Groundwater Application Review Summary Form

Application # G- 19252

GW Reviewer Grayson Fish Date Review Completed: 12/8/2023

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 **_December 8, 2023_**

TO: **Application** G-**_19252_**

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 **_Rogue_** 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 12/8/2023
FROM: Groundwater Section Grayson Fish
Reviewer's Name
SUBJECT: Application G- **19252** 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: **Ariel Properties LLC** County: **Jackson**

A1. Applicant(s) seek(s) 0.04 cfs from 3 well(s) in the Rogue Basin, Bear Creek subbasin

A2. Proposed use Commercial Use Seasonality: Year round (Jan. 1 – Dec. 31)

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	Proposed	1A	Bedrock	0.04	39S/1E-12 SE-NE	475' N, 475' W fr E1/4 cor S 12
2	Proposed	1B	Bedrock	0.04	39S/2E-7 SW-NW	485' N, 325' E fr W1/4 cor S 7
3	Proposed	1C	Bedrock	0.04	39S/2E-7 SW-NW	490' N, 325' E fr W1/4 cor S 7

* 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	375	0-40	0-40	+3-375	355-375	--	--	--
2	440	0-40	0-40	+3-440	420-440	--	--	--
3	460	0-40	0-40	+3-460	440-460	--	--	--

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	2,002	--	60-80	--		
2	2,063	--	60-80	--		
3	2,084	--	60-80	--		

Use data from application for proposed wells.

A4. **Comments:** The applicant is requesting a total of 0.04 cfs from up to three proposed wells for commercial use related to vineyard operations. The proposed POA are located approximately 1.5 miles east of Ashland, OR within the Bear Creek Valley.

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: The Rogue basin rules contain no such provisions.

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) **Standard Groundwater Conditions; 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 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:** The applicant's proposed well(s) will likely source water from an aquifer within fractures and jointing of the Payne Cliffs Formation (Wiley et. al., 2011). Median well yields for wells located in TRS 39S/1E-1, 39S/2E-6 and 39S/2E-7 are 27 gpm and a majority of reported static water levels are less 100 feet below land surface. Groundwater level data from the Payne Cliffs Formation in this portion of the Bear Creek Valley is limited. The closest observation wells are **JACK 20370** and **JACK 62394** located approximately 1.2 and 1.5 miles northwest of the proposed POA, respectively. Groundwater level data from **JACK 20370** indicate that groundwater levels have declined 35 feet between 2010 and 2023. However, despite similar construction, **JACK 62394** does not display similar declines. Given the distance between the observation wells from the proposed POA and the presence of several faults and creeks, it is unclear if the declines observed in **JACK 20370** can be considered representative of groundwater conditions near the proposed POA. Regardless, the groundwater level trends in nearby wells do not meet the definition of excessively declined or excessively declining per OAR 690-008-001 (4) and (6). Groundwater does not appear to be over-appropriated.

The closest senior groundwater right to the applicant's proposed POA is **JACK 20374** associated with **Certificate 57215**. Distance from **JACK 20374** is 240 feet from proposed POA 1A, 680 feet from proposed POA 1B, and 840 feet from proposed POA 1C. A Theis distance drawdown model was used to estimate the magnitude of well-to-well interference that may result from the proposed use (Theis 1935). Results indicate that this use could produce 50 feet of drawdown in JACK 20374 depending on the proposed POA that is pumped, however, given the uncertainty inherent with using analytical models to predict the occurrence and magnitude of drawdown in fractured bedrock aquifers, a preponderance of evidence does not exist to determine injury is likely to occur. An example of an interference in the Rogue basin is documented in OWRD open

file report 2021-05 (Kemper, 2021). **If acute interference were to occur between the proposed POA and JACK 20374 that resulted in senior water right Certificate 57215 not receiving water to which it is legally entitled to, use from these proposed POA would be regulated without the "full penetration" requirement as listed OAR 690-008-001 (8)(c) as groundwater flow is predominantly through fractures in the source aquifer.**

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
1A	**Bedrock**	☐	☒
1B	**Bedrock**	☐	☒
1C	**Bedrock**	☐	☒

Basis for aquifer confinement evaluation: Water is stored and transmitted primarily by discrete but connected fracture sets in fractured-bedrock aquifer systems. These fractures generally extend to near the surface, so water within these fractures is likely under atmospheric pressure (unconfined) despite an overall low storage coefficient for the aquifer system as a whole and static water levels often reported above water-bearing zones on drillers logs.

