

Groundwater Application Review Summary Form

Application # G- 18822

GW Reviewer J. Hackett

Date Review Completed: 6/11/2019

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.

✓ JH 6/11/19

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

June 11, 20 19

FROM: GW: J. Hackett
(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

OK
JH

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18822
Date: June 24, 2019

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

Applicant's Well #1 (LINN 62522): Based on a review of the well report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The well log does not indicate the presence of a grout seal in the interval between 30 feet to 50 feet below land surface. In order to meet minimum well construction standards, the well must continuously sealed with an approved grout in the entire sealing interval.

My recommendation is that the Department not issue a permit for Applicant's Well #1 (LINN 62522) unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicants Well #1 into compliance with minimum well construction standards may not satisfy hydraulic connection issues.

Applicant's Well #2 (LINN 62491): Based on a review of the Well Report, Applicant's Well #2 seems to protect the groundwater resource.

The construction of Well #2 may not satisfy hydraulic connection issues.

LINN 62522

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

WELL I.D. LABEL# L 128955
START CARD # 1040505
ORIGINAL LOG #

(1) LAND OWNER Owner Well I.D. 5935
First Name Barny Last Name Kropf
Company _____
Address 24495 Powerline Rd.
City Harrisburg State OR Zip 97446

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

(2a) PRE-ALTERATION
Dia + From To Gauge Stl Plstc Wld Thrd
Casing: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Material From To Amt sacks/lbs
Seal: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

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

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

(5) BORE HOLE CONSTRUCTION Special Standard ☐ (Attach copy)
Depth of Completed Well 560 ft.

BORE HOLE			SEAL			Amt	sacks/ lbs
Dia	From	To	Material	From	To		
10	0	60	Bentonite	0	30	22	S
6	60	700			Calculated	21.5	
			Cement	50	60	3	S
					Calculated	3	

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☒ Other poured dry
Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____
Explosives used: ☐ Yes Type _____ Amount _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount Pounds Actual Amount Pounds

(6) CASING/LINER
Casing Liner Dia + From To Gauge Stl Plstc Wld Thrd
☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s) _____
Temp casing ☐ Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Perforations Method Drilled holes
Screens Type _____ Material _____
Perf/S Casing/ Screen
reen Liner Dia From To Scm/slot Slot # of Tele/
Perf Liner 0 560 width length slots pipe size
1,500

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

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)
20 700 1

Temperature 62 °F Lab analysis ☐ Yes By _____
Water quality concerns? ☐ Yes (describe below) TDS amount 208
From To Description Amount Units

(9) LOCATION OF WELL (legal description)

County LINN Twp 10 S N/S Range 3 W E/W WM
Sec 22 SE 1/4 of the SW 1/4 Tax Lot 200
Tax Map Number _____ Lot _____
Lat _____ or _____ DMS or DD
Long _____ or _____ DMS or DD
☐ Street address of well ☐ Nearest address
Berry Dr. - Albany, OR

(10) STATIC WATER LEVEL

Date SWL (psi) + SWL (ft)
Existing Well / Pre-Alteration _____
Completed Well 09-21-2018 _____
Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 320

SWL Date	From	To	Est Flow	SWL (psi)	+ SWL (ft)
09-21-2018	320	400	20		19

(11) WELL LOG

Material	From	To
Top soil	0	2
Brown Clay	2	8
Blue clay	8	25
Brown sandstone	25	38
Grey sandstone	38	700
Lost 140' hole installing liner		
RECEIVED		
OCT 12 2018		
JONES DRILLING CO., INC.		
29400 SANTIAM HWY.		
LEBANON, OR 97355		
541-367-2560 541-451-2686		
1-800-915-8388		

Date Started 09-13-2018 Completed 09-21-2018

(unbonded) Water Well Constructor Certification

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

License Number 1888 Date 10-04-2018

Signed [Signature]

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1684 Date 10-04-2018

Signed [Signature]

Contact Info (optional) _____

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version: 0.95

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 6/11/2019
 FROM: Groundwater Section J. Hackett
 Reviewer's Name
 SUBJECT: Application G- 18822 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: Berry Drive LLC County: Linn

