ECY 050-1-20 (Rev 3/05)

Construction Decommission ORIGINAL INSTALL ATION Notice	Water Right Permit No. <u>G4-34963</u> Property Owner Name <u>Archie DenHoed</u>	3	100
	-	1	
1,1001.	Well Street Address 62801 N. Griffin Rd.		SON OFFICE
PROPOSED USE: Domestic Industrial Municipal DeWater Imgation Test Well Other	City Grandview County BENTO		[7]
TYPE OF WORK: Owner's number of well (if more than one)	Location NW1/4-1/4 SW 1/4 Sec 32 Twn 10h	R 24 or www	curcle
✓ New well     ☐ Reconditioned     Method : ☐ Dug     ☐ Bored     ☐ Driven       ☐ Degreened     ☐ Cable     ☑ Rotary     ☐ Jetted	Lat/Long (s, t, r Lat Deg Lat		
Cable   Rotary   Jetted     DIMENSIONS: Diameter of well 16" inches, drilled 460' ft.	Still REQUIRED) Long DegLor	o Min/Sec	
Depth of completed well 460' ft.	1	ig iviii sec	
CONSTRUCTION DETAILS	Tax Parcel No		
Casing         ✓ Welded         24         Diam from +1         ft to 20'         ft           Installed:         ✓ Liner installed         16"         Diam from +1         ft to 193         ft	CONSTRUCTION OR DECOMMISSION	PROCEDU	RE
Threaded Diam from R to R	Formation: Describe by color, character, size of material and	structure, and th	e kind and
Perforations: Yes No	nature of the material in each stratum penetrated, with at least information. (USE ADDITIONAL SHEETS IF NECES	one entry for ea	ch change of
Type of perforator used	MATERIAL	FROM	то
Screens: Yes No K-Pac Location	Brown Silty Soil	0	5
famifacturer's Name	Caliche & Broken rock	5	15
Type Model No  piam. Slot size from ft. to ft.	Med. hard gray & brown basalt	15	44
Diam.         Slot size         from         ft. to         ft.           Diam.         Slot size         from         ft. to         ft.	Med. soft brown & gray basalt	44	56
D D	Hard gray basalt	56	65
Gravel/Filter packed:Yes bid_NoSize of gravel/saindfi.  Materials placed fromfi. tofi.	Med. hard gray & brown basalt	65	106
Surface Seal: Yes No To what depth? 193' ft.	Soft brown clay	106	144
Material used in seal coment	Brown Sandstone	144	176
Did any strata contain unusable water?	Soft broken brown basalt	176	193
Type of water Depth of strata	Hard gray basalt	193	207
Method of sealing strata off	Soft reddish brown visicular basalt some tan	The	300
PIAIP: Manufacturer's Name	claystone Little water 30gpm	207	218
TypeHP	Med. hard gray & brown basalt	218	236
WATER LEVELS: Land-surface elevation above mean sea levelft.	Hard gray basalt	236	298
Static level 208' ft. below top of well Date	Soft broken brown basalt Some visicular with	TI EXA	(5.7)
Artesian pressurelbs. per square inch Date	Brown clay Water 400	298 👊	337
Artesian water is controlled by	Med. hard brown & gray basalt	,337	342
(cap, valve, etc.)	Med. soft dark gray porus basalt some green clay	342	353
WELL TESTS: Drawdown is amount water level is lowered below static level	Med. hard dark gray basalt 600 water	353 (in/Sec	381
Was a pump test made? Yes No If yes, by whom?  Yield: gal/min, with ft. drawdown after hrs.	Fractured dark gray basalt	381	384
Yield:         gal/min. with         ft. drawdown after         hrs.           Yield:         gal/min. with         ft. drawdown after         hrs.	Med. hard fractured gray basalt	384	405
Yield: gal /min. with ft. drawdown after hrs.	Hard gray basalt 110 psi Rig air only	405	460
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)		TI PELIN	
Time Water Level Time Water Level Time Water Level	Soft will at load	on cells for o	this harge of
	16" pipe to 193'	H	CEIVE
	15" & 14 7/8 to 456'	THERE	A Wash
Date of test		1111	10 1 2010
Bailer test gal/min. with ft. drawdown after hrs.		JUL	44
Airtest 1200 gal/min. with stem set at 400 ft. for 1 hrs.		Dept	of Ecology
Artesian flow		Central	Regional Of
	2.20	7.1	
Temperature of water Was a chemical analysis made?  \[ \] Yes \[ \] No	Start Date 5-24-05 Complet	ed Date 6-6-0	1141
		its complia	ince with all
VELL CONSTRUCTION CERTIFICATION: I constructed and/or ac	cept responsibility for construction of this well, an		
VELL CONSTRUCTION CERTIFICATION: I constructed and/or ac /ashington well construction standards. Materials used and the information	on reported above are true to my best knowledge a	nd belief.	1153
VELL CONSTRUCTION CERTIFICATION: I constructed and/or ac dashington well construction standards. Materials used and the information	on reported above are true to my best knowledge a  Drilling Company BJ Exploration Co., Inc.	nd belief.	tiss = 1
/ELL CONSTRUCTION CERTIFICATION: I constructed and/or according to the construction standards. Materials used and the information of the construction of the construct	on reported above are true to my best knowledge a  Drilling Company BJ Exploration Co., Inc.  Address 404 N. Conway Street	nd belief.	193
Temperature of water Was a chemical analysis made	on reported above are true to my best knowledge a  Drilling Company BJ Exploration Co., Inc.	nd belief.	193
VELL CONSTRUCTION CERTIFICATION: I constructed and/or according to the construction standards. Materials used and the information of the construction of the construct	on reported above are true to my best knowledge a  Drilling Company BJ Exploration Co., Inc.  Address 404 N. Conway Street	nd belief.	2305



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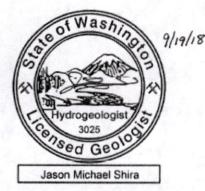
September 18, 2018

To: Trevor Hutton, Washington State Department of Ecology

RECEIVED

JUL 0 1 2019

Dept of Ecology Central Regional Office



From:

Jason M. Shira, LHG Project Hydrogeologist Tyson D. Carlson, LHG Associate Hydrogeologist

Re:

**Hydrogeologic Investigation** 

Flying M Ranch – den Hoed Water Right Transfer

This memorandum presents the findings of Aspect Consulting, LLC's (Aspect) hydrogeologic investigation completed in support of permitting a new groundwater right to Archie and Mari den Hoed (den Hoed), located 4 miles northeast of Grandview, Washington. The den Hoeds are currently under contract to purchase a portion of a senior (pre-1905) water right from the Flying M Ranch located on the Yakima River near Ellensburg. The water right will enable the den Hoeds to plant additional acreage located within the Roza Irrigation District (Roza) boundaries, and will provide for on-farm operational flexibility and drought resiliency. The project proposes to change the source water rights to mitigation and instream flow, then receive a new water budget neutral water right using consumptive use mitigation credits from Washington State's Trust Water Right Program (TWRP). The new water budget water right would authorize the den Hoeds to withdraw groundwater up to 117 acre-feet (100 acre-feet (consumptive use)) from one well completed in the Lower Saddle Mountain Aquifer for irrigation of 40 acres.

