PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **February 10, 2009**

FROM: Ground Water/Hydrology Section **Mike Zwart**
Reviewer's Name

SUBJECT: Application G- **17090** 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 ground water 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**: **Thad and Joyce Geer** **County:** **Harney**

A1. Applicant(s) seek(s) **3.0** cfs from **2** well(s) in the **Malheur Lakes** Basin, **Ninemile Slough** subbasin Quad Map: **Poison Creek Slough**

A2. Proposed use: **Irrigation, 240 acres** Seasonality: **March 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	**Proposed**	**1**	**Basin fill**	**3.0**	**23S/31E-2 SE-NW**	**400' N, 1070' W fr Center S 2**
2	**Proposed**	**2**	**Basin fill**	**3.0**	**23S/31E-10 SE-NE**	**900' N, 2500' E fr Center S 10**
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	**4145**	**200**		**80**	**400**	**?**						
2	**4150**	**200**		**80**	**400**	**?**						

Use data from application for proposed wells.

A4. **Comments:** **Applicants provided little well construction information other than that the well would be cased into rock. A seal depth was not indicated. I spoke with Thad on December 2, 2008, to discuss the proposed construction and to inform them that the permit, if issued, may include a condition to require a minimum casing and seal depth greater than 18 feet. He stated that he would likely agree to such a condition.**

A5. ☒ **Provisions of the Malheur Lake** Basin rules relative to the development, classification and/or management of ground water 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: _____

B. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7N; 7K, as modified below**;
   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 ground water production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow ground water production only from the _____ ground water 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 Ground Water 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. **Ground water availability remarks: Region Manager Ivan Gall recommends consistent use of Condition 7N in the Harney Basin.**

The wells shall be continuously cased and continuously sealed to a minimum depth of 100 feet below land surface. ~~The well may not be completed in such a manner that it allows ground water to be developed from _____~~. If during well construction, it becomes apparent that the wells can be constructed to eliminate interference with ~~nearby shallow wells or~~ hydraulically connected streams in a manner other than specified in this permit, the permittee can contact the Department Hydrogeologist for this permit or the Ground Water/Hydrology Section Manager to request approval of such construction. The request shall be in writing, and shall include a rough well log and a proposed construction design for approval by the Department. The request can be approved only if it is received and reviewed prior to placement of any permanent casing and sealing material. If the well is constructed first and then the request made, requested modification will not be approved. If approved, the new well depth and construction specifications will be incorporated into any certificate issued for this permit.

Dedicated Measuring Tube. The wells shall be equipped with and measured through a dedicated measuring tube pursuant to figure 200-5 in OAR 690-200. This requirement does not apply to flowing wells and wells without pumps.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1,2	**Basin-fill sediments: sand, clay and volcaniclastic seds.**	☒	☐
	Qal and Tvs of Leonard, 1970	☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Regionally the basin-fill aquifer is unconfined and discharges to Malheur Lake or more local surface water sources. The deeper water-bearing zones appear to be semiconfined to confined, based on a recent aquifer test. Also, the proposed well construction condition will ensure that shallow unconfined water-bearing zones are not developed.

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**	**Unnamed tribs to Poison Creek Slough**	**4120±**	**4145**	**50**	☐	☒	☐	☐	☒
1	**2**	**Poison Creek Slough**	**4120±**	**4145**	**3600**	☐	☒	☐	☐	☒
2	**1**	**Unnamed tribs to Poison Creek Slough**	**4120±**	**4145**	**4050**	☐	☒	☐	☐	☒
2	**2**	**Poison Creek Slough**	**4120±**	**4145**	**720**	☐	☒	☐	☐	☒
2	**3**	**Foley Slough**	**4120±**	**4143**	**4000**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Results of a nearby aquifer test suggest that there is some vertical separation between the shallow and deeper water-bearing zones which leads to a finding that there is poor hydraulic connection with nearby reaches of the sloughs.

Water Availability Basin the well(s) are located within: 31200106 POISON CR SL> NINEMILE SL- AT MOUTH, 31200201 W FK SILVIES R> MALHEUR L- 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 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: This section does not apply.

