

Groundwater Application Review Summary Form

Application # G- 19294

GW Reviewer Gabriela Ferreira / Dennis Orłowski Date Review Completed: May 2, 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

May 2, 2023

TO: Application G- 19294

FROM: GW: Gabriela Ferreira / Dennis Orlowski
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

- ☐ YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries
- ☐ 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 [Enter] 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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date May 2, 2023
 FROM: Groundwater Section Gabriela Ferreira / Dennis Orlowski
 Reviewer's Name
 SUBJECT: Application G- 19294 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: Emmanuel Ramos Ascencio County: Clackamas

A1. Applicant(s) seek(s) 0.288 cfs from 2 well(s) in the Willamette Basin,
 _____ subbasin

A2. Proposed use Nursery (11.5 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	PROPOSED	Well 1	Alluvial	0.288	4S/1E - 36	230' N, 1585' W fr SE cor S 36
2	PROPOSED	Well 2	Alluvial	0.288	4S/1E - 36	705' N, 1585' W fr SE cor S 36

* 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	275 ^a	TBD	TBD	TBD	200	20	200	TBD	TBD ^b	TBD	TBD	TBD
2	275 ^a	TBD	TBD	TBD	200	20	200	TBD	TBD ^b	TBD	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU is approximately 3 miles northwest of Molalla. Applicant proposes nursery use on 11.5 acres by two wells to be constructed.

^a Land surface elevation from LIDAR at the proposed well location (OLC, 2016)

^b The open interval was not specified in the application. This review evaluates the entire potentially open interval, from 20 to 200 feet below land surface (bls).

A5. ☐ **Provisions of the** _____ 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 proposed POA is greater than ¼-mile from the nearest perennial surface water source and will develop a confined aquifer; therefore, per OAR 690-502-0160 the relevant Willamette Basin rules (OAR 690-502-0050) do not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: N/A

Comments: N/A

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) 7n, Static Water Level 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 Alluvial 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 proposed POA is located in the central Willamette Valley and will produce from water-bearing sand and gravel layers within the Willamette Aquifer and the Willamette Confining Unit. The proposed POA is located within the thickest portion of the Molalla alluvial fan, approximately 120 ft thick and comprising the Willamette Aquifer, which is overlain by ~20 ft of silt (the Willamette Silt). The underlying Willamette Confining Unit is estimated to range from 800-900 feet thick (Gannett and Caldwell, 1998). The majority of wells in the immediate vicinity draw water from the Willamette Aquifer or upper Willamette Confining unit (see attached well statistics).

Within approximately one mile of the proposed POA locations, there are about 15 water rights, typically irrigation and nursery use wells completed in the alluvial aquifer system, with several more exempt (domestic) wells also likely in the area. Reported maximum yields in the nearby alluvial wells typically range up to 150 gpm, with a few deeper wells reporting 200 – 900 gpm. Well deepenings are not prevalent. The requested rate (0.288 cfs) is within the range of reported yields for water wells in this area.

Five wells with sufficient water level data for evaluation were identified within approximately 1 mile of the proposed POAs, ranging in total depth from 120 to 255 feet bls. Reported water level elevations for these wells range from about 220 feet above mean sea level (amsl) to 260 feet amsl. Water level data for these wells are generally stable over the time period available (1995 through present) with variability up to 10 feet. Approximately 10 feet of decline is observed in water levels from one well (CLAC 14260) from 2014 – 2022 although the time period coincides with drought conditions and is not long enough to be conclusive.

No nearby wells fully penetrate the 700-900 ft deep Willamette Aquifer system in this area, and thus potential injury to nearby groundwater users was not assessed for this review. However, permit condition 7N is recommended to assess potential future injury concerns, and as a means to monitor long-term groundwater conditions in this area.

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	☒	☐
2	Alluvial	☒	☐

Basis for aquifer confinement evaluation: Nearby wells completed in the Willamette Aquifer or Willamette Confining Unit report SWLs above the water-bearing zone(s), indicating a confined aquifer or series of aquifers. The Willamette Aquifer in this area is overlain by approximately 20 feet of silt (Willamette Silt).

