Groundwater Application Review Summary Form

Application # _LL-1976_

GW Reviewer _Grayson Fish_ Date Review Completed: _5/14/2024_

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:

☐ 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 **_May 14, 2024_**

TO: **Application _LL-1976_**

FROM: **GW: _Grayson Fish_**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☒ **YES**
☐ **NO**

The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

☒ **YES**
☐ **NO**

Use the Scenic Waterway Condition (Condition 7J)

☒ 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 **_Klamath River_** 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
See attached memo "Analysis of Groundwater Pumping Impacts on Scenic Waterway Flows" dated: February 19, 2013											

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 5/14/2024
FROM: Groundwater Section Grayson Fish
Reviewer's Name
SUBJECT: Application **LL-1976** Supersedes review of

***This application proposes the same rate, use and POA as LL-1784 which was submitted to the Department on 5/24/2019 and issued on 8/2/2019. LL-1540 expires on 8/3/2024. This application is essentially an extension of LL-1784 and this review is, in large part, a modification of the groundwater review for LL-1784.**

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: **Jeld-Wen, Inc.** County: **Klamath**

A1. Applicant(s) seek(s) 0.5 cfs from 1 well(s) in the Klamath Basin, Upper Klamath Lake subbasin

A2. Proposed use Manufacturing/Industrial Seasonality: Year-Round

A3. Well and aquifer data **(attach and number logs for existing wells; mark proposed wells as such under logid)**:

POA 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	KLAM 11674	1	Basalt	0.5	38S/9E-19 SW-NE	30' N, 2215' W fr E1/4 cor S19
2						

* Alluvium, CRB, Bedrock

POA Well	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Drawdown (ft)	Test Type
1	1021	0-237.5	+1-237.5	None	None	1700	153	P
2								

POA Well	Land Surface Elevation at Well (ft amsl)	Depth of First Water (ft bls)	SWL (ft bls)	SWL Date	Reference Level (ft bls)	Reference Level Date
1	4155	9	7.00	2/27/2023	8.00	3/9/2018
2						

Use data from application for proposed wells.

A4. **Comments:**

This proposed POA well is related to other water rights:
File G-10815: 2.228 cfs for pollution abatement (reduce algae in harbor inlets sub-division channels)
File G-11550: 0.6684 cfs for primary irrigation of 75.8 acres
File G-11550: 0.52 cfs for primary irrigation of 41.7 acres
File LL-1784: 0.50 cfs for industry/manufacturing

The proposed POA well is 2,290 feet from Upper Klamath Lake which is within a scenic waterway area. The driller reported static water level is about the same as the lake level.

The applicant has submitted a permanent groundwater application G-17983 pertaining to this well.

A5. ☒ **Provisions of the** Klamath 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**:** No basin rule applies.

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

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

B1. **Based upon available data**, I have determined that groundwater* 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 groundwater 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 groundwater 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 groundwater resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:
   i. ☒ The permit should contain condition #(s) **7RLA, 7B, 7P, 7T and "Large" flow meter condition.**;
   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 groundwater production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow groundwater production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow groundwater production only from the _____ groundwater 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 Groundwater 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. **Groundwater availability remarks:** _____
Data from the eastern Lost River sub-basin ground water investigation (Grondin, 2004) and the USGS-OWRD cooperative Upper Klamath Basin ground water investigation by Gannett and others (2007) indicate basin long-term ground water levels are generally controlled by climate and short-term (seasonal) ground water levels are controlled by ground water use.

Hydrographs from the proposed POA **KLAM 11674** as well as nearby wells **KLAM 11656** and **KLAM 50315** do not show significant groundwater level declines over the available periods of record indicating that groundwater storage in the vicinity is not over appropriated. Given the vicinity of **KLAM 11674** to Upper Klamath Lake, it is likely that the predominate source of water to this well would be though capture of surface water.

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	**Basaltic Volcanic Units**	☐	☒
		☐	☐

Basis for aquifer confinement evaluation:
The water well report (well log) for the proposed POA well indicates the predominance of "hard" (crystalline) basaltic rock begins at 223 feet below land surface at this well site. Overall the aquifer system is identified as generally unconfined with discontinuous low permeability layers causing local confined conditions. The aquifer system generally consists of low-permeability sediments of varying thickness interlayered with high-permeability basaltic units, where the basaltic units are the main target zones for high-production wells. Groundwater is hydraulically connected vertically within each unit and between the units.

