

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date October 9, 2017

FROM: Groundwater Section Aurora C Bouchier
Reviewer's Name

SUBJECT: Application G- 18217 Supersedes review of April 15, 2016
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: WK & K Land, LP County: Benton

A1. Applicant(s) seek(s) 2.277 cfs from 4 well(s) in the Willamette Basin,
Upper Willamette subbasin

A2. Proposed use: Primary Irrigation (146.14 acres) Seasonality: March 1 – October 21

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 | BENT 55422 | 1 | Alluvium | 0.67 | 11S/4W-07 SE-NE | 1635' S, 460' W fr NW cor S 8 |
| 2 | BENT 55423 | 2 | Alluvium | 0.73 | 11S/4W-08 SW-NW | 1630' S, 95' E fr NW cor S 8 |
| 3 | BENT 54843 | 3 | Alluvium | 0.67 | 11S/4W-08 SW-NE | 1960' S, 1435' W fr NE cor S 8 |
| 4 | BENT 55451 | 4 | Alluvium | 0.89 | 11S/4W-08 SW-SE | 2360' N, 2485' W fr SE cor S 8 |
| 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 | 224 | 32 | 22 | 9/5/2016 | 70 | 0-19 | -1.5-59 | -1-30 | 34-59 | 300 | 35 | P |
| 2 | 226 | 35 | 24 | 9/30/2016 | 80 | 0-19 | -1-31 | 1.5-60 | 34-60 | 325 | 23 | P |
| 3 | 230 | 35 | 34 | 12/23/2013 | 160 | 0-18 | -1.6-81 | NA | 31-81 | 180 | 25 | P |
| 4 | 230 | 37 | 35 | 10/18/2016 | 100 | 0-19 | -1.5-64.5 | NA | 25-64.5 | 250 | | A |
| | | | | | | | | | | | | |

Use data from application for proposed wells.

A4. **Comments:** The applicant is requesting 1022 gpm, or 2.277 cfs. The proposed use is primary irrigation of 146.14 acres, which would result in a maximum rate allowable of 146.14 acres * 1/80 cfs per acre = 1.83 cfs (821 gpm). The well rate is distributed amongst the 4 wells, however the distributed rates sum up to greater than the total requested rate. This review evaluates against the requested rate of 2.277 cfs (1022 gpm) – non-distributed.

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: Wells 1 and 2 are producing from a confined aquifer, so the pertinent rules (OAR 690-502-0240) do not apply. Wells 3 and 4 may be producing from a confined aquifer, however they are greater than 1/4 mile from a surface water body (aside from man-made gravel pits), so the pertinent rules (OAR 690-502-0240) 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 levels, 7T – dedicated measuring tube, + large monitoring and reporting plus a flowmeter;
 - 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 wells are located in an area that contains low permeability saturated silt and clay from land surface to a depth of approximately 30 feet. About 20 to 30 feet of productive sand and gravel underlie the low permeability silt. Clay and silt with thin beds of sand and gravel underlie the productive sand and gravel.

Water levels in nearby wells show no obvious declines. Two nearby wells (BENT 2544 and BENT 2545), similarly located on the finger of Willamette Silt between Frazier Creek and the Willamette River corridor, have been monitored periodically since the mid 1960's. The hydrograph for BENT 2544 shows a shift occurring around 1980, which may be explained by an apparent shift in when the measurements were collected. Since the 1990's, the hydrograph shows a seasonal fluctuation of up to 20 feet but no long term declines or climatic signals.

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 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2 | Alluvial | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3 | Alluvial | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4 | Alluvial | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | | <input type="checkbox"/> | <input type="checkbox"/> |

Basis for aquifer confinement evaluation: The applicant’s wells produce water from sands and gravels that are confined by about 30 feet of mostly fine grained alluvial sediments. Additionally, static water levels in Well 1 and Well 2 and some of the nearby wells rise, slightly, above water bearing zones. These factors indicate the wells produce from a confined aquifer. However, the static water level in Well 3 and Well 4 and some of the nearby wells does not rise above the water bearing zones. This may be related to the season when the various wells were completed. In general, the level of confinement in this area appears low.

