Groundwater Application Review Summary Form

Application # G- 19365

GW Reviewer Phillip I. Marcy Date Review Completed: 10/09/2023

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 **_October 9, 2023_**

TO: **Application** G-**_19365_**

FROM: **GW:** **_Phillip I. Marcy_**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ **YES**
☒ **NO** The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

☐ **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**

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 10/09/2023
FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
SUBJECT: Application G- **19365** 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: **Powerline, LLC** County: **Linn**

A1. Applicant(s) seek(s) 0.147 cfs from 2 well(s) in the Willamette Basin, subbasin

A2. Proposed use Agriculture Uses; Primary Irrigation (79.6 acres)
Seasonality: Year-round (Agricultural Uses); March 1st – October 31st (245 days)

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	1	Alluvium	0.147	15S/4W-12 NW-SW	965'N, 1580'E fr SW cor DLC 49
2	Proposed	2	Alluvium	0.147	15S/4W-12 SW-NW	1270'N, 1500'E fr SW cor DLC 49
3						
4						

* 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	317	NA	NA	NA	50	0-18	0-30	Unknown	30-50	NA	NA	NA
2	317	NA	NA	NA	50	0-18	0-30	Unknown	30-50	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to construct two POA wells to produce groundwater from the shallow alluvial aquifer for Primary Irrigation of 79.6 acres and year-round "Agriculture Uses" with a total estimated yearly duty of 107 AF.

A5. ☒ **Provisions of the** Willamette 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 locations are not within ¼ mile of any surface water source, therefore pertinent basin rules do not apply.

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; 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 only nearby observation well with a significant length of record is LINN 14047, located 2.5 miles SSE from the proposed development. Available data display seasonal variation of 5-6 feet but do not suggest any long-term declines in groundwater elevation in the area.

The nearest senior groundwater POA is greater than 1.5 miles from either of the proposed POA locations and given the low diffusivity (high storativity and medium conductivity) of the aquifer here, taken with the relatively low pumping rate, significant interference with nearby groundwater users is not anticipated to result from the proposed use. The proximity to Muddy Creek, which constitutes a constant recharge boundary in our conceptual model, renders stream depletion much more likely than impacts to other wells.

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	**Sand & Gravel**	☒	☐
2	**Sand & Gravel**	☒	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Nearby wells of similar depth typically display static water levels which rise above the elevation of where the first water-bearing zone was encountered.

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Muddy Creek**	**~310**	**305**	**1700**	☒	☐	☐	☐	☒
2	**1**	**Muddy Creek**	**~310**	**305**	**1350**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Aquifer material to be accessed by the proposed POA wells are incised by the nearby creek, and there are no demonstrated barriers to groundwater migration between the stream and the water-bearing zones in the wells. The presence of fine-grained materials within the stream channel may somewhat inhibit communication between the aquifer and the stream, thus slowing the response to pumping, but these do not prevent stream depletion outright.

Water Availability Basin the well(s) are located within: MUDDY CR > E CHANNEL - AT MOUTH

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?	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**	☐	**14.90**	☐	**<<25%**	☐
2	**1**	☐	☐	**NA**	**NA**	☐	**14.90**	☐	**<<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 #		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: The maximum pumping rate is less than 1% of the minimum 80% exceedance rates within the containing WAB. Interference is calculated to be less than 25% of the total pumping rate, using the model of Hunt (2003), which considers a streambed clogging layer of fine-grained sediment within the stream channel.

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: This section does not apply.

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: Local well logs; local pump tests, GWIS water level database

Ground-Water Resources of the Willamette Valley, Oregon, 1942, Water-Supply Paper 890, Piper.

Gannett, M. W. and R. R. Caldwell. 1998. *Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington.* USGS Professional Paper 1424-A.

Conlon and others, 2005. *Ground-Water Hydrology of the Willamette Basin, Oregon*. USGS Scientific Investigations Report 2005-5168.