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**	**Upper Klamath Lake**	**4147**	**4143**	**2,290**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Groundwater elevations are near, or slightly above, surface water elevations in the proposed well and in wells nearby implying that groundwater is flowing towards, and discharging to, surface water. Additionally, groundwater contours displayed in Gannett et al., (2007) indicate that groundwater is flowing towards Upper Klamath Lake in vicinity of the proposed POA and that Upper Klamath Lake valley is a regional discharge source for groundwater.

Water Availability Basin the well(s) are located within: LINK R > KLAMATH R – AB UNN SRT

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 (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, 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**	☐	☐	**Multiple**	**20.00**	☒	**808**	☐	**46.7**	☒
		☐	☐			☐		☐		☐

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: There are multiple in-stream water rights: KA484A, KA553A, KA558A, KA472A, KA545A, KA490A, IS70813A

Proposed well site is less than 1 mile to Upper Klamath Lake. The Hunt (2003) stream-depletion model was used to calculate the interference at Upper Klamath Lake given the proposed POA well does penetrate the sediments to obtain groundwater from the basalt below. The unit thicknesses, the Transmissivity used (17,525 ft2/day) and the vertical hydraulic conductivity for the overlying unit is based upon USGS analysis of the thickness of the local hydrogeologic units and their hydraulic properties. A conservative 1,000 foot lake width was used for the calculation. The model estimates stream-depletion of 46.7 percent after 30 days of pumping.

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													
(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: No analysis was completed for this section as the proposed well site is less than 1 mile to Upper Klamath Lake.

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 groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:

i. ☐ The permit should contain condition #(s)_____;

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

C6. **SW / GW Remarks and Conditions:** _____

A potential for substantial interference is assume given the following: the proposed pumping rate is greater than one-percent of the total in-stream water rights (cfs), and the interference at Upper Klamath Lake at the end of 30 days pumping is greater than 25% of the pumping rate. Additionally, the proposed POA is assumed to have the Potential for Substantial Interference based on OAR 690-009-0040(5) because of the existing, cumulative effects of groundwater pumping in the Klamath Basin on surface water (see attached Technical Memorandum dated: April 26, 2018) – this assumption is based on, in part, on the findings of a cooperative study by the USGS and OWRD which is summarized in Ganett et al., (2007) and Gannett et a., (2012).

The applicant proposes to continue to use IL-1550 connected to Claim KA 107 as mitigation for this limited license. **As stated in the groundwater review for application LL-1784, KA-107 is limited to a maximum rate of 1.0 cfs and a maximum duty of 100 acre-feet annually.** The proposed use under this limited license application is for a rate of 0.5 cfs but does not provide a maximum duty. Maximum appropriation of 0.5 cfs for the full year would total 361 acre-feet – exceeding the maximum duty authorized under KA-107. **It is recommended that if this limited license is issued with only KA-107 offered as mitigation, it be further limited to a maximum annual duty of 100 acre-feet.**

References Used:

Gannett, M.W., Lite, K.E., La Marche, J.L., Fisher, B.J., and Polette, D.J., 2007. Ground-Water Hydrology of the Upper Klamath Basin, Oregon and California. USGS Scientific Investigations Report 2007-5050.

Gannett, M.W., Wagner, B.J., and Lite, K.E. 2012. Groundwater Simulation and Management Models for the Upper Klamath Basin, Oregon and California. USGS Scientific Investigations Report 2012-5062.

Grondin, G.H., 2004. Ground Water in the Eastern Lost River Sub-Basin, Langell, Yonna, Swan Lake, and Poe Valleys of Southeastern Klamath County, Oregon. Ground Water Report 41, Oregon Water Resources Department, Salem, Oregon.

USGS, 2005. Assessment of the Klamath Project pilot water bank: a review from a hydrologic perspective. Prepared by the U.S. Geological Survey Oregon Water Science Center, Portland, Oregon for the U.S. Bureau of Reclamation Klamath Basin Area Office, Klamath Falls, Oregon, May 3, 2005.

Leonard, A.R. and Harris, A.B. 1974. Ground water in selected areas in the Klamath Basin, Oregon. OWRD Ground Water Report No. 21, 104 pgs.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.

