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WATER RESOURCES DEPARTMENT MEMO

May 20, 2015

TO: Application G- 17982
FROM: Phillip Marcy - Groundwater Section
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 groundwater interference with surface water that contributes to a Scenic Waterway. The calculated interference distribution is provided below.

Per ORS 390.835, the Groundwater Section is unable to calculate groundwater 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 flows necessary to maintain the free-flowing character of a scenic waterway.

DISTRIBUTION OF INTERFERENCE

Calculate interference as the monthly fraction of the annual consumptive use and fill in the table below. If interference cannot be calculated, per criteria in 390.839, do not fill in the table but check the "unable" option above, thus informing the Water Rights Section that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in the _____ Scenic Waterway by the following amounts, expressed as a proportion of the annual consumptive use pumped from the well.

Monthly Fraction of Annual Consumptive Use

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 05/20/2015
 FROM: Groundwater Section Phillip I. Marcy / Ivan K. Gall
Reviewer's Name
 SUBJECT: Application G- 17982 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: Nick Devos County: Malheur

A1. Applicant(s) seek(s) 0.73 cfs from 1 well(s) in the Malheur Basin,
 _____ subbasin Quad Map: Hope Butte

A2. Proposed use Supplemental Irrigation (58.4 acres) Seasonality: April 1st – October 31st (214 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	MALH 54206	1	Sedimentary Rocks	0.73	17S/43E-12 SE-NW	2190'S, 2545'E fr NW cor, S12
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	2546	62	55	08/06/2014	200	0-20	+1.5-32	NA	NA	300	96	Pump

Use data from application for proposed wells.

A4. **Comments:** The proposed POA draws groundwater from silts, sands, and gravels of the Glens Ferry Formation. This well was drilled in 2014, and used under emergency drought permit G-17274.

A5. **Provisions of the Malheur (OAR 690-510)** _____ 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: _____

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) **7P-well tag condition; 7T-measuring tube condition; 7N- modified annual measurement condition (see C6)** _____;
 - 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 existing well (MALH 54206) will produce from lacustrine and fluvial sediments assigned to the Glens Ferry formation by Ferns et al. (1993) and part of the Lake Idaho Group. These sediments consist mainly of lacustrine silt and clay but contain numerous lenses of mixed coarse sand and gravel deposits – which make up the most productive parts of the aquifer.

Groundwater elevations in this area have remained stable in wells where long-term records have been maintained (Figure 2). To this point, groundwater development has been fairly limited in this area, and water is likely available without injury to nearby groundwater rights.

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 and gravel lenses of the Glenns Ferry Formation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: The complex assemblage of volcanoclastic and fluvial sediments in the area creates a groundwater flow system that is likely quite heterogeneous. Therefore, the degree of confinement may be highly localized as evidenced by common hydraulic head elevations occurring at vastly different elevations of water-bearing zones. Although considerable silt / clay layers may exist, the sediments are generally unconfined to leaky-confined based on first-water vs. SWL and according to Gannett (1990).

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	Willow Creek	2491	2384	12400	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: The perennial reach of Kern Creek begins immediately downslope of the Vale Oregon Main Canal, and is fed primarily by irrigation runoff (personal communication with Ron Jacobs, 05/19/2015) and so will not be evaluated for PSI. The common elevations of surface and groundwater below the canal may exhibit an artificial gradient imposed by canal leakage and infiltration of excess irrigation water. Gannett (1990) indicates the valleys in the Vale-Ontario area are groundwater discharge areas and there is an upward gradient from the Glenns Ferry Formation to the alluvium above which is hydraulically connected to the Malheur River and its tributaries, including Willow Creek.

Water Availability Basin the well(s) are located within: Kern Creek > Willow Creek – At Mouth (31011903)

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?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: There are no perennial streams within 1 mile of the proposed POA.