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 | Frazier Creek | ~202-195 | 215-207 | 980 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2 | 1 | | ~202-195 | 215-207 | 1,380 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3 | 1 | | ~202-195 | 215-207 | 4,020 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4 | 1 | | ~202-195 | 215-207 | 4,060 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 1 | 2 | Willamette River | ~202-195 | 182 | 9,050 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2 | 2 | | ~202-195 | 182 | 8,590 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3 | 2 | | ~202-195 | 182 | 5,430 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4 | 2 | | ~202-195 | 182 | 5,760 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Basis for aquifer hydraulic connection evaluation: Water table maps and water-level measurements indicate that ground water discharges to the Willamette River and its meander belt channels in the area. As noted in the original review; barrow pit ponds and ponds in the abandoned meander (Kiger Cutoff) exist. However, they appear to represent daylighting of groundwater and are not evaluated against in this review.

Water Availability Basin the well(s) are located within: 30200321: Willamette R > Columbia R- ab Periwinkle Cr at Gage 14174.

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? |
|--|------|--------------------------|-------------------------|------------------------------|--------------------------|------------------------|------------------------------|----------------------------|---|
| | | <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"/> |

Comments: Not applicable.

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 |
| 3 | 2 | 0% | 0% | 0.83% | 2.37% | 3.19% | 3.64% | 3.93% | 4.17% | 4.38% | 4.59% | 3.96% | 2.62% |
| Well Q as CFS | | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 | 2.277 |
| Interference CFS | | 0 | 0 | 0.019 | 0.054 | 0.073 | 0.083 | 0.089 | 0.095 | 0.100 | 0.104 | 0.090 | 0.060 |
| 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 | 0 | 0.019 | 0.054 | 0.073 | 0.083 | 0.089 | 0.095 | 0.100 | 0.104 | 0.090 | 0.060 |
| (B) = 80 % Nat. Q | | 10,100 | 11,600 | 11,000 | 9,760 | 8,430 | 5,360 | 3,270 | 2,560 | 2,540 | 2,860 | 4,170 | 8,150 |
| (C) = 1 % Nat. Q | | 101.0 | 116.0 | 110.0 | 97.6 | 84.3 | 53.6 | 32.7 | 25.6 | 25.4 | 28.6 | 41.7 | 81.5 |
| (D) = (A) > (C) | | | | | | | | | | | | | |
| (E) = (A / B) x 100 | | 0 % | 0 % | 0.017% | 0.055% | 0.866% | 0.155% | 0.272% | 0.371% | 0.394% | 0.364% | 0.216% | 0.074% |

(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: Interference the Willamette River was estimated using the Hunt 2003 model to simulate confined aquifer - as is the case at the location of the wells.

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: _____
Application file for G-18217, and nearby G-17736.

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 Report 2005-5168.

Gannett, M.W. and Caldwell, R.R., 1998. Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington; U.S. Geological Survey Professional Paper 1424-A.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.

OWRD well log and water level reports for BENT 55298, BENT 2624, BENT 1558, LINN 8264, and pump tests for permit G-5421 and MARI 5336.

Woodward, D.G., Gannett, M.G., and Vaccaro, J.J., 1998., Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B.

