

Groundwater Application Review Summary Form

Application # G- 18755

GW Reviewer M. Thoma Date Review Completed: 08-19-19

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.

8/20/19

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).

MEMO

08-19, 20 19

TO: Application G- 18755

FROM: GW: M. Thoma
(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)

☐ 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.**

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 _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

[illegible]

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18755
Date: August 21, 2019

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 (LANE 69972): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

STATE OF OREGON
WATER SUPPLY WELL REPORT

(ORS 537.765 & OAR 690-205-0210)

LANE 69972

WELL LABEL # L 100067

START CARD # 201358

ORIGINAL LOG #

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

(1) LANDOWNER
First Name Glenn Last Name Turley
Company _____
Address 89096 Marcola Rd
City Springfield State OR Zip 97478

(2) TYPE OF WORK ☒ New ☐ Conversion ☐ Deepening
☐ Alteration (complete Sections 2a & 10) ☐ Abandonment (complete Section 5a)

(2a) PRE-ALTERATION: Well Depth _____ ft.

Seal Material _____
Casing Type: ☐ Steel ☐ Plastic ☐ Other _____
Casing Gauge _____ Casing Diameter _____

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

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

(5) BORE HOLE CONSTRUCTION

Depth of Completed Well 240' ft. Special Standard: ☐ Yes (attach copy)

BORE HOLE			SEAL			Amount	Scks/lbs
Dia	From	To	Material	From	To		
10"	0'	19'	Bentonite	0'	19'	8	506
6"	19'	240'					

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other Bentonite Placed @ 1 sck per 5 min rate
Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE:

Calculated Amount Proposed to be Used: _____ sacks/lbs
Actual Amount Used: _____ sacks/lbs

(6) CASING/LINER

Csg	Linr	Dia	+	From	To	Gauge	Steel	Plastic	Welded	Thrd
X		6"		1'	19'	.250	X			
	X	4"		0'	240'	.160		X		

Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s) None
Temporary casing ☐ Yes Diameter _____ From _____ To _____

(7) PERFORATIONS/SCREENS

Perforations Method Elect Saw
Screens Type _____ Material _____

Perf	Scrn	Csg	Linr	Screen Dia	From	To	Screen/ slot width	Slot length	# of slots	Tele/ pipe size
X			X		45'	65'	8"	4"	30	
X			X		240'	240'	14"	4"	70	

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

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min 6.6 gpm Drawdown _____ Drill stem/Pump depth 240' Duration (hr) 1 Hr

Temperature 57°F Lab analysis ☐ Yes By _____

Water quality concerns? ☐ Yes (describe below) TDS _____ ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County Lane Twp 17S N or S Range 02W E or W
Sec 17 SE 1/4 of the SW 1/4 Tax Lot 1314
Tax Map Number _____ Lot _____
Lat _____ " or _____ DMS or DD
Long _____ " or _____ DMS or DD

Street Address of Well (or nearest address) Same

(10) STATIC WATER LEVEL

	Date	SWL (psi)	+	SWL (ft)
Existing Well/Pre-Alteration				
Completed Well	<u>8-26-09</u>			<u>12'</u>

Flowing Artesian? ☐ Yes Dry Hole? ☐ Yes

WATER BEARING ZONES Depth water was first found 6'

SWL Date	From	To	Est Flow	SWL (psi)	+	SWL (ft)
<u>8-26-09</u>	<u>6'</u>	<u>62'</u>	<u>6.6 gpm</u>			<u>12'</u>

(11) WELL LOG

Material	From	To
<u>Top Soil</u>	<u>0'</u>	<u>3'</u>
<u>Black Clay</u>	<u>3'</u>	<u>9'</u>
<u>Grey Sandstone (Fractured)</u>	<u>9'</u>	<u>63'</u>
<u>Black Basalt</u>	<u>63'</u>	<u>95'</u>
<u>Blue Sandstone (Hard)</u>	<u>95'</u>	<u>240'</u>

RECEIVED

SEP 28 2009

WATER RESOURCES DEPT
SALEM, OREGON

Date Started 8-25-09 Date Completed 8-26-09

(unbonded) Water Well Construction Certification

I certify that the work I performed on this construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Material used and information reported above are true to the best of my knowledge and belief.

License Number _____ Date _____

Signed _____

(bonded) Water Well Construction Certification

I warrant my professional ability for this construction, deepening, alteration, or abandonment, as performed in compliance with the construction dates reported above, and the work was performed in compliance with Oregon water supply well construction standards. This is true to the best of my knowledge and belief.

License Number 75L Date 8-26-09

Signed Donald J. Frazier

Contact Info (optional)

Mid Valley Drilling Inc

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 08/19/2019
 FROM: Groundwater Section M Thoma
 SUBJECT: Application G- 18755 Reviewer's Name
 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: Jeffery Landis County: Lane

A1. Applicant(s) seek(s) 0.025 cfs from 1 well(s) in the Willamette Basin,
McKenzie River subbasin

A2. Proposed use Irrigation (1.6 acres) 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	LANE 69972	1	Bedrock	0.025	17S/02W-17 SWSE	570'N, 595'E of S1/4 cor S17
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	500	61	12	08/26/2009	240	0-19	+1-19	0-240	45-65; 200-240	6		A

Use data from application for proposed wells.