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
1A	**1**	**Emigrant Creek**	**~1940**	**1915**	**1375**	☒	☐	☐	☐	☒
1B	**1**	**Emigrant Creek**	**~2000**	**1915**	**1390**	☒	☐	☐	☐	☒
1C	**1**	**Emigrant Creek**	**~2020**	**1915**	**1415**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The estimated groundwater elevations for the proposed POA are higher than the surface water elevation of Emigrant Creek and the presence of nearby Litha Spring suggests that groundwater is flowing towards and discharging to surface water.

Water Availability Basin the well(s) are located within: EMIGRANT CR > BEAR CR – AT MOUTH (#70988)

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?
1A	**1**	☐	☐	**72673**	**5**	☐	**4.20**	☐	**<<25%**	☐
1B	**1**	☐	☐	**72673**	**5**	☐	**4.20**	☐	**<<25%**	☐
1C	**1**	☐	☐	**72673**	**5**	☐	**4.20**	☐	**<<25%**	☐

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells**. Otherwise same evaluation and limitations apply as in C3a above.

	SW #		Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: The requested rate is 0.04 cfs, which is <1% of the minimum instream water right requirement of 5 cfs and <1 of 80% of natural flow of 4.2 cfs. Interference at 30 days was not calculated because there is not enough site-specific data or an appropriate model for fractured rock aquifers. However, given the distance and low yielding nature of the aquifer, the connection to surface water is likely not very efficient and interference will likely be <<25% at 30 days.

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:

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:** The applicant's proposed POA will source water from an aquifer that is determined to be hydraulically connected to Emigrant Creek. There is not a preponderance of evidence that the proposed use has the potential for substantial interference with Bear Creek as per OAR 690-009.

References Used:

Kemper, J.B., 2021. *Results from a short-term pumping test at the XP Investments LLC Property near Medford, OR.* OWRD Open-File Report 2021-05.

OWRD Groundwater Information System (GWIS) Database – Accessed 12/8/2023.

Theis, C.V., 1935. "The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage." *Am. Geophys. Union Trans*., vol. 16, pp. 519-524.

Wiley, T.J., McClaughry, J.D., and D'Allura, J., 2011, *Geologic database and generalized geologic map of Bear Creek Valley, Jackson County, Oregon*, Oregon Department of Geology and Mineral Industries, Open-File Report O-2011-11, 1:24,000.

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 _____;