Theis, C.V. 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground water storage. American Geophysical Union Transactions, 16 annual meeting, vol. 16, pg. 519-524.

OWRD Groundwater Information System (GWIS) – Accessed May 14, 2024

USGS Wocus and Klamath Falls quadrangle maps (1:24,000 scale)

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

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:** _____

_____

_____

_____

_____

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

Water Availability Tables

Water Availability Analysis

Detailed Reports

LINK R > KLAMATH R - AB UNN STR
KLAMATH BASIN
Water Availability as of 3/13/2024

Watershed ID #: 31420305 (Map)
Date: 3/13/2024

Exceedance Level: 80%
Time: 11:11 AM

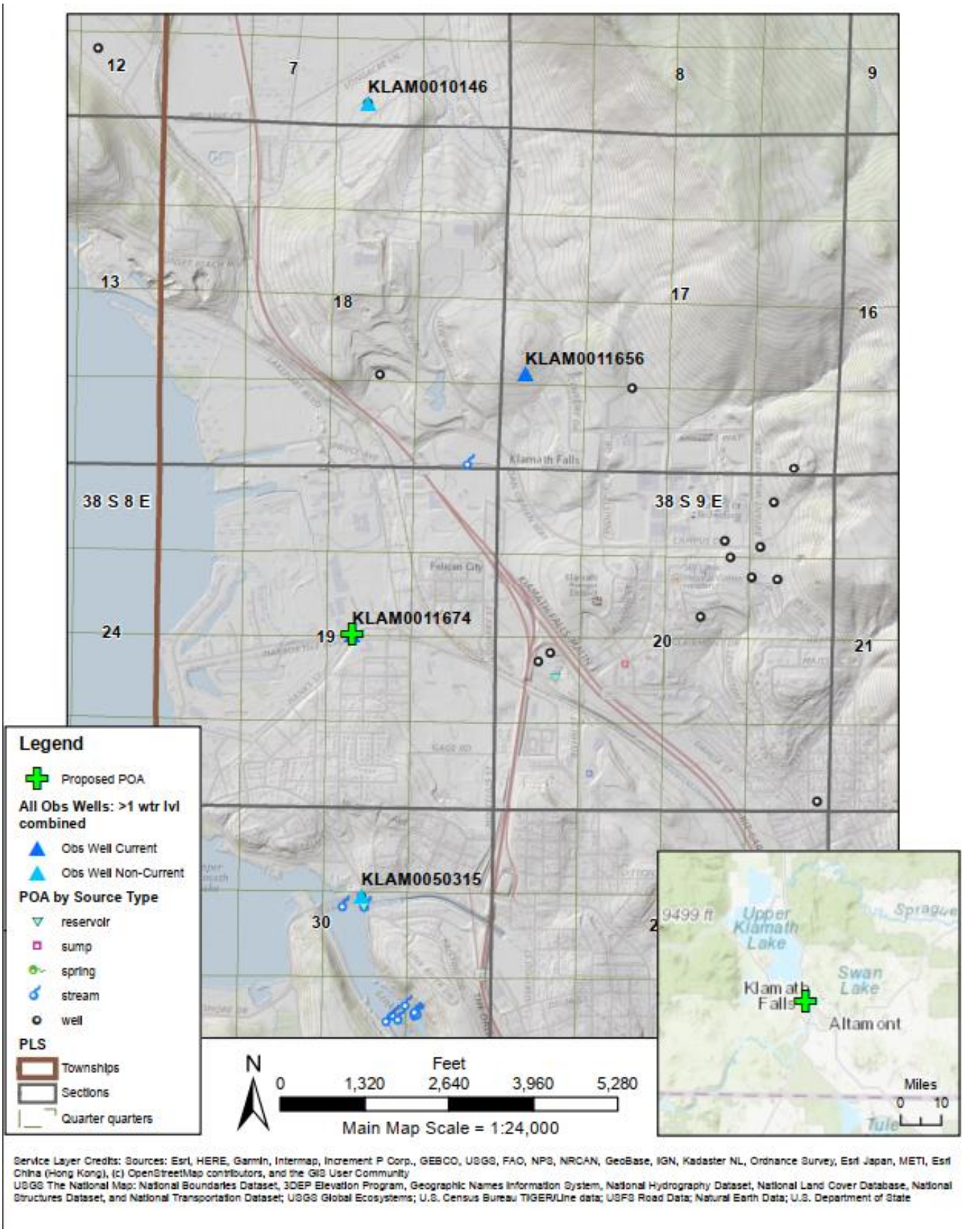
Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