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													
		%	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
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 ground water 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 recent reviews, particularly G-16762 and G-16997; GW Report 16, by Leonard, 1970; Greene, Walker, and Corcoran, 1972, Geologic Map of the Burns Quadrangle, Oregon, USGS Miscellaneous Geologic Investigations Map I-680; Memo by Ivan Gall, 1/15, 2008, Stream Assessment for Division 9 Review in the Malheur Lakes Basin.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #**: _____ **Logid:** _____

D2. **THE WELL does not 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**:
- a. ☐ constitutes a health threat under Division 200 rules;
- b. ☐ commingles water from more than one ground water reservoir;
- c. ☐ permits the loss of artesian head;
- d. ☐ permits the de-watering of one or more ground water reservoirs;
- e. ☐ other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

D5. **THE WELL**
- a. ☐ **was**, *or* ☐ **was not** constructed according to the standards in effect at the time of original construction or most recent modification.
- b. ☐ I don't know if it met standards at the time of construction.

D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. ☐ Well construction deficiency has been corrected by the following actions: _____

_____ _____, 200____.
(Enforcement Section Signature)

D8. ☐ **Route to Water Rights Section (attach well reconstruction logs to this page).**

POISON CR SL> NINEMILE SL- AT MOUTH

MALHEUR LAKE BASIN

Water Availability as of 11/5/2008

Watershed ID #: 31200106

Exceedance Level: 80%

Date: 11/5/2008

Time: 10:23 PM

Water Availability Calculation | Consumptive Uses and Storages | Instream Requirements | Reservations | Water Rights | Watershed Characteristics

Water Availability Calculation

Monthly Streamflows in Cubic Feet per Second

Storage at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirement	Net Water Available
Jan	1.43	0.05	1.38	0.00	0.00	1.38
Feb	4.59	0.37	4.23	0.00	0.00	4.23
Mar	11.30	2.52	8.78	0.00	0.00	8.78
Apr	25.20	7.61	17.60	0.00	0.00	17.60
May	14.80	16.40	-1.56	0.00	0.00	-1.56
Jun	7.49	13.20	-5.74	0.00	0.00	-5.74
Jul	1.74	4.40	-2.66	0.00	0.00	-2.66
Aug	0.69	1.76	-1.07	0.00	0.00	-1.07
Sep	0.49	0.91	-0.42	0.00	0.00	-0.42
Oct	0.42	0.44	-0.02	0.00	0.00	-0.02
Nov	0.51	0.02	0.49	0.00	0.00	0.49
Dec	0.90	0.04	0.86	0.00	0.00	0.86
Storage Acre-Feet at 50%	6,830.00	2,890.00	5,250.00	0.00	0.00	5,250.00

