters *permeability* k , *porosity* n , and *compressibility* α .

Transmissivity and Specific Yield in Unconfined Aquifers

In an unconfined aquifer, the transmissivity is not as well defined as in a confined aquifer, but it can be used. It is defined by the same equation [Eq. (2.61)], but b is now the saturated thickness of the aquifer or the height of the water table above the top of the underlying aquitard that bounds the aquifer.

The storage term for unconfined aquifers is known as the *specific yield* S_y . It is defined as the volume of water that an unconfined aquifer releases from storage per unit surface area of aquifer per unit decline in the water table. It is sometimes called the *unconfined storativity*. Figure 2.22(b) illustrates the concept schematically.

The idea of specific yield is best visualized with reference to the saturated-unsaturated interaction it represents. Figure 2.23 shows the water-table position and the vertical profile of moisture content vs. depth in the unsaturated zone at two times, t_1 and t_2 . The crosshatched area represents the volume of water released from storage in a column of unit cross section. If the water-table drop represents a unit decline, the crosshatched area represents the specific yield.

The specific yields of unconfined aquifers are much higher than the storativities of confined aquifers. The usual range of S_y is 0.01–0.30. The higher values reflect the fact that releases from storage in unconfined aquifers represent an actual dewatering of the soil pores, whereas releases from storage in confined aquifers represent only the secondary effects of water expansion and aquifer compaction

Freeze & Cherry, 1979

GALL

range is ~0.01-0.30
same range as S_y
but not S_s

$$n = S_y + S_s$$

Table 4.2
Values of specific yield for various geologic materials (from Johnson, 1967)

Material	Specific yield (%)
Gravel, coarse	23
Gravel, medium	24
Gravel, fine	25
Sand, coarse	27
Sand, medium	28
Sand, fine	23
Silt	8
Clay	3
Sandstone, fine grained	21
Sandstone, medium grained	27
Limestone	14
Dune sand	38
Loess	18
Peat	44
Schist	26
Siltstone	12
Till, predominantly silt	6
Till, predominantly sand	16
Till, predominantly gravel	16
Tuff	21

Domenico &
Schwartz, 1990

of water the rock retains against the force of gravity to the total rock volume. These relationships may be expressed

$$S_y = \frac{V_{wd}}{V_T} \quad (4.46a)$$

$$S_r = \frac{V_{wr}}{V_T} \quad (4.46b)$$

where S_y is the specific yield, V_{wd} is the volume of water drained, V_T is the total rock volume, S_r is the specific retention, and V_{wr} is the volume of water retained against the force of gravity. It follows that the sum of V_{wd} and V_{wr} represents the total water volume contained within the interconnected pore space within a unit volume of saturated material. Total porosity is then equal to the sum of specific yield, specific retention, and the ratio of the volume of water contained in the unconnected pore space to the total volume. Johnson (1967) has summarized values of specific yield for a variety of rock types and sediments (Table 4.2). The coarser the material, the more closely the specific yield approaches total porosity.

4.3 Boundary Conditions and Flow Nets

Given the differential equations described in the previous section, there now remains one additional problem to be concerned with, namely, their solution or, more specifically, some additional information required in their solution. To

September 2003

Field visit by Obie Strickler to Wrights Cr on Athland

① Flow @ Hwy 99 ~ 0.3 to 0.4 cfs

② East branch visible flow, ~0.3-0.4 cfs

③ Middle branch could hear flow, no estimate made due to limited access

④ Western branch No access

From: "Tom Ferrero" <fgeo@97520.net>
To: "Ivan Gall" <Ivan.K.GALL@wrд.state.or.us>
Subject: Re: Ashland Mine Water Right Application
Date: Fri, 12 Sep 2003 08:05:50 -0700
X-MSMail-Priority: Normal
X-Mailer: Microsoft Outlook Express 6.00.2800.1106
X-MimeOLE: Produced By Microsoft MimeOLE V6.00.2800.1106
X-Spam-Processed: ashlandhome.com, Fri, 12 Sep 2003 08:05:42 -0700
(not processed: message from valid local sender)
X-MDRemoteIP: 66.241.91.248
X-Return-Path: fgeo@97520.net
X-MDaemon-Deliver-To: Ivan.K.GALL@wrд.state.or.us

Ivan:

1) I am not sure which map you have. My maps are dated from the early 40s. If it shows a series of underhand stoped levels about 600 feet deep below the main haulage tunnel that ties all of the workings together, shaped sort of like a beehive, it is generally accurate. I once estimated about 3 million gallons of water storage in the underhand workings.

2) The water level rises to the 600 level tunnel at about 3280 el (from 80 ft CI topo map). It has never flowed out of the tunnel that I am aware of. I set up a siphon in the tunnel to extract water for drilling back in 1982. It is still being used (it was maintained and passed on - land sale - by the previous owner - Phil Wickham) by two adjacent properties for domestic water. An issue has developed regarding this usage.

3) Seasonal fluctuation is about 1 foot.

Additional Info:

There are two conflicting stories about the water supply from this storage.

Phil tells me that his father pumped the mine out to the bottom level in the late 1930s, and the flow was not enough to run the mill and provide domestic use, so he brought water in via ditch from a stable tributary on the Wagner Creek side.

When I was working on the mine in 1982, I had detailed records of an exploration project in 1959 and 1960, where they pumped the same workings out. There are weekly reports describing how difficult it was to pump it out due to the rapid recharge - requiring importing additional pumps.

I checked the rainfall records and the late 30s event followed a long drought spell. The other followed a much wetter period.

This data, applied to this high, ridge top location, indicates that the water supply in the mine has a stable SWL (odd), but is subject to varying recharge rates controlled by broad wet and drought cycles, and much less by seasonal fluctuations.

Note that the 550 level - the main haulage crosscut entrance on the Wrights Creek side, about 50 feet higher than the top of the water level in the underhand workings - flows water all year most years. This water comes from the upper workings - all of which is diverted to Wrights Creek by the haulage tunnel which slopes about 0.5 to 1 degree that way.

The water from the mine has always tested amazingly clean in terms of bacteria and metals, etc. 99 percent of the metallic deposits were mined out.

T.

----- Original Message -----

From: "Ivan Gall" <Ivan.K.GALL@wrd.state.or.us>

To: <fgeo@97520.net>

Sent: Thursday, September 11, 2003 1:04 PM

Subject: Ashland Mine Water Right Application

> Tom-

> I figured I would email you as opposed to playing phone tag. I have some questions I hope you will be able to shed light upon.

> An applicant has applied for use of water from the Ashland Mine and one proposed drilled well. An old drawing from 1929 accompanied the application, giving some mine shaft/tunnel depths, lengths, and orientations.

>

> 1. Based upon your work at the mine and information you have heard, (and assuming you have seen this drawing), does the drawing "accurately" depict mine construction?

>

> 2. The mine is flooded. To what level does water in the mine rise (an elevation would be helpful)? Does water flow out of any of the tunnels at any time during the year?

>

> 3. Do water levels in the mine fluctuate seasonally?

>

> Thanks for any help you can provide. I will be out of the office all next week on vacation, returning on Monday, Sept. 22nd.

