Groundwater Application Review Summary Form

Application #.G- LL-1780

GW Reviewer Jen Woody **Date Review Completed:** 5-10-2019

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.
5/10/19

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

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Limited License Application LL-1780

Date: May 13, 2019

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Jen Woody reviewed the application. Please see Jen's review and the Well Log.

Well #1 (YAMH 53052): Based on a review of the Well Report, Well #1 (YAMH 53052) seems to protect the groundwater resource.

The construction of Well #1 (YAMH 53052) may not satisfy hydraulic connection issues.

YAMH 53052

RECEIVED
AUG 0 8 2002
WATER RESOURCES DEPT.
SALEM, OREGON

State of Oregon
WATER WELL REPORT (as required by ORS 537.765) Page 1 of 2

State Well ID L59336
Start Card # 151219

(1) OWNER: Well No. 2153
Name KAREN AND NEIL UTZ
Address 2009 NE KLICKITAT ST
City PORTLAND St OR Zip 97212

(2) TYPE OF WORK: NEW WELL

(3) DRILL METHOD: ROTARY AIR

(4) PROPOSED USE: DOMESTIC

(5) BORE HOLE CONSTRUCTION:
Special Construction Approval NO Depth of Compl. Well 696 ft
Explosives used NO Type _____ Amount _____

HOLE Diam.	From	To	Material	SEAL From	To	Amount
10	0	118	BENTONITE CHIP	0	24	24 SAX
6	118	696	CEMENT	24	118	41 SAX

Seal placement method C AND POURED
Backfill: from ___ ft to ___ ft Material
Gravel: from ___ ft to ___ ft Size _____

(6) CASING/LINER:

	Diam.	From	To	Gauge	Material	Connection
Casing	6	+2	118	.25	STEEL	WELDED
Liner	4	0	696	SDR26	PLASTIC	WELDED

Final Location of shoe(s) 118

(7) PERFORATIONS/SCREENS:
[X] Perf. Method ELECTRIC SAW
[_] Screens Type _____ Material _____

From	To	Slot Size	Number	Diam.	Tele/pipe Size	Casing/liner
375	415	.1X2"	24			LINER
656	696	.1X7"	70			LINER

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

Yield GPM	Draw-down	Drill stem at	Time
15		696	1 hr.
15		676	1

Temperature of water 55F Depth Artesian Flow Found ____
Was water analysis done? NO By whom _____
Reason for water not suitable for use _____
Depth of strata ___

(9) LOCATION OF WELL by legal description:
County YAMHILL Lat. ° ' " Long. ° ' "
Township 3 S Range 3 W WM.
Section 28 NE 1/4 NE 1/4
Tax Lot 102 Lot Block Subdivision
Street Address of Well (or nearest Address)
NYA, WORDEN HILL RD DUNDEE, OR

(10) STATIC WATER LEVEL:
315 ft. below land surface. Date 07/15/02
Artesian pressure _____ lb per square in. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 378

From	To	Est Flow Rate	SWL
378	400	8-10	315
627	652	4-6	315

(12) WELL LOG:
Ground elevation ___

Material	From	To	SWL
TOP SOIL	0	3	
CLAY, RED	3	12	
CLAY, BROWN	12	18	
CLAY, BROWN W/DECAYED BASALT, UNSTABLE	18	31	
BASALT, MEDIUM GRAY W/SOME DECAY	31	82	
BASALT, DECAYED	82	111	
BASALT, HARD GRAY	111	245	
BASALT, HARD GRAY W/SOME WHITE ASH	245	246	
BASALT, VERY HARD GRAY	246	378	
BASALT, MEDIUM GRAY W/DECAY AND SOME GREEN CLAYSTONE	378	400	315
BASALT, VERY HARD GRAY	400	479	
BASALT, MEDIUM GRAY W/SOME DECAY	479	485	
BASALT, MEDIUM GRAY W/GREEN CLAYSTONE	485	492	

<< CONTINUED ON PAGE 2 >>

DAVE PAYSINGER BLUE WATER DRILLING CO.
(503) 868-7878
Date started 07/11/02 Completed 07/15/02

(unbonded) Water Well Constructor Certification: I certify that the work I performed on the construction, 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 my best knowledge and belief.
WWC Number _____
Signed _____ Date _____

(bonded) Water Well Constructor Certification: I accept responsibility for the construction, 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.
WWC Number 1438
Signed Dave P. Paysinger Date 07/15/02

ORIGINAL & FIRST COPY - WATER RESOURCES DEPTARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 9809C 10/91

YAMH 53052

RECEIVED
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...WELL REPORT (as required by ORS 537.765) Page 2 of 2

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627	652	4-6	315

(12) WELL LOG:
Ground elevation ___

Material	From	To	SWL
<< CONTINUED FROM PAGE 1 >>			
BASALT, HARD GRAY	492	568	
BASALT, MEDIUM GRAY W/SOME DECAY	568	581	
BASALT, VERY HARD GRAY	581	627	
BASALT, HARD GRAY/FRACTURED W/SOME GREEN CLAYSTONE	627	652	315
BASALT, VERY HARD GRAY	652	675	
BASALT, HARD GRAY W/SOME GREEN CLAYSTONE	675	684	
MARINE CLAY W/SOME BASALT FRAGMENTS	684	696	