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
1	1	%	%	%	0.0 %	0.0 %	0.03%	0.17%	0.49%	1.02%	1.74%	2.60%	3.57%
Well Q as CFS					0.73	0.73	0.73	0.73	0.73	0.73	0.73		
Interference CFS					0.00	0.00	0.00	0.001	0.004	0.007	0.013	0.019	0.026
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													
(A) = Total Interf.					0.00	0.00	0.00	0.001	0.004	0.007	0.013	0.019	0.026
(B) = 80 % Nat. Q		13.7	32.5	54.4	71.4	58.7	44.3	15.4	6.52	4.45	6.77	7.26	9.14
(C) = 1 % Nat. Q		.137	.325	.544	.714	.587	.443	.154	.065	.045	.068	.073	.091
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		%	%	%	0.0 %	0.0 %	0.0 %	0.65%	6.15%	15.6%	19.1%	26.0%	28.6%

(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: The impacts to Willow Creek resulting from pumping at the proposed POA were evaluated using the model of Hunt (1999). Two pump tests within 1 mile of the proposed POA provided estimates of transmissivity of between 1,400 and 1,500 ft²/day. Calculated results at a distance of 12,400 feet show that interference to Willow Creek is expected to be less than 1 percent of 80 percent of natural stream flow for any month during the first year of pumping (Figure 3), and therefore will not trigger 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:
- 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 aquifer developed in the Glens Ferry Formation is inefficiently hydraulically connected to local surface waters. Leakage from Vale Oregon Main Canal, in addition to excess irrigation runoff, likely provides significant recharge to the local shallow aquifer system, and at a distance of 50 feet from the canal, to the applicant's well (MALH 54206). During drought years, flow through the canal is reduced, and according to our conceptual model will contribute a lower proportion of recharge to the shallow aquifer system.

If approved, the permit shall contain the following conditions: 7P – Well tag condition; 7T – measuring tube condition;

Modified Condition 7N – The water user shall discontinue the use of, or reduce the rate or volume of withdrawal from, the well(s) if any of the following events occur:

- A. Annual water-level measurements reveal an average water-level decline of **two or more feet per year for three consecutive years**; or
- B. Annual water-level measurements reveal a water level decline of **6 or more feet** in fewer than five consecutive years; or
- C. Annual water-level measurements reveal a water-level decline of **10 or more feet**; or
- D. Hydraulic interference leads to a decline of **10 or more feet** in any neighboring well with senior priority.

References Used:

Gannett, M. W. 1990. Hydrogeology of the Ontario Area Malheur County, Oregon. Oregon Water Resources Dept. Ground Water Report No. 34. 39p.

Ferns, M.L., H.C. Brooks, J.G. Evans, M.L. Cummings. 1993. Geologic map of the Vale 30x60 minute quadrangle, Malheur County, Oregon and Owyhee County, Idaho. Oregon Dept. of Geology and Mineral Industries Geological Map Series 77.

Hunt, B., 1999, Unsteady stream depletion from ground water pumping: Ground Water, v. 37, no. 1, p. 98-102

Local well logs, Application file G-17982, Application review file G-17882

Well logs attached:

MALH 54206

MALH 362

MALH 53541

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

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

WILLOW CR > MALHEUR R - AT MOUTH
Basin: MALHEUR

Watershed ID #: 31011901
Time: 4:00 PM

Exceedance Level: 80
Date: 05/19/2015

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	13.70	22.00	-8.28	0.00	0.00	-8.28
FEB	32.50	82.70	-50.20	0.00	0.00	-50.20
MAR	54.40	141.00	-86.30	0.00	0.00	-86.30
APR	71.40	182.00	-110.00	0.00	0.00	-110.00
MAY	58.70	215.00	-157.00	0.00	0.00	-157.00
JUN	44.30	182.00	-138.00	0.00	0.00	-138.00
JUL	15.40	96.10	-80.70	0.00	0.00	-80.70
AUG	6.52	60.40	-53.80	0.00	0.00	-53.80
SEP	4.45	40.20	-35.70	0.00	0.00	-35.70
OCT	6.77	7.92	-1.15	0.00	0.00	-1.15
NOV	7.26	11.60	-4.37	0.00	0.00	-4.37
DEC	9.14	14.60	-5.42	0.00	0.00	-5.42
ANN	36,500	63,600	1,800	0	0	1,800

