

Groundwater Application Review Summary Form

Application # G- 1845 Z

GW Reviewer Joseph Kemper Date Review Completed: 4/17/2018

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).



Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301
(503) 986-0900
www.wrd.state.or.us

Application for Well ID Number

RECEIVED BY OWRD

Do not complete if the well already has a Well Identification Number.

MAR 28 2016

I. OWNER INFORMATION

SALEM, OR

Current Owner Name (please print): Bruce Parker
Mailing Address: 3160 Rockydate rd P.O. Box 136
City, State, Zip: Cave Junction OR 97523
Mail Well ID Tag to: ☒ SAME AS ABOVE ☐ In Care Of (C/O)
Name & Address: _____
City, State, Zip: _____

II. WELL LOCATION INFORMATION (Please fill out as completely as possible)

Township: 39 (North / South) Range: 8 (East / West) Section: 34 1/4 of the _____ 1/4
Tax Lot (usually last 3-5 numbers of Tax Map #): 2000 County: Josephine
GPS Coordinates: _____
Street Address of Well, City: 3160 Rockydate rd. Cave Junction
If the property had a different street address in the past: _____

III. GENERAL WELL INFORMATION (Please fill out as completely as possible, AND attach copy of Well Log, if available)

Use of Well (domestic, irrigation, commercial, industrial, monitoring): domestic
Date Well Constructed (or property built): 1973 Total Well Depth: 90' Casing Diameter: 6"
Owner at time the well was constructed (if known): Parker (parents) Well Log # (if known): n/a
Other Information: flow test at 12 Gpm for 4 hours with
a 1/2 hp sub.

SUBMITTED BY (please print):

PHONE: 541-415-0410 EMAIL &/or FAX: Derin@wopescorp.com

Send application to: Oregon Water Resources Department 725 Summer St NE, Suite A, Salem, Oregon 97301; or fax to (503) 986-0902.
Applications are processed in the order they are received, and Well ID Numbers are mailed within 4-5 business days.

For Official Use Only by the Oregon Water Resources Department:

Received Date:

3-28-16

Well Log Number:

JOSE 59737

Well Identification #:

L-121750

- NO WELL LOG FOUND -

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 4/17/2018
 FROM: Groundwater Section Joe Kemper
 Reviewer's Name
 SUBJECT: Application G- 18452 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: Bruce Parker County: Josephine

A1. Applicant(s) seek(s) 0.082* cfs from 2 well(s) in the Rogue Basin,
Illinois subbasin

A2. Proposed use Nursery 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	JOSE 59737	1	Alluvium	0.027	39S/8W-34 SW-SW	771' N, 634' E fr SW cor S 34
2	Proposed	2	Alluvium	0.055	39S/8W-34 SW-SW	449' N, 813' E fr SW cor S 34
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**	1373		10-30*		90	Unknown	Unknown			12		
2***	1368		10-30*		140	18	20			25		

Use data from application for proposed wells.

A4. **Comments:** *The application indicates well specific rates as 12 gpm from Well 1 and 25 gpm from Well 2. This rate is a sum of those two expressed in cubic feet per second.

**The application assigned both JOSE 6640 and JOSE 59737 as Well 1. Based on communication between the local watermaster and applicant, the well is at least 90 feet deep. This review assumes Well 1 corresponds to JOSE 59737.

*** No SWL measurements are available for this review. SWLs are assumed to fluctuate seasonally between approximately 10-30 ft BLS as observed in nearby observation wells (see Figure 3).

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 provision.

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) 7C (7-yr SWL); 7J (Scenic WW); Med. 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 _____ 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 POA will produce from alluvial valley-fill deposits within the upper Illinois River Valley. Three wells within 2 miles of the proposed POA show seasonally fluctuating, but annually stable, water levels since at least 2000 (see Figure 3). This suggests that the groundwater resource is currently not over-appropriated. However, this stability of the groundwater is likely due to the efficient hydraulic connection of the local aquifer to surface water and is addressed in Section C.

There are two groundwater rights within a mile of the proposed POA, but aquifer properties (efficient connection to surface water, unconsolidated sediments, and low-to-moderate well yields) and low requested rate suggest that injury to existing users is unlikely. Due to the currently increasing development of groundwater in the Illinois River Valley, however, the reviewer recommends a seven-year static water-level condition.

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 Sediments of Illinois River Valley	☐	☒
2	Alluvial Sediments of Illinois River Valley	☐	☒

Basis for aquifer confinement evaluation: Adjacent well logs identify mixed fine and coarse sediments varying both vertically and horizontally as is expected from fluvial deposition. Some wells in the area exhibit confined behavior, but such confinement is likely to be local as no basin-wide confining unit is present. Observed seasonal fluctuations, correlation to precipitation, and unconsolidated material indicate the aquifer system as a whole is more unconfined than confined (i.e., a water table aquifer).