DAVE PAYSINGER, BLUE WATER DRILLING CO.
(503) 868-7878

Date started 07/11/02 Completed 07/15/02

(unbonded) Water Well Constructor Certification: I certify that the work I performed on the construction, 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 my best knowledge and belief.
WWC Number _____
Signed _____ Date _____

(bonded) Water Well Constructor Certification: I accept responsibility for the construction, 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.
WWC Number 1438
Signed [signature] Date 07/15/02

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WATER RESOURCES DEPARTMENT

MEMO 5-10 ,20 19

TO: **Application G-** LL-1780

FROM: **GW:** Jen Woody
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES
The source of appropriation is within or above a Scenic Waterway
☒ NO

☐ YES
Use the Scenic Waterway condition (Condition 7J)
☒ NO

☐ 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 _____ 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 5/10/2019
FROM: Groundwater Section Jen Woody
Reviewer's Name
SUBJECT: Application LL-1780 Supersedes review of n/a
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: **John Hull, c/o R and E Holdings LLC** County: **Yamhill**

A1. Applicant(s) seek(s) 0.033 cfs from 1 well(s) in the Willamette Basin, Coast Range subbasin

A2. Proposed use establish grapevine starts Seasonality: not specified

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	YAMH 53052		CRBG	0.033	3S/3W- 28 NE ¼ NE ¼	713.5' S, 29.5'W fr NE cor S 28
2						
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	840	378	315	07/15/2002	696	0-24, 24-118	0-118	0-696	375-415, 656-696	15	unk	air

Use data from application for proposed wells.

A4. **Comments:** none

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: **690-502-0240** classifies use from unconfined alluvial aquifers. This application proposes use from a confined aquifer in the CRBG, so this rule is not activated.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **n/a**
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) **7i, Large Water Use Reporting Conditions**;
   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~~ a single aquifer in the Columbia River Basalt Group 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 wells will produce from one or more water-bearing zones in the Columbia River Basalt Group (CRBG), a series of lava flows with a composite thickness that ranges from 300 to 400 feet in this area (Conlon et al., 2005). Each flow is characterized by a series of internal features, including a thin rubble zone at the contact between flows and a thick, dense, low porosity and low permeability interior zone. In some cases, sedimentary layers were deposited during the time between basalt flow emplacements. A flow top, sedimentary interbed and flow bottom are collectively referred to as an interflow zone. Unconfined groundwater occurs near the weathered top of the basalts, but most water occurs in interflow zones at the contacts between lava flows. CRBG flow features result in a series of stacked, thin aquifers that are confined by dense flow interiors. The low permeability of the basalt flow interiors usually results in little connection between stacked aquifers, which generally results in tabular aquifers with unique water level heads.

The proposed use of 0.184 acre-feet per year at a maximum rate of 15 gallons per minute (gpm) is unlikely to create drawdown interference with nearby wells that prevents access to water. Nearby wells access a variety of water-bearing zones within the CRBG aquifer system. Well logs in T3S/R3W- Sections 21, 22, 27 and 28 report yields ranging from 1 to 264 gpm, with a median yield of 15 gpm. Wells that access the upper elevation water-bearing zones show reasonably stable trends (see Figure 3), while wells that access the lower elevation water bearing zones show slightly more long-term decline. The subject wells are expected to access upper elevation water-bearing zones, with a water-level elevation of approximately 520 ft above mean sea level. Water use and water level monitoring conditions are recommended to protect existing users.

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	**Columbia River Basalt Group**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: According to the well log, static water levels rise above water-bearing zones, 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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	1	**Hess Creek**	**525**	**500-700**	**1390**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Water-bearing zones are reported in the confined interflow zones of the CRBG. These water-bearing zones are coincident with or above perennial reaches of Harvey Creek within a mile. The creek has incised through several hundred feet of CRBG. Groundwater from the uplands likely discharges to surface water, providing baseflow or spring flow to sustain nearby perennial reaches of the creek.

Water Availability Basin the well(s) are located within: Watershed ID #: 182, WILLAMETTE R > COLUMBIA R - AB MOLALLA R

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	☐	☐	**MF182A**	**1500**	☐	**3830**	☐	*	☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: * There is no appropriate model to estimate streamflow depletion from pumping in CRBG interflow zones that are incised by streams or discharge to point sources such as springs. Therefore, the percentage of interference at 30 days is not calculated.

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: n/a

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:** The applicant's proposed well would be producing from an aquifer that has been found to be hydraulically connected to surface water at a distance of less 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:

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

US Geological Survey Topographic Map, Dundee Quadrangle.

OWRD water level and well log databases, includes reported water levels.