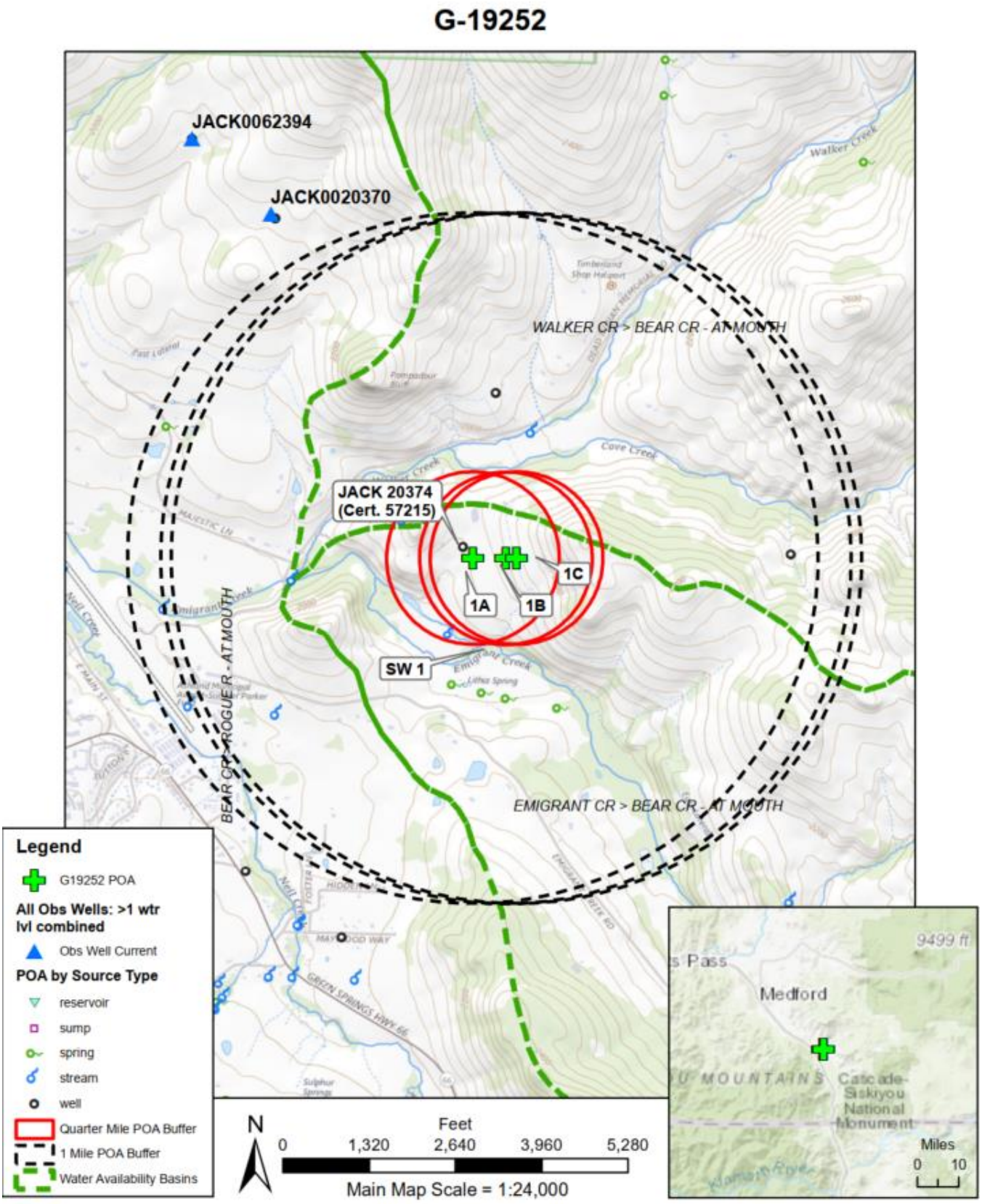
c. ☐ report of CWRE _____;