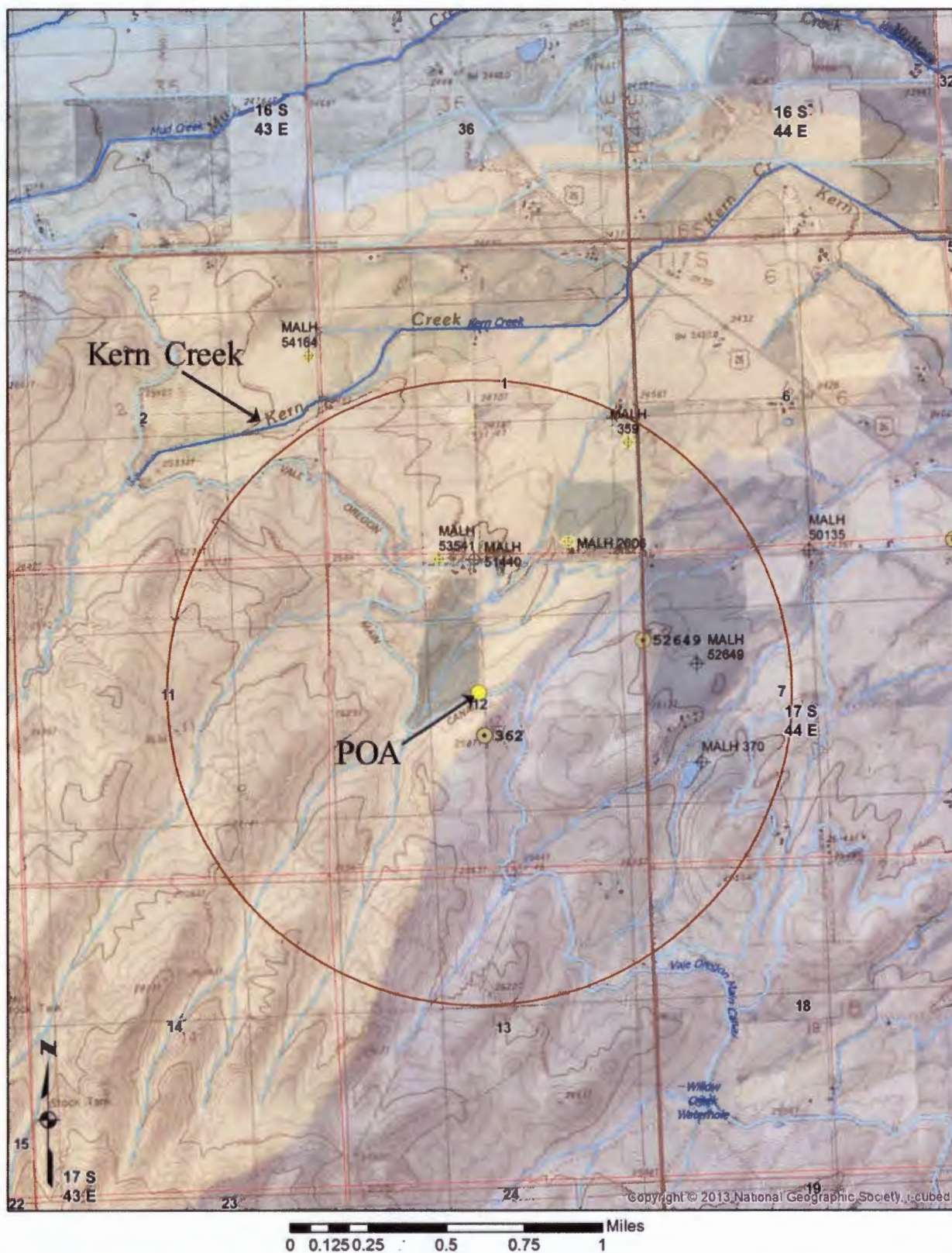


Figure 1: Location of proposed POA for application G 17982, in relation to Kern Creek and nearby wells.