A1. Applicant(s) seek(s) 0.22 cfs from 2 well(s) in the Willamette Basin,
Main Stem Willamette subbasin

A2. Proposed use Irrigation/Industrial Seasonality: March 1- October 31 / 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	LINN 62522	1	Sedimentary Bedrock	0.22	10S/3W-22 SE-SW	670'N, 2350'E fr SW cor S 22
2	LINN 62491	2	Sedimentary Bedrock	0.22	10S/3W-22 SE-SW	710'N, 1970'E fr SW cor S 22
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	245	320	19	9/21/2018	560	0-60	0-80	0-560	80-560	20		A
2	243	240	4.42	3/28/2019	562	0-39	0-56	0-562	242-562	37		A

Use data from application for proposed wells.

A4. **Comments:** _____

A5. ☒ **Provisions of the** Willamette (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: 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; Large 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 consolidated bedrock 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 subject wells obtain water from marine sedimentary bedrock claystone and sandstone, likely of the Eugene and/or Spencer Formations (Wiley, 2006). Wells in the T10S/R3W-Sections 22, 27 and 34 yield up to 200 gpm, with median of 26 gpm. Of the 120 well logs found in the referenced sections, 8 are constructed to greater than 250 feet deep, indicating current groundwater development is concentrated in the shallow alluvial system (see Figure 4). Wells listed on this application develop deeper, bedrock water-bearing zones and are not likely efficiently connected to nearby shallow wells such as LINN 60184.

OWRD has SWL data from an observation well nearby (BENT 1558), which is on the other side of the river (see Figure 3). These data show generally stable trends over the past three decades but lack of sufficient groundwater level data on the applicant's side of the river make it difficult to establish groundwater over-appropriation. Given the lack of nearby groundwater level data for the bedrock aquifer, water level monitoring and reporting conditions are recommended.

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	Sedimentary Bedrock	☒	☐
2	Sedimentary Bedrock	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Static water levels are significantly higher than the reported water-bearing zones in the applicant's and other nearby wells, indicating the aquifer is confined.

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	Willamette River	245	180	11400	☒	☐	☐	☐	☒
2	1	Willamette River	243	180	11000	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The Willamette River is likely the regional groundwater discharge area (Herrera et al., 2014). Subject wells are sealed into the bedrock aquifer system underlying the alluvial sediment, (which Murder Creek is incised into but not through) and likely have a very inefficient hydraulic connection to Murder Creek such that any impacts to Murder Creek flows by the proposed use would be insignificant, especially given the proximity to, and hydraulic connection to, the much larger Willamette River.

Water Availability Basin the well(s) are located within: Watershed ID #: 183 , WILLAMETTE R > COLUMBIA R - AB MILL CR AT GAGE 14191000

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?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: N/A

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: **Stream depletion could not be estimated because the geology (fractured bedrock aquifer) does not meet model assumptions of the widely accepted techniques for determining stream depletion (e.g., Hunt 1999, 2003).

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 wells produce from an aquifer that has been found to be hydraulically connected to surface water at a distance of greater than 1 mile. However, the department is unable to find sufficient evidence that the proposed use will have the Potential for Substantial Interference per OAR 690-009.

References Used:

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

Oregon Water Resources Department groundwater level database, accessed 4/4/2018.

U.S. Geological Survey topographic map, Albany Quadrangle.

Wiley, T.J., 2006. Geologic Map of the Albany Quadrangle Linn, Marion, and Benton Counties, Oregon, Oregon Department of Geology and Mineral Industries Open-File Report O-06-26.