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 ¹	SW Elev ft msl ²	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Creamery Creek	250 – 270	235	5,955	☒	☐	☐	☐	☒
2	1	Creamery Creek	250 - 270	235	5,600	☒	☐	☐	☐	☒
1	2	Bear Creek	250 - 270	250 – 270	4,995	☒	☐	☐	☐	☒
2	2	Bear Creek	250 - 270	250	5,465	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: ¹ Estimated groundwater elevation is based on Gannett and Caldwell (1998) and nearby observation well data.

² Estimated surface water elevation and distance is provided for the nearest perennial reach for each surface water body (OLC, 2016; USGS 2014). A single value is provided for the nearest perennial reach of the surface water source if the distance is greater than a mile. A range of values is provided for the elevations of SW 2 within one mile of the Well 1.

Because the estimated groundwater elevations for the POAs are coincident with or slightly above the estimated elevation ranges for SW 1 (Creamery Creek) and SW 2 (Bear Creek), the aquifer system proposed to be accessed by the POA is efficiently hydraulically connected to those stream reaches.

Water Availability Basin the well(s) are located within:

SW 1: Molalla River > Willamette River – at mouth (WID # 69796)

SW 2: Pudding River > Molalla River – Above Mill Creek (WID # 151)

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?	Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	2	☐	☐			☐	67.30	☐	<< 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 #		Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: C3a: The Hunt 2003 analytical stream depletion model was used to estimate 30-day interference at SW 2 (Bear Creek) caused by pumping Well 1 to estimate the maximum anticipated interference, based on proximity and similar hydrologic conditions. Model parameters are derived from nearby pumping tests and published values (Freeze and Cherry, 1979). Model results indicate that interference is expected to be much less than 25% of the maximum allocated pumping rate at 30 days. The model was not applied to the other scenarios because they are farther from respective streams, and thus, given a similar hydrogeologic setting, the estimated 30-day stream depletion percentages would be even less than that estimated for the Well 1/SW 2 scenario.

C3b: Not applicable.

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: For SW 1 (WID # 69796), 80% of the natural stream flow during the lowest month is 134.00 cfs. For SW 2 (WID #151), 80% of the natural stream flow during the lowest month is 67.30 cfs. 1% of 80% of the natural stream flows for these two surface water sources is 1.3400 and 0.6730 cfs, respectively. The requested cfs for the proposed POAs is 0.288 cfs. Therefore it is not possible for the total interference to exceed 1% of 80% of the natural stream flow and potential for substantial interference is not identified.

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;

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

C6. SW / GW Remarks and Conditions: _____

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

References Used:

Application File G-19294

Water well reports: CLAC 12524, CLAC 12796, CLAC 14260, CLAC 20566, CLAC 54578

Pumping well reports CLAC 60032, CLAC 64205, CLAC 64836

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon, Scientific Investigations Report 2005-5168: U. S. Geological Survey, Reston, VA.

Freeze, R.A. and Cherry, J.A., 1979, Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604 p.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, Vol 8, p. 12-19.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington, Professional Paper 1424-A, 32 p: U. S. Geological Survey, Reston, VA.

Oregon Lidar Consortium (OLC), 2016, OLC metro 2014 lidar project, Oregon Department of Geology & Mineral Industries, Portland, OR, November 30.

United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200D1. **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 ReportsPUDDING R > MOLALLA R - AB MILL CR
WILLAMETTE BASIN

Water Availability as of 4/11/2023

Watershed ID #: 151 ([Map](#))
Date: 4/11/2023Exceedance Level: 80%
Time: 1:50 PM

