MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18376

Date: December 12, 2016

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Mike Thoma reviewed the application. Please see Mike's Groundwater Review and the Well Log.

Applicant's Well #1 (JOSE 8493): Based on a review of the Well Report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). According to the report, the casing seal contains only 3 bags of cement. In addition, the water supply well report indicates that the top terminal height of the well casing is at ground level (0 Feet).

In order to meet the minimum well construction standards the well must be resealed to a minimum depth of 18 feet below land surface with the appropriate amount of grout. In addition, the top terminal height of the well casing must extend a minimum of 12 inches above the finished ground surface or pump house floor and a minimum of 12 inches above the local surface run level.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 (JOSE 8493) unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicant's Well #1 into compliance with minimum well construction standards may not satisfy hydraulic connection issues.

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.

Jose
8493

WATER WELL REPORT

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

RECEIVED
SEP 11978
WATER RESOURCES DEPT.
SALEM, OREGON

State Well No. 39S/8W-34bc

State Permit No.

(1) OWNER:

Name MR. CLIFFORD FLINT
Address C/O GREEN VALLEY INVESTMENT
CAVE JUNCTION 97523

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED:

Threaded ☐ Welded ☒

6 " Diam. from 0 ft. to 133 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:

Perforated? ☒ Yes ☐ No.

Type of perforator used CUTTING TORCH
Size of perforations 3/16 in. by 6 in.
60 perforations from 113 ft. to 133 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?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
Bailer test 50+ gal./min. with 0 ft. drawdown after 1 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used CEMENT GROUT
Well sealed from land surface to 18 ft.
Diameter of well bore to bottom of seal 10 in. 5.2 - 4.4
Diameter of well bore below seal 6 in.
Number of sacks of cement used in well seal 3 sacks
How was cement grout placed?
POURED

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 JOSEPHINE Driller's well number 3 8
SW ¼ NW ¼ Section 34 T. 39S R. 8W W.M.
Bearing and distance from section or subdivision corner
120'N and 230' E from W 1/4 Cor Sec 34

(11) WATER LEVEL: Completed well.

Depth at which water was first found 90 ft.
Static level 30 ft. below land surface. Date 8/9
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing —
Depth drilled 133 ft. Depth of completed well 133 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	0	30	
CLAY & MED. GRAVEL	30	100	
CLAY	100	125	
LARGE & MED. GRAVEL	125	133	30

Work started 8/8 1978 Completed 8/9 1978
Date well drilling machine moved off of well 8/9 1978

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] Dan Clouser (Drilling Machine Operator) Date 8/22, 1978
Drilling Machine Operator's License No. 1254

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 Clouser Drilling (Person, firm or corporation) (Type or print)
Address P.O. Box 435, SELMA 97538
[Signed] J. Roy Clouser (Water Well Contractor)
Contractor's License No. 700 Date 8/22, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45856-119

Groundwater Review Summary Form

Application # G- 18376

GW Reviewer M. Thoma **Date Review Completed:** 11/23/16

Summary of GW availability and Injury Review:

[ ] Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

[ ] There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

[X] The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO 11/23 ,2016

TO: **Application G-** 18376

FROM: **GW:** M. Thoma
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☒ YES
The source of appropriation is within or above a Scenic Waterway
☐ NO

☒ YES
Use the Scenic Waterway condition (Condition 7J)
☐ NO

☒ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

☐ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is *unable to make a Preponderance of Evidence finding.*

Exercise of this permit is calculated to reduce monthly flows in Illinois 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
0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date November 22, 2016

FROM: Groundwater Section Michael J Thoma
Reviewer's Name

SUBJECT: Application G- 18376 Supersedes review of
Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525.* Department staff review groundwater applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. **This review is based upon available information and agency policies in place at the time of evaluation.**

A. GENERAL INFORMATION:

Applicant's Name: **Jack Cline** County: **Josephine**

A1. Applicant(s) seek(s) 0.11 cfs from 1 well(s) in the Rogue Basin, Illinois R subbasin

A2. Proposed use nursery (2.34 ac) Seasonality: year-round

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	JOSE 8493	1	Alluvium	0.11	39S/08W-34 SWNW	173'N, 400'E of W cor S 34
2						

* 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	1380	90	30	8/9/1978	133	0-18	0-133*		113-133	50+		B

Use data from application for proposed wells.