To facilitate the transfer, Aspect has completed processing of three water right change applications with the Kittitas County Water Conservancy Board (KITT-17-05, KITT-17-06, KITT-17-07) that are currently under review by the Washington State Department of Ecology (Ecology). In addition, Aspect completed a site-specific hydrogeologic investigation using a multiple line of evidence approach that used the best available data describing the hydrogeology surrounding the den Hoed well. The objective of the investigation was to determine if water is physically available, if the

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proposed points of withdrawal are in hydraulic continuity with the adjacent reach of the Yakima River, and whether local impairment of senior water rights would occur. This information is being provided to Ecology for review in advance of submitting a new water budget neutral application and supporting front-loaded water right documents.

#### **Summary of Findings**

Based on review of the available information and understanding of the site-specific hydrogeologic conceptual model presented below, we observed the following:

- The den Hoed proposed point of withdrawal (well) is completed in the Lower Saddle
  Mountains Aquifer. The well is located in a synclinal basin, flanked by two anticlines to the
  north and south. Based on review of well logs and water levels, the anticlines do not appear
  to be barriers to groundwater flow;
- Water-bearing intervals in the den Hoed well consist of the Selah Interbed and Umatilla Member contact and fractured Umatilla Member of the Saddle Mountains Basalt. Transmissivity of the local bedrock aquifer is estimated at approximately 1,750 feet<sup>2</sup>/day. At-time-of-drilling (ATD) water level in 2005 was reported at 208 feet below ground surface (bgs);
- Contemporary water levels collected in the den Hoed well indicate groundwater elevations have seasonally risen up to 18 feet since 2005. In addition, Ecology monitors groundwater levels in five wells that are proximal to the den Hoed well. Review of the recent (18 years) groundwater elevations in these wells show no discernable trend or long-term decline. In addition, water levels in the Saddle Mountain Basalt aquifer have recovered from drawdowns associated with multiple past emergency drought year withdrawals.
- In Saddle Mountains Basalt aquifer wells Ecology data indicate higher water levels are
  associated with late fall to early spring; lower water levels typically occur in spring to late
  summer. The higher fall groundwater elevations indicate that the Saddle Mountains Basalt
  aquifer likely receives direct annual recharge from surface irrigation return flows.
- A water budget analysis was completed for the area between the two local anticlines. For this area, the primary and supplemental (nonadditive) water rights identified above equal about 2.4 and 7.6 inches, respectively. The proposed transfer is equal to about 0.39 inches over the same area. Cumulatively, the sum of these water rights is conservatively estimated to be less than half of the total annual recharge (22.5 inches) reported by Vaccaro (2009).
- Interference drawdown from continuously pumping the proposed well at an average withdrawal rate (135 gallons per minute (gpm)) for the 7.5-month irrigation season is estimated to be less than 7.3 feet. Peak pumping (withdrawal of 360 gpm for 30 continuous days) results in less than 8.3 feet of drawdown. Both estimates conservatively assume no leakage or boundary conditions and are a small percentage of the estimated 300 feet of total available drawdown in the Lower Saddle Mountain Aquifer; and
- The proposed water right transfer will be water budget neutral with respect to Total Water Supply Available (TWSA) in the Yakima River Basin as measured at the Prosser gage. In

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addition, no perennial surface water body is mapped within 5,000 feet of the applicant's property, and the closest surface water body listed by Washington State Department of Fish and Wildlife (WDFW) database to have Endangered Species Act (ESA)-listed species is the Yakima River, located about 6.8 miles southwest of the property.

We therefore conclude that groundwater in the Lower Saddle Mountains Aquifer is physically available for appropriation; groundwater withdrawals in the Lower Saddle Mountains Aquifer are in hydraulic continuity with the Yakima River; and authorization of the proposed well will not impair nearby groundwater users, surface water, or ESA-listed species. Supporting analysis for these findings is presented in the sections below.

#### **Hydrogeologic Investigation**

Structural setting, geologic history, and occurrence of groundwater provide the basis for our interpretation of site-specific hydrogeology and the hydraulic continuity between the Saddle Mountains Aquifer and the mainstem Yakima River. A description of the geologic setting and stratigraphic units of the area are discussed below.

#### Proposed Point of Withdrawal

The proposed point of withdrawal (10N/24NE-32M1) is located about 4 miles northeast of Grandview, just east of the Benton County line in the northeast quarter of the southwest quarter of Section 32 in Township 10 North, Range 24 East Willamette Meridian (E.W.M) as shown on Figure 1. Aspect staff field located the well using GPS, and notes the driller's log mistakenly lists the well as located in the northwest quarter of the southwest quarter of the section.

The well was constructed as an emergency drought well in 2005. The well was drilled and constructed between May 24 and June 6, 2005 using a rotary drilling method. The well was completed to a depth of 460 bgs. A 24-inch-diameter conductor casing extends from 1 foot above ground surface (ags) to 20 feet bgs, and a 16-inch-diameter liner extends from 1 foot ags to 193 feet bgs. The surface seal extends 193 feet to the bottom of the 16-inch-diameter liner. A 15 to 14 7/8-inch-diameter liner extends from 193 to 456 feet bgs.

Water bearing zones are encountered between 207 to 218, 298 to 337, and 342 to 353 feet bgs with an increase in water production corresponding to the Selah Interbed and Umatilla Member contact and fractured Umatilla Member. The well air tested at 1,200 gallons per minute (gpm) with the stem set at 400 feet bgs. The at-time-of-drilling (ATD) water level was reported at 208 feet bgs.

#### Regional Geology

Local geologic characteristics are largely the result of regional tectonic processes. The den Hoed well is located in the lower Yakima River Valley, east of the Cascade Mountains, within the Yakima Fold Belt, a subprovince of the Columbia Basin. The well is on the south arm of the northeast-southwest trending Sagebrush Ridge anticline, and is flanked to the south by the Grandview Butte anticline as shown on Figure 2.

Regional bedrock is dominated by the Columbia River Basalt Group (CRBG), a series of stacked basalt flows and sedimentary interbeds that were deposited between 17 and 6 million years ago. Although sedimentary interbeds are present in all CRBG formations, the Saddle Mountain Basalt formation generally contains the most and the thickest sedimentary interbeds (Vaccaro et al., 2009).

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Folding, faulting, and uplift of CRBG formations within the Yakima Fold Belt began concurrent with placement of CRBG formations and have continued to the present.

#### Site Hydrostratigraphic Units

Surficial geology is shown in Figure 2. Geologic unit and structural data from the Washington State Department of Natural Resources (DNR, 2018), and select water well log data from the Washington Department of Ecology (Ecology) on-line water well database (included as Attachment 1) were used to develop the subsurface interpretation. This interpretation is presented in cross section as Figures 3 and 4. Local data indicate that there are two principal geologic units at the property. From younger to older, these are unconsolidated quaternary sediments and the CRBG. The characteristics and distribution of each unit is described as follows:

- Quaternary Sediments The property is overlain by loess deposits (QI), a windblown silt.
   Well log data from Ecology's records indicate the thickness of sediments overlying basalt near the project well range from 4 to 20 feet thick.
- Columbia River Basalt Group The CRBG is the basement unit in the area. Rocks of the Saddle Mountain Formation are mapped at the surface within one mile of the property. The Saddle Mountains Basalt Formation includes (from youngest to oldest) the following flow members and sedimentary interbeds:
  - Elephant Member described as black, brown, or grey; medium to very hard basalt; and 90 feet thick in driller's logs. The Elephant Member is not typically a water source in the project area.
  - o *Rattlesnake Ridge Interbed* described as brown or tan, soft clay to sandstone, and 70 to 90 feet thick in driller's logs. The Rattlesnake Ridge Interbed is not typically a water source in the project area, except for some domestic water supply wells.
  - Pomona Member described as black, brown, grey, or some red; soft, medium, or hard basalt; 70 to 170+ feet thick in driller's logs. The Pomona Member is a water source for many domestic and irrigation wells in the project area.
  - Selah Interbed described as brown, tan, or grey; clay to sandstone; and 0 to 30 feet thick in driller's logs. The contact between the Selah Interbed and Umatilla, where the Selah Interbed is present, or the interflow zone, where the Selah Interbed is not present, are productive water bearing zones.
  - Umatilla Member described as black, brown, grey; hard; broken, fractured; basalt; and approximately 90 feet thick in driller's logs. The Umatilla Member is a water source for many wells in the project area. This member also appears to be heavily fractured over a large aerial extent, and a productive water bearing zone.