W FK SILVIES R> MALHEUR L- AT MOUTH

MALHEUR LAKE BASIN

Water Availability as of 11/5/2008

Watershed ID #: 31200201

Exceedance Level: 80%

Date: 11/5/2008

Time: 10:35 PM

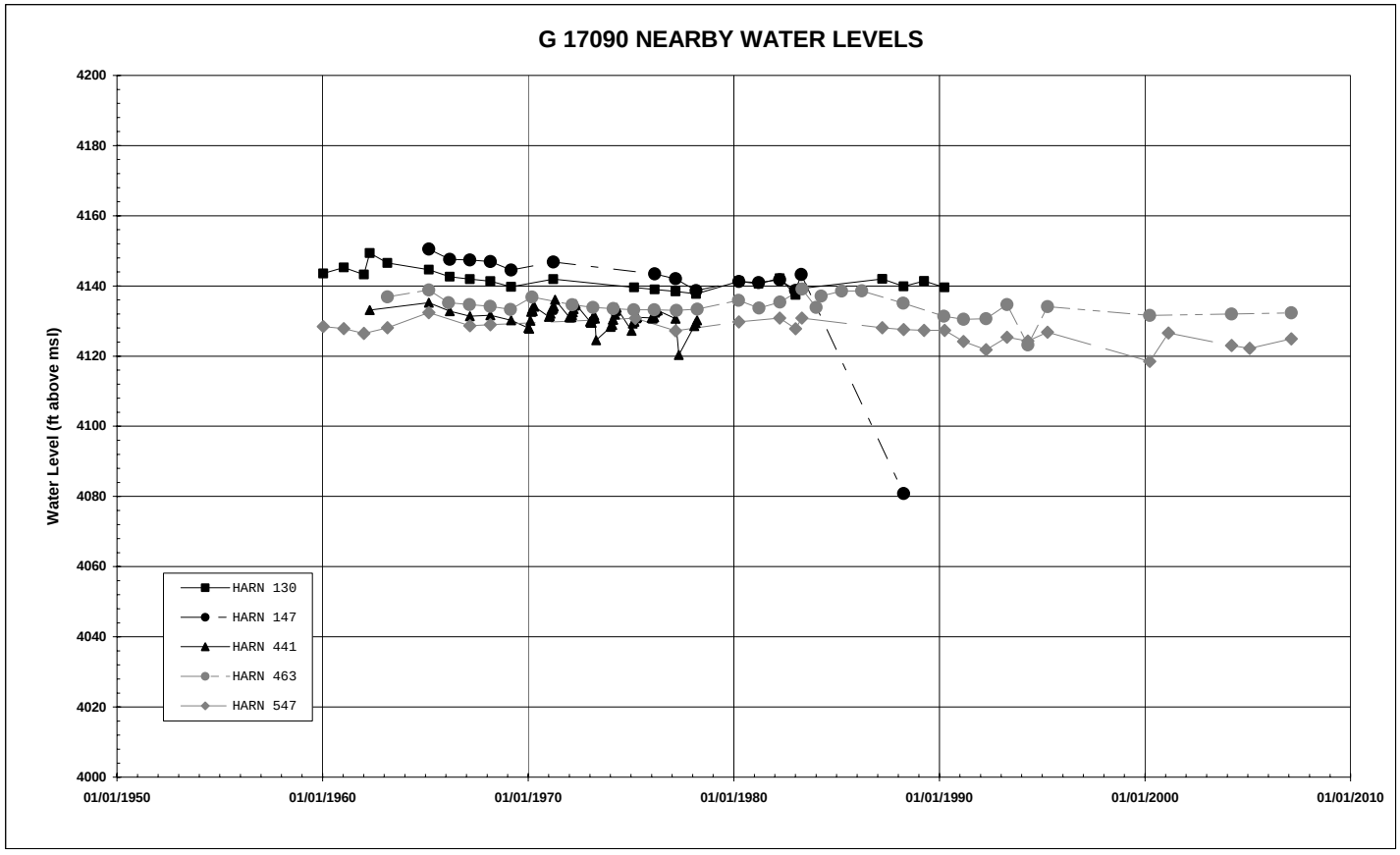
Water Availability Calculation | Consumptive Uses and Storages | Instream Requirements | Reservations | Water Rights | Watershed Characteristics

