

Groundwater Application Review Summary Form

Application # G- 18485

GW Reviewer Aurora Bouchier Date Review Completed: 6/29/2017

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

Date: 6/29/2017TO: Application: G-18485FROM: GW: Aurora Bouchier
(Reviewer's Name)SUBJECT: Scenic Waterway Interference & General/Local Surface Water
Evaluation for Deschutes Ground Water Study AreaThe source of appropriation is within or above the Deschutes
Scenic Waterway.

Use the Scenic Waterway condition (Condition 7J).

PREPONDERANCE OF EVIDENCE FINDING UNDER ORS 390.835:

Department has found that there is a preponderance of evidence that the proposed use of ground water will measurably reduce the surface water flows necessary to maintain the free-flowing character of the Deschutes Scenic Waterway in quantities necessary for recreation, fish and wildlife.

LOCALIZED IMPACT FINDING

- The proposed use of ground water will have a localized impact to surface water in the _____ River/Creek Subbasin.

If the localized impact box above is checked, then the water use under any right issued pursuant to this application is presumed to have a localized impact on surface water within the identified subbasin. Mitigation of the impact, originating from within the Local Zone of Impact identified by the Department, will be required before a permit may be issued for the proposed use.

If the localized impact box above is not checked, then the water use under any right issued pursuant to this application is presumed to have a general (regional) impact on surface water. Mitigation of the impact, originating anywhere within the Deschutes Basin above the Madras gage, will be required before a permit may be issued for the proposed use.



MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18485
Date: September 18, 2018

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

Applicant's Well #1 (DESC 3414): Based on a review of the Well Report, Applicant's Well #1 appears to protect the groundwater resource.

The construction of Applicants Well #1 may not satisfy hydraulic connection issues.

WATER WELL REPORT
STATE OF OREGON

DESC
3414

RECEIVED

AUG 25 1982

State Well No. 15S/11E-33

WATER RESOURCES DEPT.
SALEM, OREGON

State Permit No.

(1) OWNER:

Name Sidney Koalkin
Address 18238 Fryrear Ranch Rd.
City Bend State Ore

(2) TYPE OF WORK (check):

New Well Deepening Reconditioning Abandon

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary Air Driven
Rotary Mud Dug
 Bored

(4) PROPOSED USE (check):

Domestic Industrial Municipal
Irrigation Test Well Other
Thermal: Withdrawal ReInjection

(5) CASING INSTALLED:

Steel Plastic
Threaded Welded
8" Diam. from +1 ft. to 19 ft. Gauge .250
" Diam. from ft. to ft. Gauge

LINER INSTALLED:

6" Diam. from +1 ft. to 261 ft. Gauge .188

(6) PERFORATIONS:

Perforated? Yes 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 No

Manufacturer's Name
Type Model No.
Diam. Slot Size Set from ft. to ft.
Diam. Slot Size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? Yes No If yes, by whom?
i: gal/min. with ft. drawdown after hrs.
Air test 20 gal/min. with drill stem at 263 ft. 1 hrs.
Bailer test gal/min. with ft. drawdown after hrs.
Artesian flow g.p.m.
perature of water 54 Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Special standards: Yes No

Well seal—Material used cement
Well sealed from land surface to 19 ft.
Diameter of well bore to bottom of seal 12 in.
Diameter of well bore below seal 8 in.
Number of sacks of cement used in well seal 7 sacks
How was cement grout placed? pumped from 19 to 0

Was pump installed? no Type HP Depth ft.
Was a drive shoe used? Yes No Plugs Size: location ft.
Did any strata contain unusable water? Yes No
Type of Water? depth of strata

Method of sealing strata off
Was well gravel packed? Yes No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Deschutes Driller's well number
1/4 1/4 Section 33 T. 15S R. 11E W.M.
Tax Lot # 800 Lot 3 Blk 1 Subdivision
Address at well location: Fryrear Ranch Rd

(11) WATER LEVEL: Completed well.