The thickness of the Saddle Mountains Basalt Formation, basalt flows plus interbeds, near the property is estimated at approximately 500 feet (Jones 2009). Collectively, saturated layers within the Saddle Mountains Basalt Formation form the Saddle Mountains Basalt Aquifer.

The Wanapum Basalt Formation underlies the Saddle Mountains Basalt Formation. Wells near the project area are not completed in the Wanapum; however, two wells (CRGWDB-201712 and 10N/24E-31C1) are double completed in the Saddle Mountain and Wanapum

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Basalt. The uppermost member of the Wanapum Basalt Formation, Priest Rapids Member, is overlain by the Mabton Interbed, a regional marker bed.

#### **Aquifer Characteristics**

Aquifer parameters of the Saddle Mountains Basalt Aquifer were estimated using flow rates from airlift pumping tests and Driscoll's empirical equation (Driscoll, 1986). The median horizontal hydraulic conductivity within the Saddle Mountains Basalt Aquifer was estimated at 4.1 x 10<sup>-3</sup> cm/s (12 feet/day), or a transmissivity of 1,750 feet<sup>2</sup>/day assuming an average aquifer thickness of 150 feet (from examination of well logs).

The resulting horizontal hydraulic conductivity is greater than that found by Vaccaro et al., 2009 (1 to 2 feet/day) in their review of existing reports and used by Ely et al., 2011 in their numerical simulation. This discrepancy is likely due to the presence of significant fracture zones locally documented in the upper Umatilla Member that result in a relative high (140 feet/day) hydraulic conductivity.

#### Water levels

Ecology monitors groundwater levels in five wells that are proximal to this project well as noted in Figure 2. Figure 5 also illustrates the location and completion of each of the wells and water levels ATD. Figure 6 presents the autumn (fall) data for the most recent 18 years (2000 to present), while Figure 7 presents spring water level measurements. Inspection of these data show no discernable trend or long-term decline. Moreover, water levels recover following increased drought year (i.e., 2005 and 2015) withdrawals in wells completed in members of the Saddle Mountains Basalt Aquifer. However, it is noted that water levels did not recover in wells completed in the Wanapum Basalt Aquifer (note both Well CRGWDB-201712 and 10N/24E-31C1 are double completed and open across the members of both the Saddle Mountains Basalt and Wanapum Aquifers). The figures also illustrate the strong downward vertical hydraulic gradient between the Saddle Mountains Basalt water bearing members and the Wanapum Basalt Aquifers, and the influence of the double completed wells have on area water levels.

Figure 8 is a plot of static water level (SWL) elevations at time of drilling. Wells completed in the Saddle Mountains Basalt Aquifer tend to have a SWL elevation between 950 and 1,100 feet depending on location. Well 10N/24E-31E1 does not plot within the observed range of elevations. The reason for the lower SWL elevation is likely due to drawdown induced by a cascading water condition in the nearby double-completed wells. This nearby induced drawdown has also lowered water levels in CRGWDB-201804 below the elevation of other wells completed in the Saddle Mountains Basalt Aquifer as seen in Figures 5 and 6. Other than the outliers noted, these data also show no discernable or long-term decline in Saddle Mountains Basalt water levels.

Figure 9 presents the monthly groundwater elevation statistics for the Ecology monitored wells. In general, the box-plot indicates higher water levels are associated with late fall to early spring; lower water levels typically occur in spring to late summer in the Saddle Mountains Basalt Aquifer wells. The exception is well CRGWDB-201804, which is affected by the induced drawdown of nearby cascading wells. The higher fall groundwater elevations indicate that the Saddle Mountains Basalt Aquifer likely receives direct annual recharge from surface irrigation return flows.

Aspect collected water level measurements in the subject well during the hydrogeologic investigation. The measurements were collected with a direct read electronic well sounder. The

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measurements indicate that the water level in the den Hoed well are currently 9 to nearly 18 feet higher than the reported ATD of 208 feet bgs and are summarized in the table below.

Table 1. den Hoed Water Level Measurements

Date	Depth to Water (feet bgs)	Groundwater Elevation (feet amsl)
6/06/2005 (ATD)	208.00	985.7
8/30/2017	192.09	1,001.6
11/21/2017	190.30	1,003.4
2/23/2018	199.15	994.6

Inspection of the water levels indicate that groundwater levels are significantly higher that what was observed in 2005. In addition, water level elevations were highest following the irrigation season, and slowly decreased during the winter months, similar to the surrounding groundwater trends noted above.

#### **Local Water Budget**

To inform a local water availability determination, Aspect evaluated local estimates of groundwater recharge in the Yakima River Basin, as reported by Vaccaro and Olsen (2007). The study included developing two models to estimate groundwater recharge for predevelopment and current conditions. The overall objective of the study was to describe the groundwater flow system and its interaction with and relation to surface water, and to provide baseline information. The baseline information is then indented to be used to guide and support action taken by management agencies (i.e., Ecology) with respect to groundwater availability.

The model(s) determined that the basin-wide mean annual recharge under current land-use conditions was about 15.6 inches, or about 7,132 ft3/s. Specific to the area representative of the den Hoed well (Prosser; Identification No. 10), modeling results indicate that annual precipitation is about 7.9 inches, irrigation is 44.9 inches, and annual recharge is 22.5 inches. In addition, Vaccaro et al. (2009) evaluated differences between annual and cumulative pumpage and recharge at a smaller scale across the basin. For the area representative of the den Hoed well, Vaccaro (2009) found the difference between cumulative (1960 to 2001) groundwater recharge and pumpage is greater than 20 feet.

#### **Existing Water Rights**

The location and type of water right located in the area between the anticlines was queried in Ecology's Water Resource Explorer. The query indicated that 14 certificates were on record. Eleven of the water rights were supplemental (non-additive) to Roza. Three are considered primary water rights for irrigation of about 132 acres. Coincidentally, the water rights (Nos. G4-23965CWRIS, G4-24765CWRIS, G4-25907GWRIS) are associated with the same double completed wells noted above. In addition, 19 groundwater claims were also on record with priority dates later than 1945. There are 9 new applications, 7 of the applications are for 1994 or 2001 emergency drought authorization and 2 for new unmitigated primary water rights already served by Roza, which are not considered to be TWSA neutral.

For comparison, the area between the two anticlines is conservatively estimated to be about 5.5 square miles. For this area, the primary and supplemental (nonadditive) water rights identified

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above equal about 2.4 and 7.6 inches, respectively. Similarly, the proposed transfer is equal to about 0.39 inches. Cumulatively, the sum of these water rights is conservatively estimated to be less than half of the total annual recharge estimated by Vaccaro (2009).

Ecology estimates that a total of approximately 2,218 acre-feet was withdrawn in emergency drought authorizations during the 2015 drought. As metered, between the 2005 and 2015 droughts, the den Hoed well has withdrawn a total of 186.5 acre-feet.