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:** _____

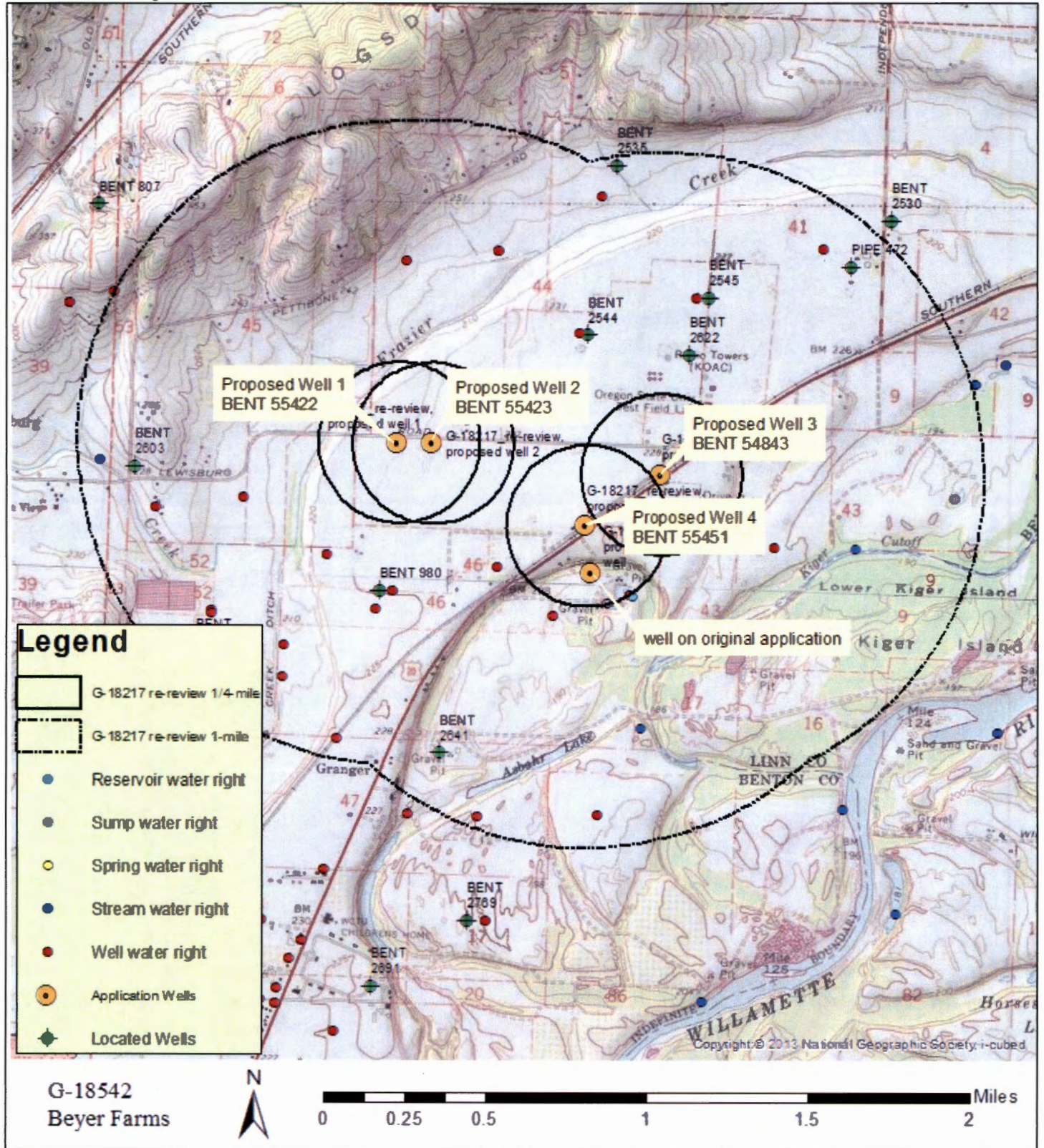
D4. **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Water Availability Tables