A4. **Comments:** The well log for the applicant's proposed POA reports casing from 0 ft to 133 – well construction rules require casing to be at least 1 ft above land surface – see Section D

A5. ☒ **Provisions of the** Rogue (OAR 690-515) Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☐ **are**, *or* ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments:

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area:
Comments:

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Alluvial Sediments of Illinois Valley**	☒	☐
		☐	☐

Basis for aquifer confinement evaluation: *SWL* reported on the well log for the proposed POA is above reported *First Water*, suggesting confined aquifer conditions. However, confinement is likely to be local and not representing an extensive confined aquifer or significantly limiting hydraulic connection between the deeper aquifer zones and surface water.

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

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	1	**E Fk Illinois River**	**1350**	**1300-1380**	**4980**	☒	☐	☐	☐	☒
1	2	**W Fk Illinois River**	**1350**	**1280-1320**	**6690**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: GW elevations are estimated to be above or coincident with SW elevations suggesting groundwater is flowing towards and discharging to surface water.

Water Availability Basin the well(s) are located within: E Fk Illinois R > Illinois R – At Mouth (ID# 70980)
And hydraulically connected to: W Fk Illinois R > Illinois R – At Mouth (ID# 70997)

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	☐	☐	**IS70980**	**54.0**	☐	**41.5**	☐	**< 1%**	☐
		☐	☐			☐		☐		☐

Comments: Interference @ 30 days was estimated using the Hunt (2003) stream-depletion model – results are attached

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:

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** 1 **Logid:** JOSE 8493

D2. **THE WELL does not appear to 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 or other comment is described as follows:** The well log reports a casing interval of "0-133 ft" describing a casing that is flush with land surface. The reviewer is under the assumption that well construction guidelines require casing to be at least 1 ft above land surface

D4. ☒ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Water Availability Tables

Water Availability Analysis
Detailed Reports

W FK ILLINOIS R > ILLINOIS R - AT MOUTH
ROGUE BASIN

Water Availability as of 11/22/2016

Watershed ID #: 70997 (Map) Exceedance Level: 80%
Date: 11/22/2016 Time: 2:32 PM

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

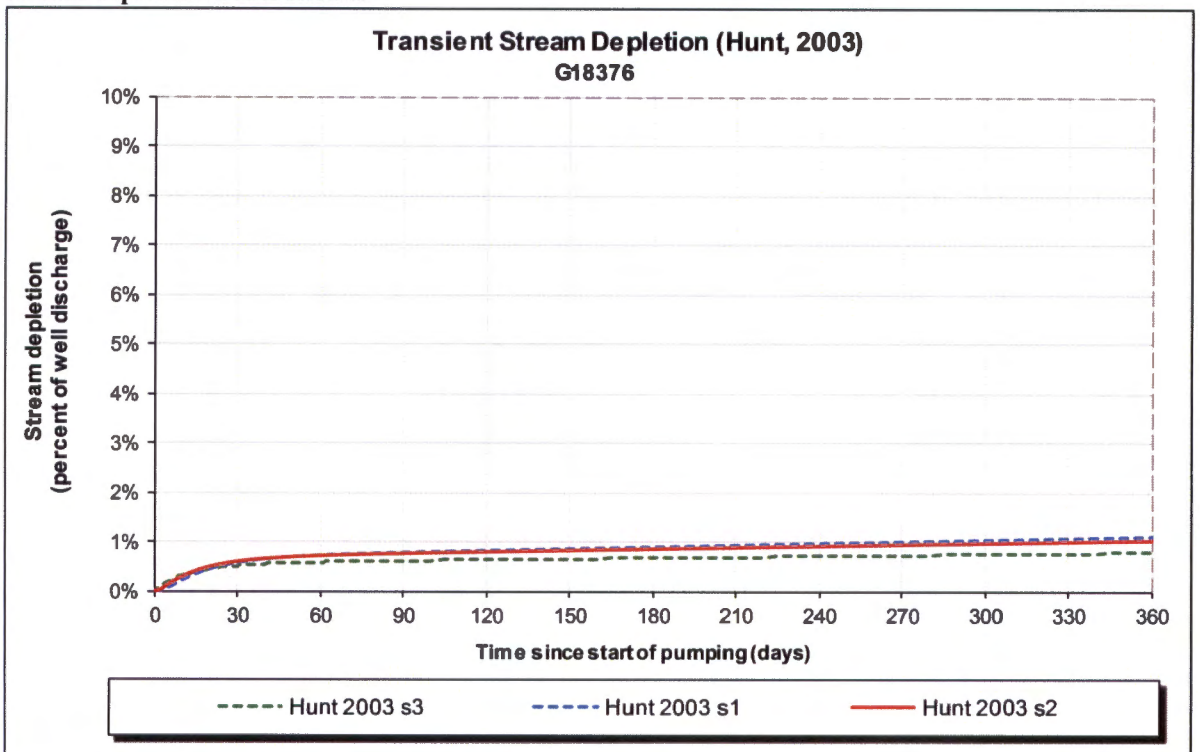
Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	235.00	0.77	234.00	0.00	170.00	64.20
FEB	352.00	0.79	351.00	0.00	170.00	181.00
MAR	357.00	0.79	356.00	0.00	170.00	186.00
APR	221.00	1.59	219.00	0.00	170.00	49.40
MAY	118.00	2.16	116.00	0.00	149.00	-33.20
JUN	57.30	2.79	54.50	0.00	89.40	-34.90
JUL	28.10	3.53	24.60	0.00	37.00	-12.40
AUG	17.70	3.02	14.70	0.00	26.10	-11.40
SEP	16.80	2.19	14.60	0.00	80.00	-65.40
OCT	20.10	1.13	19.00	0.00	125.00	-106.00
NOV	67.80	0.67	67.10	0.00	170.00	-103.00
DEC	227.00	0.73	226.00	0.00	170.00	56.30
ANN	218,000.00	1,220.00	216,000.00	0.00	91,900.00	134,000.00