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	Unnamed tributary to W. Fork Illinois River	1345-1365	1393	3080	☒	☐	☐	☐	☒
1	2	Unnamed tributary to E. Fork Illinois River	1345-1365	1370	5070	☒	☐	☐	☐	☒
1	3	Rosenburg Reservoir	1345-1365	1370	4600	☒	☐	☐	☐	☒
2	1	Unnamed tributary to W. Fork Illinois River	1340-1360	1393	3470	☒	☐	☐	☐	☒
2	2	Unnamed tributary to E. Fork Illinois River	1340-1360	1370	4735	☒	☐	☐	☐	☒
2	3	Rosenburg Reservoir	1340-1360	1370	4815	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The coincident groundwater and surface water elevations, observed seasonal fluctuations in groundwater levels in nearby wells, and alluvial nature of aquifer indicate hydraulic connection between aquifer and adjacent surface water sources.

Water Availability Basin the well(s) are located within: #70980 E. FK ILLINOIS R > ILLINOIS R - AT MOUTH; stream depletion is also calculated for WAB #70997 W FK ILLINOIS R > ILLINOIS R - AT MOUTH ROGUE BASIN

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?
1	1	☐	☐	NA	NA	☐	41.5	☐	<1%	☐
1	2	☐	☐	NA	NA	☐	16.8	☐	<1%	☐
1	3	☐	☐	NA	NA	☐		☐		☐
2	1	☐	☐	NA	NA	☐	41.5	☐	<1%	☐
2	2	☐	☐	NA	NA	☐	16.8	☐	<1%	☐
2	3	☐	☐	NA	NA	☐		☐		☐

- 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?
	1		☐	NA	NA	☐	41.5	☐	<1%	☐
	2		☐	NA	NA	☐	16.8	☐	<1%	☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: A combined rate of 0.082 cfs does not trigger an assumption of PSI.

- 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: Streams greater than 1 mile from proposed POAs were not evaluated for PSI.

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 proposed POA would produce from an aquifer that has been determined to be hydraulically connected to surface water. Pumping effects on adjacent surface water sources are evaluated using the Hunt (2003) stream depletion model with aquifer parameters representative of the local geology. Model results for the closest well-surface water source combination are available in Figure 4. The Hunt (2003) model assumes a linear and infinite surface water source; stream depletion is not calculated for the Rosenberg Reservoir as it violates that model assumption.

References Used:

Contreras, T. A. 2005. *Using Magnetotellurics to Characterize Aquifers in the Illinois Valley, Southwest Oregon*. MS Thesis, University of Oregon.

Hunt, B. 2003. *Unsteady Stream Depletion when Pumping from a Semiconfined Aquifer*. Journal of Hydrologic Engineering. Vol 8(1), pp 12-19

OWRD Groundwater Site Information System Database – Accessed 4/17/2018.

Ramp, L. and Peterson, N. 2004. *Geologic Map of Josephine County, Oregon*. Oregon Dept. of Geol. and Mineral Industries, OFR O-04-13.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 1 Logid: JOSE 59737

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:** The applicant correlates JOSE 6640 (22 feet deep) to Well 1 in the application but also indicates that the well's tag is coincident with JOSE 59737 (90 feet deep). The well logid JOSE 59737 was assigned when the applicant applied for a well tag in March 2016. During a recent conversation between the watermaster and applicant, Well 1 was confirmed to be 90 feet deep. This review assumes that well 1 correlates to JOSE 59737 and not JOSE 6640. There is no well construction information for JOSE 59737, so proper well construction cannot be verified.

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

Figure 1. Water Availability Tables

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Watershed ID #: 70980		E FK ILLINOIS R > ILLINOIS R - AT MOUTH				Exceedance Level: 80
Time: 11:18 AM		Basin: ROGUE				Date: 04/06/2018
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	342.00	4.30	338.00	0.00	135.00	203.00
FEB	535.00	4.49	531.00	0.00	135.00	396.00
MAR	556.00	4.53	551.00	0.00	135.00	416.00
APR	498.00	9.02	489.00	0.00	135.00	354.00
MAY	317.00	11.70	305.00	0.00	135.00	170.00
JUN	139.00	14.80	124.00	0.00	80.00	44.20
JUL	66.30	18.60	47.70	0.00	60.00	-12.30
AUG	46.10	15.90	30.20	0.00	54.00	-23.80
SEP	41.50	11.60	29.90	0.00	70.00	-40.10
OCT	47.70	6.00	41.70	0.00	100.00	-58.30
NOV	102.00	3.51	98.50	0.00	135.00	-36.50
DEC	290.00	4.09	286.00	0.00	135.00	151.00
ANN	330,000	6,570	323,000	0	78,900	249,000