Water Availability Calculation

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

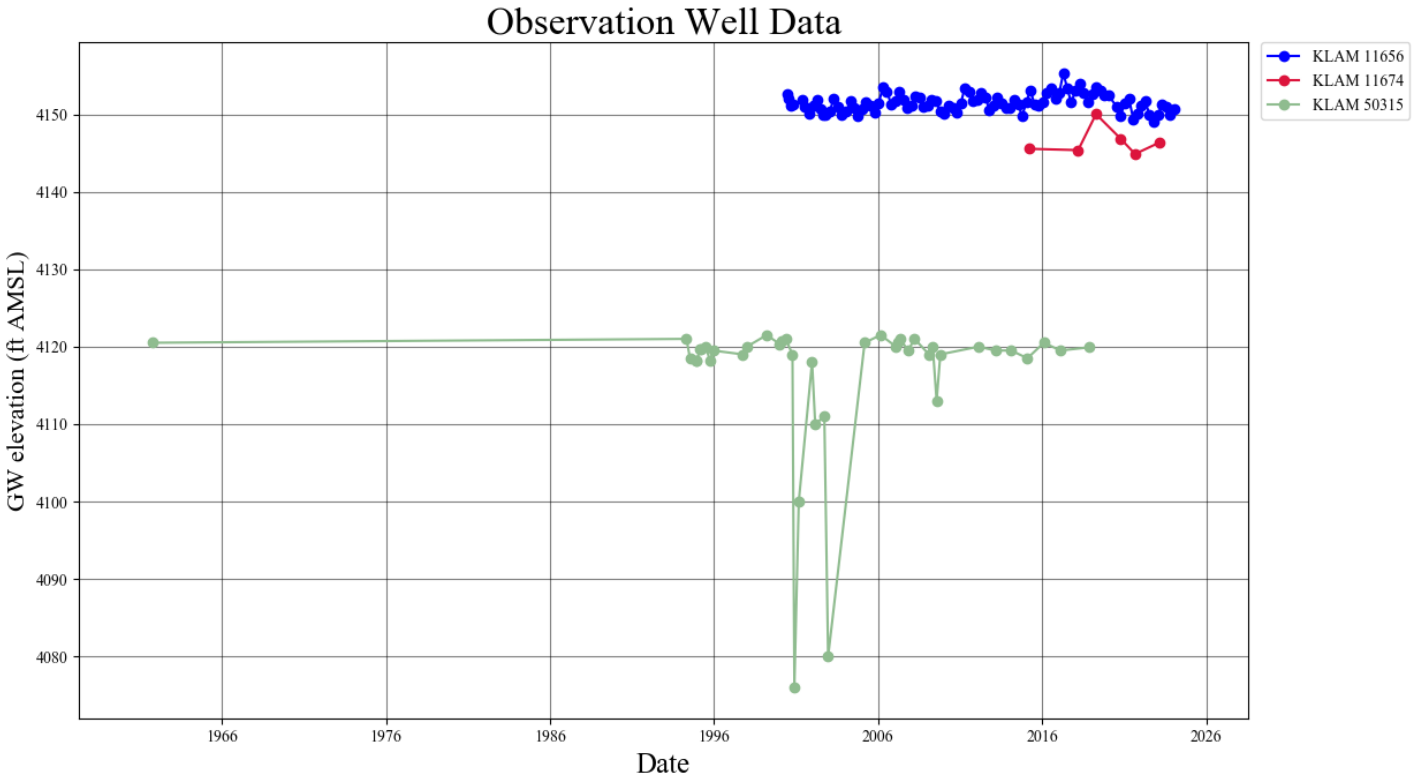
Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	1,470.00	576.00	894.00	0.00	60.00	834.00
FEB	1,520.00	972.00	548.00	0.00	60.00	488.00
MAR	1,690.00	1,040.00	652.00	0.00	80.00	572.00
APR	2,220.00	1,120.00	1,100.00	0.00	80.00	1,020.00
MAY	2,100.00	1,280.00	815.00	0.00	83.00	732.00
JUN	1,670.00	1,510.00	160.00	0.00	74.00	86.10
JUL	1,180.00	1,370.00	-188.00	0.00	20.00	-208.00
AUG	914.00	1,060.00	-147.00	0.00	40.00	-187.00
SEP	830.00	827.00	3.06	0.00	30.00	-26.90
OCT	808.00	325.00	483.00	0.00	30.00	453.00
NOV	952.00	333.00	619.00	0.00	30.00	589.00
DEC	1,240.00	569.00	671.00	0.00	50.00	621.00
ANN	1,500,000.00	662,000.00	838,000.00	0.00	38,400.00	800,000.00