> ivan

>

>

>

>

>

> *****

> Ivan Gall

> Hydrogeologist

> Oregon Water Resources Department

Touchstone Resources Company

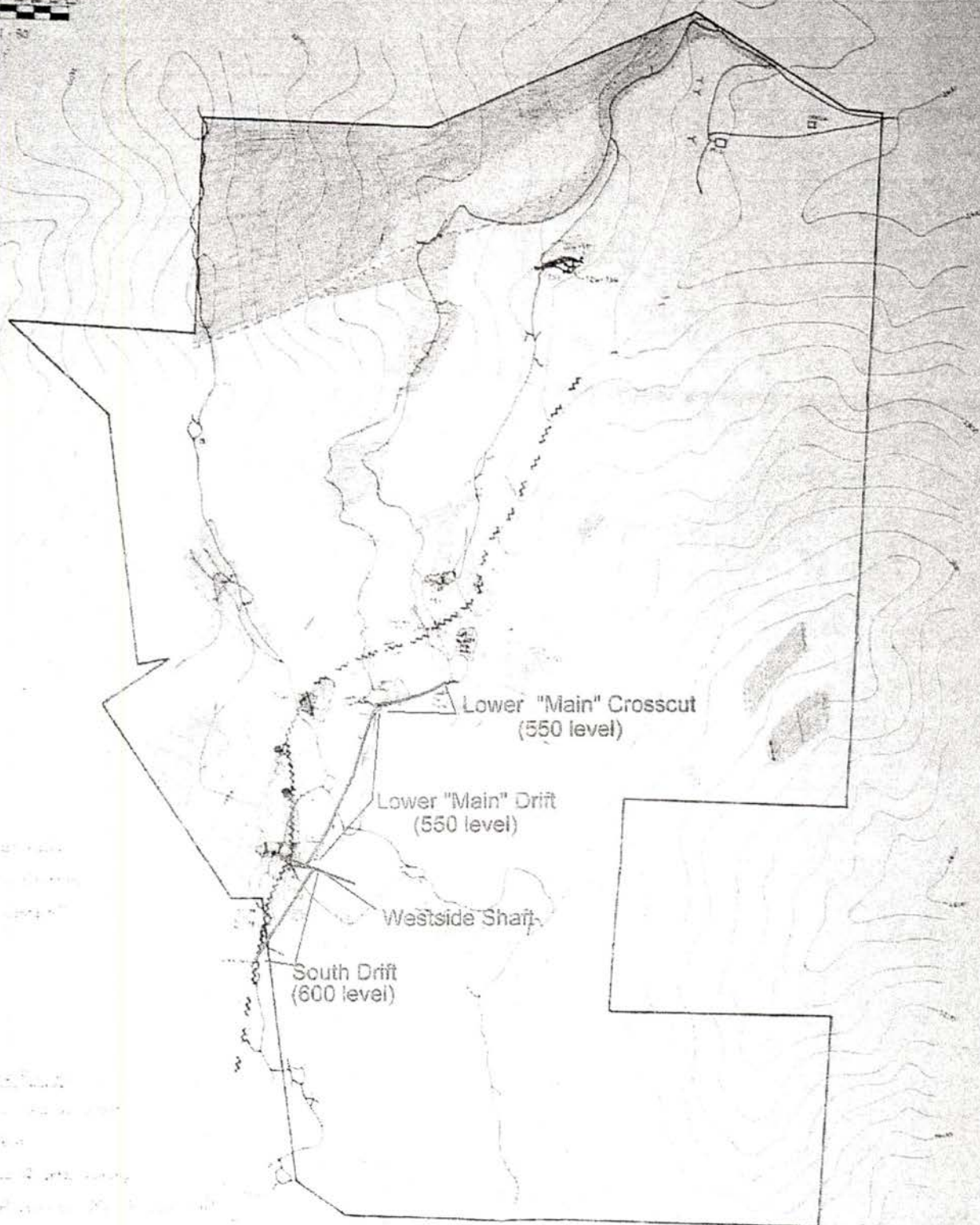
Contour Interval = 50

Drawn by C.A.K.

Date: 8-82

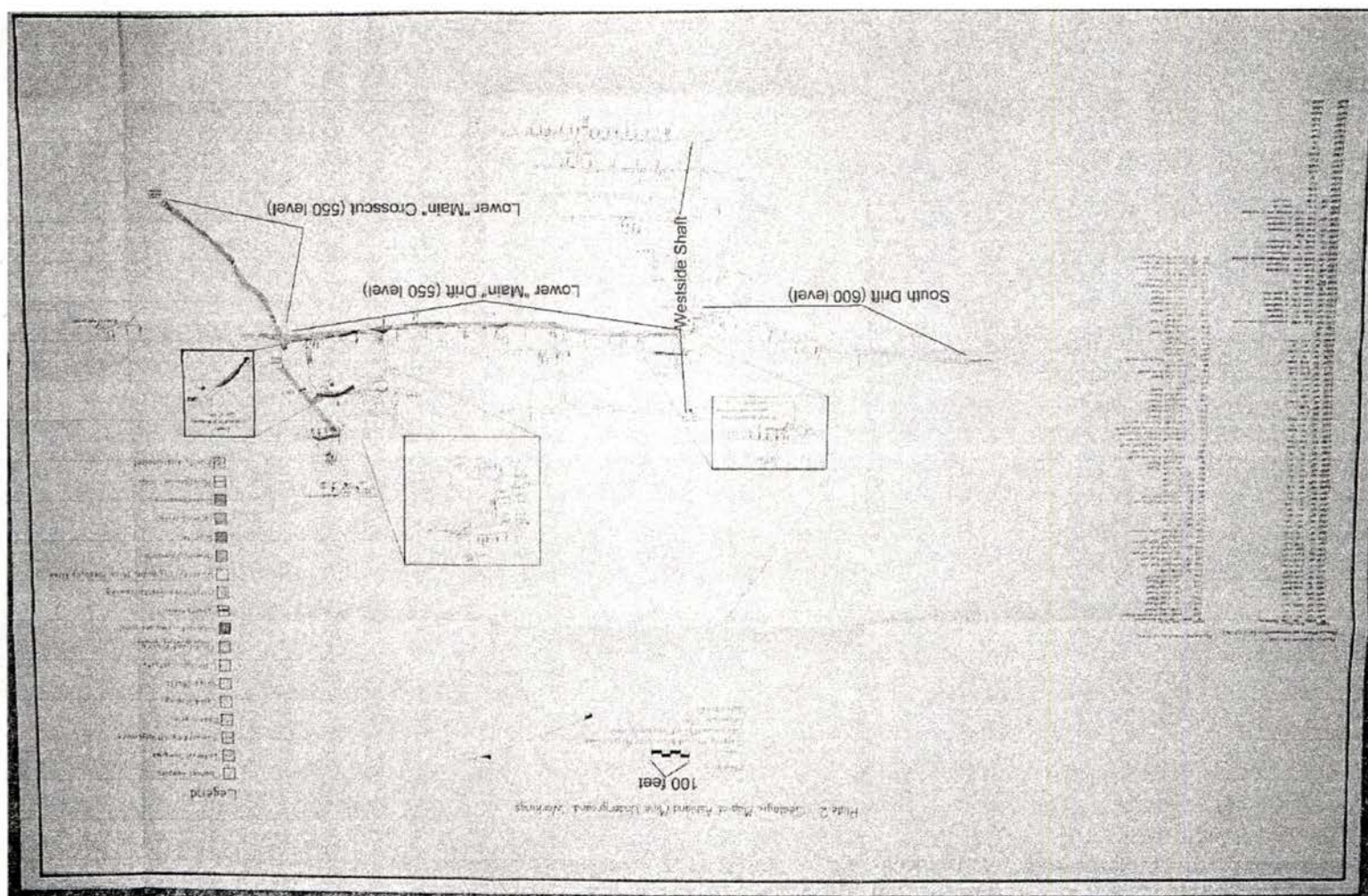


Sample	Age	Age	Age
9771	90	100	100
9772	90	100	100
9773	90	100	100
9774	90	100	100
9775	90	100	100
9776	90	100	100
9777	90	100	100
9778	90	100	100
9779	90	100	100
9780	90	100	100
9781	90	100	100
9782	90	100	100
9783	90	100	100
9784	90	100	100
9785	90	100	100
9786	90	100	100
9787	90	100	100
9788	90	100	100
9789	90	100	100
9790	90	100	100
9791	90	100	100
9792	90	100	100
9793	90	100	100
9794	90	100	100
9795	90	100	100
9796	90	100	100
9797	90	100	100
9798	90	100	100
9799	90	100	100
9800	90	100	100



1105

- [illegible]





Water Availability for WID 71206

jump to:

- [home](#)
- [commission](#)
- [water law](#)
- [water rights](#)
- [surface water](#)
- [ground water](#)
- [maps](#)
- [programs](#)
- [publications](#)
- [links](#)
- [staff](#)
- [file pickup](#)
- [intranet](#)
- [about](#)
- [search](#)
- [oregon online](#)
- [comments](#)

WATER AVAILABILITY TABLE
 Water Availability as of 9/30/2003 for
 WAGNER CR > BEAR CR - AT MOUTH
 Basin: ROGUE

Exceedance Level: 80
 Date: 09/30/2003

Watershed ID #: 71206
 Time: 09:12

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	NO
8	70993	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
9	71206	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

STREAM NAMES
 Water Availability as of 9/30/2003 for
 WAGNER CR > BEAR CR - AT MOUTH
 Basin: ROGUE