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Watershed ID #: 70997		W FK ILLINOIS R > ILLINOIS R - AT MOUTH				Exceedance Level: 80
Time: 11:18 AM		Basin: ROGUE				Date: 04/06/2018
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	235.00	0.78	234.00	0.00	170.00	64.20
FEB	352.00	0.80	351.00	0.00	170.00	181.00
MAR	357.00	0.80	356.00	0.00	170.00	186.00
APR	221.00	1.60	219.00	0.00	170.00	49.40
MAY	118.00	2.16	116.00	0.00	149.00	-33.20
JUN	57.30	2.79	54.50	0.00	89.40	-34.90
JUL	28.10	3.53	24.60	0.00	37.00	-12.40
AUG	17.70	3.02	14.70	0.00	26.10	-11.40
SEP	16.80	2.19	14.60	0.00	80.00	-65.40
OCT	20.10	1.13	19.00	0.00	125.00	-106.00
NOV	67.80	0.67	67.10	0.00	170.00	-103.00
DEC	227.00	0.75	226.00	0.00	170.00	56.30
ANN	218,000	1,220	216,000	0	91,900	134,000

Figure 2. Well Location Map

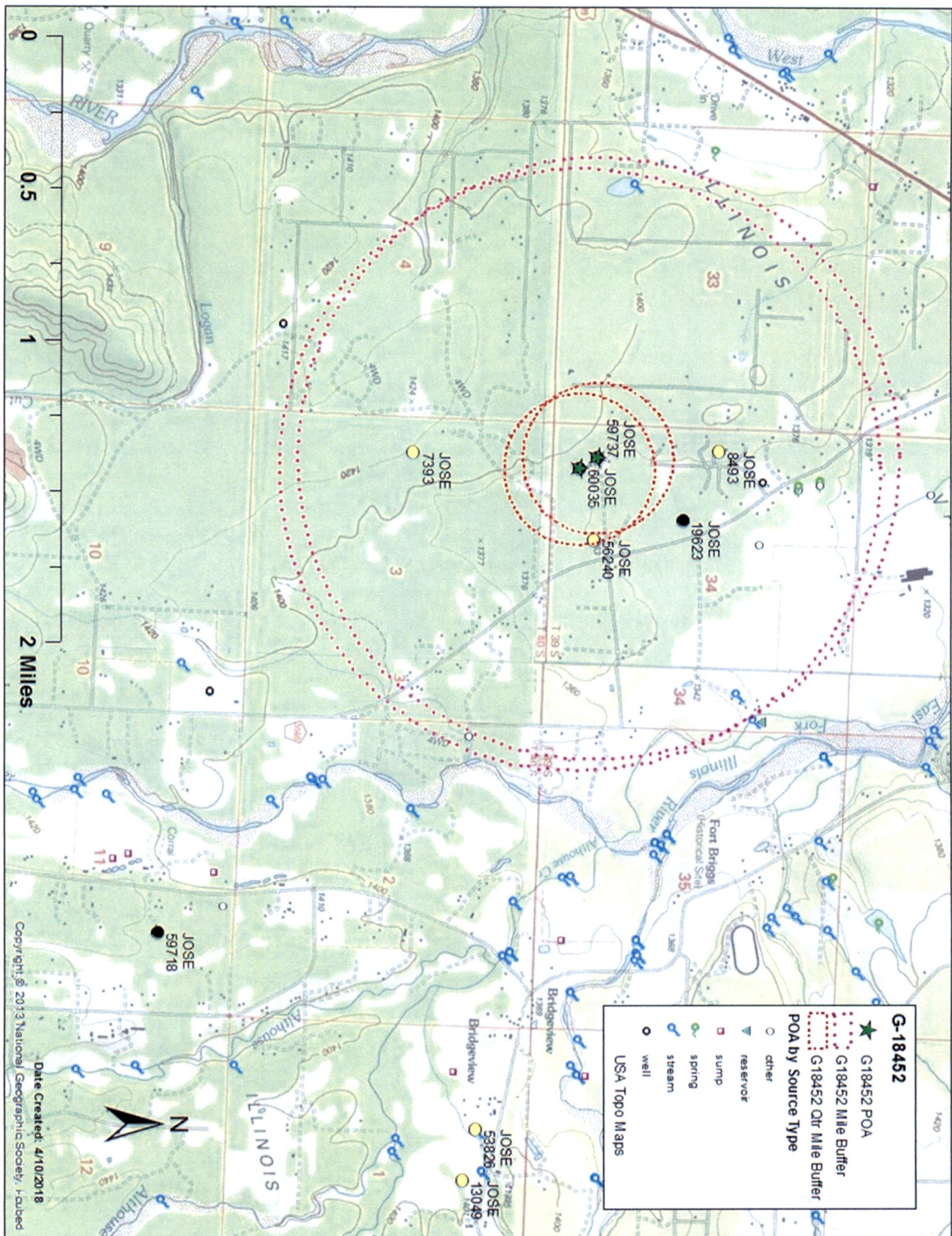