Well Location Map



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State

Water-Level Measurements in Nearby Wells



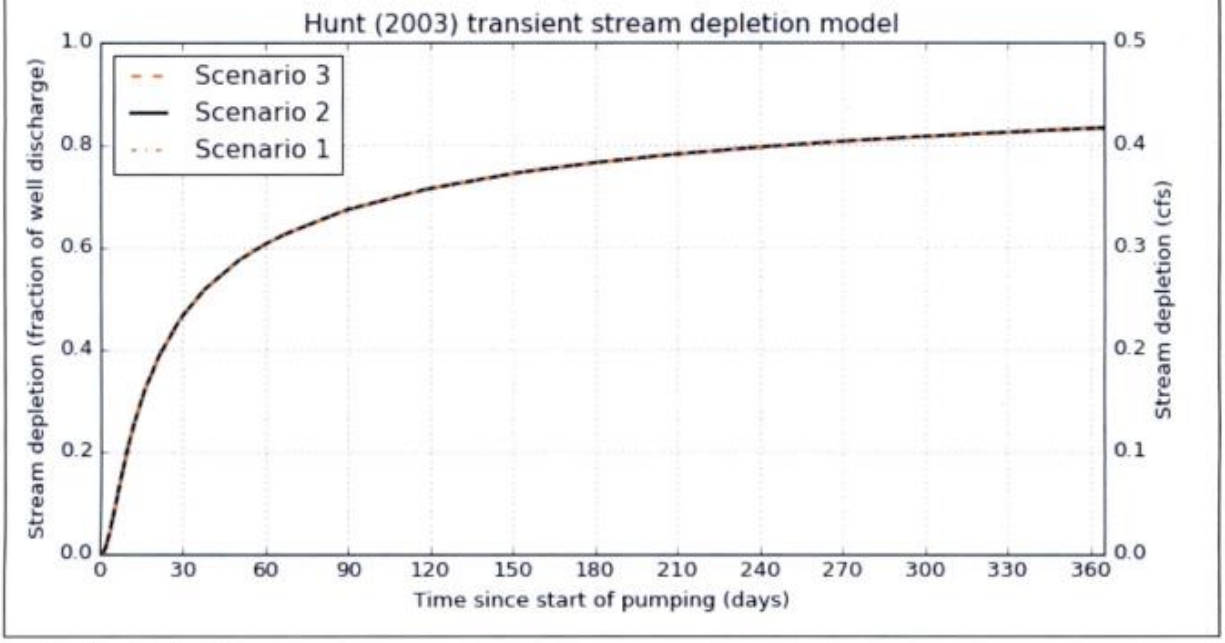
Stream Depletion (Hunt) Model Analysis

Application type:	LL
Application number:	1784
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.5
Pumping duration (days):	365
Pumping start month number (3=March)	1

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	2290	2290	2290	ft
Aquifer transmissivity	T	17524	17524	17524	ft2/day
Aquifer storativity	S	0.001	0.001	0.001	-
Aquitard vertical hydraulic conductivity	Kva	28.47	28.47	28.47	ft/day
Aquitard saturated thickness	ba	44	44	44	ft
Aquitard thickness below stream	babs	44	44	44	ft
Aquitard specific yield	Sya	0.1	0.1	0.1	-
Stream width	ws	1000	1000	1000	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	21	47	61	67	72	74	77	78	80	81	82	82	83
Depletion (cfs)	0.10	0.23	0.30	0.34	0.36	0.37	0.38	0.39	0.40	0.40	0.41	0.41	0.42



Well Report of Proposed POA KLAM 11674

WATER WELL REPORT
STATE OF OREGON

KLAM 11674

RECEIVED
NOV 4 1981
WATER RESOURCES DEPT
SALEM, OREGON

State Well No. 38s/9E-19 ba
State Permit No.