Exceedance Level: 80
 Date: 09/30/2003

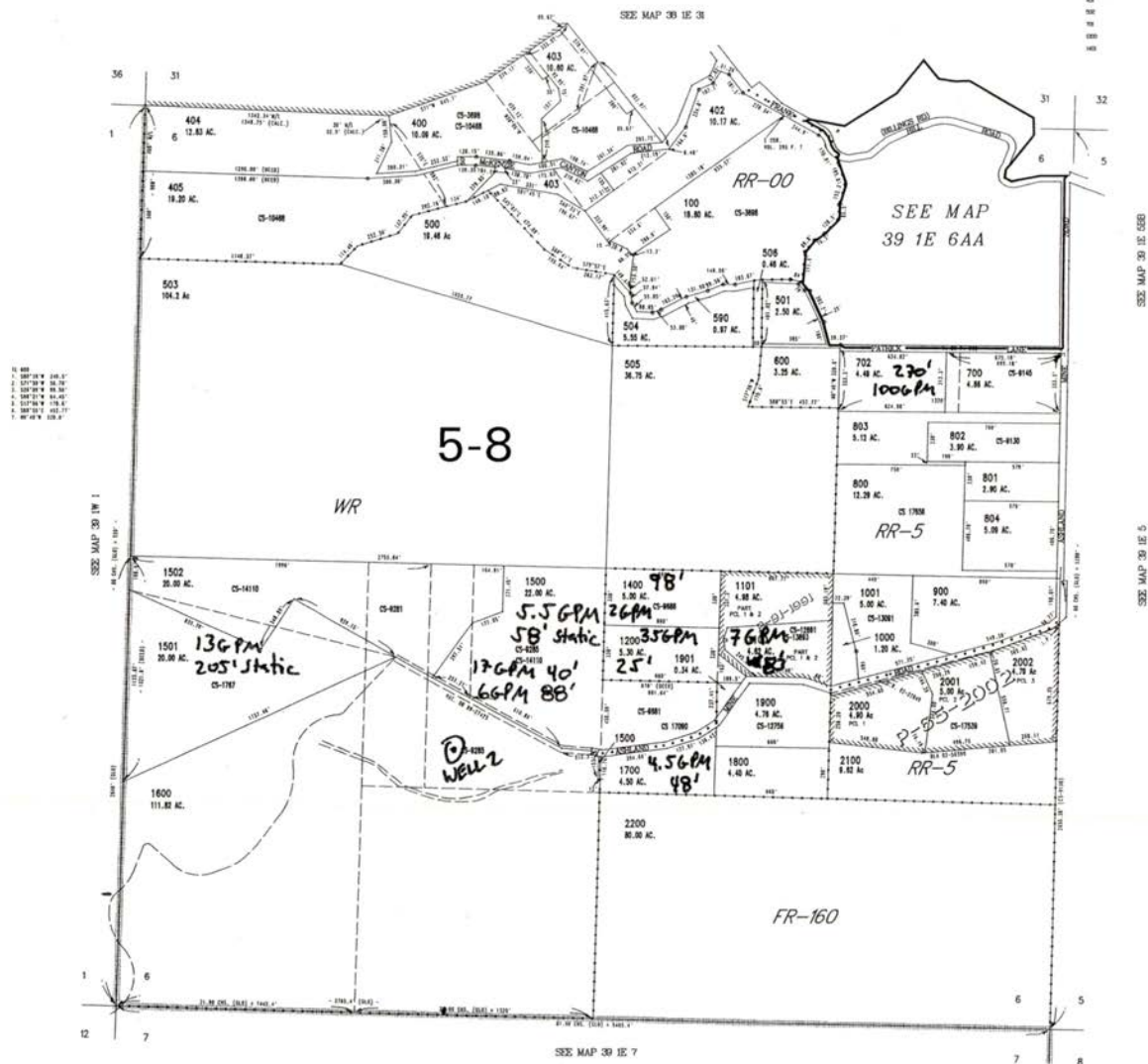
Watershed ID #: 71206
 Time: 09:12

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 APPLGATE R
6	268	ROGUE R > PACIFIC OCEAN - AB FALL CR
7	270	ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000
8	70993	BEAR CR > ROGUE R - AT MOUTH
9	71206	WAGNER CR > BEAR CR - AT MOUTH

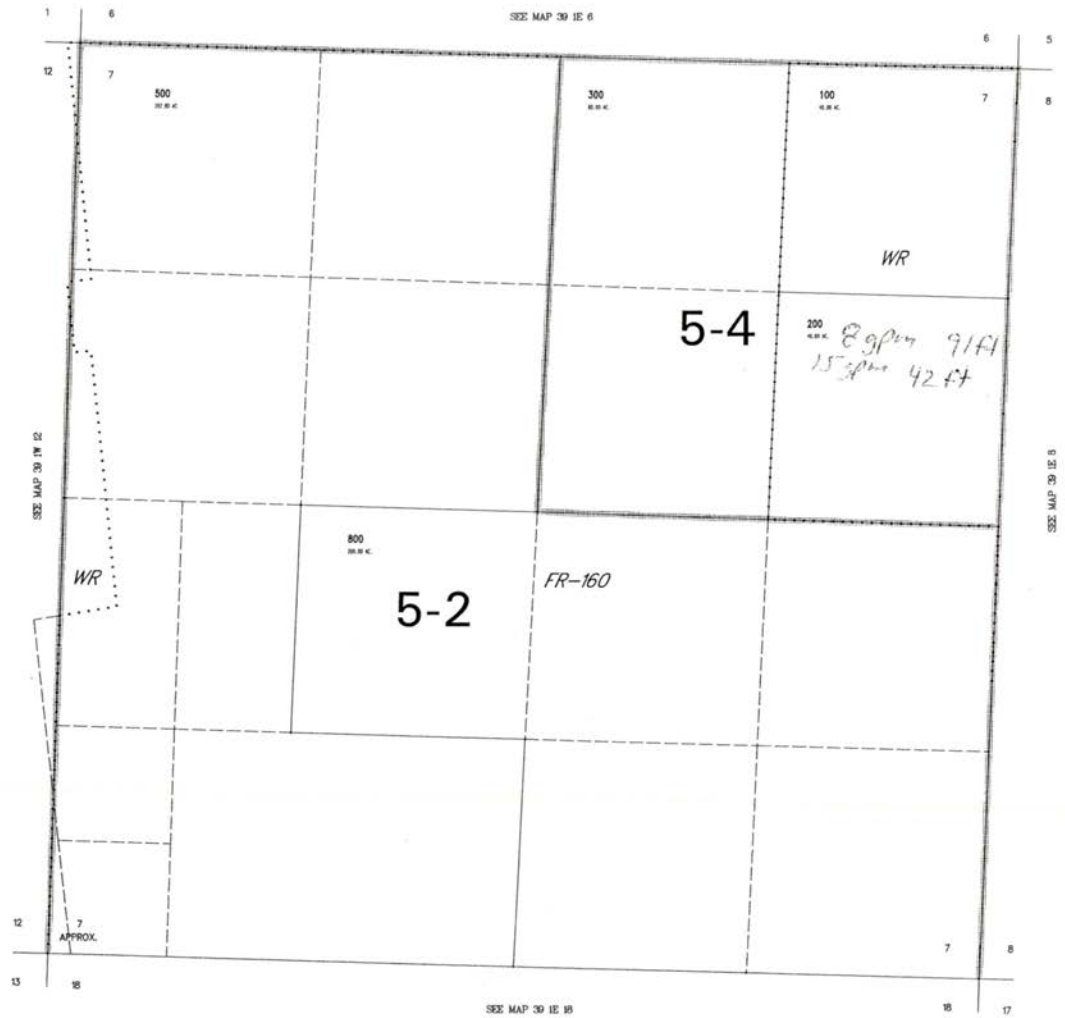
39 1E 6
& INDEX

CANCELLED NOS



39 1E 7

CANCELLED NOS



METAFILE K:\MAP-TMP\391E\07/0/00 PLATCARA
CREATED TUESDAY OCTOBER 03 2000 3:11 PM BY LUNDBEMR

39 1E 7
OR CONVERSION MAY (2) 2000
REV OCTOBER (1) 2000

WATER WELL REPORT
STATE OF OREGON

RECEIVED

SEP 25 1985

WATER RESOURCES DEPT

State Well No.

395/1E-6db

State Permit No.

(1) OWNER: SALEM, OREGON

Name Bill Crowin
Address 816 West 10th
City Medford OR State 97501

(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 ☐
☐ 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 68 ft. Gauge 1250
" Diam. from ft. to ft. Gauge

LINER INSTALLED:

4" Diam. from 20 ft. to 335 ft. Gauge 1/60 PK

(6) PERFORATIONS:

Perforated? ☒ Yes ☐ No

Type of perforator used SAW
Size of perforations 6" in. by 48" in.
84 perforations from 260 ft. to 300 ft.
perforations from ft. to 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?

1 gal/min. with ft. drawdown after hrs.

Air test 17 gal/min. with drill stem at 335 ft. 1 hrs.

Bailer test gal/min. with ft. drawdown after hrs.

Flow rate g.p.m.

Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Special standards: Yes ☐ No ☒

Well seal—Material used concrete grout

Well sealed from land surface to 6 ft. 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 25 sacks

How was cement grout placed? pumped

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
NW 1/4 SE 1/4 Section 6 T. 39S R. 1E W.M.
Tax Lot # 1500 Lot Blk Subdivision
Address at well location: end of Ashland Mine Rd.

(11) WATER LEVEL: Completed well.

Depth at which water was first found 160 ft.
Static level 40 ft. below land surface. Date 8/29/85
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing

Depth drilled ft. Depth of completed well 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	3	
CLAY Yellow/Brown	3	15	
Decomposed Granite Bm	15	35	
1" GRN	35	52	
Granite Grn. LAYERS			
of D.G.	52	61	
Granite Green	61	335	40

Work started 8/29 19 85 Completed 8/29 19 85
Date well drilling machine moved off of well 8/29 19 85

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) Orin A. Rasmussen Date 9/16, 19 85

(Drilling Machine Operator)

Drilling Machine Operator's License No. 1392

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 Ashland Drilling (Type or print)

Address 397 Avery St. Ashland (Type or print)

(Signed) Orin A. Rasmussen (Water Well Contractor)

Contractor's License No. 1392 Date 9/16, 19 85

NOTICE TO WATER WELL CONTRACTOR
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-12658-690

Jack
868

39s/1E/6

(START CARD) # 14663

[illegible]

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

JACK
31733

JUN 24 1992

398/1E/6

(START CARD) # 40192

(1) OWNER:

Name BILL CROWIN Well Number 31733
Address 2768 ASHLAND MINE RD
City ASHLAND State OR Zip 97520

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 281 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE			SEAL			Amount sacks or pounds
Diameter	From	To	Material	From	To	
10	0	19	CEMENT	0		13 SACKS
8	19	115	" "		68	65 LB BENT
6	115	281				

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other

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"	+1	115	250	☒	☐	☒	☐
Liner:	4"	-5	281	160	☐	☒	☒	☐

Final location of shoe(s) 115 AND RIVETS

(7) PERFORATIONS/SCREENS:

☒ Perforations Method SAW
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
202	281	6"	144	1/8		☐	☒
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing
☐ Artesian

Yield gal/min	Drawdown	Drill stem at	Time
6		281	1 hr.