#### **Hydrogeologic Conceptual Model**

The den Hoed's existing well withdraws groundwater from the Lower Saddle Mountains Aquifer. Saddle Mountains Basalt are mapped at ground surface within one mile of the subject well and extend to below the Yakima River to the south. Drawdown effects from pumping of the proposed wells would reduce lateral groundwater flow which, in turn, would reduce baseflow contribution to the Yakima River through the overlying unconsolidated sediments and impact TWSA. In addition, there are no geologic structures (e.g., folds or faults) mapped between the existing wells and the Yakima River that behave as a barrier to groundwater flow. Therefore, the proposed well completed in the Lower Saddle Mountains Aquifer is considered to be in hydraulic continuity and competing for water with the Yakima River.

Aspect contacted Ecology about groundwater management in the area. Ecology manages shallow alluvium and basin-fill deposits as a single unit, and is considered to be in high continuity with local surface water. However, the Saddle Mountains may be managed as one or two sources, depending on local characteristics. For instance, the Upper Saddle Mountains Aquifer includes all saturated materials above the Pomona Member of the Saddle Mountain Basalt. In the Upper Saddle Mountain Aquifer, where saturated, groundwater flow directions are driven by the recharge of precipitation and generally correspond to surface topography—with groundwater percolating through fractures or exposed interbeds and flow tops along the axis of an anticline, and flow trending toward regional discharge points (i.e., Yakima River). The Lower Saddle Mountain Aquifer includes all materials below including the Pomona Member.

Depending on thickness and characteristics of the overlying sediments, the Lower Saddle Mountains may also respond to seasonal recharge, or may be more confined and isolated from the surface and influence of regional discharge points. In the area of the den Hoed well, the Lower Saddle Mountains Aquifer readily responds to seasonal recharge from the ground surface. Specifically, the water levels in the den Hoed well seasonally respond to recharge, and have risen up to 18 feet since 2005. Below the Saddle Mountains, Ecology typically considers water-bearing zones within the Wanapum Formation to be a distinct aquifer (i.e., Wanapum Aquifer).

#### **Local Availability**

Following construction of the den Hoed well in 2005, the well was tested at 1,200 gpm with the stem set at 400 feet bgs for one hour. Since that time, the well was pumped during both the 2005 and 2015 drought years at about 1,000 gpm. Assuming the den Hoed irrigation requirement is approximately equal to 9 gpm per acre, or 360 gpm for the irrigation or 40 acres, the well is more than capable of meeting the instantaneous demand.

Water levels collected in the den Hoed well indicate groundwater elevation have seasonally risen up to 18 feet since 2005. In addition, Ecology monitors groundwater levels in five wells that are

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proximal to the den Hoed well. Review of the contemporary groundwater elevations in these wells show no discernable trend or long-term decline in the Saddle Mountains Basalt Aquifer. In addition, water levels in the Saddle Mountain Basalt Aquifer continue to recover from drawdowns associated with emergency drought year withdrawals.

A water budget analysis was completed for the area between the two local anticlines. For this area, the primary and supplemental (nonadditive) water rights identified above equal about 2.4 and 7.6 inches, respectively. The proposed transfer is equal to about 0.39 inches over the same area. Cumulatively, the sum of these water rights is conservatively estimated to be less than half of the total annual recharge (22.5 inches) reported by Vaccaro (2009). Therefore, based on this information, water is found to be physically available in the Saddle Mountains Basalt aquifer.

The suitability of water rights for mitigation in the lower Yakima Basin are illustrated in Ecology's Central and Lower Yakima Basin Water Exchange Mitigation Suitability Map. The den Hoed well is located just east of the Yakima-Benton County line, directly east of Sunnyside, in the green area. The green area is defined as being suitable for mitigation of TWSA with a pre-1905 mainstem water right.

#### Impairment Analysis

Revised Code of Washington (RCW) 90.03.290 and RCW 90.44.060 require a determination that a water right change will not impair existing water rights. The closest non-den Hoed well to the proposed well is a permit-exempt water supply well (10N/24E-32P1) located 1,315 feet away. The closest primary water right for Saddle Mountains Basalt aquifer is located 5,460 feet from the den Hoed well, and is associated with well 10N/24E-31C1.

Using the aquifer parameters above and an estimated storage coefficient of  $1.0 \times 10^{-3}$ , the governing Theis equation (Theis, 1935) was used to estimate the interference drawdown from pumping the proposed well at 135 gpm, which is the rate to pump the requested annual quantity over the proposed irrigation season (April 1 to October 15). Based on this analysis, the interference drawdown is estimated to be less than 7.3 feet at the domestic well at the end of 197 days of pumping, and less than 4.0 feet in the 10N/24E-31C1 well located 5,460 feet from the proposed well. Peak pumping (withdrawal of 360 gpm for 30 continuous days) results in less than 8.3 and 3.0 feet of drawdown, respectively. Both estimates conservatively assume no leakage or boundary conditions and are a small percentage of the estimated 300 feet of total available drawdown in the Lower Saddle Mountain Aquifer

The increase in drawdown in the domestic well (10N/24E-32P1) and the primary water right well (10N/24E-31C1) represents 5 to 1 percent of the available drawdown in the respective wells. Both estimates conservatively assume no leakage or boundary condition and are a small percentage of the estimated 300 feet of total available drawdown in the Saddle Mountains Basalt Aquifer.

We conclude that although pumping interference effects are likely, no impairment of existing groundwater rights—either permit or permit-exempt—will occur in the Saddle Mountains Basalt Aquifer with full use of the requested quantity.

The proposed water right transfer will be water budget neutral with respect to TWSA as measured at the Prosser gage. In addition, no perennial surface water body is mapped within 5,000 feet of the

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applicant's property, and the closest surface water body listed by Washington State Department of Fish and Wildlife (WDFW) database to have Endangered Species Act (ESA)-listed species is the Yakima River, located about 6.8 miles south of the proposed well. Therefore, no impairment of local surface water or ESA-listed species will occur.

#### References

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Project No.: 170289-002-02

#### Limitations

Work for this project was performed for the Lathrop, Winbauer, Harrel, Slothower & Denison L.L.P (Client) on behalf of Archie and Mari den Hoed, and this memorandum was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This memorandum does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

#### **Attachments**

Figure 1 - Project Area Map

Figure 2 - Surficial Geology Map

Figure 3 - Cross Section A-A'

Figure 4 – Cross Section B-B'

Figure 5 - Ecology Monitoring Well Locations and Completion

Figure 6 – Ecology Groundwater Trends (Fall)

Figure 7 – Ecology Groundwater Trends (Spring)

