

Groundwater Application Review Summary Form

Application # G- 18662

GW Reviewer Aurora Bouchier Date Review Completed: 5/25/2018

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: 5/25/2018TO: Application: G-18662FROM: GW: Aurora Bouchier
(Reviewer's Name)SUBJECT: Scenic Waterway Interference & General/Local Surface Water
Evaluation for Deschutes Ground Water Study Area

The 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 Crooked 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.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 5/25/2018
 FROM: Groundwater Section Aurora C Bouchier
 Reviewer's Name
 SUBJECT: Application G- 18662 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: City of Prineville County: Crook

A1. Applicant(s) seek(s) 4.46 cfs from 25 well(s) in the Deschutes Basin,
Lower Crooked (Crooked Zone) subbasin (Prineville quad)

A2. Proposed use Municipal 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	CROO 54593	D-1	Alluvium	0.557	15S/16E-8 NW-NW	422'S, 400' E fr NW cor S 8
2	CROO 54587	S-1	Alluvium	0.557	15S/16E-8 NW-NW	471'S, 406' E fr NW cor S 8
3	CROO 54592	D-2	Alluvium	0.557	15S/16E-8 NW-NW	585'S, 793' E fr NW cor S 8
4	proposed	D-3	Alluvium	0.557	15S/16E-8 NW-NW	516'S, 438' E fr NW cor S 8
5	proposed	S-2	Alluvium	0.557	15S/16E-8 NW-NW	561'S, 466' E fr NW cor S 8
6	proposed	D-4	Alluvium	0.557	15S/16E-8 NW-NW	601'S, 509' E fr NW cor S 8
7	proposed	S-3	Alluvium	0.557	15S/16E-8 NW-NW	621'S, 564' E fr NW cor S 8
8	proposed	D-5	Alluvium	0.557	15S/16E-8 NW-NW	657'S, 611' E fr NW cor S 8
9	proposed	S-4	Alluvium	0.557	15S/16E-8 NW-NW	694'S, 654' E fr NW cor S 8
10	proposed	D-6	Alluvium	0.557	15S/16E-8 NW-NW	717'S, 700' E fr NW cor S 8
11	proposed	S-5	Alluvium	0.557	15S/16E-8 NW-NW	789'S, 731' E fr NW cor S 8
12	proposed	D-7	Alluvium	0.557	15S/16E-8 NW-NW	840'S, 759' E fr NW cor S 8
13	proposed	S-6	Alluvium	0.557	15S/16E-8 NW-NW	888'S, 784' E fr NW cor S 8
14	proposed	D-8	Alluvium	0.557	15S/16E-8 NW-NW	952'S, 799' E fr NW cor S 8
15	proposed	S-7	Alluvium	0.557	15S/16E-8 NW-NW	1004'S, 809' E fr NW cor S 8
16	proposed	D-9	Alluvium	0.557	15S/16E-8 NW-NW	1061'S, 815' E fr NW cor S 8
17	proposed	S-8	Alluvium	0.557	15S/16E-8 NW-NW	1116'S, 808' E fr NW cor S 8
18	proposed	D-10	Alluvium	0.557	15S/16E-8 NW-NW	1179'S, 796' E fr NW cor S 8
19	proposed	S-9	Alluvium	0.557	15S/16E-8 NW-NW	1232'S, 800' E fr NW cor S 8
20	proposed	D-11	Alluvium	0.557	15S/16E-8 NW-NW	1267'S, 836' E fr NW cor S 8
21	proposed	S-10	Alluvium	0.557	15S/16E-8 NW-NW	1320'S, 869' E fr NW cor S 8
22	proposed	D-12	Alluvium	0.557	15S/16E-8 SW-NW	1372'S, 879' E fr NW cor S 8
23	proposed	S-11	Alluvium	0.557	15S/16E-8 SW-NW	1420'S, 896' E fr NW cor S 8
24	proposed	D-13	Alluvium	0.557	15S/16E-8 SW-NW	1479'S, 909' E fr NW cor S 8
25	proposed	S-12	Alluvium	0.557	15S/16E-8 SW-NW	1527'S, 949' E fr NW cor S 8

* 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	2867	14	4.5	1/5/2018	140	0-50	-2-52	Na	52-87	20	20	P
2	2867	24	11	1/9/2018	40	0-18	-2-20	Na	20-40	25	5	B
3	2868	13	4	1/17/2018	140	0-50	-2-60	Na	60-140	20	25	B
4	2866	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
5	2866	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
6	2866	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
7	2865	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
8	2865	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
9	2868	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
10	2865	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
11	2866	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
12	2866	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
13	2866	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			

14	2865	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
15	2865	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
16	2865	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
17	2864	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
18	2864	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
19	2864	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
20	2865	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
21	2867	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
22	2866	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
23	2867	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			
24	2867	Na	Na	Na	Est 140	Est 0-50	Est -2-60	Na	Est 52-140			
25	2868	Na	Na	Na	Est 40	Est 0-18	Est -2-20	Na	Est 20-40			

Use data from application for proposed wells.