Temperature of Water 62° 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 39S N or S. Range 1E E or W. WM.
Section 6 1/4 1/4
Tax Lot 1500 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) ADDITIONAL (BELOW)
2768 ASHLAND MINE RD

(10) STATIC WATER LEVEL:

88 ft. below land surface. Date 6-4-92
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found SEE BELOW

From	To	Estimated Flow Rate	SWL
183	195	2 1/2	<5
202	222	2	<5
231	231	1 1/2	<5

(12) WELL LOG:

Ground elevation _____

Material	From	To	SWL
CLAY BROWN	0	3	
CLAY YELLOW w/ DECOMP ROCK	3	12	
DECOMP. GRANITE BROWN	12		
AND GREEN		62	
DIORITE GREEN WITH	62		
WEATHERED DECOMP. LAYERS			
AT 64, 72, 81, 85, 101, 104-10		114	
DIORITE GREY WITH	114		
QUARTZ RIBS AT 125, 131, 138			
FRACTURED 183-195, 231		246	
GRANITE BLACK/WHITE	246		
FRACTURED 253		281	

Date started 6-3-92 Completed 6-4-92

(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.

Signed _____ WWC Number _____
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.

Signed HONORE DRILLING WWC Number 796
Date 6-4-92

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

(START CARD) # 139538

(1) OWNER: Well Number _____
Name DON ADAMS
Address 2400 ASHLAND MINE RD
City ASHLAND State OR Zip 97520

(2) TYPE OF WORK:
☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other _____

(4) PROPOSED USE:
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 440 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE			SEAL			Amount sacks or pounds
Diameter	From	To	Material	From	To	
10"	0	64	BENTONITE	0	64	31 SACKS
6"	64	440				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E

☒ Other POURED DRY

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
6"	+2	64	.250	☒	☐	☒	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐

Liner: _____

Final location of shoe(s) 64 FT

(7) PERFORATIONS/SCREENS:

☐ Perforations Method _____
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing
Artesian

Yield gal/min	Drawdown	Drill stem at	Time
5 1/2		440	1 hr.

Temperature of Water 60° 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 39 S N or S. Range 1 E E or W. WM.
Section 6 SW 1/4 SE 1/4
Tax Lot 1500 Lot _____ Block _____ Subdivision _____

Street Address of Well (or nearest address)

2400 ASHLAND MINE RD

(10) STATIC WATER LEVEL:

58 ft. below land surface. Date 6-8-01

Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found SEE BELOW

From	To	Estimated Flow Rate	SWL
171	176	1+	
200	260	3/4	
300	320	2	
340	360	1 1/2	

(12) WELL LOG: 400 1/4
360 Ground elevation _____

Material	From	To	SWL
CLAY BROWN SANDY	0	11	
CLAY ORANGE/BROWN STICKY	11	27	
CLAY BROWN w/ ROCK	27	41	
GRANITE BROWN WEATHERED	41	49	
GRANITE BROWN	49	58	
↓ GREY	58	66	
↓ BROWN	66	74	
GREY w/ QUARTZ	74		
FRACTURE AT 265 (NO WATER), 345-355		440	

RECEIVED

JUL 0 9 2001

WATER RESOURCES DEPT
SALEM, OREGON

Date started 6-5-01 Completed 6-8-01

(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. Material used and information reported above are true to my best knowledge and belief.

Signed _____ WWC Number _____
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.

Signed PIONEER DRILLING WWC Number 796
Date 6-8-01

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

JACK
31734

JUN 24 1992

395/1E/6

WATER RESOURCES DEPARTMENT (START CARD) # 40193

(1) OWNER:

Name BILL CRONIN Well Number _____
Address 2768 ASHLAND MINER
City ASHLAND State OR Zip 97520

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well 366 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE			SEAL			Amount sacks or pounds
Diameter	From	To	Material	From	To	
10	0	19 1/2	CEMENT	0	39	9 SACKS
8	19 1/2	39				
6	39	366				30 # BENT

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other

Backfill placed from _____ ft. to _____ ft. Material _____
Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Casing	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
	6"	+1	39	250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner	4"	-2	366		☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) N/A

(7) PERFORATIONS/SCREENS:

☒ Perforations Method SAW
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
287	366	6"	144	1/8"		☐	☒
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing
☐ Artesian

Yield gal/min	Drawdown	Drill stem at	Time
13		366	1 hr.

Temperature of Water 63° 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 39S N or S. Range 1E E or W. WM.
Section 6 Block _____ Subdivision _____
Tax Lot 1501 Lot _____
Street Address of Well (or nearest address) ADJACENT (ABOVE)
2768 ASHLAND MINE RD

(10) STATIC WATER LEVEL:

205 ft. below land surface. Date 6-8-92

Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found _____

From	To	Estimated Flow Rate	SWL
355	355	13	205

(12) WELL LOG:

Ground elevation _____

Material	From	To	SWL
FILL	0	2	
CLAY BROWN	2	4	
CLAY TAN	4	9	
DECOMP. GRANITE BROWN	9	25	
" " GREEN	25	33	
" " BROWN	33	34	
DIOIRTE GREEN WITH	34		
QUARTZ RIBS 106-111		121	
DIOIRTE BLACK/GRAY WITH	121		
QUARTZ RIBS 150-152		158	
GRANITE BLACK/WHITE	158		
QUARTZ FRAC. WITH SILT			
175-179; QUARTZ 217			
FRACURE 355		366	

Date started 6-5-92 Completed 6-8-92

(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.

Signed _____ WWC Number _____
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.

Signed PIONEER DRILLING WWC Number 796
Date 6-9-92

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT

SECOND COPY - CONSTRUCTOR

THIRD COPY - CUSTOMER

9809C 10/91

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

RECEIVED
20269

(START CARD) # 7656

(1) OWNER:
Name THOMAS J. HEAFY Well Number 113-31989
Address 220 CROSS RD WATER RESOURCES
City DANVILLE State CA Zip 94526

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes ☐ No ☒ Depth of Completed Well 377 ft.
Explosives used ☐ Yes ☒ No ☐ Type _____ Amount _____

HOLE			SEAL			Amount sacks or pounds
Diameter	From	To	Material	From	To	
10	0	52	CEMENT	0	52	17 SACKS
6	52	377				60 # BENT.

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E

☐ Other _____

Backfill placed from _____ ft. to _____ ft. Material _____

Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Casing:	Diameter	From	To	Gauge	Steel				Plastic				Welded				Threaded			
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
6"	1	52	250		☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Liner: _____

Final location of shoe(s) 11A

(7) PERFORATIONS/SCREENS:

☐ Perforations Method _____
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
(This section is crossed out with a diagonal line)							

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min _____ Drawdown _____ Drill stem at _____ Time _____

11		377	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 39S N or S, Range 1E E or W, WM.
Section 6 1/4 1/4
Tax Lot 100 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) 1377 FRANK HILL RD ASHLAND

(10) STATIC WATER LEVEL:

147 ft. below land surface. Date 1-30-89
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

From	To	Estimated Flow Rate	SWL
	304	2	40
	364	9	147

(12) WELL LOG:

Ground elevation _____

Material	From	To	SWL
SOIL BROWN	0	2	
CLAY BROWN	2	4	
DECOMPOSED GRANITE	4		
GREEN/BROWN		17	
DIORITE GREEN WEATH.	17	31	
DIORITE GREEN MEDIUM	31	42	
DIORITE AND QUARTZ	42		
BROKEN		47	
DIORITE GREY	47		
QUARTZ RIB @ 88		147	
GRANITE GREY	147	156	
GRANITE BLACK	156	168	
DIORITE GREY WITH	168		
QUARTZ FRACTURES AT			
203, 231		247	
GRANITE GREY WITH	247		
QUARTZ FRACTURES			
AT 263, 304, 318, 325,			
364		377	

Date started 1-24-89 Completed 1-30-89

(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. PIONEER DRILLING

Signed Paul Kram WWC Number 796
Date 1-30-89

(START CARD) # 34443

Name STEVE FABRICANT Well Number: SALEN
Address 1750 ASHLAND MINER RD
City ASHLAND State OR Zip 97520

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other _____

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

Special Construction approval Yes ☐ No ☒ Depth of Completed Well 431 ft.

Explosives used Yes ☐ No ☒ Type _____ Amount _____

HOLE			SEAL			Amount
Diameter	From	To	Material	From	To	sacks or pounds
10	0	44	CEMENT	0	44	13 1/2 SACKS
6	44	431				50 # BENT.

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other _____

Backfill placed from _____ ft. to _____ ft. - Material _____

Gravel placed from _____ ft. to _____ ft. Size of gravel _____

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+1	44	250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4	0	431	160	☐	☒	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) N/A

☒ Perforations Method Saw
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
411	431	4-6	42	1/8		☐	☒
352	391	4-6	84	1/8		☐	☒
155	195	4-6	60	1/8		☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

☐ Pump ☐ Bailer ☒ Air ☐ Flowing
Artesian

Yield gal/min	Drawdown	Drill stem at	Time
7		431	1 hr.