Figure 8 – Static Water Level at Time of Drilling

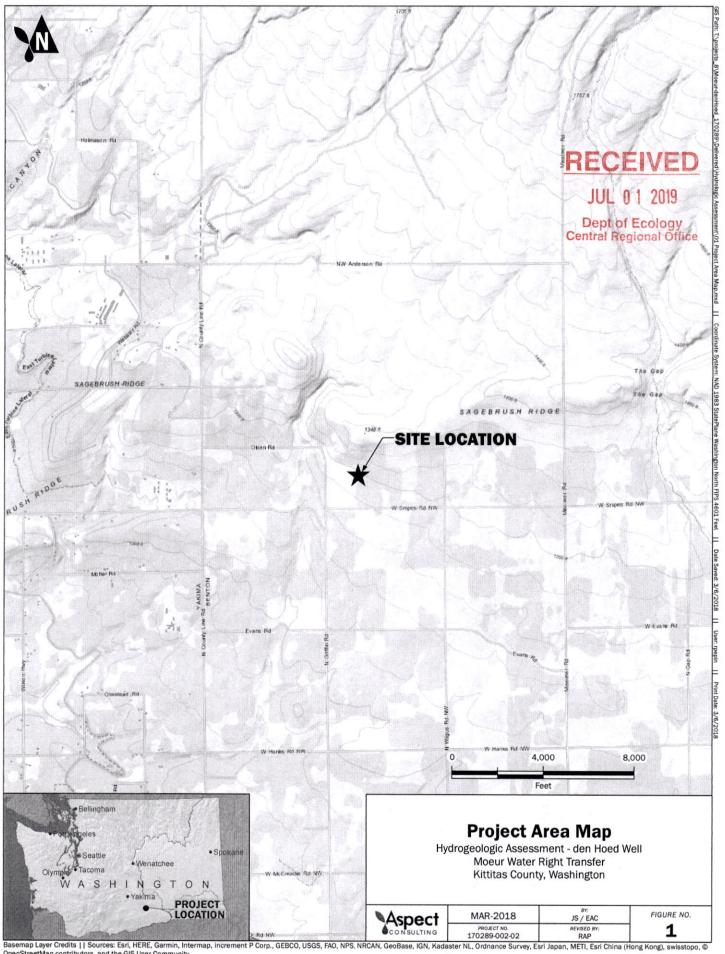
Figure 9 - Ecology Groundwater Level Statistics

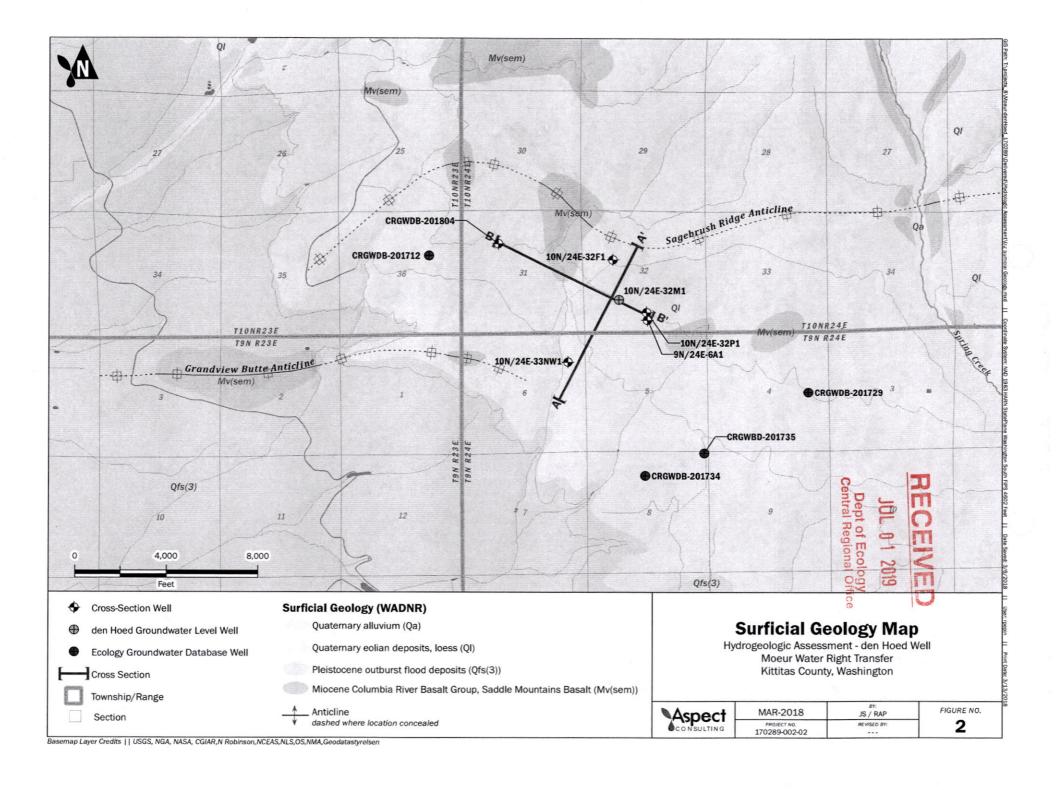
Attachment 1 – Well Logs

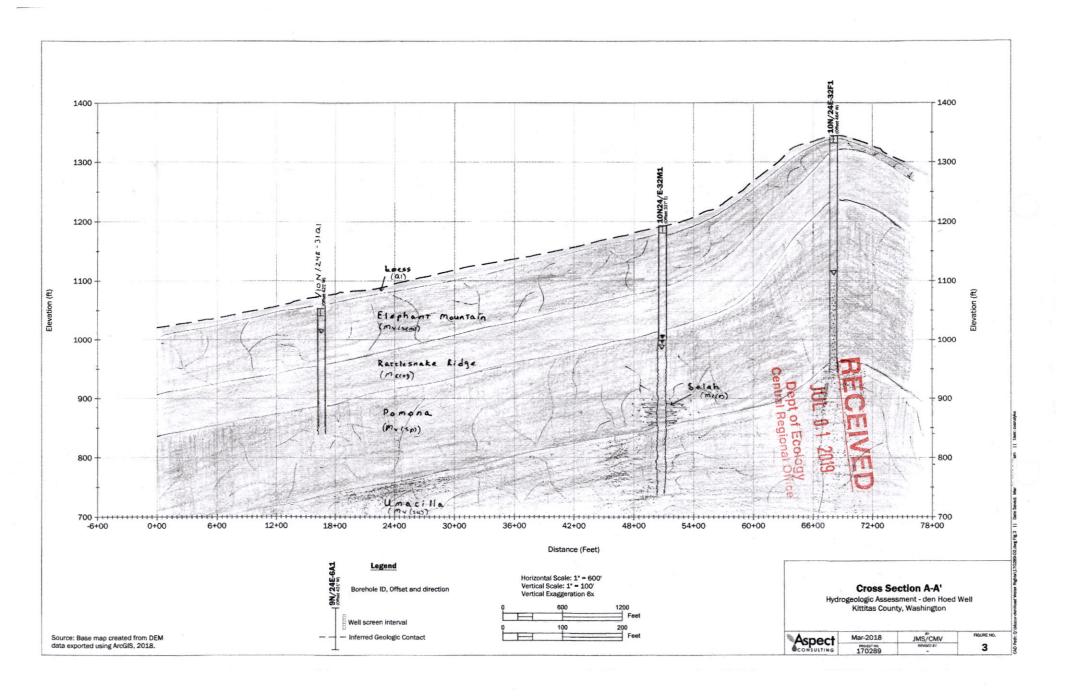
V:\170289 Moeur Water Right Transfer\Deliverables\Den Hoed HG Memo\Den Hoed HG Memorandum\_Final\_20180919.docx