(1) OWNER:
Name JELD/WEN INC.
Address 3303 LAKE ROAD BLVD.
City KLAMATH FALLS State OREGON

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

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

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

(5) CASING INSTALLED:
Steel [X] Plastic [ ]
Threaded [ ] Welded [ ]
12 3/4" Diam. from +1 ft. to 237 1/2 ft. Gauge .250
" Diam. from ft. to ft. Gauge

LINER INSTALLED:
" Diam. from ft. to ft. Gauge

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

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

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [X] Yes [ ] No If yes, by whom? VALLEY PUMP
1700 gal./min. with 153 ft. drawdown after 4 hrs.
Air test gal./min. with drill stem at ft. hrs.
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water 63° Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Special standards: Yes [ ] No [X]
Well seal—Material used CEMENT
Well sealed from land surface to 237 1/2 ft.
Diameter of well bore to bottom of seal 17 1/2 in.
Diameter of well bore below seal 9 7/8 in.
Number of sacks of cement used in well seal 300 sacks
How was cement grout placed? PUMPED
Was pump installed? Type HP Depth ft.
Was a drive shoe used? [X] Yes [ ] No Plugs Size: location ft.
Did any strata contain unusable water? [ ] Yes [X] No
Type of Water? depth of strata
Method of sealing strata off
Was well gravel packed? [ ] Yes [X] No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County KLAMATH Driller's well number
NE 1/4 NW 1/4 Section 19 T. 38S R. 9E W.M.
Tax Lot # Lot Blk Subdivision
Address at well location:

(11) WATER LEVEL: Completed well.
Depth at which water was first found 9 ft.
Static level 14 ft. below land surface. Date 10/7/81
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 9 7/8
Depth drilled 1021 ft. Depth of completed well 1003 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
SEE ATTACHED COPY FOR DRILLING LOG			

Work started 9/21 19 81 Completed 10/7 19 81
Date well drilling machine moved off of well 10/16 19 81

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] (Drilling Machine Operator) Date 11/2 19 81
Drilling Machine Operator's License No. 656

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 E E STOREY & SON WELL DRILLING INC (Person, firm or corporation) (Type or print)
Address 3847 HOPE ST KLAMATH FALLS
[Signed] (Water Well Contractor)
Contractor's License No. 601 Date 11/2 19 81

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.

ISP-12658-690

38S/9E-19ba Klamath

RECEIVED
NOV 4 1981
WATER RESOURCES DEPT
SALEM, OREGON

E.E. STOREY & SON WELL DRILLING, INC.

3847 HOPE STREET - KLAMATH FALLS, OREGON 97601
503/884-3990 or 503/882-1152
CONTRACTOR'S LICENSES - ORE. 74 and 601

JELD-WEN, INC.
3303 LAKEPORT BLVD.
KLAMATH FALLS, OREGON 97601
NE¼ NW¼ S19 T38S R9E
COLD WATER WELL ON LAKEPORT BLVD, BEHIND PLANT

DAVE
STARTED 9/21/81
COMPLETED 10/7/81

LOG

0	-	5	brown clay topsoil
5	-	9	yellow shale
9	-	15	hard black sandstone
15	-	35	sticky blue clay
35	-	42	blue shale
42	-	76	green shale
76	-	97	hard green shale
97	-	156	hard gray shale
156	-	223	sticky brown clay
223	-	239	hard black basalt
239	-	252	black bubbly basalt
252	-	270	black lava
270	-	320	hard black basalt
320	-	365	broekn black lava
365	-	376	hard brown sandstone
376	-	440	green sticky clay
440	-	448	hard brown shale
448	-	486	green sticky clay
486	-	500	hard brown shale
500	-	565	green sticky clay
565	-	569	hard broekn black chalk rock
569	-	615	broken black basalt
615	-	639	hard black basalt
639	-	674	hard broken black basalt
674	-	785	hard black basalt
785	-	820	hard brown chalk rock
820	-	892	brown clay
892	-	962	gray clay
962	-	994	black shale with streaks of black clay
994	-	1021	hard black basalt