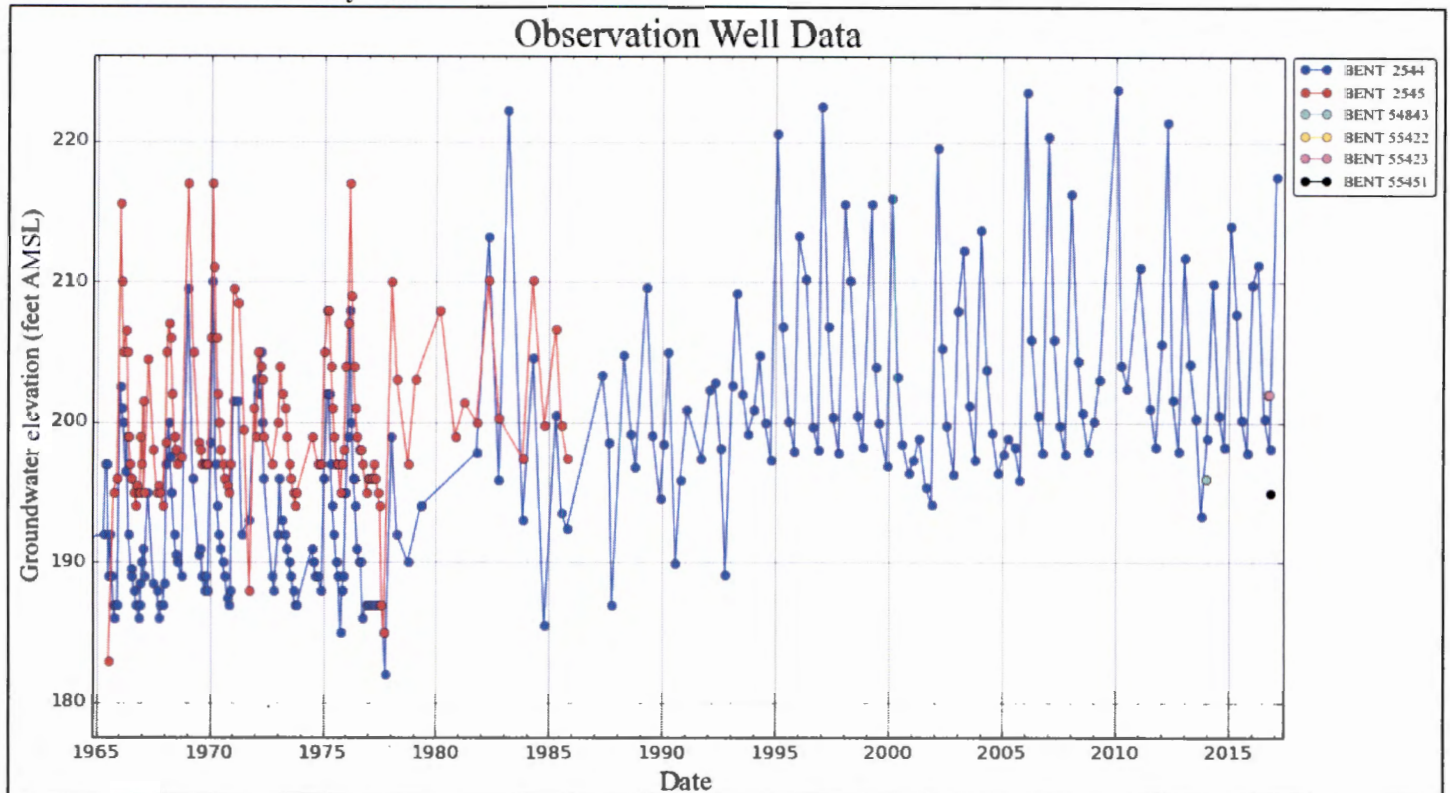
| DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION | | | | | | |
|--|---------------------|---|----------------------|----------------------|--|---------------------|
| Watershed ID #: 30200321 Time: 12:54 PM | | WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174 Basin: WILLAMETTE | | | Exceedance Level: 80 Date: 10/05/2017 | |
| 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 | 10,100.00 | 1,370.00 | 8,730.00 | 0.00 | 1,750.00 | 6,980.00 |
| FEB | 11,600.00 | 4,290.00 | 7,310.00 | 0.00 | 1,750.00 | 5,560.00 |
| MAR | 11,000.00 | 4,560.00 | 6,440.00 | 0.00 | 1,750.00 | 4,690.00 |
| APR | 9,760.00 | 4,260.00 | 5,500.00 | 0.00 | 1,750.00 | 3,750.00 |
| MAY | 8,430.00 | 2,540.00 | 5,890.00 | 0.00 | 1,750.00 | 4,140.00 |
| JUN | 5,360.00 | 855.00 | 4,500.00 | 0.00 | 1,750.00 | 2,750.00 |
| JUL | 3,270.00 | 661.00 | 2,610.00 | 0.00 | 1,750.00 | 859.00 |
| AUG | 2,560.00 | 601.00 | 1,960.00 | 0.00 | 1,750.00 | 209.00 |
| SEP | 2,540.00 | 517.00 | 2,020.00 | 0.00 | 1,750.00 | 273.00 |
| OCT | 2,860.00 | 269.00 | 2,590.00 | 0.00 | 1,750.00 | 841.00 |
| NOV | 4,170.00 | 354.00 | 3,820.00 | 0.00 | 1,750.00 | 2,070.00 |
| DEC | 8,150.00 | 379.00 | 7,770.00 | 0.00 | 1,750.00 | 6,020.00 |
| ANN | 7,460,000 | 1,240,000 | 6,230,000 | 0 | 1,270,000 | 4,960,000 |