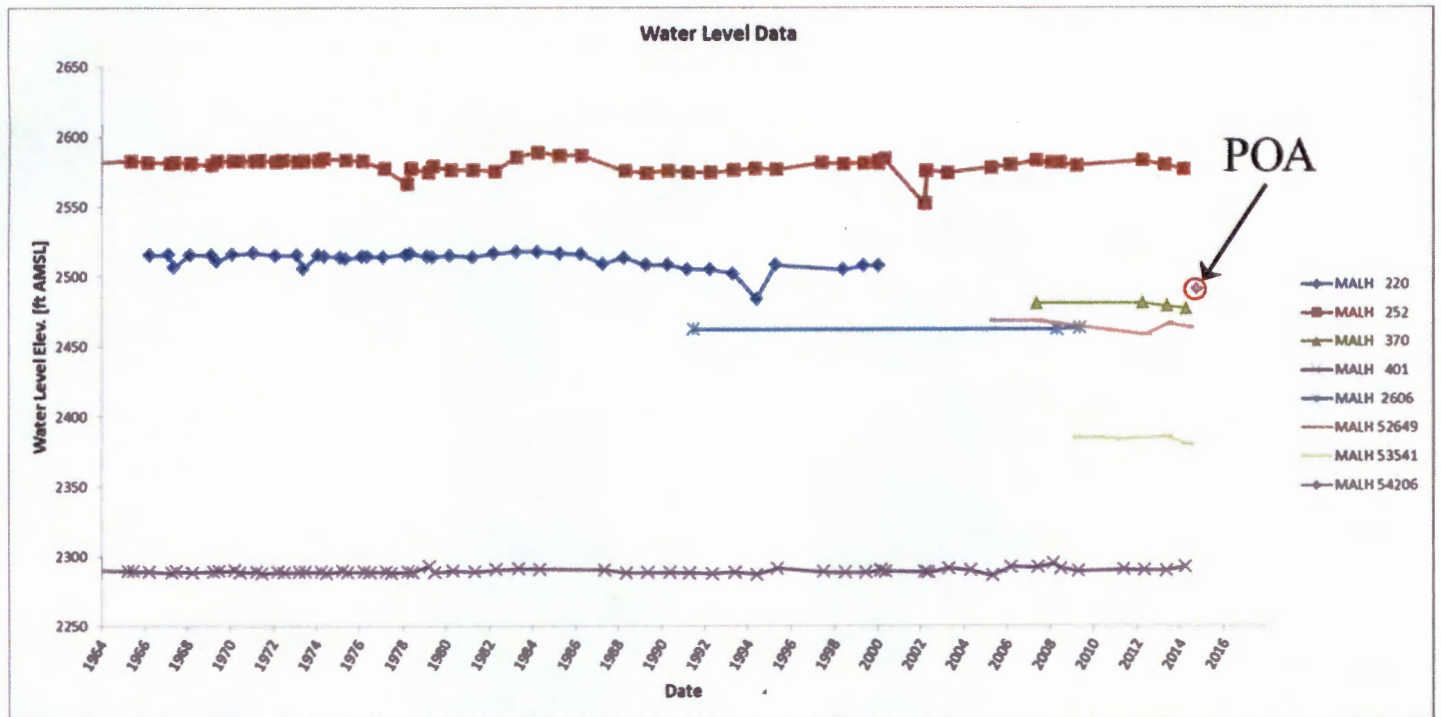
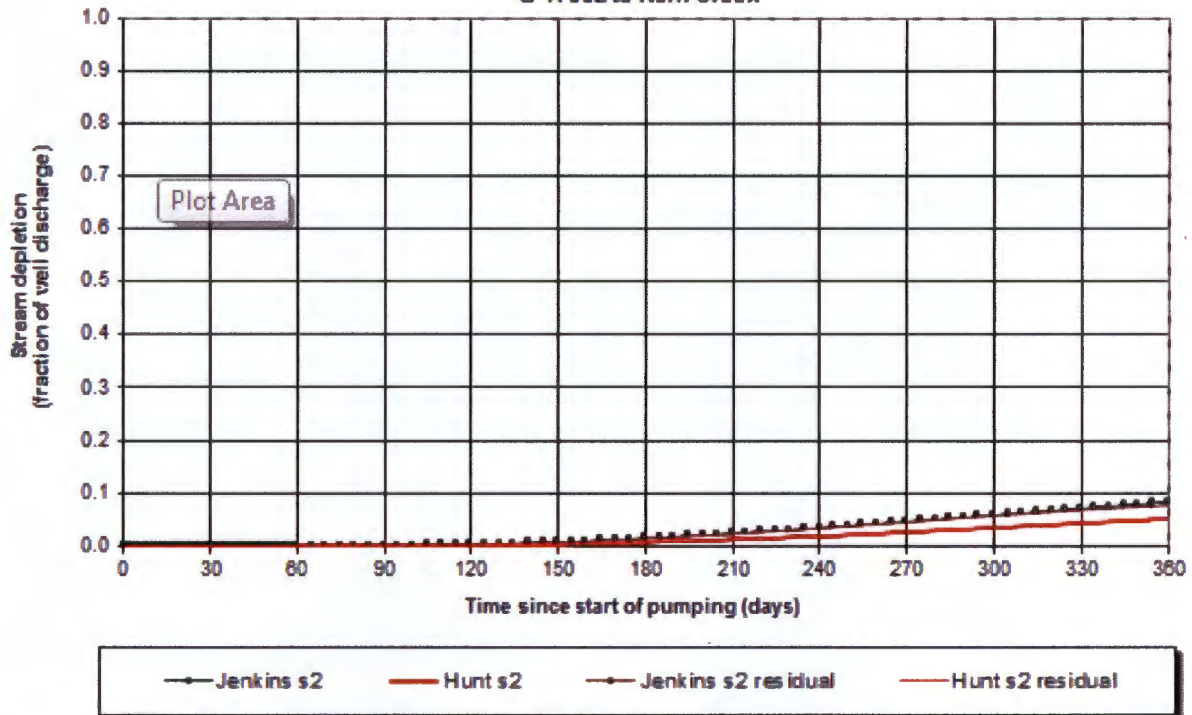