Depth at which water was first found 235 ft.
Static level 234 ft. below land surface. Date 8/20/82
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 6

Depth drilled 263 ft. Depth of completed well 263 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
gray vesicular basalt	0	3	
brn congl	3	6	
gray basalt	6	28	
gray congl	28	34	
gray basalt	34	123	
brn congl white pumice	123	152	
tan tuft	152	161	
med gravel caving	161	179	
gray basalt	179	190	
med gravel caving	190	208	
gray basalt	208	219	
gray vesicular basalt brkn	219	228	
red cinders caving (WB235)	228	263	234

Work started 8/4 1982 Completed 8/20 1982
Date well drilling machine moved off of well 8/20 1982

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] John V. Johnson Date 8/23, 1982
(Drilling Machine Operator)
Drilling Machine Operator's License No. 1039

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 Johnson Well Drilling
(Person, firm or corporation) (Type or print)
Address 3626 NW Coyner, Redmond, Ore
[Signed] John V. Johnson
(Water Well Contractor)
Contractor's License No. 595 Date 8/23, 1982

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.

SP*12658-690

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date June 29, 2017
 FROM: Groundwater Section Aurora C Bouchier
 Reviewer's Name
 SUBJECT: Application G- 18485 Supersedes review of na
 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: _____ County: Deschutes

A1. Applicant(s) seek(s) 0.07 (32 gpm) cfs from 1 well(s) in the Deschutes Basin,
Upper Deschutes (General Zone) subbasin

A2. Proposed use Irrigation (5.6 acres) Seasonality: April 1 – October 31

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	DESC 3414	1	Deschutes	0.07	15S/11E-33 NW-NE	980' S, 680' E fr N ¼ cor Sec 33
2						
3						
4						
5						

* 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	3179	235	234	8/20/1982	263	0-19	+1-19	+1-261		20		A

Use data from application for proposed wells.

A4. **Comments:** The well is constructed into Deschutes Fm volcanics and volcanoclastics. The hydraulic head in the well is below the nearest surface water drainage (Dry Canyon). Groundwater flow is to the northeast towards Lower Bridge (along the Deschutes River).

A5. **Provisions of the** Deschutes 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: Within UGSG Study Area Boundary.

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) 7N;
 - 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 nearest State Observation Well (DESC 3193) is located approximately 2.7 miles to the west, unfortunately measurements at this well ceased in 2005. The nearest State Observation Well currently being measured, DESC 2929, is located approximately 6 miles to the northwest. Some measurements exist for wells located within the same section as the applicant's well. During the periods of overlap, the hydrograph of DESC 3193 and DSC 2929 show a similar pattern. Historically, the wells appear to have been in dynamic equilibrium. The long-term trends show a decadal-scale water level fluctuation that is coincident with climate cycles at Sisters. The decadal fluctuation has a maximum amplitude of approximately 15 feet. Since 2000, the water level has dropped about 15 feet, with a slight increase since 2005.

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
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: _____

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
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: _____

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

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?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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?
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
			<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: _____

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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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:** _____

References Used: _____
Application file for: G-18485, and nearby G -18155 and G-17226.

Gannett, M.W., and Lite, K.E., 2013. Analysis of 1997-2008 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon; U.S. Geological Survey Scientific Investigation report 2013-5092.

Gannett, M.W., Lite, K.E., Morgan, D.S., and Collins, C.A., 2001. Ground-Water Hydrology of the Upper Deschutes Basin, Oregon; U.S. Geological Survey, Water-Resources Investigation Report 00-4162.

Lite, K.E., and Gannett, M.W., 2002. Geologic Framework of the Regional Ground-Water Flow system in the Upper Deschutes Basin, Oregon; U.S. Geological Survey, Water-Resources Investigations Report 02-4015.