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.**

Figure 1. Water Availability Tables

Water Availability Analysis Detailed Reports

WILLAMETTE R > COLUMBIA R - AB MILL CR AT GAGE 14191000
WILLAMETTE BASIN

Water Availability as of 4/4/2018

Watershed ID #: 183 ([Map](#))

Exceedance Level: 80%

Date: 4/4/2018

Time: 10:30 AM

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	18,400.00	2,240.00	16,200.00	0.00	1,300.00	14,900.00
FEB	20,100.00	7,430.00	12,700.00	0.00	1,300.00	11,400.00
MAR	19,600.00	7,210.00	12,400.00	0.00	1,300.00	11,100.00
APR	18,000.00	6,870.00	11,100.00	0.00	1,300.00	9,830.00
MAY	15,500.00	4,160.00	11,300.00	0.00	1,300.00	10,000.00
JUN	8,310.00	1,690.00	6,620.00	0.00	1,300.00	5,320.00
JUL	4,710.00	1,440.00	3,270.00	0.00	1,300.00	1,970.00
AUG	3,620.00	1,330.00	2,290.00	0.00	1,300.00	992.00
SEP	3,680.00	1,150.00	2,530.00	0.00	1,300.00	1,230.00
OCT	4,650.00	745.00	3,910.00	0.00	1,300.00	2,610.00
NOV	9,400.00	853.00	8,550.00	0.00	1,300.00	7,250.00
DEC	16,700.00	913.00	15,800.00	0.00	1,300.00	14,500.00
ANN	13,500,000.00	2,150,000.00	11,300,000.00	0.00	942,000.00	10,400,000.00