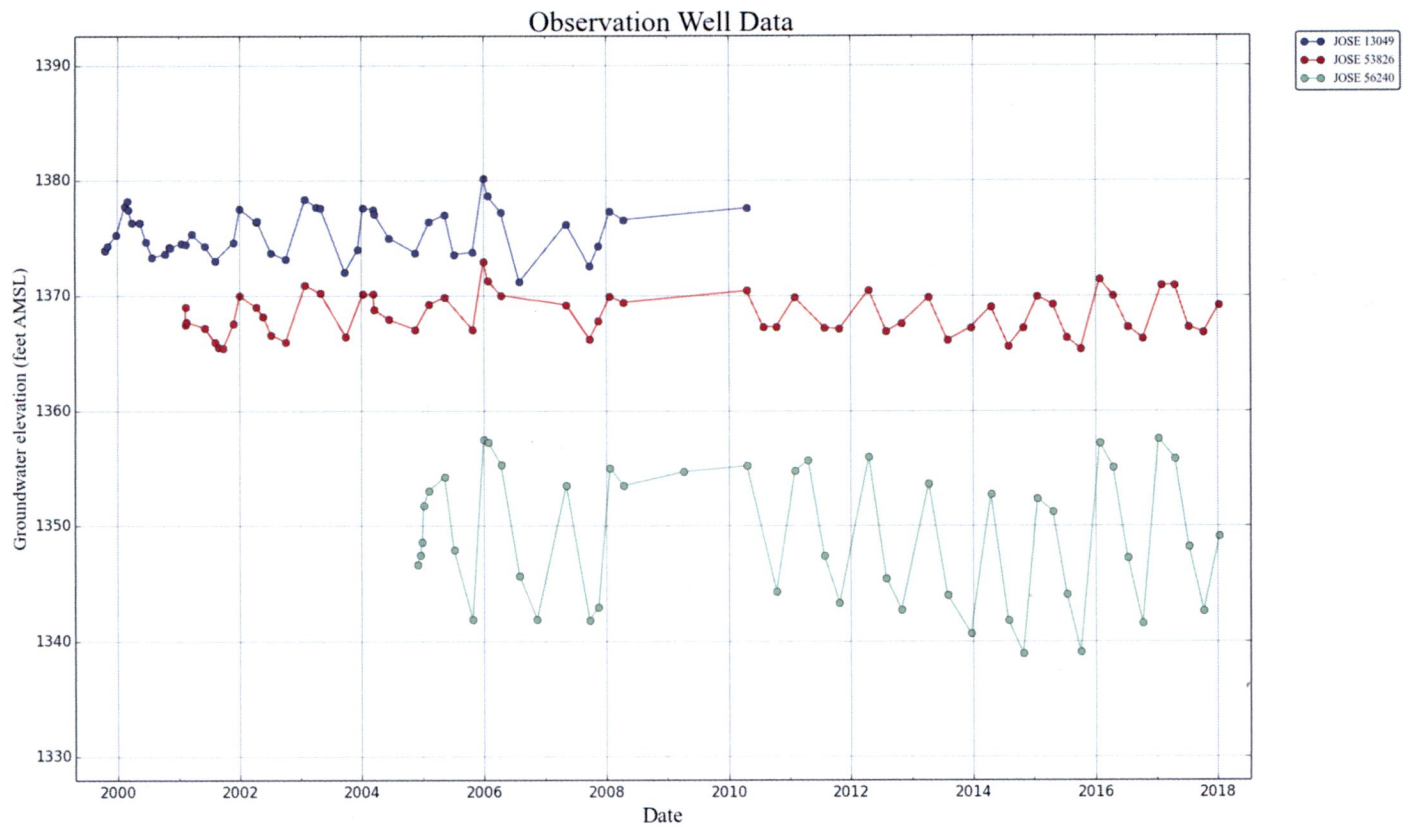
Figure 3. Water-Level Trends in Nearby Wells

Figure 4. Hunt (1999) Analytical Model Results

Application type:	G
Application number:	18542
Well number:	1
Stream Number:	1
Pumping rate (cfs):	.082
Pumping duration (days):	365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	3080	3080	3080	ft
Aquifer transmissivity	T	5000	2500	1000	ft ² /day
Aquifer storativity	S	.001	.01	.1	-
Aquitard vertical hydraulic conductivity	Kva	.1	.05	.01	ft/day
Aquitard saturated thickness	ba	5	5	5	ft
Aquitard thickness below stream	babs	2	2	2	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	25	15	10	ft

Stream depletion for Scenario 2:												
Days	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	0	0	0	1	1	1	1	2	2	3	3	3
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