OWRD Well Log and Water Level database

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

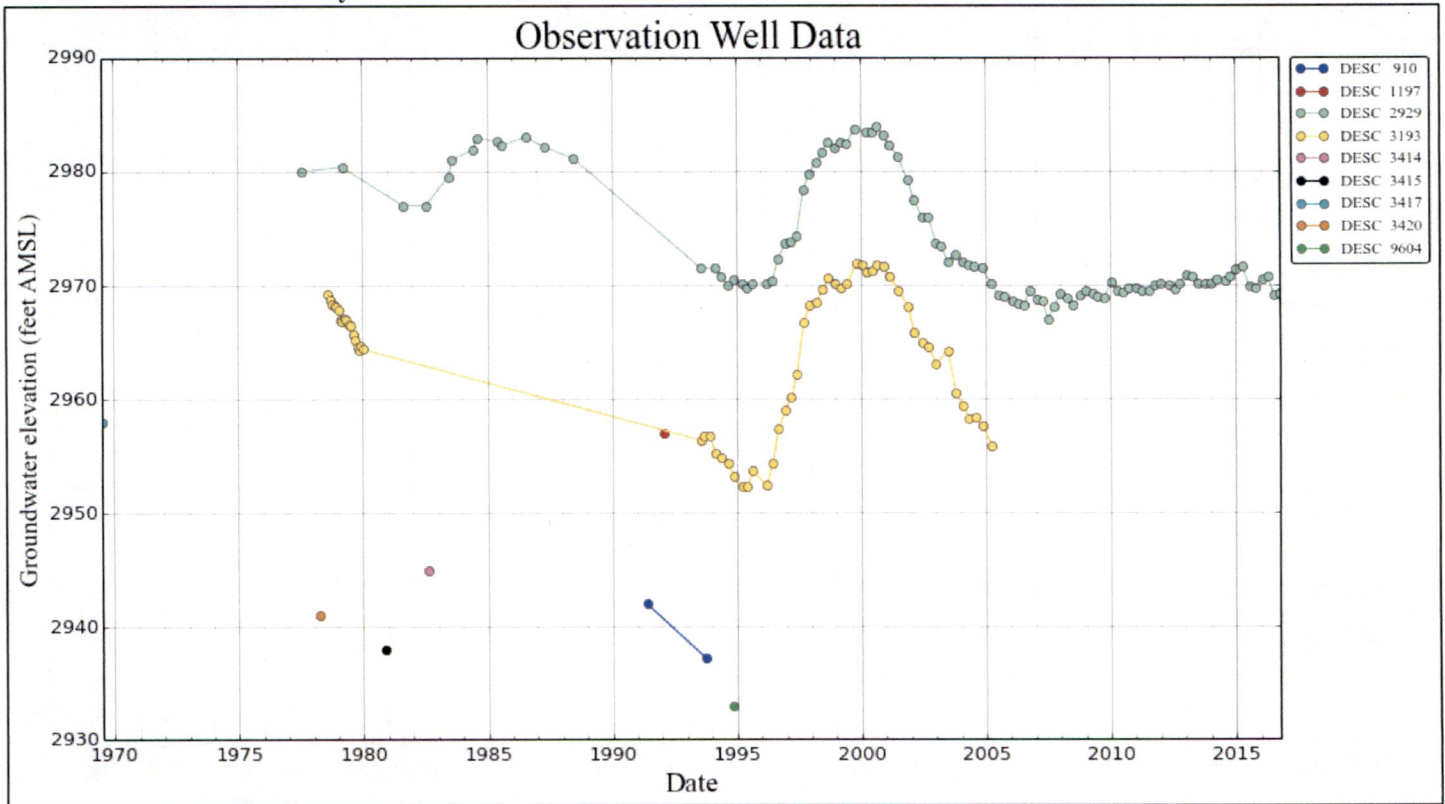
D2. **THE WELL does not appear to meet current well construction standards based upon:**

- a. review of the well log;
- b. field inspection by _____;
- c. report of CWRE _____;
- d. other: (specify) _____