Figure 2: Historical groundwater elevations for several wells nearby MALH 54206, which has a static groundwater elevation of 2491'.

Transient Stream Depletion (Jenkins, 1970; Hunt, 1999)

G-17982 to Kern Creek



Output for Hunt Stream Depletion, Scenerio 2 (s2 Time pump on = 214 days)

Days	30	60	90	120	150	180	210	240	270	300	330	360
Q _w , cfs	0.730	0.730	0.730	0.730	0.730	0.730	0.730	0.730	0.730	0.730	0.730	0.730
Jenk SD s2 %	0.00	0.00	0.05	0.27	0.73	1.43	2.33	3.39	4.55	5.73	6.81	7.67
Jen SD s2 cfs	0.000	0.000	0.000	0.002	0.005	0.010	0.017	0.025	0.033	0.042	0.050	0.056
Hunt SD s2 %	0.00	0.00	0.02	0.10	0.32	0.68	1.19	1.83	2.57	3.38	4.18	4.91
Hunt SD s2 cfs	0.000	0.000	0.000	0.001	0.002	0.005	0.009	0.013	0.019	0.025	0.031	0.036

Parameters:		Scenario 1	Scenario 2	Scenario 3	Units
Net steady pumping rate	Q _w	0.73	0.73	0.73	cfs
Distance to stream	a	5500	5500	5500	ft
Aquifer hydraulic conductivity	K	10	10	10	ft/day
Aquifer thickness	b	140	140	140	ft
Aquifer transmissivity	T	1400	1400	1400	ft ² /day
Aquifer storage coefficient	S	0.1	0.1	0.1	
Stream width	ws	10	10	10	ft
Streambed hydraulic conductivity	K _s	1	1	1	ft/day
Streambed thickness	bs	3	3	3	ft
Streambed conductance	sbc	3.333333333	3.333333333	3.333333333	ft/day
Stream depletion factor (Jenkins)	sdf	2160.714286	2160.714286	2160.714286	days
Streambed factor (Hunt)	sbf	13.0952381	13.0952381	13.0952381	

Figure 3: Hunt (1999) model parameters and results for expected impacts to Kern Creek from pumping at the proposed POA.

MALH 54206

STATE OF OREGON WATER SUPPLY WELL REPORT

MALH 54206

WELL LABEL # L 114926

(as required by ORS 537.765 & OAR 690-205-0210)

START CARD # 211240

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER

Owner Well I.D. First Name Nick Last Name DEVOS Company Address 2542 10th Ave W City Vale State OR Zip 97918

(2) TYPE OF WORK [X] New Well [] Deepening [] Conversion [] Alteration (repair/recondition) [] Abandonment

(3) DRILL METHOD

[] Rotary Air [] Rotary Mud [X] Cable [] Auger [] Cable Mud [] Reverse Rotary [] Other

(4) PROPOSED USE [] Domestic [X] Irrigation [] Community [] Industrial/Commercial [] Livestock [] Dewatering [] Injection [] Thermal [] Other

(5) BORE HOLE CONSTRUCTION Special Standard: [] Yes (attach copy) Depth of Completed Well 200 ft

Table with columns: Dia, From, To, Material, SEAL, From, To, Amount, Scks/lbs. Includes handwritten entries for 18", 17", and 12" diameters.

How was seal placed: Method [] A [] B [] C [] D [] E [] Other

Backfill placed from ft. to ft. Material Filter pack from ft. to ft. Material Size Explosives used: [] Yes Type Amount

(6) CASING/LINER

Table with columns: Casing/Liner, Dia, From, To, Gauge, Steel, Plastic, Welded, Thrd. Includes handwritten entry for 12" casing.