Water Availability Calculation

Consumptive Uses and Storages

Instream Flow Requirements

Reservations

Water Rights

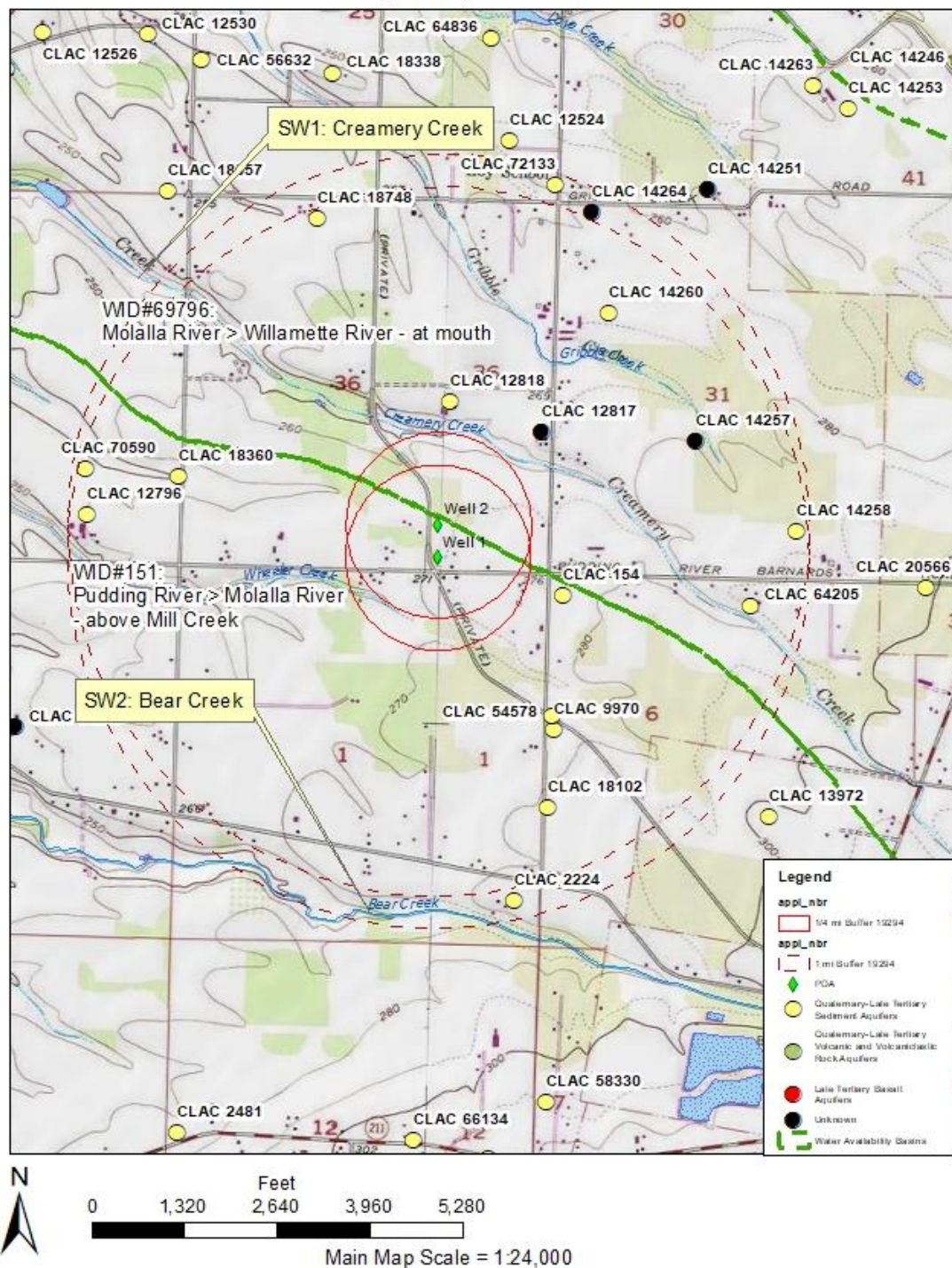
Watershed Characteristics

Water Availability CalculationMonthly 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	1,040.00	125.00	915.00	0.00	36.00	879.00
FEB	1,180.00	114.00	1,070.00	0.00	36.00	1,030.00
MAR	1,010.00	76.50	933.00	0.00	36.00	897.00
APR	787.00	52.40	735.00	0.00	36.00	699.00
MAY	425.00	50.90	374.00	0.00	36.00	338.00
JUN	224.00	73.00	151.00	0.00	36.00	115.00
JUL	109.00	115.00	-5.88	0.00	36.00	-41.90
AUG	71.00	94.10	-23.10	0.00	36.00	-59.10
SEP	67.30	53.40	13.90	0.00	36.00	-22.10
OCT	91.60	11.50	80.10	0.00	36.00	44.10
NOV	363.00	48.60	314.00	0.00	36.00	278.00
DEC	957.00	118.00	839.00	0.00	36.00	803.00
ANN	706,000.00	56,300.00	650,000.00	0.00	26,100.00	626,000.00