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.**

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 Availability Tables

Water Availability Analysis
Detailed Reports

EMIGRANT CR > BEAR CR - AT MOUTH
ROGUE BASIN
Water Availability as of 12/8/2023

Watershed ID #: 70988 (Map)
Date: 12/8/2023

Exceedance Level: 80%
Time: 9:35 AM

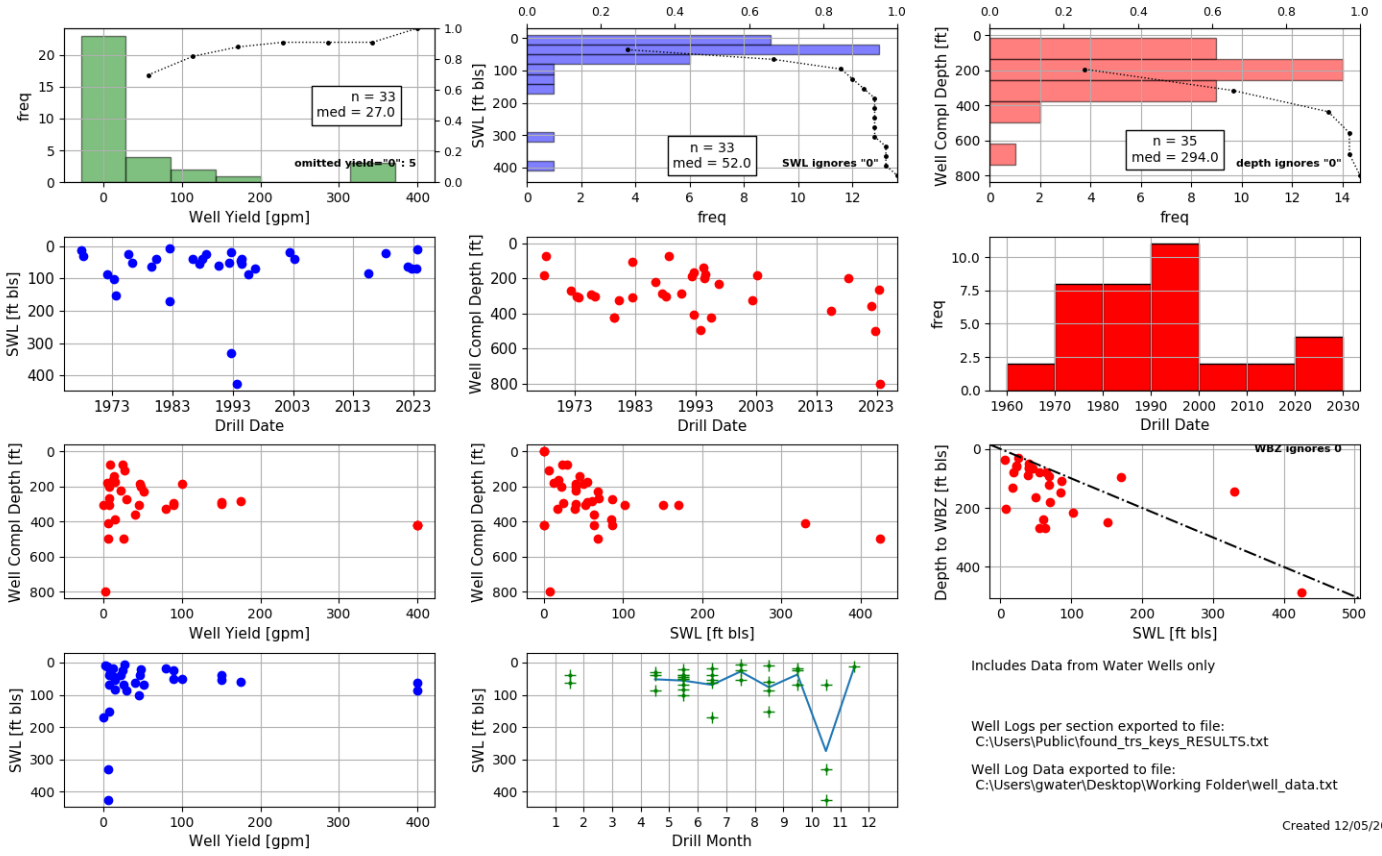
Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations
Water Rights | Watershed Characteristics

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	19.10	179.00	-160.00	0.00	38.00	-198.00
FEB	23.80	223.00	-199.00	0.00	48.00	-247.00
MAR	24.30	214.00	-189.00	0.00	46.00	-235.00
APR	20.30	22.00	-1.67	0.00	37.00	-38.70
MAY	17.20	35.20	-18.00	0.00	38.00	-56.00
JUN	14.10	49.50	-35.40	0.00	22.00	-57.40
JUL	6.75	66.40	-59.70	0.00	9.00	-68.70
AUG	4.79	54.70	-50.00	0.00	6.00	-56.00
SEP	4.20	35.80	-31.60	0.00	5.00	-36.60
OCT	4.60	11.50	-6.88	0.00	6.00	-12.90
NOV	7.06	59.30	-52.20	0.00	13.00	-65.20
DEC	11.90	125.00	-113.00	0.00	27.00	-140.00
ANN	17,600.00	64,600.00	1,040.00	0.00	17,700.00	0.00