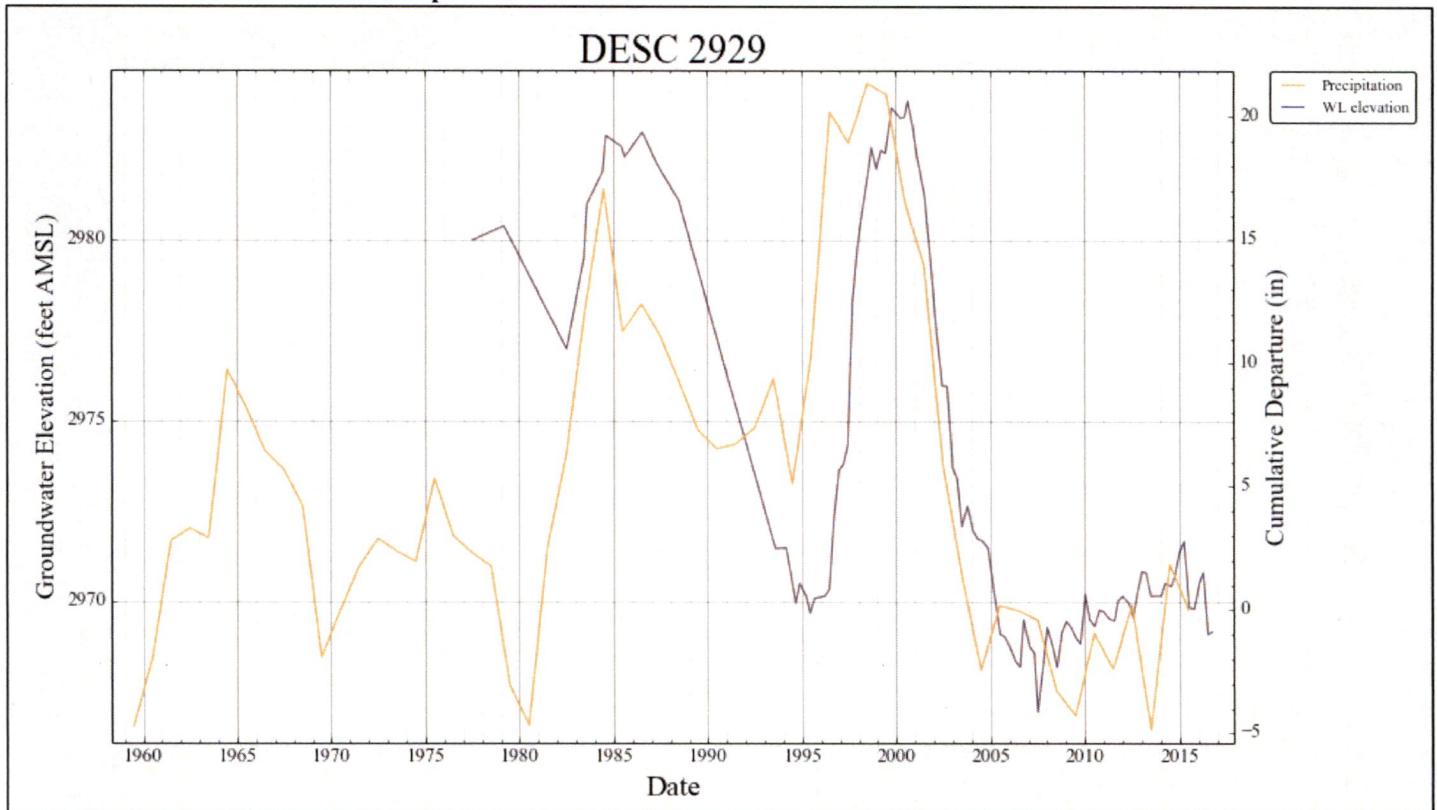
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

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

Water-Level Trends in Nearby Wells



Water-Level Trend vs Cumulative Departure at Sisters



Well Location Map