Temperature of water 69° . 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:

County JACKSON Latitude _____ Longitude _____
Township 39S N or S. Range 1E E or W. W.M.
Section 6 ¼ _____ ¼ _____
Tax Lot 1100 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) ON OR ADJACENT
2000 ASHLAND MINE RD

83 ft. below land surface. Date 9-2-91
Artesian pressure _____ lb. per square inch. Date _____

Depth at which water was first found SEE BELOW

From	To	Estimated Flow Rate	SWL
144	144	1 1/2 - 1/4	< 5
165	185	1 1/4 - 1	< 5
387	387	3 1/2	< 5
405	405	2	< 5

Ground elevation

Material	From	To	SWL
CLAY BROWN SANDY	0	14	
DECOMP. GRANITE BROWN	14	32	
" " GREEN	32	38	
DIORITE GREEN/BLACK	38		
FRACTURED 54-58, 90			
173			
QUARTZ FRACTURES 79,			
103, 109-111 138, 144			
149, 162, 165, 190-193			
194-196, 198		206	
GRANITE GREEN/GREEN/BLK	206		
# WHITE			
FRACTURED 216, 218			
242, 244, 246			
QUARTZ FRACTURE			
273, 337, 387			
PINK QUARTZ/FELDSPAR			
FRACTURE AT 405		431	

Date started 8-29-91 Completed 9-2-91

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.

Signed _____ WWC Number _____
Date _____

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.

Signed Paul H. H. H. H. Date 9-2-91

WATER WELL REPORT
STATE OF OREGON

PLEASE TYPE OR PRINT

RECEIVED

JUL 29 1983

State Well No. 3951E-6

State Permit No.

WATER RESOURCES DEPT.
SALEM, OREGON

(1) OWNER:

Name Peter Destefano
Address 7331 Ticonderoga Place
City Anchorage State AK 99502

(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 ☐ Domestic ☒ Industrial ☐ Municipal ☐
Rotary Mud ☐ Dug ☐ Irrigation ☐ Test Well ☐ Other ☐
☐ Bored ☐ Thermal: ☐ Withdrawal ☐ Reinjection ☐

(4) PROPOSED USE (check):

(5) CASING INSTALLED:

Steel ☒ Plastic ☐
Threaded ☐ Welded ☐
6" Diam. from +2 ft. to 36 ft. Gauge 250
" Diam. from ft. to ft. Gauge

LINER INSTALLED:

4" Diam. from -7 ft. to 167 ft. Gauge 250

(6) PERFORATIONS:

Perforated? ☒ Yes ☐ No
Type of perforator used skill saw
Size of perforations 1/8 in. by 6 in.
84 perforations from 137 ft. to 167 ft.
perforations from ft. to 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
a pump test made? ☐ Yes ☒ No If yes, by whom?
gal/min. with ft. drawdown after hrs.
Air test 35 gal/min. with drill stem at 166 ft. 1 hrs.
Bailer test gal/min. with ft. drawdown after hrs.
sian flow g.p.m.
perature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Special standards: Yes ☐ No ☒
Well seal—Material used Portland Cement
Well sealed from land surface to 35 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 12 sacks
How was cement grout placed? pressure grout with tremie pipe, from the bottom up.
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: ft.
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Jackson Driller's well number 83-58
1/4 Section 6 T. 39 R. 1E W.M.
Tax Lot # 1200 Lot Blk Subdivision
Address at well location: top of Ashland Mine Road
Ashland, Oregon

(11) WATER LEVEL: Completed well.

Depth at which water was first found 45 ft.
Static level 25 ft. below land surface. Date 7-20-83
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 6 inch
Depth drilled 167 ft. Depth of completed well 167 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
clay-red	0	8	
rock-black	8	13	
granite-green	13	26	
granite-grey	26	39	
granite-green	39	43	
quartz-white	43	46	25
granite-green	46	52	
quartz-white-fractured	52	57	
granite-green	57	89	
quartz-white-fractured	89	96	
granite-green	96	146	
quartz-white-fractured	146	165	
granite-green	165	167	

Work started 7-18 1983 Completed 7-20 1983
Date well drilling machine moved off of well 7-20 1983

(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] John Studebaker Date 7-22 1983

Bonded Water Well Constructor Certification:

Bond 112822 Issued by: S&H Insurance
(number) Surety Company Name
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name Studebaker Drilling, Inc.
(Person, firm or corporation) (Type or print)
Address 4876 Highway 66 Ashland, Oregon 97520
[Signed] John Studebaker Water Well Constructor
Date 7-22, 1983

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

State Permit No. _____

395/1E-6db

Jack
20285

SP-12658-690

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.785)

WATER RESOURCES DEPT.
SALEM, OREGON

(START CARD) # 9126

(1) OWNER: Well Number: _____
Name SHELLEY FOREST
Address 2101 ASHLAND MINE RD
City ASHLAND State OR Zip 97520

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other _____

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

(5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes ☐ No ☒ Depth of Completed Well 397 ft.
Explosives used Yes ☐ No ☒ Type _____ Amount _____

HOLE			SEAL			Amount	
Diameter	From	To	Material	From	To	sacks or pounds	
10	0	35	Cement	0	32	8 1/2 sacks	
8	35	77				25 # BENT.	
6	77	397					

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E

☐ Other _____

Backfill placed from 32 ft. to 35 ft. Material CLEAN DRY SAND

Gravel placed from 35 ft. to 57 ft. Size of gravel PEA

(6) CASING/LINER:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 6	0	77	250	☒	☐	☒	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
Liner:				☐	☐	☐	☐
				☐	☐	☐	☐

Final location of shoe(s) 77 FT

(7) PERFORATIONS/SCREENS:

☒ Perforations Method HOLE AIR PERFORATIVE
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
37	57	1"	320	1 1/4"		☒	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
4 1/2		397	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 39S N or S, Range 1E E or W, WM.
Section _____ 1/4 _____ 1/4
Tax Lot 1700 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) 2101 ASHLAND MINE RD.

(10) STATIC WATER LEVEL:

48 ft. below land surface. Date 4/26/89
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

From	To	Estimated Flow Rate	SWL
37	57	3	25
174	189	1 1/2	25

(12) WELL LOG:

Material	From	To	SWL
SOIL BROWN	0	4	
CLAY BROWN WITH SAND	4	17	
DECOMPOSED GRANITE BROWN	17	27	
DIORITE BLACK	27	38	
QUARTZ WHITE AND	38		
OTHER ROCK FRACTURED		49	
DIORITE BLACK	49	53	
QUARTZ FRACTURED	53	55	
DIORITE BLACK	55	57	
DIORITE BLACK/GREEN	57		
WITH INTERMITTENT RIBS			
OF QUARTZ		144	
GRANITE GREEN	144	161	
DIORITE BLACK	161	166	
GRANITE BLACK WITH	166		
QUARTZ RIBS 174-76,			
185-89, 207-11		231	
DIORITE BLACK	231	264	
GRANITE BLACK WITH	264		
QUARTZ RIBS 298-302,			
314, 320, 378		397	

Date started 4/20/89 Completed 4/26/89

(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.

Signed _____ WWC Number _____
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.

Signed PHILIP DRILLING WWC Number 796
Date 4/26/89

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form

WELL ID # L 49821
(START CARD) # 139824

Jack
54627

(1) OWNER: Well Number _____
Name Dennis Davidson
Address 300 Patrick Lane
City Ashland State OR Zip 97520

(2) TYPE OF WORK:
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other _____

(4) PROPOSED USE:
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other _____

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 940 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE			SEAL			Amount		
Diameter	From	To	Material	From	To	sacks or pounds		
10	0	50	bentonite	0	50	20 sacks		
6	50	940						

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other poured dry
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	8	+1	58	.250	☒	☐	☒	☐
Liner	4	1	940	.160	☐	☒	☒	☐

Final location of shoe(s) 59

(7) PERFORATIONS/SCREENS:

From		To		Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
860	940	1/4x6	133						☒

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
100	940	940	1 hr.

Temperature of Water 59 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 39S N or S. Range 1E E or W. of W.M.
Section 6 Lot SW 1/4 NE 1/4
Tax lot 702 Block _____ Subdivision _____
Street Address of Well (or nearest address) 300 Patrick Lane

(10) STATIC WATER LEVEL:
270 ft. below land surface. Date 6/12/2001
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 890

From	To	Estimated Flow Rate	SWL
890	930	100	270

(12) WELL LOG:

Material	From	To	SWL
decomposed granite	0	22	
green granite	22	53	
grey granite	53	577	
green granite with pink quartz	577	578	
green granite	578	742	
grey granite	742	758	
grey granite with pink quartz	758	761	
black and white granite	761	809	
grey granite with pink quartz	809	890	
fractured grey green granite with quartz	890	930	270
grey granite	930	940	

ASHLAND DRILLING, INC.
ALL AMERICAN PUMP CO.
RECEIVED JUL 06 2001
600 South Pacific Hwy.
Talent, OR 97540
(541) 488-2827
RECEIVED AUG 30 2001
WATER RESOURCES DEPT.
SALEM, OREGON
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 6/8/2001 Completed 6/12/2001

(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 water supply well construction standards. Materials used and information reported above are true to my best knowledge and belief.
Signed [Signature] WWC Number 1657
Ashland Drilling Inc. Date 6/22/2001

(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 water supply well construction standards. This report is true to the best of my knowledge and belief.
Signed [Signature] WWC Number 1478
Ashland Drilling Inc. Date 6/22/2001

ORIGINAL - WATER RESOURCES DEPARTMENT FIRST COPY - CONSTRUCTOR SECOND COPY - CUSTOMER

THIRD COPY - CUSTOMER

Jack
850

395/1E/7

(START CARD) # 17182

STATE OF OREGON

COUNTY OF JACKSON

CERTIFICATE OF WATER RIGHT

This Is to Certify, That G. F. Billings

of Ashland, State of Oregon, has a right to the use of
the waters of Wrights Creek, a tributary of Bear Creek

for the purpose of irrigation of 17 acres & stock for Tract No. 1, and irrigation
of 30 acres for Tract No. 2
and that said right has been confirmed by decree of the Circuit Court of the State of Oregon for
Jackson County, and the said decree entered of record at Salem, in the Order Record of
the STATE ENGINEER, in Volume 4, at page 1; that the priority of the right thereby
confirmed dates from 1874 for Tract No. 1, and 1873 for Tract No. 2;

that the amount of water to which such right is entitled, for the purposes aforesaid, is limited to an
amount actually beneficially used for said purposes, and shall not exceed 0.22 cubic foot per
second for Tract No. 1, and 0.38 cubic foot per second for Tract No. 2.