Shoe [] Inside [] Outside [] Other Location of shoe(s) Temporary casing [] Yes Diameter From To

(7) PERFORATIONS/SCREENS

Perforations Method Screens Type Material

Table with columns: Perf, Scm, Casing, Liner, Screen Dia, From, To, Screen slot width, Slot length, # of slots, Tel./pipe size

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

[X] Pump [] Bailer [] Air [] Flowing Artesian Yield gal/min 300 Drawdown 26' Drill stem/Pump depth 100' Duration (hr) 4 hr

Temperature °F Lab analysis [] Yes By Water quality concerns? [] Yes (describe below)

Table with columns: From, To, Description, Amount, Units

(9) LOCATION OF WELL (legal description)

County Malheur Twp 17 N or S Range 43 E or W W.M. Sec 12 SE 1/4 of the NW 1/4 Tax Lot 4500 Tax Map Number Lot Lat 44° 10' 6.238" or DMS or DD Long 112° 39' 74.96" or DMS or DD Street Address of Well (or nearest address) 2455 9th Ave W

(10) STATIC WATER LEVEL

Table with columns: Existing Well/Predeepening, Completed Well, Date, SWL (psi), SWL (ft). Includes handwritten entry for Completed Well on Aug 6 at 55'.

Flowing Artesian? [] Yes Dry Hole? [] Yes WATER BEARING ZONES Depth water was first found 62'

Table with columns: SWL Date, From, To, Est Flow, SWL (psi), SWL (ft). Includes handwritten entries for July 29 and August 6.

(11) WELL LOG

Table with columns: Material, From, To. Includes handwritten entries for top soil, hard pan, brown clay mix fine gravel, etc.

Date Started July 26, 2014 Completed Aug 6, 2014

(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 Date MAR 26 2014

Signed SALEM, OR

(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 Date

Signed Contact Info. (optional)

WATER WELL REPORT
STATE OF OREGON

Malh
362

Malh
362

RECEIVED

Well No. 175/43E-12CA

NOV 24 1982

State Permit No.

PLEASE TYPE or PRINT IN INK

WATER RESOURCES DEPT.

SALEM, OREGON

(1) OWNER:

Name James P. Comford
Address Rt. 2 Box 138
City KALE State OR-97908

(2) TYPE OF WORK (check):

New Well Deepening Reconditioning Abandon

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary Air Driven
Rotary Mud Dug
 Bored

(4) PROPOSED USE (check):

Domestic Industrial Municipal
Irrigation Test Well Other
Thermal: Withdrawal Rejection

(5) CASING INSTALLED:

Steel Plastic
Threaded Welded
12" Diam. from 0 ft. to 154 ft. Gauge 2.50
" Diam. from ft. to ft. Gauge

LINER INSTALLED:

" Diam. from ft. to ft. Gauge

(6) PERFORATIONS:

Perforated? Yes No
Type of perforator used Supplier Perforated
Size of perforations 1/8 in. by 3 in.
240 perforations from 115 ft. to 125 ft.
480 perforations from 134 ft. to 154 ft.
perforations from ft. to ft.

(7) SCREENS:

Well screen installed? Yes No
Manufacturer's Name
Type Model No.
Diam. Slot Size Set from ft. to ft.
Diam. Slot Size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level
Was a pump test made? Yes No If yes, by whom? DRILLER
Rate 450 gal./min. with 124 ft. drawdown after 3 hrs.
Air test gal./min. with drill stem at ft. hrs.
Bailer test gal./min. with ft. drawdown after hrs.
 Artesian flow g.p.m.
Temperature of water 59 Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Special standards: Yes No
Well seal—Material used CEMENT
Well sealed from land surface to 18 ft.
Diameter of well bore to bottom of seal 16 in.
Diameter of well bore below seal 12 in.
Number of sacks of cement used in well seal 18 sacks
How was cement grout placed? GRAVIT. PUMP
Was pump installed? Type HP Depth ft.
Was a drive shoe used? Yes No Plug Size location ft.
Did any strata contain unusable water? Yes No
Type of Water? depth of strata
Method of sealing strata off
Was well gravel packed? Yes No Size of gravel: ft. to ft.
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County MAHONUC Driller's well number
NE 1/4 SW 1/4 Section 12 T. 17S R. 43E W.M.
Tax Lot # Lot Blk Subdivision
Address at well location: SAME.