| DETAILED REPORT OF INSTREAM REQUIREMENTS | | | | | | | | | | | | | |
|--|-------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------|--------|
| Watershed ID #: 30200321 Time: 12:55 PM | | WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174 Basin: WILLAMETTE | | | | | | | | | | Date: 10/05/2017 | |
| Application Number | Status | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Monthly values are in cfs. | | | | | | | | | | | | | |
| MF184A | APPLICATION | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.00 | 1750.0 |
| MAXIMUM | | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 | 1750.0 |

Well Location Map

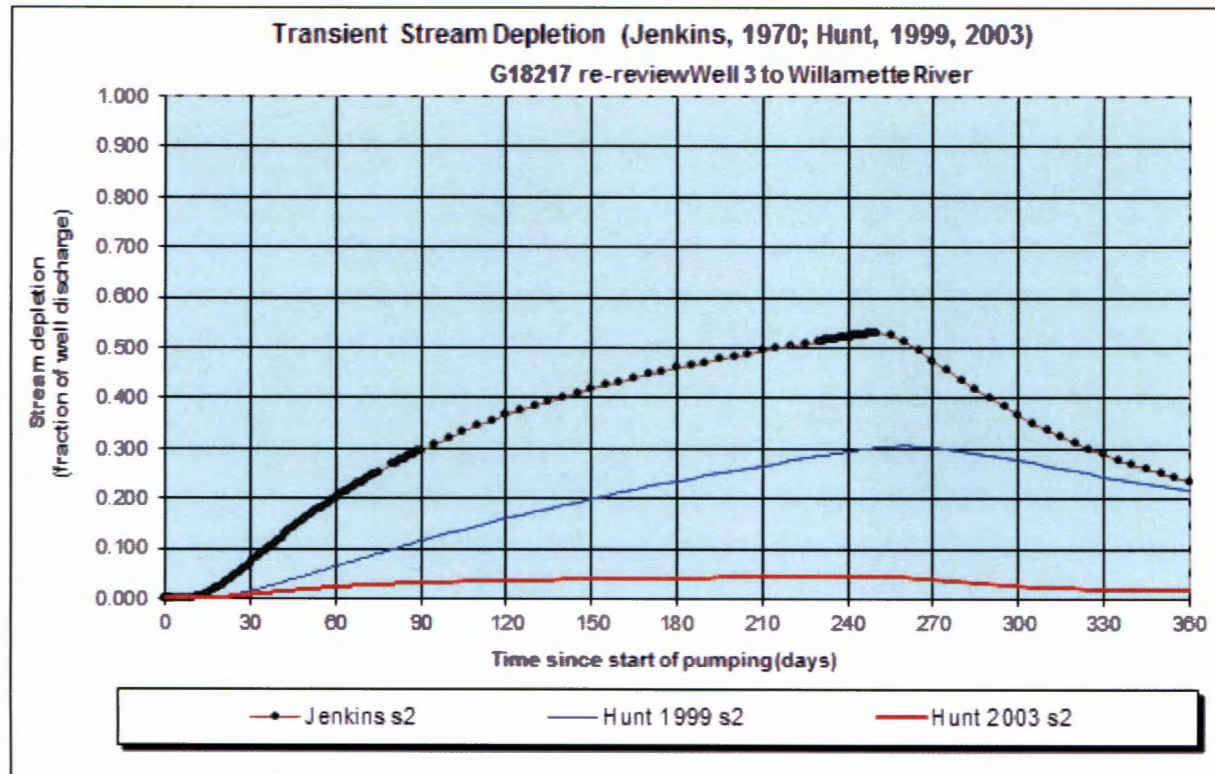


Water-Level Trends in Nearby Wells



(Please note: the water-level for BENT 55422 is masked by the dot for BENT 55423.)

Transient Stream Depletion



| Output for Stream Depletion, Scenerio 2 (s2): | | | | | | | | | | | | Time pump on (pumping duration) = 240 days | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|
| Days | 30 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 | | |
| J SD | 7.0% | 20.1% | 29.6% | 36.5% | 41.8% | 46.0% | 49.4% | 52.2% | 47.6% | 36.6% | 28.9% | 23.6% | | |
| H SD 1999 | 1.5% | 6.4% | 11.5% | 16.1% | 20.1% | 23.6% | 26.6% | 29.4% | 30.3% | 27.7% | 24.6% | 21.8% | | |
| H SD 2003 | 0.83% | 2.37% | 3.19% | 3.64% | 3.93% | 4.17% | 4.38% | 4.59% | 3.96% | 2.62% | 1.99% | 1.75% | | |
| Qw, cfs | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | 2.273 | | |
| H SD 99, cfs | 0.034 | 0.145 | 0.261 | 0.365 | 0.456 | 0.535 | 0.605 | 0.668 | 0.689 | 0.629 | 0.558 | 0.496 | | |