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 Availability Tables

MUDDY CR > E CHANNEL - AT MOUTH

Watershed ID #: 30200303 Basin: WILLAMETTE Exceedance Level: 80

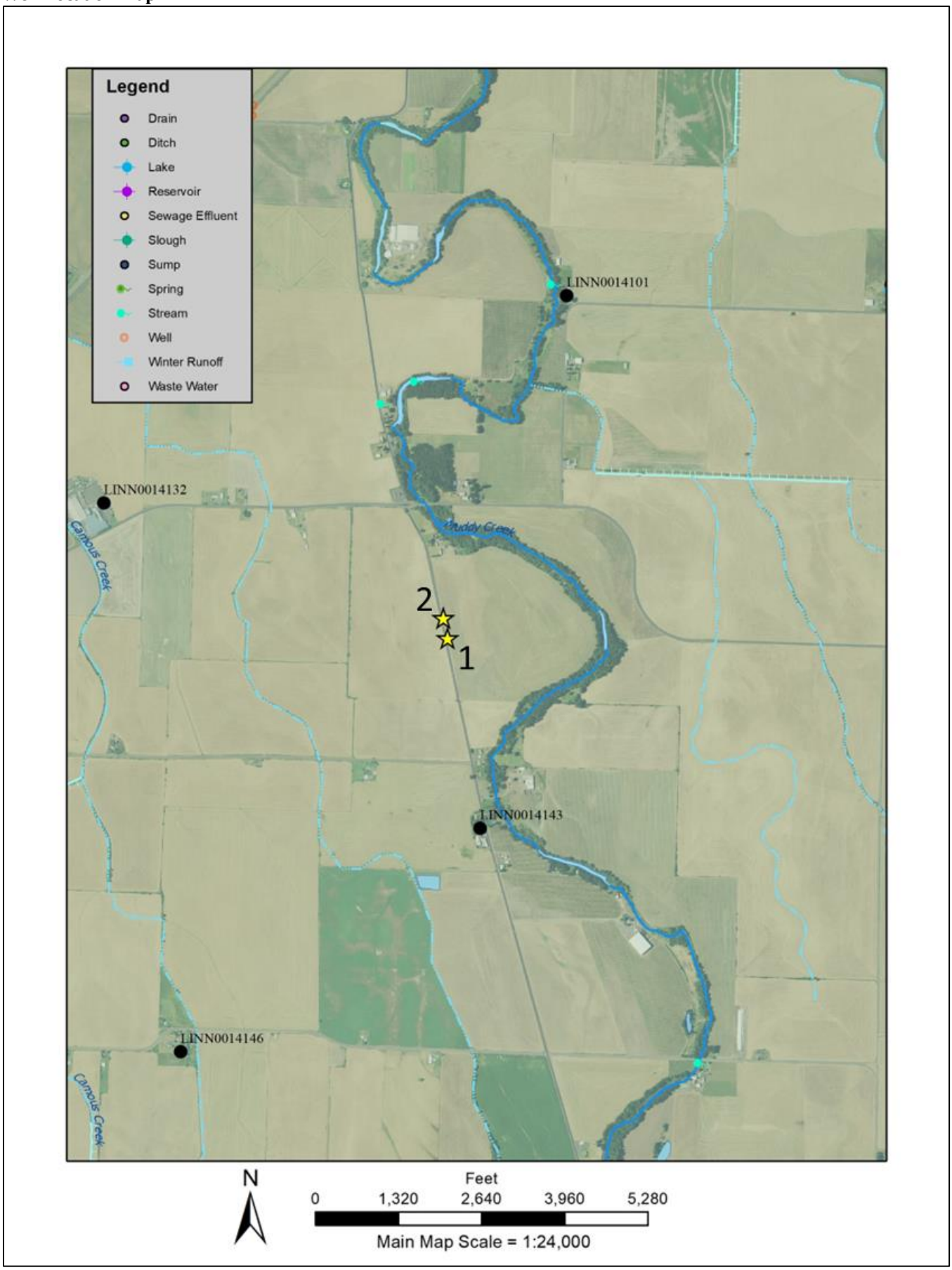
Time: 12:08 PM Date: 10/06/2023

Monthly values are in cfs.

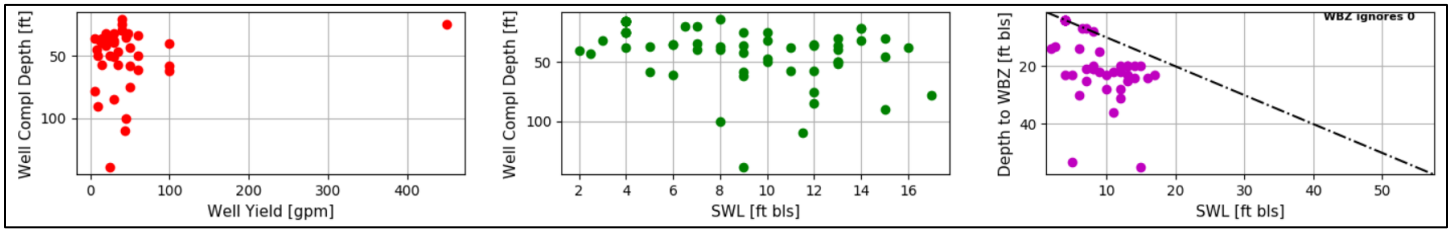
Storage is the annual amount at 50% exceedance in ac-ft.