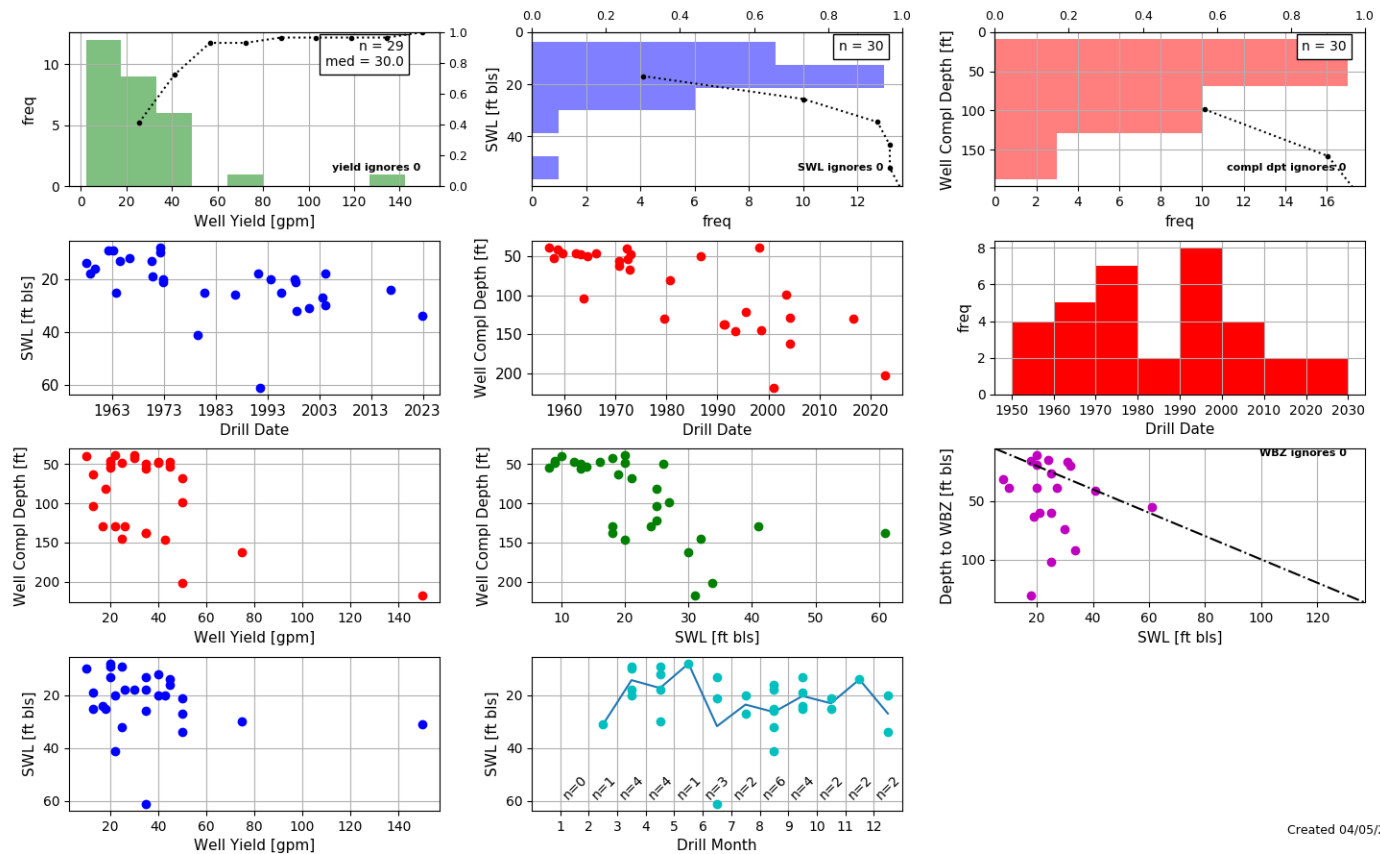
Well Location Map

Application G-19294 Ascencio T4S, R1E, Section 36



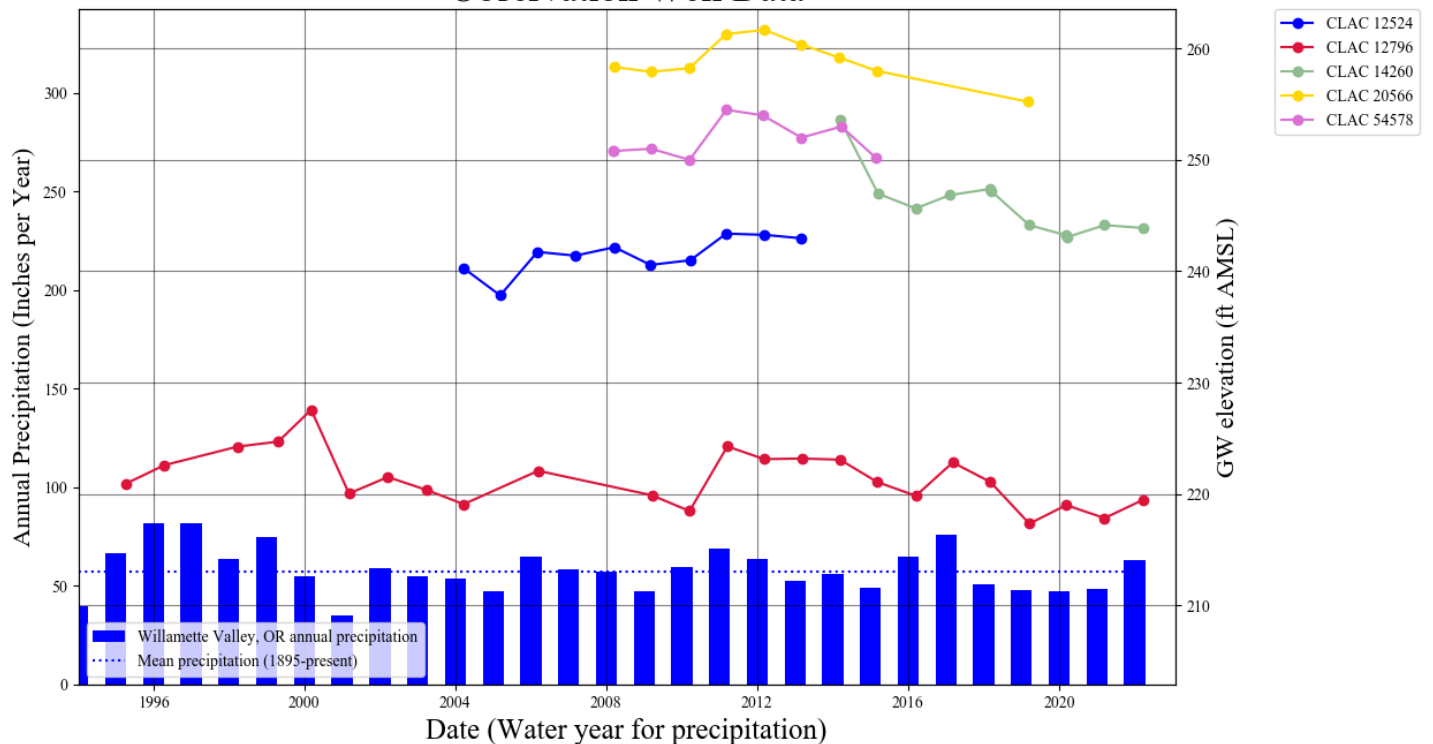
Service Layer Credits: Copyright© 2013 National Geographic Society, i-cubed

Well Statistics



Water-Level Measurements in Nearby Wells

Observation Well Data



Stream Depletion (Hunt) Model Analysis

Application type:	G
Application number:	19294
Well number:	1
Stream Number:	2
Pumping rate (cfs):	0.288
Pumping duration (days):	365.0
Pumping start month number (3=March)	1.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	4995	4995	4995	ft
Aquifer transmissivity	T	700	900	1100	ft ² /day
Aquifer storativity	S	0.001	0.001	0.001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.01	ft/day
Aquitard saturated thickness	ba	7.0	7.0	7.0	ft
Aquitard thickness below stream	babs	3.0	3.0	3.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	15.0	20.0	25.0	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	-0	0	0	0	0	0	0	0	0	0	0	0	0
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

Hunt (2003) transient stream depletion model