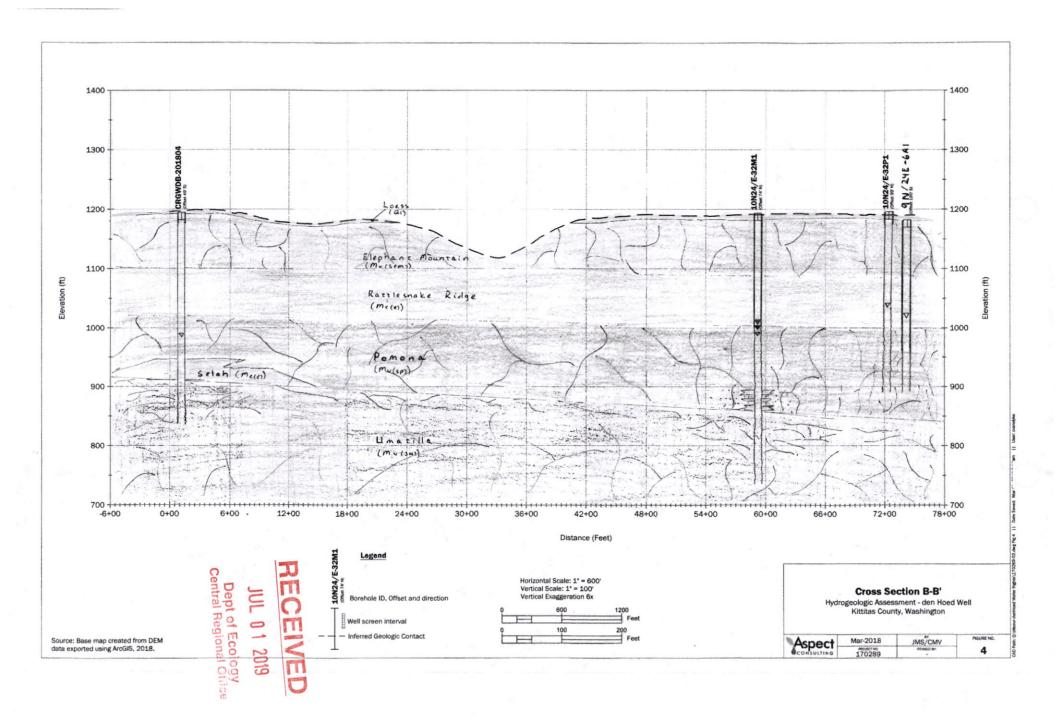
# JUL 0 1 2019 Dept of Ecology Central Regional Office