| H SD 03, cfs | 0.019 | 0.054 | 0.073 | 0.083 | 0.089 | 0.095 | 0.100 | 0.104 | 0.090 | 0.060 | 0.045 | 0.040 | | |

| Parameters: | | Scenario 1 | Scenario 2 | Scenario 3 | Units |
|--|----------|------------|------------|------------|----------------------|
| Net steady pumping rate of well | Qw | 1020.00 | 1020.00 | 1020.00 | gpm |
| Time pump on (pumping duration) | tpon | 240 | 240 | 240 | days |
| Perpendicular from well to stream | a | 5430 | 5430 | 5430 | ft |
| Well depth | d | 100 | 100 | 100 | ft |
| Aquifer hydraulic conductivity | K | 20 | 50 | 100 | ft/day |
| Aquifer saturated thickness | b | 30 | 30 | 30 | ft |
| Aquifer transmissivity | T | 600 | 1500 | 3000 | ft ² /day |
| Aquifer storativity or specific yield | S | 0.01 | 0.01 | 0.01 | |
| Aquitard vertical hydraulic conductivity | Kva | 0.008 | 0.008 | 0.008 | ft/day |
| Aquitard saturated thickness | ba | 30 | 30 | 30 | ft |
| Aquitard thickness below stream | babs | 3 | 3 | 3 | ft |
| Aquitard porosity | n | 0.2 | 0.2 | 0.2 | |
| Stream width | ws | 250 | 250 | 250 | ft |
| Streambed conductance (lambda) | sbc | 0.666667 | 0.666667 | 0.666667 | ft/day |
| Stream depletion factor | sdf | 491.415000 | 196.566000 | 98.283000 | days |
| Streambed factor | sbf | 6.033333 | 2.413333 | 1.206667 | |
| input #1 for Hunt's Q_4 function | r' | 0.002035 | 0.005087 | 0.010175 | |
| input #2 for Hunt's Q_4 function | K' | 13.104400 | 5.241760 | 2.620880 | |
| input #3 for Hunt's Q_4 function | epsilon' | 0.050000 | 0.050000 | 0.050000 | |
| input #4 for Hunt's Q_4 function | lamda' | 6.033333 | 2.413333 | 1.206667 | |