A description of the lands irrigated under such right, and to which the water is appurtenant (or,
if for other purposes, the place where such water is put to beneficial use), is as follows:

Tract No. 1

5 acres in NW $\frac{1}{4}$ NE $\frac{1}{4}$
Section 5,
T. 39 S., R. 1 E., W. M.

12 acres in SW $\frac{1}{4}$ SW $\frac{1}{4}$
Section 32,
T. 38 S., R. 1 E., W. M.

Tract No. 2

16 acres in SW $\frac{1}{4}$ SW $\frac{1}{4}$
14 acres in SE $\frac{1}{4}$ SW $\frac{1}{4}$
Section 32,
T. 38 S., R. 1 E., W. M.

09/11/2003
Conversation w/ Larry
Mentzer: Billings makes
a call on this water fairly
frequently (yearly or every
few yrs). Mentzer thinks it
likely that domestic well
development has impacted
flows in the basin.

And said right shall be subject to all other conditions and limitations contained in said decree.
The right to the use of the water for the purposes aforesaid is restricted to the lands or place of
use herein described.

WITNESS the signature of the State Engineer, affixed

this 30 day of September, 1949.

CHAS. E. STRICKLIN

State Engineer

Recorded in State Record of Water Right Certificates, Volume 13, page 15911

STATE OF OREGON

COUNTY OF JACKSON

CERTIFICATE OF WATER RIGHT

This Is to Certify, That G. F. Billings, Ralph Billings and
 F. M. Billings
 of Ashland, State of Oregon, has a right to the use of
 the waters of Wrights Creek, a tributary of Bear Creek
 for the purpose of irrigation of 19 acres, and Domestic and Stock

and that said right has been confirmed by decree of the Circuit Court of the State of Oregon for
 Jackson County, and the said decree entered of record at Salem, in the Order Record of
 the STATE ENGINEER, in Volume 4, at page 1; that the priority of the right thereby
 confirmed dates from 1869;

that the amount of water to which such right is entitled, for the purposes aforesaid, is limited to an
 amount actually beneficially used for said purposes, and shall not exceed 0.24 cubic foot per
 second.

A description of the lands irrigated under such right, and to which the water is appurtenant (or,
 if for other purposes, the place where such water is put to beneficial use), is as follows:

8 acres in NW $\frac{1}{4}$ NE $\frac{1}{4}$
 5 acres in NE $\frac{1}{4}$ NW $\frac{1}{4}$
 Section 5,
 T. 39 S., R. 1 E., W. M.
 2 acres in SE $\frac{1}{4}$ SW $\frac{1}{4}$
 4 acres in SW $\frac{1}{4}$ SE $\frac{1}{4}$
 Section 32,
 T. 38 S., R. 1 E., W. M.

And said right shall be subject to all other conditions and limitations contained in said decree.
 The right to the use of the water for the purposes aforesaid is restricted to the lands or place of
 use herein described.

WITNESS the signature of the State Engineer, affixed

this 30 day of September, 1949.

CHAS. E. STRICKLIN

State Engineer

Recorded in State Record of Water Right Certificates, Volume 13, page 15912

STATE OF OREGON

COUNTY OF JACKSON

CERTIFICATE OF WATER RIGHT

This Is to Certify, That W. W. Dann

of Ashland, State of Oregon, has a right to the use of
the waters of Dann Spring, a tributary of Wright Creek
for the purpose of irrigation of 6 acres

and that said right has been confirmed by decree of the Circuit Court of the State of Oregon for
Jackson County, and the said decree entered of record at Salem, in the Order Record of
the STATE ENGINEER, in Volume 4, at page 1; that the priority of the right thereby
confirmed dates from 1885;

that the amount of water to which such right is entitled, for the purposes aforesaid, is limited to an
amount actually beneficially used for said purposes, and shall not exceed 0.10 cubic foot per
second.

A description of the lands irrigated under such right, and to which the water is appurtenant (or,
if for other purposes, the place where such water is put to beneficial use), is as follows:

6 acres in NW $\frac{1}{4}$ SW $\frac{1}{4}$
Section 5,
T. 39 S., R. 1 E., W. M.

And said right shall be subject to all other conditions and limitations contained in said decree.
The right to the use of the water for the purposes aforesaid is restricted to the lands or place of
use herein described.

WITNESS the signature of the State Engineer, affixed

this 30 day of September, 1949.

CHAS. E. STRICKLIN
State Engineer

Recorded in State Record of Water Right Certificates, Volume 13, page 15914

STATE OF OREGON

COUNTY OF JACKSON

CERTIFICATE OF WATER RIGHT

This Is to Certify, That Eric Weren

of Ashland, State of Oregon, has a right to the use of
the waters of Wrights Creek, a tributary of Bear Creek
for the purpose of irrigation of 4 acres

and that said right has been confirmed by decree of the Circuit Court of the State of Oregon for
Jackson County, and the said decree entered of record at Salem, in the Order Record of
the STATE ENGINEER, in Volume 4, at page 1; that the priority of the right thereby
confirmed dates from 1891;

that the amount of water to which such right is entitled, for the purposes aforesaid, is limited to an
amount actually beneficially used for said purposes, and shall not exceed 0.06 cubic foot per
second.

A description of the lands irrigated under such right, and to which the water is appurtenant (or,
if for other purposes, the place where such water is put to beneficial use), is as follows:

4 acres in SW $\frac{1}{4}$ NW $\frac{1}{4}$
Section 5,
T. 39.S., R. 1 E., W. 4 N.

And said right shall be subject to all other conditions and limitations contained in said decree.
The right to the use of the water for the purposes aforesaid is restricted to the lands or place of
use herein described.

WITNESS the signature of the State Engineer, affixed

this 30 day of September, 1949.

CHAS. E. STRICKLIN

State Engineer

Recorded in State Record of Water Right Certificates, Volume 13, page 15913

STATE OF OREGON

WATER DIVISION No. 1

COUNTY OF

JACKSON

CERTIFICATE OF WATER RIGHT

(For rights perfected under original, enlargement or secondary permits)

This is to Certify, That W. R. and ELIZABETH YOCKEY

of Ashland, State of Oregon, has made proof to the satisfaction of the STATE WATER BOARD of Oregon, of a right to the use of the waters of springs that cause the West Fork, ~~tributary~~ of Rights Creek, a tributary of Ashland Creek, for the purpose of the irrigation of three acres of land, and domestic use under Permit No. 923 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon and duly confirmed by order of the STATE WATER BOARD of Oregon, made and entered of record in the Record of Proceedings of said Board, at Salem, in Volume 1, at page 168, on the 16th day of November, 1914; that the priority of the right hereby confirmed dates from October 16, 1911; that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.14 cubic foot per second, or its equivalent in case of rotation.

A description of the lands under such right, and to which the water hereby confirmed is appurtenant, or, if for other purposes, the place where such water is put to beneficial use, is as follows:

2 acres in the SE¹ of NE¹ of Section Seven (7); 1 acre in the SW¹ of NW¹ of Section Eight (8); all in Township Thirty-nine (39) South Range One (1) East of Willamette Meridian.

The use for irrigation purposes herein shall conform to any reasonable rotation system ordered by the proper state officer, and shall be limited to one-eightieth of one cubic foot per second for each acre irrigated.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described.

Rights to the use of water for power purposes are limited to a period of forty years from the date of priority of the right, as herein set forth, subject to a preference right of renewal under the laws existing at the date of the expiration of the right for power purposes, as hereby confirmed and limited.

Witness the seal and signature of the STATE

WATER BOARD affixed this 16th day

of December, 1914.