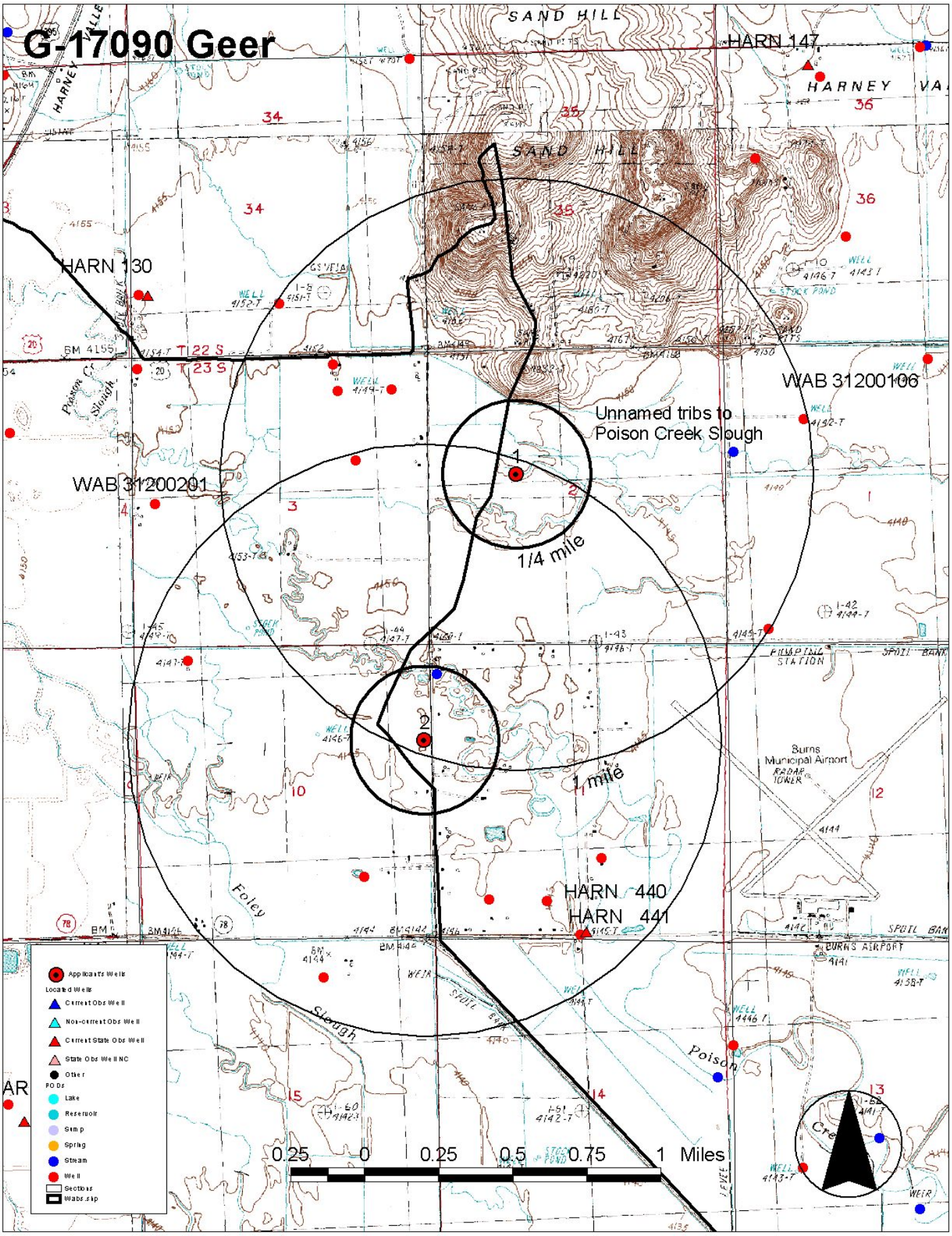
Water Availability Calculation

Monthly Streamflows in Cubic Feet per Second

Storage at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirement	Net Water Available
Jan	31.50	4.17	27.30	0.00	0.00	27.30
Feb	53.00	5.86	47.10	0.00	0.00	47.10
Mar	132.00	55.30	76.70	0.00	0.00	76.70
Apr	343.00	231.00	112.00	0.00	0.00	112.00
May	235.00	553.00	-318.00	0.00	0.00	-318.00
Jun	124.00	445.00	-321.00	0.00	0.00	-321.00
Jul	38.60	150.00	-111.00	0.00	0.00	-111.00
Aug	17.30	61.50	-44.20	0.00	0.00	-44.20
Sep	13.30	33.10	-19.80	0.00	0.00	-19.80
Oct	16.90	3.13	13.80	0.00	0.00	13.80
Nov	25.20	3.52	21.70	0.00	0.00	21.70
Dec	27.40	3.78	23.60	0.00	0.00	23.60
Storage Acre-Feet at 50%	122,000.00	93,800.00	57,700.00	0.00	0.00	57,700.00


G 17090 NEARBY WATER LEVELS
Water Level (ft above msl)
4200
4180
4160
4140
4120
4100
4080
4060
4040
4020
4000
01/01/1950
01/01/1960
01/01/1970
01/01/1980
01/01/1990
01/01/2000
01/01/2010
HARN 130
HARN 147
HARN 441
HARN 463
HARN 547


G-17090 Geer
HARN 147
HARN 130
WAB 31200106
Unnamed tribs to
Poison Creek Slough
WAB 31200201
1/4 mile
1 mile
HARN 440
HARN 441
Burns
Municipal Airport
Foley
Slough
Poison
0.25 0 0.25 0.5 0.75 1 Miles
Applicant's Wells
Located Wells
Current Obs Well
Non-current Obs Well
Current State Obs Well
State Obs Well NC
Other
PODs
Lake
Reservoir
Sump
Spring
Stream
Well
Sections
Wabs.shp