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 MOLALLA R
WILLAMETTE BASIN

Water Availability as of 5/10/2019

Watershed ID #: 182 (Map) Exceedance Level:

Date: 5/10/2019 Time: 2:16 PM

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	21,400.00	2,290.00	19,100.00	0.00	1,500.00	17,600.00
FEB	23,200.00	7,470.00	15,700.00	0.00	1,500.00	14,200.00
MAR	22,400.00	7,250.00	15,200.00	0.00	1,500.00	13,700.00
APR	19,900.00	6,900.00	13,000.00	0.00	1,500.00	11,500.00
MAY	16,600.00	4,240.00	12,400.00	0.00	1,500.00	10,900.00
JUN	8,740.00	1,970.00	6,770.00	0.00	1,500.00	5,270.00
JUL	4,980.00	1,800.00	3,180.00	0.00	1,500.00	1,680.00
AUG	3,830.00	1,650.00	2,180.00	0.00	1,500.00	684.00
SEP	3,890.00	1,390.00	2,500.00	0.00	1,500.00	999.00
OCT	4,850.00	746.00	4,100.00	0.00	1,500.00	2,600.00
NOV	10,200.00	878.00	9,320.00	0.00	1,500.00	7,820.00
DEC	19,300.00	960.00	18,300.00	0.00	1,500.00	16,800.00
ANN	15,200,000.00	2,250,000.00	13,000,000.00	0.00	1,090,000.00	11,900,000.00

Figure 2. Well Location Map

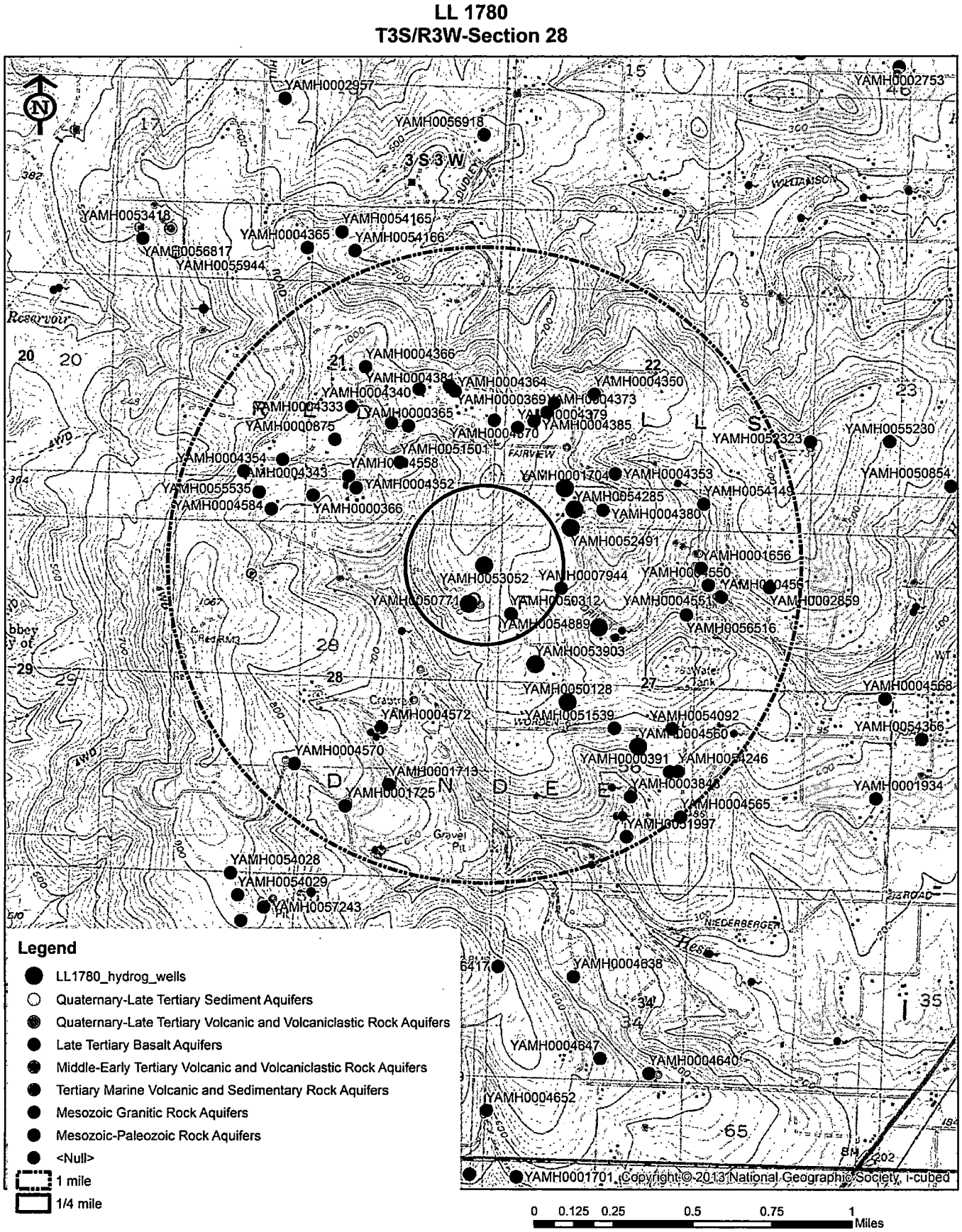

Figure 3. Water-Level Trends in Nearby Wells