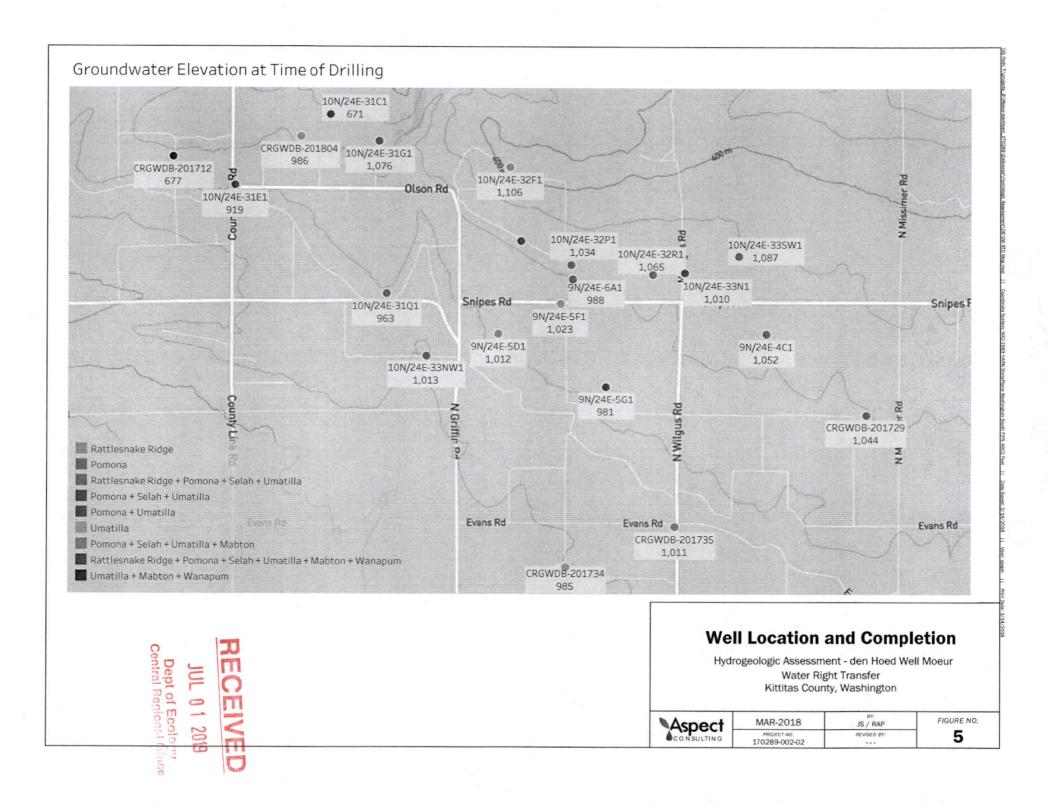
# **FIGURES**

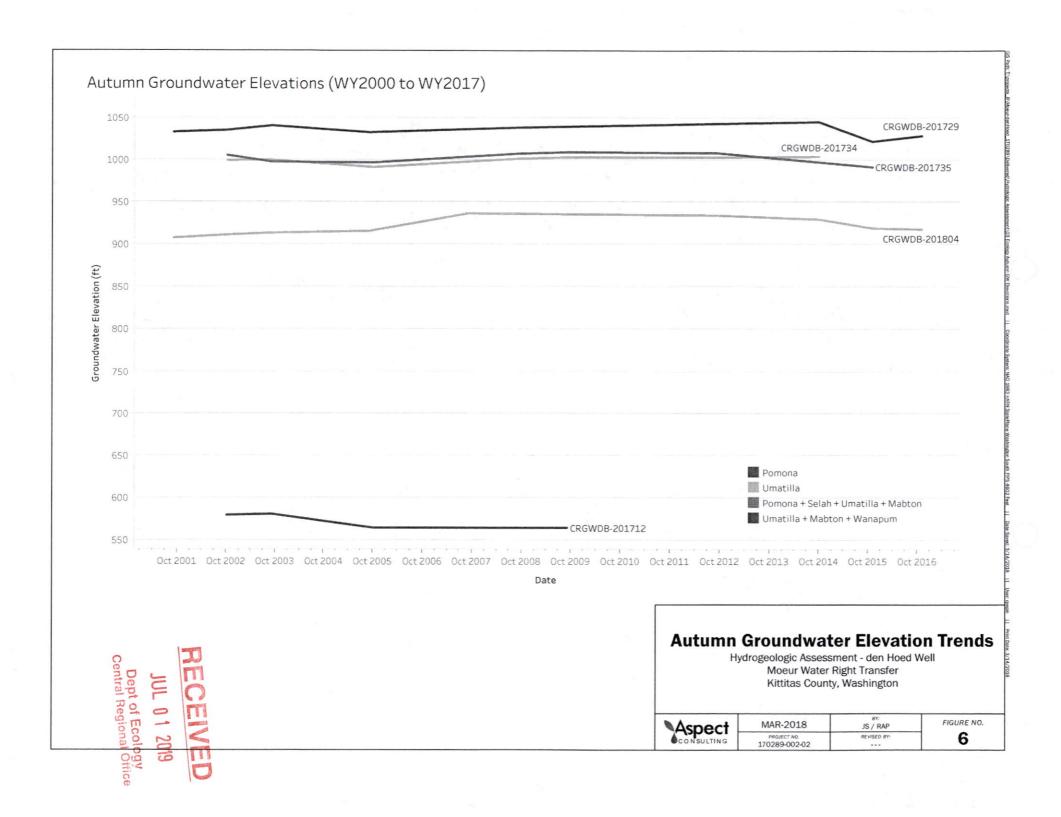


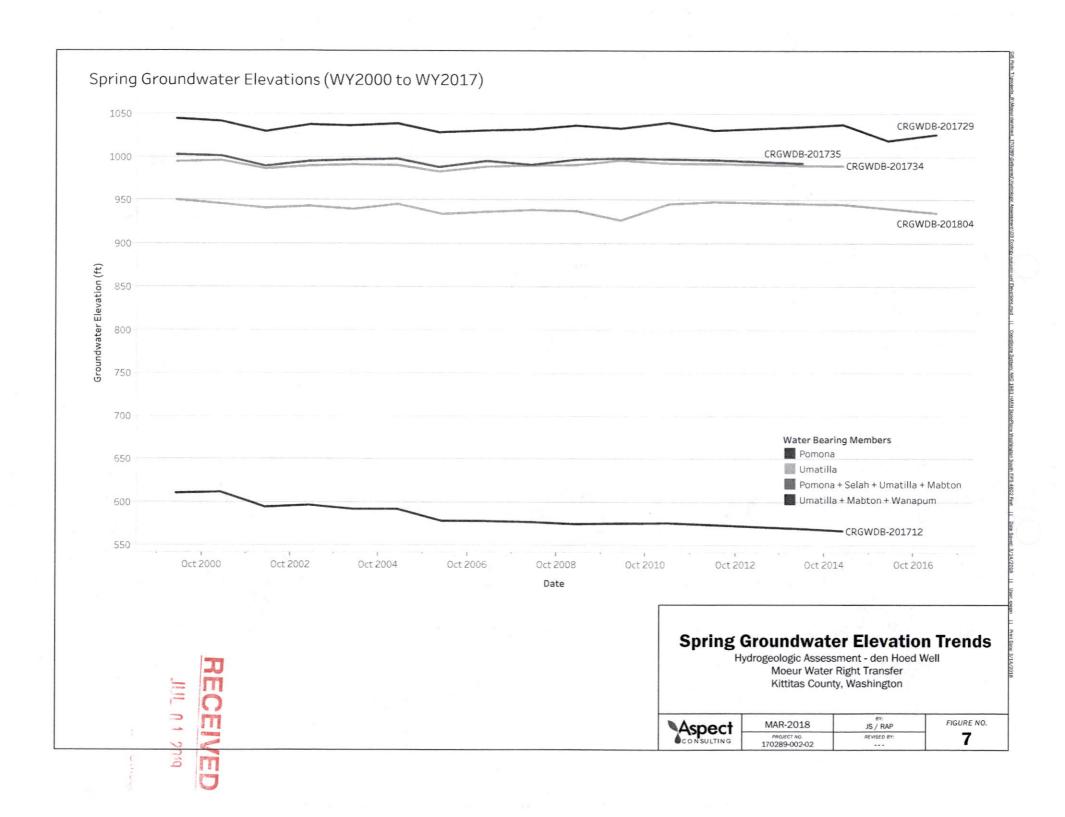


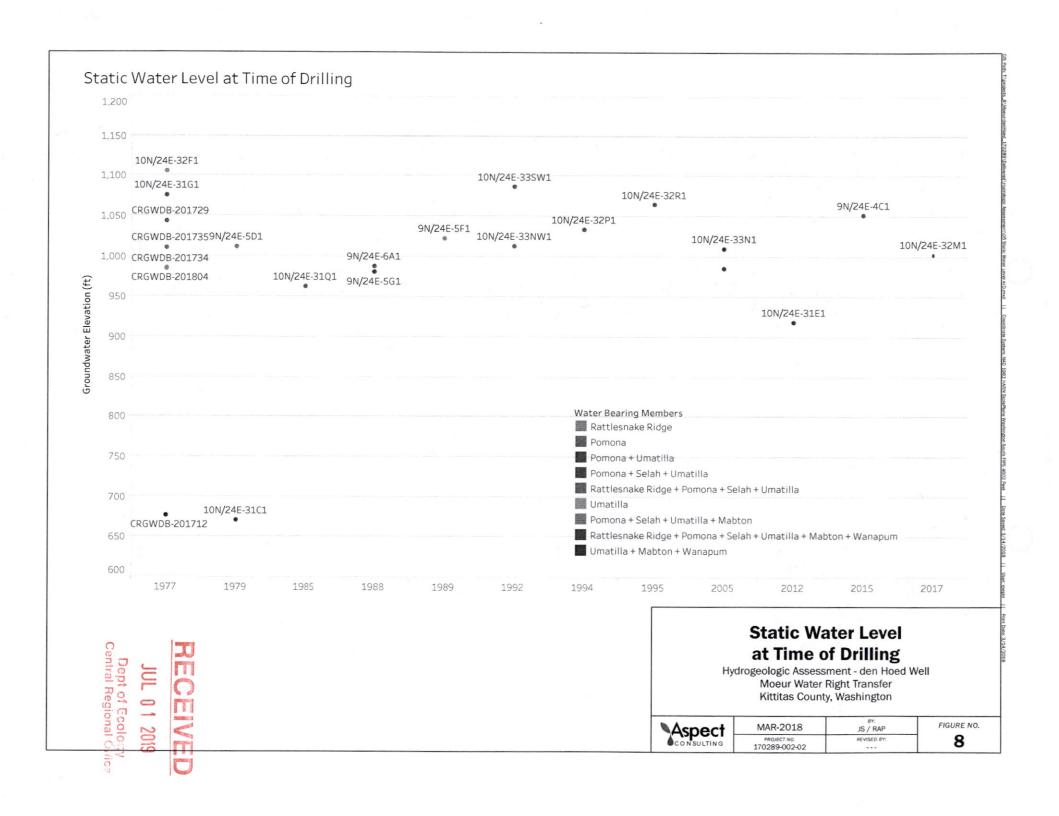




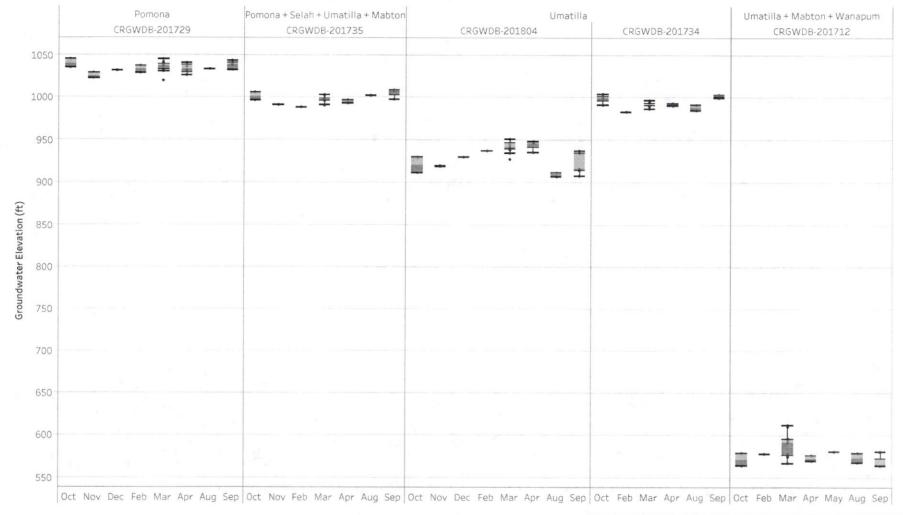








### Monthly Groundwater Elevation Statistics (2000 to Present)



## **Groundwater Elevation Statistics**

Hydrogeologic Assessment - den Hoed Well Moeur Water Right Transfer Kittitas County, Washington

M A
Aspect
A SPOC.
■ CONSULTING

MAR-2018	JS / RAP	
PROJECT NO.	REVISED BY:	
170289-002-02	•••	

FIGURE NO.