A4. **Comments:** _____

A5. ☐ **Provisions of the** Willamette (OAR 690-502) 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: _____

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) 7C (7-yr SWL); Medium Water-use Reporting;
 - 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:** There are no water level data in the aquifer and vicinity of the applicant's proposed POA so Capacity of the Resource cannot be determined and water-level reporting conditions in B1(d) are recommended. There is one permitted groundwater right within 1 mile of the applicant's proposed POA and it is unlikely that the applicant's use would result in injury to this permitted water rights given the low rate of appropriation, the distance to the existing POA, and the reported depth of the existing POA. However, standard interference conditions should be applied

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	Mixed Volcanics of Early Western Cascades	☒	☐
		☐	☐

Basis for aquifer confinement evaluation: The well log for the applicant's proposed POA reports SWL above "First Water" implying confined aquifer conditions

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	Mohawk River	490	~450	2240	☒	☐	☐	☐	☒
1	2	McKenzie River	490	445-455	4280	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Groundwater elevations are above surface water elevations implying that groundwater is flowing towards and discharging to surface water

Water Availability Basin the well(s) are located within: McKenzie R > Willamette R – AB Mouth (ID# 528)

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	☐	☐	MF 134*	20	☒	1730	☐	< 25%	☒
1	2	☐	☐	NA	-	☐	1730	☐	< 25%	☐
		☐	☐			☐		☐		☐

Comments: *Instream right MF 134 is for the Mohawk River from one mile above the confluence to the confluence with the McKenzie River and is within the McKenzie River WAB (ID# 528) but is not listed in that WAB in the WARS system.

Stream-depletion at 30 d was estimated using the Hunt-2003 model with parameter values representative of fractured volcanic bedrock and overlying alluvial valley-fill materials.

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?
			☐			☐		☐		☐

- 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													
(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 streams were evaluated beyond 1 mile

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

- C6. **SW / GW Remarks and Conditions:** The applicant's proposed POA would be producing from an aquifer that has been found to be hydraulically connected to surface water – specifically the Mohawk and McKenzie Rivers at distances of less than 1 mile. The proposed maximum rate of appropriation is less than 1% of the pertinent adopted perennial streamflow but **greater than 1%** of the adopted instream water right on the Mohawk River (MF 134). Per OAR 690-009-0040(4) **the POA is assumed to have the Potential for Substantial Interference**

References Used:

- Gannett, M. W. and R. R. Caldwell. 1998. *Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-A.
- Herrera, N. B., Burns, E. R., and T. D. Conlon. 2014. *Simulation of Groundwater Flow and the Interaction of Groundwater and Surface Water in the Willamette Basin and Central Willamette Subbasin, Oregon*. USGS Scientific Investigations Report 2014-5136.
- Hunt, B. 2003. *Unsteady Stream Depletion when Pumping from a Semiconfined Aquifer*. Journal of Hydrologic Engineering. Vol 8(1), pp 12-19
- McCloughry, J. D., T. J. Wiley, M. L. Ferns, and I. P. Madin. 2010. *Digital Geologic Map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon*. Oregon Dept. of Geology and Mineral Industries. Open File Report O-10-13.
- O'Conner, J. E., A. Sarna-Wojcicki, K. C. Wozniak, D. J. Polette, and R. J. Fleck. *Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon*. USGS Professional Paper 1620
- OWRD Well Log Database – Accessed 08/19/2019
- Woodward, D. G., M. W. Gannett, and J. J. Vaccaro. 1998. *Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-B.