Figure 2. Well Location Map

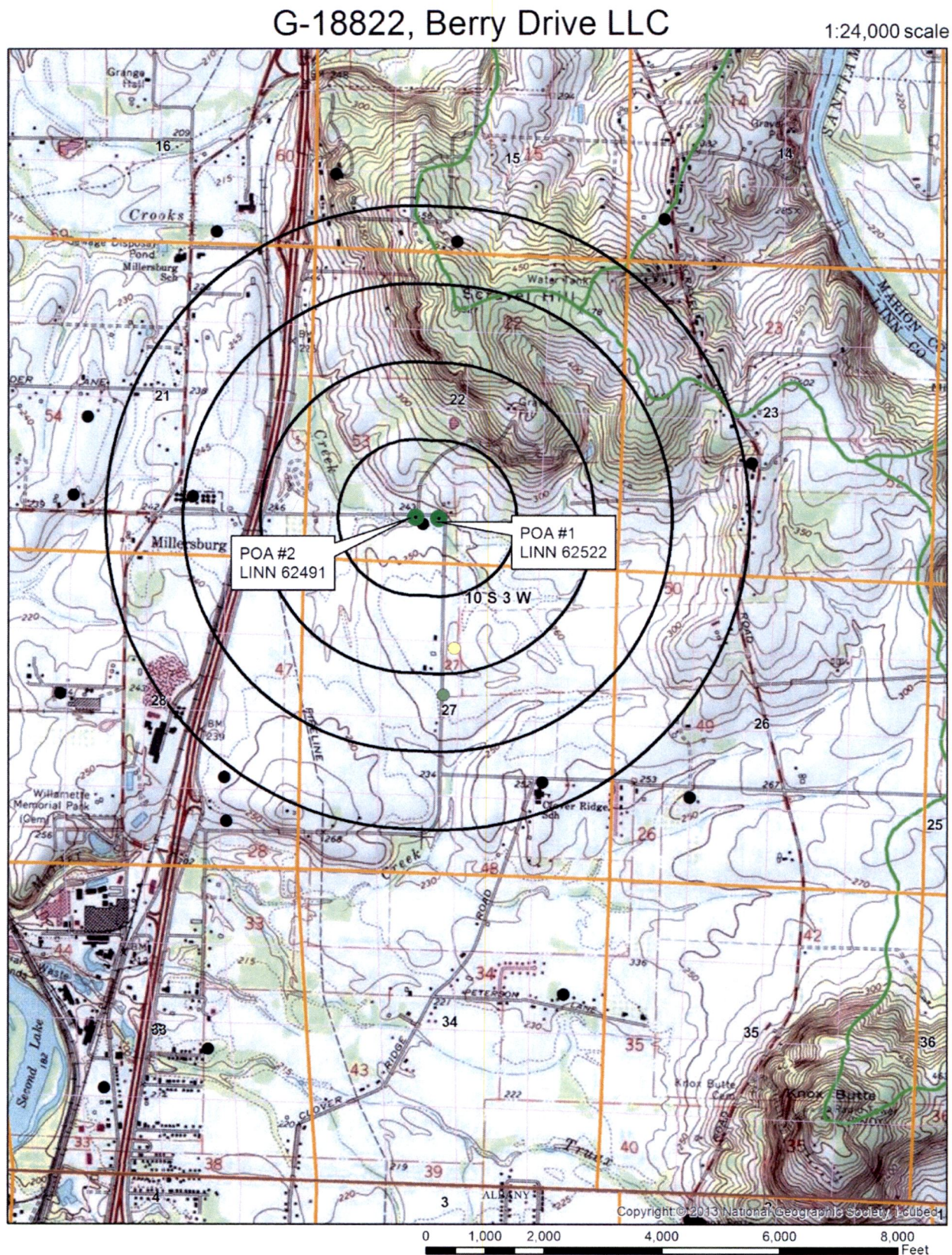


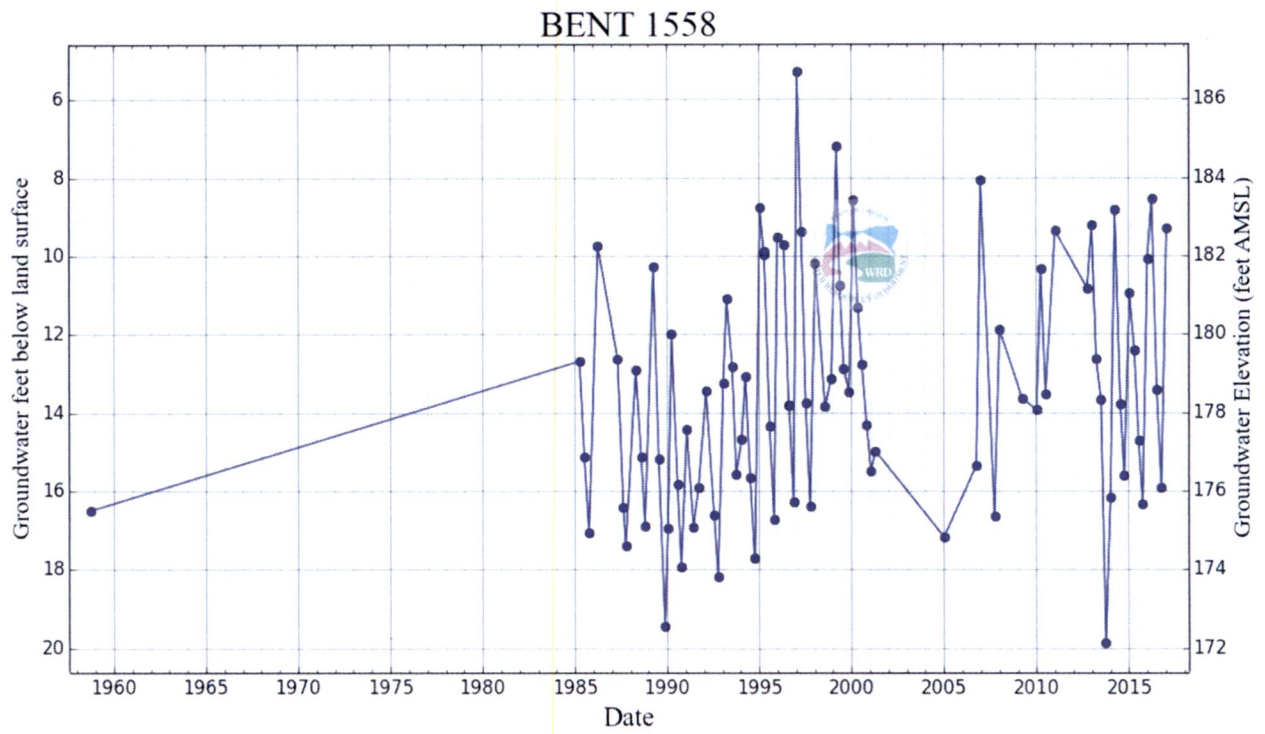
Figure 3. Water-Level Trends in Nearby Wells

Figure 4. Well log statistics for T10S/R3W-Sections 22, 27 and 34.