Well Statistics



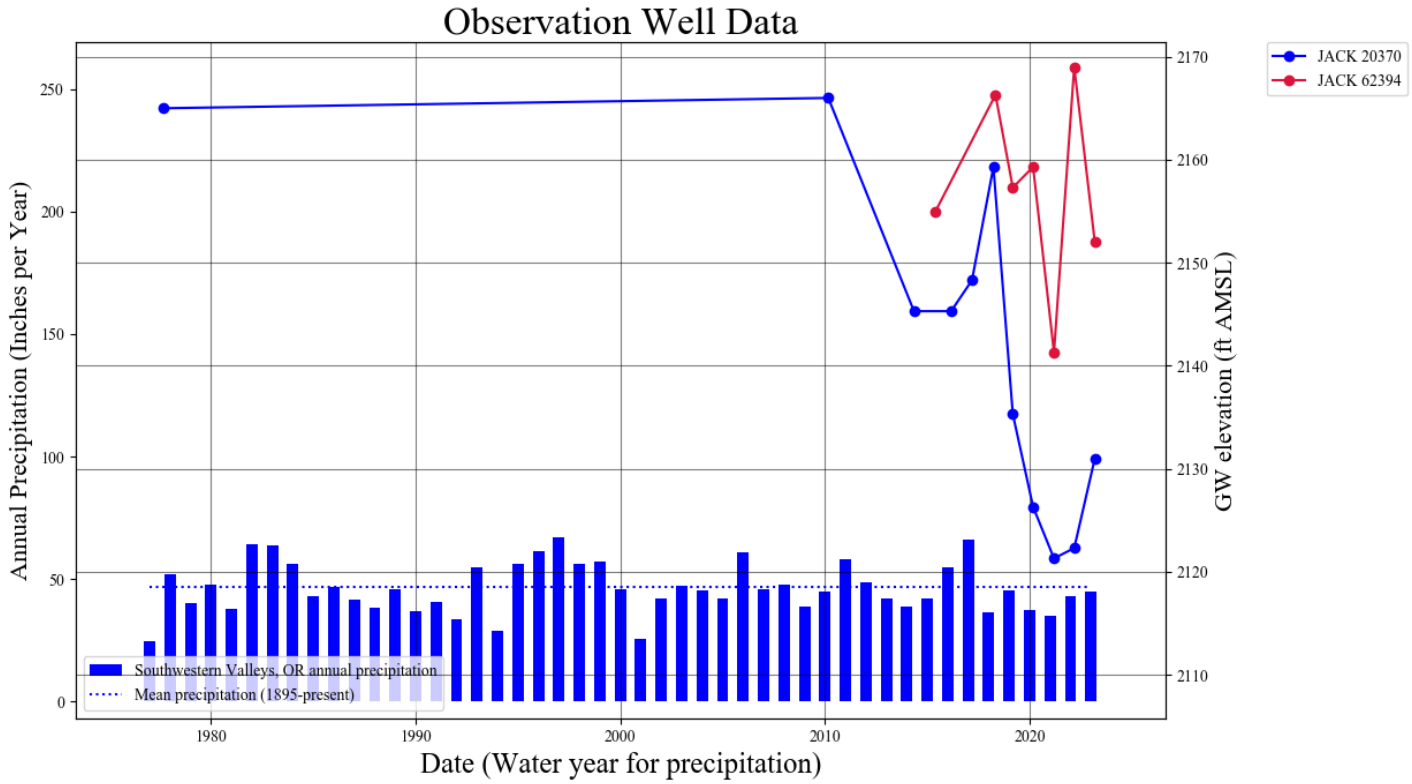
Includes Data from Water Wells only

Well Logs per section exported to file:
C:\Users\Public\found_trs_keys_RESULTS.txt

Well Log Data exported to file:
C:\Users\gwater\Desktop\Working Folder\well_data.txt

Created 12/05/2023

Water-Level Measurements in Nearby Wells



Theis Interference Analysis

Theis Time-Drawdown Worksheet v.5.00

Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.
Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		240		ft	Q conversions
Pumping rate	Q		0.04		cfs	17.95 gpm
Hydraulic conductivity	K	0.25	0.5	2.5	ft/day	0.04 cfs
Aquifer thickness	b		200		ft	2.40 cfm
Storativity	S_1		0.0005			3,456.00 cfd
	S_2		0.00005			0.08 af/d
Transmissivity Conversions	T_f2pd	50	100	500	ft2/day	
	T_ft2pm	0.03472222	0.06944444	0.34722222	ft2/min	Recalculate
	T_gpdpft	374	748	3740	gpd/ft	

Use the Recalculate button if recalculation is set to manual