Well Location Map

Stream-depletion Model Results



Output for Stream Depletion, Scenerio 2 (s2):						Time pump on (pumping duration) = 365 days						
Days	**30**	60	90	120	150	180	210	240	270	300	330	360
J SD	64.9%	74.8%	79.3%	82.0%	83.9%	85.3%	86.4%	87.2%	88.0%	88.6%	89.1%	89.6%
H SD 1999	1.1%	2.0%	2.6%	3.1%	3.6%	4.0%	4.4%	4.8%	5.1%	5.5%	5.8%	6.0%
H SD 2003	**0.60%**	**0.72%**	**0.76%**	**0.80%**	**0.83%**	**0.86%**	**0.88%**	**0.91%**	**0.94%**	**0.97%**	**1.00%**	**1.03%**
Qw, cfs	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110
H SD 99, cfs	0.001	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.006	0.006	0.006	0.007
H SD 03, cfs	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate of well	Qw	0.11	**0.11**	0.11	cfs
Time pump on (pumping duration)	tpon	365	**365**	365	days
Perpendicular from well to stream	a	4980	**4980**	4980	ft
Well depth	d	133	**133**	133	ft
Aquifer hydraulic conductivity	K	50	**100**	300	ft/day
Aquifer saturated thickness	b	200	**200**	200	ft
Aquifer transmissivity	T	10000	**20000**	60000	ft*ft/day
Aquifer storativity or specific yield	S	0.01	**0.01**	0.01	
Aquitard vertical hydraulic conductivity	Kva	0.01	**0.01**	0.01	ft/day
Aquitard saturated thickness	ba	20	**20**	20	ft
Aquitard thickness below stream	babs	10	**10**	10	ft
Aquitard porosity	n	0.3	**0.3**	0.3	
Stream width	ws	100	**100**	100	ft
Streambed conductance (lambda)	sbc	0.100	**0.100**	0.100	ft/day
Stream depletion factor	sdf	24.800	**12.400**	4.133	days
Streambed factor	sbf	0.050	**0.025**	0.008	
input #1 for Hunt's Q_4 function	t'	4.03E-02	**8.06E-02**	2.42E-01	
input #2 for Hunt's Q_4 function	K'	1.24E+00	**6.20E-01**	2.07E-01	
input #3 for Hunt's Q_4 function	epsilon'	3.33E-02	**3.33E-02**	3.33E-02	
input #4 for Hunt's Q_4 function	lamda'	4.98E-02	**2.49E-02**	8.30E-03	