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
JAN	178.00	2.80	175.00	0.00	0.00	175.00
FEB	203.00	2.56	200.00	0.00	0.00	200.00
MAR	174.00	0.25	174.00	0.00	0.00	174.00
APR	91.30	0.27	91.00	0.00	0.00	91.00
MAY	52.50	0.95	51.50	0.00	0.00	51.50
JUN	35.30	1.77	33.50	0.00	0.00	33.50
JUL	26.10	3.12	23.00	0.00	0.00	23.00
AUG	20.30	2.49	17.80	0.00	0.00	17.80
SEP	14.90	1.27	13.60	0.00	0.00	13.60
OCT	15.20	0.83	14.40	0.00	0.00	14.40
NOV	29.00	1.07	27.90	0.00	0.00	27.90
DEC	113.00	2.55	110.00	0.00	0.00	110.00
ANN	114,000	1,200	112,000	0	0	112,000

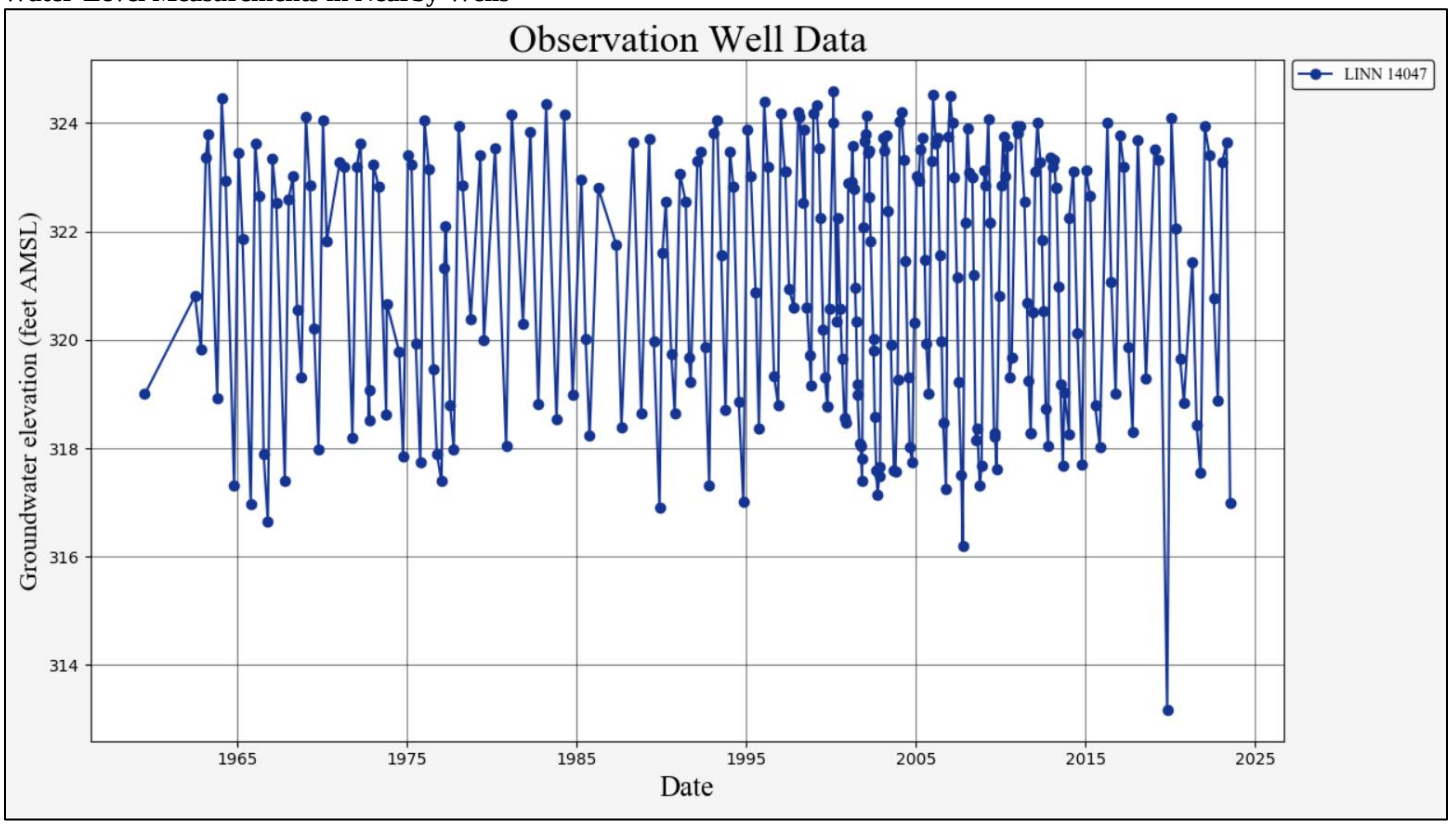
Well Location Map



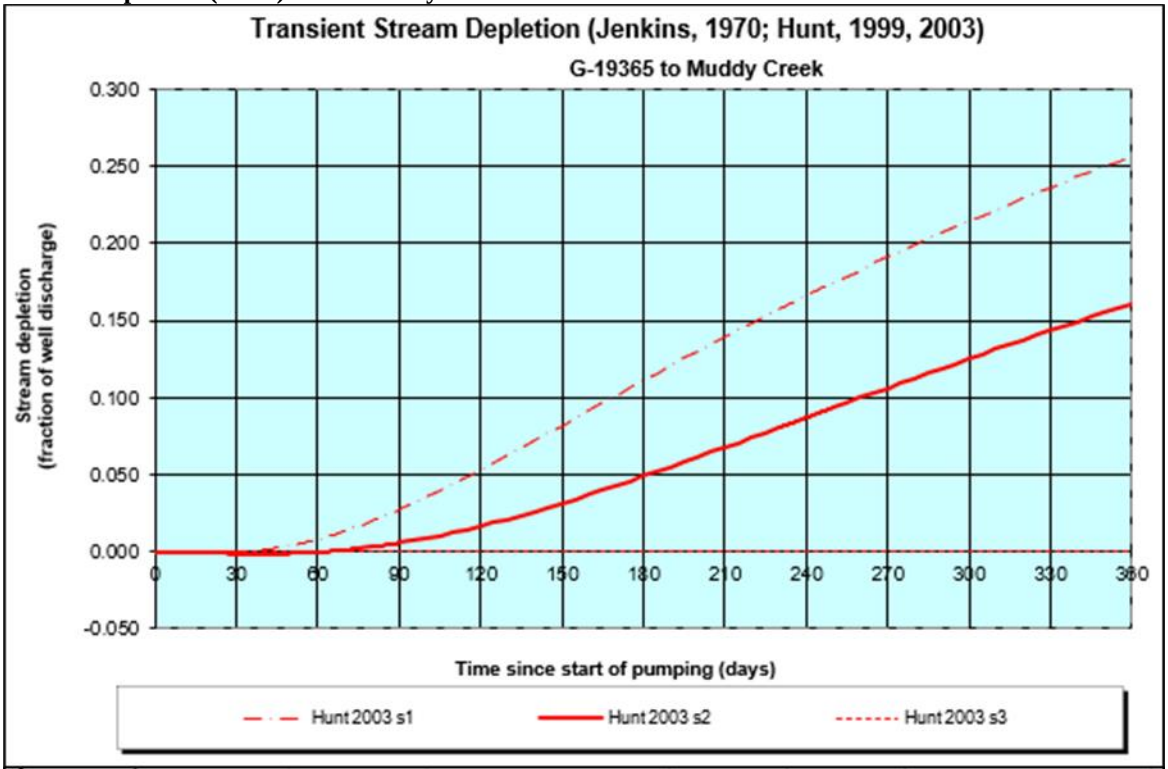
Well Statistics



Water-Level Measurements in Nearby Wells



Stream Depletion (Hunt) Model Analysis



Parameter	Scenario 1	Scenario 2	Scenario 3	Unit	Description
Plot Title	G-19365 to Muddy Creek				Plot title
Qw		0.167		cfs	Net steady pumping rate of well
tpon		365		days	Time pump on (pumping duration)
a	1350	1700		ft	Perpendicular distance from well to stream
d		50		ft	Well depth
K	5	5		ft/day	Aquifer hydraulic conductivity
b	100	100		ft	Aquifer saturated thickness
S	0.01	0.01	0.001		Aquifer storativity or specific yield
Kva	1	1	1	ft/day	Aquitard vertical hydraulic conductivity
ba	15	15	15	ft	Aquitard saturated thickness
babs	2	2	2	ft	Aquitard thickness below stream
n	0.2	0.2	0.2		Aquitard porosity
ws	15	15	15	ft	Stream width