STATE WATER BOARD

(SEAL OF STATE WATER BOARD)

By JOHN H. LEWIS
State Engineer, President

Attest: M. P. HERS
Secretary

Recorded in State Record of Water Right Certificates, Volume 1, Page 802

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Water Availability as of 9/30/2003 for

WAGNER CR > BEAR CR - AT MOUTH

Watershed ID #: 71206

Basin: ROGUE

Exceedance Level: 80

Time: 09:12

Date: 09/30/2003

Month	Natural Stream Flow	CU + Stor Prior to 1/1/93	CU + Stor After 1/1/93	Expected Stream Flow	Reserved Stream Flow	Instream Water Rights	Net Water Available
1	7.61	1.03	0.00	6.58	0.00	16.00	-9.42
2	9.59	1.04	0.00	8.55	0.00	19.00	-10.40
3	9.85	1.04	0.00	8.82	0.00	19.00	-10.20
4	8.33	2.04	0.00	6.29	0.00	15.00	-8.71
5	7.03	2.67	0.00	4.36	0.00	15.00	-10.60
6	5.43	3.36	0.00	2.07	0.00	9.00	-6.93
7	2.33	4.16	0.00	-1.83	0.00	3.00	-4.83
8	1.47	3.61	0.00	-2.14	0.00	2.00	-4.14
9	1.29	2.70	0.00	-1.41	0.00	2.00	-3.41
10	1.51	1.54	0.00	-0.03	0.00	2.00	-2.03
11	2.75	1.01	0.00	1.74	0.00	5.00	-3.26
12	5.13	1.02	0.00	4.11	0.00	11.00	-6.89
Stor	7060	1530	0	5740	0	7090	0

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES

Water Availability as of 9/30/2003 for

WAGNER CR > BEAR CR - AT MOUTH

Watershed ID #: 71206

Basin: ROGUE

Exceedance Level: 80

Time: 09:12

Date: 09/30/2003

Mo	Storage	Irrig	Munic	Ind/Man	Commer	Domest	Agricul	Other	Total
1	0.02	0.00	1.00	0.00	0.00	0.01	0.00	0.00	1.03
2	0.03	0.00	1.00	0.00	0.00	0.01	0.00	0.00	1.04
3	0.03	0.00	1.00	0.00	0.00	0.01	0.00	0.00	1.04
4	0.00	1.03	1.00	0.00	0.00	0.01	0.00	0.00	2.04
5	0.00	1.66	1.00	0.00	0.00	0.01	0.00	0.00	2.67
6	0.00	2.35	1.00	0.00	0.00	0.01	0.00	0.00	3.36

7	0.00	3.16	1.00	0.00	0.00	0.01	0.00	0.00	0.00	4.16
8	0.00	2.60	1.00	0.00	0.00	0.01	0.00	0.00	0.00	3.61
9	0.00	1.69	1.00	0.00	0.00	0.01	0.00	0.00	0.00	2.70
10	0.00	0.53	1.00	0.00	0.00	0.01	0.00	0.00	0.00	1.54
11	0.01	0.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	1.01
12	0.02	0.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	1.02

DETAILED REPORT OF RESERVATIONS FOR CONSUMPTIVE USE

Water Availability as of 9/30/2003 for

WAGNER CR > BEAR CR - AT MOUTH

Watershed ID #: 71206 Basin: ROGUE Exceedance Level: 80
Time: 09:12 Date: 09/30/2003

Reservations										
APP #	0	0	0	0	0	0	0	0	0	TOTAL
1	0.00	0.00	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	0.00	0.00
3	0.00	0.00	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	0.00	0.00
5	0.00	0.00	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	0.00	0.00
7	0.00	0.00	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	0.00	0.00
9	0.00	0.00	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	0.00	0.00
11	0.00	0.00	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	0.00	0.00

DETAILED REPORT OF INSTREAM REQUIREMENTS

Water Availability as of 9/30/2003 for

WAGNER CR > BEAR CR - AT MOUTH

Watershed ID #: 71206 Basin: ROGUE Exceedance Level: 80
Time: 09:12 Date: 09/30/2003

ISWRs										
APP #	71206A	0	0	0	0	0	0	0	0	MAXIMUM

1

Paul R. Cleary, Director



Water Availability for WID 70993

IS 70993

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WATER AVAILABILITY TABLE

Water Availability as of 9/30/2003 for
BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993 Basin: ROGUE Exceedance Level: 80
Time: 08:41 Date: 09/30/2003

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	70993	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

STREAM NAMES

Water Availability as of 9/30/2003 for
BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993 Basin: ROGUE Exceedance Level: 80
Time: 08:41 Date: 09/30/2003

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 APPLGATE R
6	268	ROGUE R > PACIFIC OCEAN - AB FALL CR
7	270	ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000
8	70993	BEAR CR > ROGUE R - AT MOUTH

LIMITING WATERSHEDS

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

DETAILED REPORT OF INSTREAM REQUIREMENTS

Water Availability as of 9/30/2003 for

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

Watershed ID #: 270

Basin: ROGUE

Exceedance Level: 80

Time: 08:41

Date: 09/30/2003

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

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Water Availability as of 9/30/2003 for

BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993

Basin: ROGUE

Exceedance Level: 80

Time: 08:41

Date: 09/30/2003

Month	Natural Stream Flow	CU + Stor Prior to 1/1/93	CU + Stor After 1/1/93	Expected Stream Flow	Reserved Stream Flow	Instream Water Rights	Net Water Available
1	107.00	190.00	0.06	-83.10	0.00	170.00	-253.00
2	129.00	233.00	0.07	-104.00	0.00	170.00	-274.00

3	129.00	212.00	0.06	-82.90	0.00	170.00	-253.00
4	105.00	28.70	0.10	76.20	0.00	170.00	-93.80
5	84.20	44.90	0.09	39.20	0.00	170.00	-131.00
6	61.60	63.80	0.02	-2.19	0.00	100.00	-102.00
7	28.10	84.50	0.02	-56.50	0.00	40.00	-96.50
8	19.30	70.20	0.02	-50.90	0.00	24.00	-74.90
9	17.10	46.90	0.02	-29.80	0.00	20.00	-49.80
10	18.30	15.80	0.02	2.43	0.00	24.00	-21.60
11	30.90	55.70	0.02	-24.80	0.00	62.00	-86.80
12	65.30	135.00	0.04	-70.00	0.00	153.00	-223.00
Stor	89800	70900	31	26000	0	76600	0

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES

Water Availability as of 9/30/2003 for

BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993 Basin: ROGUE Exceedance Level: 80
Time: 08:41 Date: 09/30/2003

Mo	Storage	Irrig	Munic	Ind/Man	Commer	Domest	Agricul	Other	Total
1	188.00	0.00	0.37	0.70	0.00	0.34	0.74	0.01	190.00
2	230.60	0.00	0.37	0.70	0.00	0.34	0.74	0.01	233.00
3	209.71	0.00	0.37	0.70	0.00	0.34	0.74	0.01	212.00
4	0.08	26.59	0.37	0.70	0.00	0.34	0.74	0.01	28.80
5	0.08	42.78	0.37	0.70	0.00	0.34	0.74	0.01	45.00
6	0.00	60.43	1.56	0.70	0.00	0.34	0.74	0.01	63.80
7	0.00	81.21	1.56	0.70	0.00	0.34	0.74	0.01	84.60
8	0.00	66.84	1.56	0.70	0.00	0.34	0.74	0.01	70.20
9	0.00	43.51	1.56	0.70	0.00	0.34	0.74	0.01	46.90
10	0.00	13.70	0.37	0.70	0.00	0.34	0.74	0.01	15.90
11	53.50	0.00	0.37	0.70	0.00	0.34	0.74	0.01	55.70
12	133.13	0.00	0.37	0.70	0.00	0.34	0.74	0.01	135.00

DETAILED REPORT OF RESERVATIONS FOR CONSUMPTIVE USE

Water Availability as of 9/30/2003 for

BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993 Basin: ROGUE Exceedance Level: 80
Time: 08:41 Date: 09/30/2003

-----Reservations-----

APP #	0	0	0	0	0	0	0	TOTAL
Status								
Use								
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

DETAILED REPORT OF INSTREAM REQUIREMENTS

Water Availability as of 9/30/2003 for

BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993

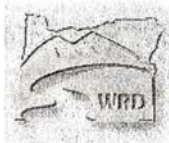
Basin: ROGUE

Exceedance Level: 80

Time: 08:41

Date: 09/30/2003

APP #	70993A	0	0	0	0	0	0	MAXIMUM
Status	PFO							
1	170.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
2	170.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
3	170.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
4	170.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
5	170.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
6	100.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	40.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00
8	24.00	0.00	0.00	0.00	0.00	0.00	0.00	24.00
9	20.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
10	24.00	0.00	0.00	0.00	0.00	0.00	0.00	24.00
11	62.00	0.00	0.00	0.00	0.00	0.00	0.00	62.00
12	153.00	0.00	0.00	0.00	0.00	0.00	0.00	153.00



Water Availability for WID 70993

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WATER AVAILABILITY TABLE																
Water Availability as of 9/10/2003 for																
BEAR CR > ROGUE R - AT MOUTH																
Watershed ID #:		70993		Basin: ROGUE		Exceedance Level: 80										
Time: 16:21		Date: 09/10/2003														
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	70993	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		

STREAM NAMES											
Water Availability as of 9/10/2003 for											
BEAR CR > ROGUE R - AT MOUTH											
Watershed ID #:		70993		Basin: ROGUE				Exceedance Level: 80			
Time: 16:21										Date: 09/10/2003	

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 APPLGATE R									
6	268	ROGUE R > PACIFIC OCEAN - AB FALL CR									
7	270	ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000									
8	70993	BEAR CR > ROGUE R - AT MOUTH									