1003' taped finished hole depth after test pumping

Appendix Memo: Analysis of Groundwater Pumping Impacts on Scenic Waterway Flows

State of Oregon
Water Resources Department

Memorandum

To: Barry Norris – Administrator, Technical Services Division
Dwight French – Administrator, Waterights Division
Tom Paul – Deputy Director
Doug Woodcock – Administrator, Field Services Division

From: Ivan Gall – Manager, Groundwater Section

Date: February 19, 2013

Subject: Analysis of Groundwater Pumping Impacts on Klamath Scenic Waterway Flows

In 1971 the Oregon Legislature created the Scenic Waterway Act, codified by Oregon Revised Statutes 390.805 to 390.925, to preserve for the benefit of the public Waldo Lake and selected parts of the state's free-flowing rivers. The Klamath Scenic Waterway was part of the Act and includes the Klamath River from the John Boyle Dam powerhouse downstream to the Oregon-California border. Under the Act, the Water Resources Commission is allowed to allocate small amounts of surface water for human consumption and livestock watering, as long as issuing the water right does not significantly impair the free-flowing character of these waters in quantities necessary for recreation, fish and wildlife, and the amount allocated may not exceed a cumulative total of one percent of the average daily flow or one cubic foot per second (cfs), whichever is less.

In 1995 the Scenic Waterway Act was modified to address the impact of groundwater uses that, based upon a preponderance of evidence, would measurably reduce the surface water flows within a scenic waterway. "Measurably reduce" means that the use authorized will individually or cumulatively reduce surface water flows within the scenic waterway in excess of a combined cumulative total of one percent of the average daily flow or one cfs, whichever is less.

In 2012 the United States Geological Survey (USGS), in cooperation with OWRD and the US Bureau of Reclamation, completed groundwater flow and management models for the Upper Klamath Basin. The 2012 groundwater flow model uses generally accepted hydrogeologic methods and the relevant field data to model the cumulative effects of groundwater pumping within the Klamath Scenic Waterway, and provides a comprehensive methodology for analyzing the relevant field data necessary to determine whether the cumulative use of groundwater in the Klamath Basin will measurably reduce the surface water flow necessary to maintain the free-flowing character of the Klamath Scenic Waterway.

In September 2012 the OWRD Groundwater Section conducted two model simulations. The two simulations used the 2012 USGS flow model, incorporating groundwater permits issued (61.96 cfs) since adoption of the 1995 Scenic Waterway Act amendment up through 2004. Each simulation was run to steady-state, where inflows and outflows for that model run balanced. An evaluation of the water budgets showed that groundwater discharge to the Klamath Scenic Waterway decreased by 5.88 cfs as a result of the 61.96 cfs of groundwater uses issued between 1995 and 2004. These results indicate to the OWRD that a preponderance of evidence exists to establish that groundwater development occurring in the Upper Klamath Basin in Oregon since 1995 has "measurably reduced" surface water flows within the Klamath Scenic Waterway.

In January 2013 the OWRD Groundwater Section conducted flow model simulations to evaluate impacts to streams from pumping groundwater within the Lost River subbasin. Groundwater pumping was simulated by placing wells in the model that correspond to the center of 39 townships in the southeast part of the Klamath Basin in Oregon. Each of the simulations was run to steady-state, where inflows and outflows for that model run balanced. These results indicate that the scenic waterway is impacted by pumping groundwater in all of the townships evaluated in Oregon in the Lost River subbasin. In summary, a preponderance of evidence exists to establish that groundwater development occurring in Oregon since 1995 in the Upper Klamath Basin and Lost River subbasin has "measurably reduced" surface water flows within the Klamath Scenic Waterway.

References:

Gannett, M.W., Lite, K.E., Jr., La Marche, J.L., Fisher, B.J., and Polette, D.J., 2007. Ground-water hydrology of the upper Klamath Basin, Oregon and California: U.S. Geological Survey Scientific Investigations Report 2007-5050, 84p.

Gannett, M.W., Wagner, B.J., and Lite, K.E., Jr., 2012. Groundwater simulation and management models for the upper Klamath Basin, Oregon and California: U.S. Geological Survey Scientific Investigations Report 2012-5062, 92p.