(11) WATER LEVEL: Completed well.

Depth at which water was first found 115 ft.
Static level 76 ft. below land surface. Date 10-10-82
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 12"
Depth drilled 270 ft. Depth of completed well 270 ft.
Formation: Describe color, texture, grain size and structure of materials, and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Top Soil	0	4	
CLAY - LT. GRAY	4	25	
CLAY - LT. BROWN	25	41	
CLAY - GRAY	41	115	
GRAVEL - FINE	115	119	76
CLAY - GRAY	119	140	76
GRAVEL - FINE	140	153	76
CLAY - 4-SAND	153	160	76
CLAY - LT. BROWN	160	198	76
CLAY - BLUE	198	213	76
GRAVEL - FINE	213	227	76
CLAY - GRAY	227	245	76
CLAY - BLUE	245	270	76

Work started 9-30 1982 Completed 10-20 1982
Date well drilling machine moved off of well 10-21 1982

(unbonded) Water Well Constructor Certification (if applicable):
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] _____ Date _____, 19____

Bonded Water Well Constructor Certifications:
Bond 10107795 issued by: BLACKBAY-IMS.

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name HARRY SCHAFFER (Type or print)
Address P.O. Box 94, Jamieson, ORC 97909
[Signed] Harry Schaffer Water Well Constructor
Date 11-19, 1982

NOTICE TO WATER WELL CONSTRUCTOR
The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310
within 30 days from the date of well completion.

SP-6000-080

MALH 53541

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

MALH 53541

WELL LABEL # L 88851
START CARD # 198666

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER
First Name Devos Dairies Owner Well I.D. 88851
Company Devos Dairies
Address 2460 9th AVE W
City Vale State OR Zip 97918

(2) TYPE OF WORK New Well Deepening Conversion
 Alteration (repair/recondition) Abandonment

(3) DRILL METHOD
 Rotary Air Rotary Mud Cable Auger Cable Mud
 Reversic Rotary Other

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

(5) BORE HOLE CONSTRUCTION Special Standard: Yes (attach copy)
Depth of Completed Well 300 ft.

BORE HOLE			SEAL			
Dia	From	To	Material	From	To	Amount Scks/lbs
16	0	24	Bertrich	0	24	50 bags
12	24	300				

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

(6) CASING/LINER

Casing	Linr	Dia	From	To	Gauge	Steel	Plastic	Welded	Thrd
X		12	2	25	.250	X			✓

Shoe Inside Outside Other Location of shoe(s) 25 ft
Temporary casing Yes Diameter _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Perforations Method Hand
Screens Type _____ Material _____

Perf	Screen	Casing	Linr	Screen Dia	From	To	Screen/ slot width	Slot length	# of slots	Telo/ pipe size

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailor Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
50+	4 ft		2 hrs

Temperature 63 °F Lab analysis Yes By _____

Water quality concerns? Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County Melhour Twp 17S or S Range 43E or W W.M.
Sec 1 SE 1/4 of the SW 1/4 Tax Lot 2600
Tax Map Number _____ Lot _____
Lat _____ " or _____ DMS or DD
Long _____ " or _____ DMS or DD

Street Address of Well (or nearest address) 2460 9th AVE W Vale, OR

(10) STATIC WATER LEVEL
Existing Well/Predeepening 325-09 SWL (psi) + SWL (ft)
Completed Well 300 ft 38'-2"
Flowing Artesian? Yes Dry Hole? Yes

WATER BEARING ZONES Depth water was first found 145 ft

SWL Date	From	To	Est Flow	SWL (psi)	+ SWL (ft)
3-23-09	145	300	300+		38'-2"

(11) WELL LOG Ground Elevation _____

Material	From	To
topsoil	0	3
hardpan	3	5
Bu clay	5	145
Blue sandy clay, occasional streaks	145	300

RECEIVED
JUN 08 2009
WATER RESOURCES DEPT
SHEILA JOHNSON

Date Started 2-12-09 Completed 3-28-09

(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 is true to the best of my knowledge and belief.

License Number _____ Date APR 29 2009
Signed _____ WATER RESOURCES DEPT

(bonded) Water Well Constructor Certification SALEM, OREGON
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 1485 Date 4-12-09
Signed Jan M Fife
Contact Info. (optional) _____