LIMITING WATERSHEDS

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES

Water Availability as of 9/10/2003 for

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

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

Time: 16:21 Date: 09/10/2003

Mo	Storage	Irrig	Munic	Ind/Man	Commer	Domest	Agricul	Other	Total
1	788.00	0.00	46.00	1.51	0.00	2.31	1.38	0.01	839.00
2	1635.64	0.00	45.94	1.51	0.00	2.31	1.38	0.01	1690.00
3	1373.87	0.00	45.94	1.51	0.00	2.31	1.38	0.01	1430.00
4	583.80	54.53	45.54	1.51	0.00	2.31	1.38	0.01	689.00
5	1.55	87.87	45.36	1.41	0.00	2.31	1.39	0.01	140.00
6	0.00	123.43	193.57	1.41	0.00	2.31	1.38	0.01	322.00
7	0.00	165.87	192.26	1.41	0.00	2.31	1.38	0.01	363.00
8	0.00	136.52	192.26	1.41	0.00	2.31	1.38	0.01	334.00
9	0.00	88.87	192.48	1.41	0.00	2.31	1.38	0.01	286.00
10	0.00	27.99	45.14	1.41	0.00	2.31	1.38	0.01	78.20
11	150.39	0.00	45.95	1.41	0.00	2.31	1.38	0.01	201.00
12	243.64	0.00	45.97	1.41	0.00	2.31	1.38	0.01	295.00

DETAILED REPORT OF RESERVATIONS FOR CONSUMPTIVE USE

Water Availability as of 9/10/2003 for

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

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

Time: 16:21 Date: 09/10/2003

Reservations									
APP #	0	0	0	0	0	0	0	0	TOTAL
Status									
Use									
1	0.00	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	0.00
3	0.00	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	0.00
5	0.00	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	0.00
7	0.00	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	0.00
9	0.00	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

DETAILED REPORT OF INSTREAM REQUIREMENTS									
Water Availability as of 9/10/2003 for									
ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000									
Watershed ID #:		270		Basin: ROGUE			Exceedance Level: 80		
Time: 16:21		Date: 09/10/2003							
-----ISWRs-----									
APP #	270A	0	0	0	0	0	0	0	MAXIMUM
Status	Cert.								
1	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
2	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
3	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
4	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
5	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
6	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
7	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
8	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
9	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
10	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
11	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00
12	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1200.00

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION							
Water Availability as of 9/10/2003 for							
BEAR CR > ROGUE R - AT MOUTH							
Watershed ID #:		70993		Basin: ROGUE		Exceedance Level: 80	
Time: 16:21		Date: 09/10/2003					
Month	Natural Stream Flow	CU + Stor Prior to 1/1/93	CU + Stor After 1/1/93	Expected Stream Flow	Reserved Stream Flow	Instream Water Rights	Net Water Available
1	107.00	190.00	0.06	-83.10	0.00	170.00	-253.00
2	129.00	233.00	0.07	-104.00	0.00	170.00	-274.00

3	129.00	212.00	0.06	-82.90	0.00	170.00	-253.00
4	105.00	28.70	0.10	76.20	0.00	170.00	-93.80
5	84.20	44.90	0.09	39.20	0.00	170.00	-131.00
6	61.60	63.80	0.02	-2.19	0.00	100.00	-102.00
7	28.10	84.50	0.02	-56.50	0.00	40.00	-96.50
8	19.30	70.20	0.02	-50.90	0.00	24.00	-74.90
9	17.10	46.90	0.02	-29.80	0.00	20.00	-49.80
10	18.30	15.80	0.02	2.43	0.00	24.00	-21.60
11	30.90	55.70	0.02	-24.80	0.00	62.00	-86.80
12	65.30	135.00	0.04	-70.00	0.00	153.00	-223.00
Stor	89800	70900	31	26000	0	76600	0

DETAILED REPORT OF CONSUMPTIVE USES AND STORAGES

Water Availability as of 9/10/2003 for

BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993 Basin: ROGUE Exceedance Level: 80
 Time: 16:21 Date: 09/10/2003

Mo	Storage	Irrig	Munic	Ind/Man	Commer	Domest	Agricul	Other	Total
1	188.00	0.00	0.37	0.70	0.00	0.34	0.74	0.01	190.00
2	230.60	0.00	0.37	0.70	0.00	0.34	0.74	0.01	233.00
3	209.71	0.00	0.37	0.70	0.00	0.34	0.74	0.01	212.00
4	0.08	26.59	0.37	0.70	0.00	0.34	0.74	0.01	28.80
5	0.08	42.78	0.37	0.70	0.00	0.34	0.74	0.01	45.00
6	0.00	60.43	1.56	0.70	0.00	0.34	0.74	0.01	63.80
7	0.00	81.21	1.56	0.70	0.00	0.34	0.74	0.01	84.60
8	0.00	66.84	1.56	0.70	0.00	0.34	0.74	0.01	70.20
9	0.00	43.51	1.56	0.70	0.00	0.34	0.74	0.01	46.90
10	0.00	13.70	0.37	0.70	0.00	0.34	0.74	0.01	15.90
11	53.50	0.00	0.37	0.70	0.00	0.34	0.74	0.01	55.70
12	133.13	0.00	0.37	0.70	0.00	0.34	0.74	0.01	135.00

DETAILED REPORT OF RESERVATIONS FOR CONSUMPTIVE USE

Water Availability as of 9/10/2003 for

BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993 Basin: ROGUE Exceedance Level: 80
 Time: 16:21 Date: 09/10/2003

Reservations

APP #	0	0	0	0	0	0	0	0	0	0	TOTAL
Status											
Use											
1	0.00	0.00	0.00	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	0.00	0.00	0.00
3	0.00	0.00	0.00	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	0.00	0.00	0.00
5	0.00	0.00	0.00	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	0.00	0.00	0.00
7	0.00	0.00	0.00	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	0.00	0.00	0.00
9	0.00	0.00	0.00	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	0.00	0.00	0.00
11	0.00	0.00	0.00	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	0.00	0.00	0.00

DETAILED REPORT OF INSTREAM REQUIREMENTS

Water Availability as of 9/10/2003 for

BEAR CR > ROGUE R - AT MOUTH

Watershed ID #: 70993 Basin: ROGUE Exceedance Level: 80
 Time: 16:21 Date: 09/10/2003

APP #	70993A	0	0	0	0	0	0	0	0	MAXIMUM
Status	PFO									
1	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
2	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
3	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
4	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
5	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.00
6	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	40.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00
8	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.00
9	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
10	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.00
11	62.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.00
12	153.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	153.00

Water Rights Information Query Results

Owner(s) Information
n/a

Application(s)	
Application	Received
IS 70993	Map

Permit(s)
n/a

Certificate(s)
n/a

Claim(s)
n/a

Decree(s)
n/a

Order(s)
n/a

Transfer(s)
n/a

Point(s) of Diversion

Location (T-R-S-QQ)	DLC/Lot	Source	Tributary to	Max Rate	Rate	Max Acre Feet	Acre Feet	Legal Description	Remarks
39.0S-1.0E-12-SWNE		BEAR CR	ROGUE R	170.0	170.0			BEAR CREEK FROM WALKER CREEK AT RIVER MILE 27.0 (SWNE,SECTION 12, TOWNSHIP 39S, RANGE 1E WM); TO THE MOUTHAT RIVER MILE 0.0 (NWNW, SECTION 20, TOWNSHIP 36S,RANGE 2W WM)	
Uses from this Point of Diversion									

Use	P/S	Priority Date	Start Date	End Date	Acres	Duty	Limit	Max Rate	Rate	Max Acre Feet	Acre Feet	Status	Remarks
F3	P	12/07/1990	1/1	1/15				170.0	170.0			NC	
F3	P	12/07/1990	1/15	1/31				170.0	170.0			NC	
F3	P	12/07/1990	2/1	2/15				170.0	170.0			NC	
F3	P	12/07/1990	2/16	2/29				170.0	170.0			NC	
F3	P	12/07/1990	3/1	3/15				170.0	170.0			NC	
F3	P	12/07/1990	3/16	3/31				170.0	170.0			NC	
F3	P	12/07/1990	4/1	4/15				170.0	170.0			NC	
F3	P	12/07/1990	4/16	4/30				170.0	170.0			NC	
F3	P	12/07/1990	5/1	5/15				170.0	170.0			NC	
F3	P	12/07/1990	5/16	5/31				100.0	100.0			NC	
F3	P	12/07/1990	6/1	6/15				100.0	100.0			NC	
F3	P	12/07/1990	6/16	6/30				100.0	100.0			NC	
F3	P	12/07/1990	7/1	7/15				67.0	67.0			NC	
F3	P	12/07/1990	7/16	7/31				67.0	67.0			NC	
F3	P	12/07/1990	8/1	8/15				67.0	67.0			NC	
F3	P	12/07/1990	8/16	8/30				170.0	170.0			NC	
F3	P	12/07/1990	9/1	9/15				170.0	170.0			NC	
F3	P	12/07/1990	9/16	9/30				170.0	170.0			NC	
F3	P	12/07/1990	10/1	10/15				170.0	170.0			NC	
F3	P	12/07/1990	10/16	10/31				170.0	170.0			NC	
F3	P	12/07/1990	11/1	11/15				170.0	170.0			NC	
F3	P	12/07/1990	11/16	11/30				170.0	170.0			NC	
F3	P	12/07/1990	12/1	12/15				170.0	170.0			NC	
F3	P	12/07/1990	12/16	12/31				170.0	170.0			NC	

Instream Info

Description	Purpose	Lower Stream Mile	Remarks
BEAR CREEK FROM WALKER CREEK AT RIVER MILE 27.0 (SWNE, SECTION 12, TOWNSHIP 39S, RANGE 1E WM); TO THE MOUTH AT RIVER MILE 0.0 (NWNW, SECTION 20, TOWNSHIP 36S, RANGE 2W WM)	ANADROMOUS AND RESIDENT FISH HABITAT	0.0	O