A4. **Comments:** The City intends to drill only as many of the proposed wells as required to obtain their requested amount. They understand that these wells are/will be hydraulically connected to the Crooked River. The wells are/will be constructed into Holocene alluvial deposits along the Crooked 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 the USGS Groundwater Study Area Boundary, therefore the pertinent rules apply (OAR 690-505-0500 – 0620).

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) 7T (measuring tube on all wells), Large water use reporting (for all wells), 7N from 1 dedicated deep well and 1 dedicated shallow well;
 - 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 (Obs Well 94, CROO 2133) is located less than a mile to the north of the applicant's wells. CROO 2133 has been monitored periodically since the 1960's and displays a stable long term trend.

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"/>

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													
(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: G-18662.

Gannett, M.W. and Lite, K.E., Jr. 2004. Simulation of regional ground-water flow in the Upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report WRI 2003-4195.

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

Gannett, M.W., Lite, K.E., Jr., Morgan, D.S., and Collins, C.A. 2001. Ground-water hydrology of the upper Deschutes basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report WRI 2000-4162.

Lite, K.E., Jr. 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 WRI 2002-4015.

Well logs and hydrographs.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

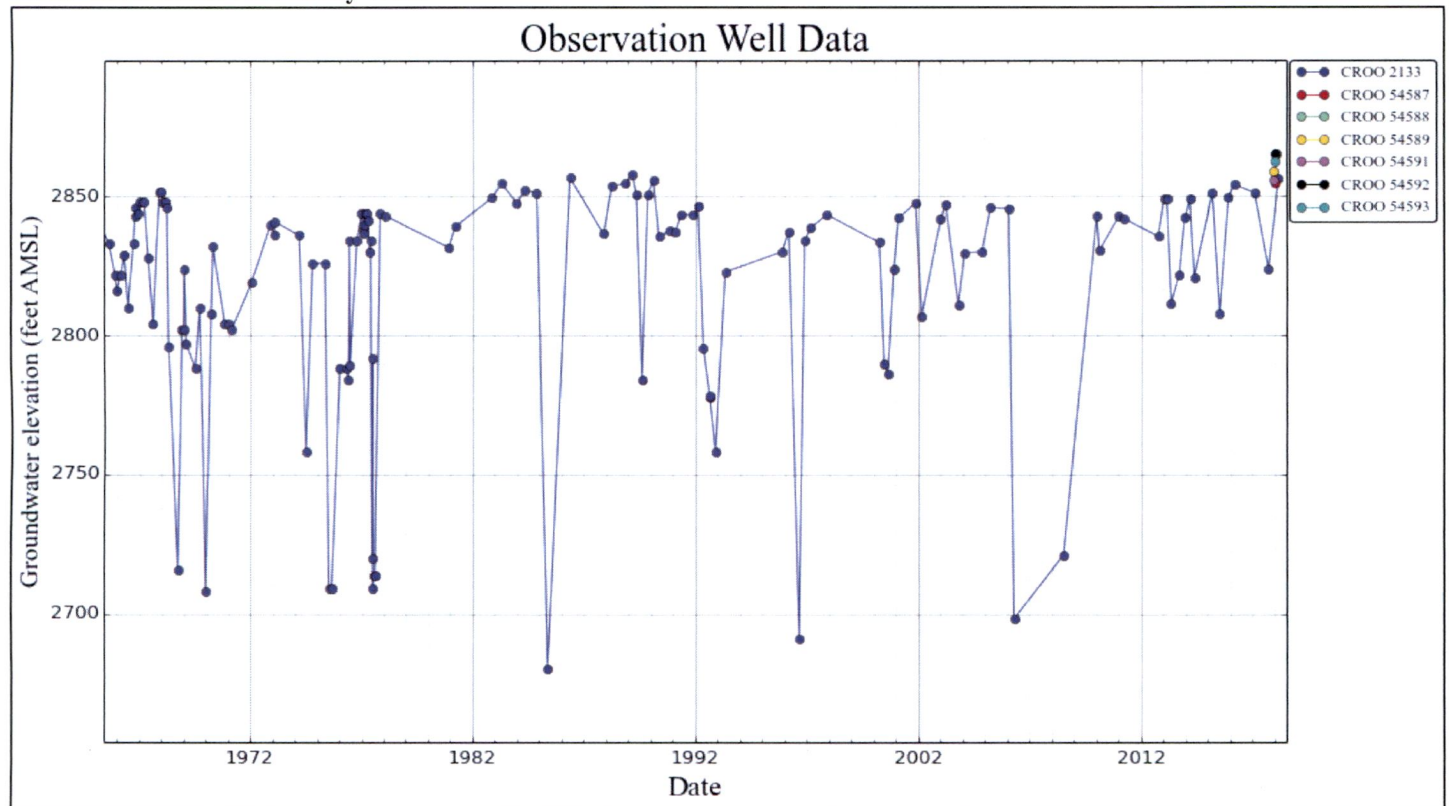
D2. THE WELL does not appear to meet current well construction standards based upon:

- 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



Well Location Map