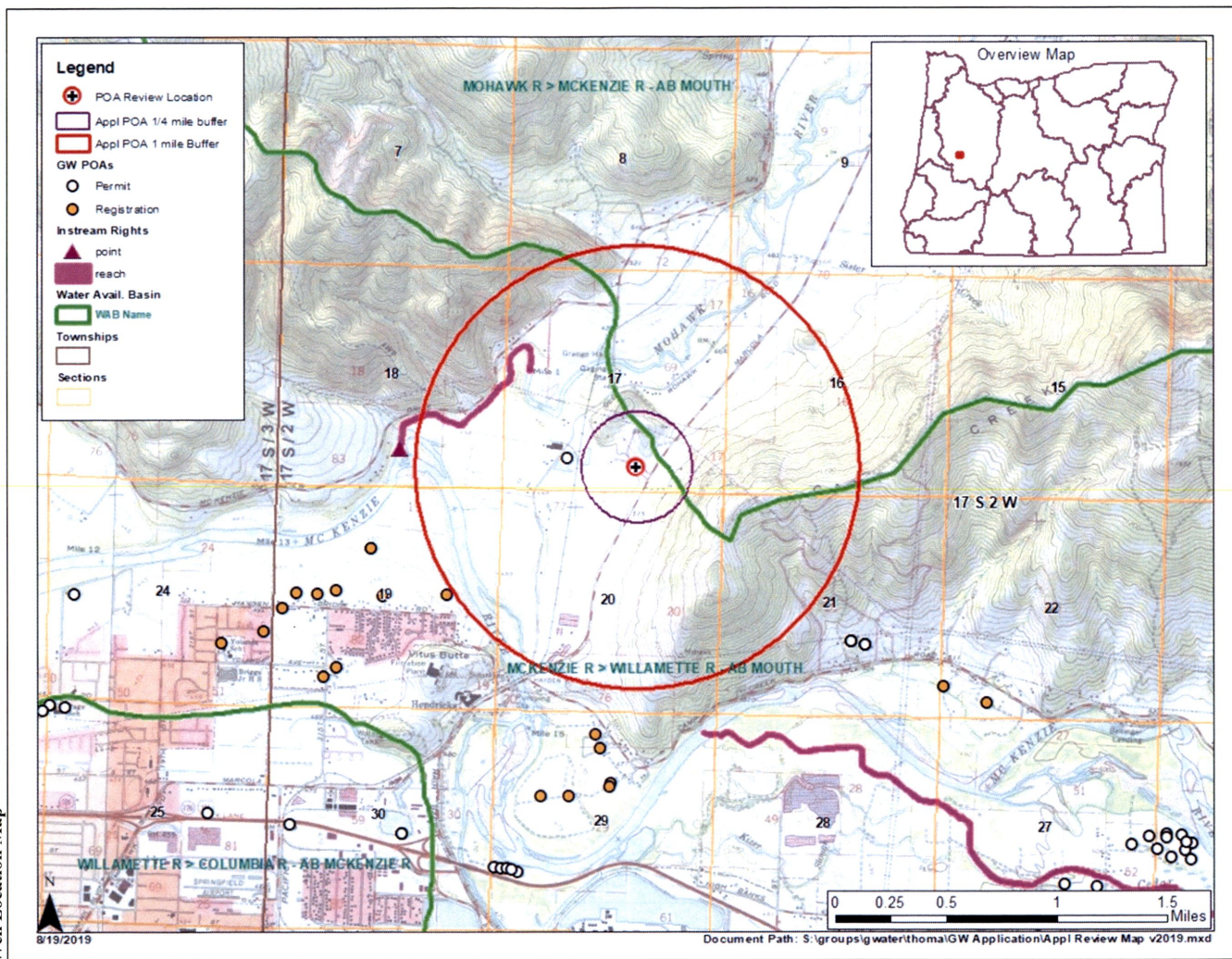
D. WELL CONSTRUCTION, OAR 690-200

- 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						
MCKENZIE R > WILLAMETTE R - AB MOUTH WILLAMETTE BASIN						
Water Availability as of 8/19/2019				Exceedance Level 80% ▾		
Watershed ID # 528 (Map)				Time 3:50 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	5,040.00	553.00	4,490.00	0.00	1,025.00	3,460.00
FEB	5,850.00	1,250.00	4,600.00	0.00	1,025.00	3,580.00
MAR	5,630.00	1,250.00	4,380.00	0.00	1,025.00	3,350.00
APR	5,020.00	1,310.00	3,710.00	0.00	1,025.00	2,690.00
MAY	4,000.00	808.00	3,190.00	0.00	1,025.00	2,170.00
JUN	2,990.00	408.00	2,580.00	0.00	1,025.00	1,560.00
JUL	2,160.00	389.00	1,770.00	0.00	1,025.00	746.00
AUG	1,790.00	377.00	1,410.00	0.00	1,025.00	388.00
SEP	1,730.00	359.00	1,370.00	0.00	1,025.00	346.00
OCT	1,830.00	328.00	1,500.00	0.00	1,025.00	477.00
NOV	2,850.00	327.00	2,520.00	0.00	1,025.00	1,500.00
DEC	4,450.00	327.00	4,120.00	0.00	1,025.00	3,100.00
ANN	3,560,000.00	461,000.00	3,100,000.00	0.00	743,000.00	2,350,000.00

Well Location Map



Stream-Depletion Model Results

76 PyHunt stream depletion analysis tool

Application type:	G
Application number:	18755
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.025
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	2240	2240	2240	ft
Aquifer transmissivity	T	1000	500	100	ft ² /day
Aquifer storativity	S	0.0001	0.0001	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.001	0.005	0.01	ft/day
Aquitard saturated thickness	ba	20.0	20.0	20.0	ft
Aquitard thickness below stream	babs	10	12	15	ft
Aquitard specific yield	Sya	0.05	0.05	0.05	-
Stream width	ws	85	85	85	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	1	1	1	2	2	2	2	2	2	3	3	3	3
Depletion (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