## **ATTACHMENT 1**

**Well Logs** 

,	
Seco	Original and First Copy with artment of Ecology nd Copy — Owner's Copy d Copy — Driller's Copy
(1)	OWNER: Name Andy
)	LOCATION OF WELL:
!	ing and distance from section or
(3)	PROPOSED USE: Dom
(4)	TYPE OF WORK: Own in a New well Deepened Reconditioned
(5)	DIMENSIONS: Drilled 290 ft Dep
(6)	CONSTRUCTION DETA

## WATER WELL REPORT

DEN

HoEd

STATE OF WASHINGTON No. 2

Rt 2

Bex

2637

9N/24E-6A1 Application No

Grandon

Permit No 84-29473 P

") LOCATION OF WELL: County Bented County	TY SE 1. SUM, Sec 32 T. 10 N. R 24 WM
(3) PROPOSED USE: Domestic   Industrial   Municipal	(10) WELL LOG:
Irrigation D Test Well D Other	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.
(4) TYPE OF WORK: Owner's number of well	MATERIAL FROM TO
New well Method: Dug Bored	pirt 0 4
Deepened ☐ Cable ☐ Driven ☐  Reconditioned ☐ Rotary 🗗 Jetted ☐	
	MEDIUM BASALT 4 90
(5) DIMENSIONS: Diameter of well 12 inches.  Drilled 240 ft Depth of completed well 280 ft.	SANDSTONE (10 40M) 90 180
(6) CONSTRUCTION DETAILS:	
Casing installed: "Diam from th. to	MEDIUM Black Basatt 180 275
Threaded [] Diam. from ft. to ft.	
Welded (9 12 " Diam. from # 1. tt. to 220 ft.	Broken busult gravel 275 290
Perforations: Yes   No E	with water
Type of perforator used	
SIZE of perforations in. by in.	
perforations from ft. to ft.	
perforations from ft. to ft.	
perforations from ft. to ft.	RECEI
Screens: Yes   No	HELLIVED
Manufacturer's Name	11.0
Type Model No.	JUL 0 1 2019
Diam Slot size from ft. to ft.  Diam Siot size from ft. to ft.	Dentaca
	Central Registrology
Gravel packed: Yes   No   Size of gravel:	office .
Gravel placed from ft. to ft.	
Surface seal: Yes No D To what depth? 220 ft.  Material used in seal NEAT CEMENT	
Did any strata contain unusable water? Yes [ No []	
Type of water? Depth of strata	
Method of sealing strata off	F G B B W E A
(7) PUMP: Manufacturer's Name.	
Туре: Н.Р	1 1171
(8) WATER LEVELS: Land-surface elevation	2 9 1099
above mean sea level ft.	
Static level 165 ft. below top of well Date  Artesian pressure lbs. per square inch Date	U.C.
Artesian water is controlled by (Cap, valve, etc.)	
(Cap, valve, etc.)	
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Work started DEC. 10. 1987. Completed FEb. 25 1988
Was a pump test made? Yes □ No □ If yes, by whom?	WELL DRILLER'S STATEMENT:
Yield: gal./min. with ft. drawdown after hrs.	
	This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Recovery data (time taken as zero when pump turned off) (water level	The to the dest of my knowledge and defect.
measured from well top to water level)  Time Water Level   Time Water Level   Time Water Level	NAME BACK Drilling Co. (Type or print)
	Address Rt 5 Box 1010, Ellensburg
	,
Date of test	[Signed] Tiche Back
Date of test  Baller test 800 gal/min with ft drawdown after hrs.	[Signed] (Well Driller)
Artesian flow g.p.m. Date	
Temperature of water Was a chemical analysis made? Yes □ No □	License No. 22 Date 3-2/- 88 , 19.88

File O	riginal and First Copy with
Depart	ment of Ecology
Second	Copy — Owner's Copy Copy — Driller's Copy
Inira	Copy - Driller's Copy

## WATER WELL REPORT

Application No. .. Permit No. 64-294

9N/24E-5G1

STATE OF WASHINGTON . No. 1 (1) OWNER: Name ANDY DEN HOED Address Rt 2 BOX 2637 , GRAND WICH LOCATION OF WELL: County BENTON \_5W 14 NE 14 Sec 5 T 9 N R24 WM ring and distance from section or subdivision corner (3) PROPOSED USE: Domestic | Industrial | Municipal | (10) WELL LOG: Irrigation Test Well Other Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation. MATERIAL FROM Method: Dug : Dirt 0 4 Deepened Cable [7] Driven [ Rotary & Jetted Reconditioned [ BASAIT MEDIUM 100 (5) DIMENSIONS: Diameter of well ...... 12... Drilled 360 ft. Depth of completed well 360 ft. SANDS TONE 100 185 (6) CONSTRUCTION DETAILS: BASAIT MEDIUM 3/2 185 Casing installed: 12 "Diam from O ft. to 205 ft. Fractured BASAT 3/2 355 Welded | with water Perforations: Yes | No 19/ Type of perforator used..... HARD BASATT 355 360 SIZE of perforations ..... in. by ..... in. ..... perforations from ...... ft. to ..... ft. ..... perforations from ...... ft. to ..... ft. ..... perforations from ...... ft. to ... Screens: Yes No E Manufacturer's Name...... Diam. ..... Slot size ..... from ..... ft. to ..... ft. Diam. Slot size ..... from ft, to ft. Dept of Ecolo Gravel packed: Yes No No Size of gravel: ...... Gravel placed from ..... ft. to ..... ft. Surface seal: Yes No D To what depth? 205 Material used in seal NEAT CEMENT Did any strata contain unusable water? Yes Type of water?..... Depth of strata..... Method of sealing strata off..... (7) PUMP: Manufacturer's Name..... 2 3 1988 (8) WATER LEVELS: Land-surface elevation above mean sea level.... Static level .................ft. below top of well Date............ DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE Artesian water is controlled by...... (Cap. valve, etc.) Drawdown is amount water level is lowered below static level (9) WELL TESTS: Work started FEb . 29 1988 Completed MAP 21 1988 Was a pump test made? Yes [ No [] If yes, by whom?... WELL DRILLER'S STATEMENT: Yield: gal./min. with ft. drawdown after hrs. \*\* This well was drilled under my jurisdiction and this report is NAME BACK PAIN (Person, firm, or corporation) (Type or print) Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) Water Level | Time Water Level | Time Address Rts , BOX 1010 EllENSbury ate of test ..... (Well Driller) Bailer test 800 gal/min, with ft. drawdown after hrs. Artesian flow......g.p.m. Date..... License No. 22 Date MAr. 21, 1988

Temperature of water...... Was a chemical analysis made? Yes  $\ \square$  No  $\ \square$ 

ECY 050 137 (10 87) 1329

File Original and First Copy with Department of Ecology Second Copy—Owner's Copy Third Copy—Origer's Copy

## WATER WELL REPORT

Start Card No 08 4415

STATE OF WASHINGTON

Water Right Permit No 10N/24E-33SW

1	1
1	e 1

(1)	OWNER: Name Audy DENHOED	Address Grandvicu	
	LOCATION OF WELL: County BENTON	S 45W 4 Sec 33 1 10	N. R24 W.M
(28)	STREET ADDDRESS OF WELL (or nearest address)		
(3)	PROPOSED USE: ☐ Domestic	Formation: Describe by color, character, size of material and structure and s	
(4)	TYPE OF WORK: Owner's number of well	thickness of aquifers and the kind and nature of the material in each with at least one entry for each change of information.	stratum penetrated.
٠٠,	(II MOTO THEIR ONE)		ROM TO
	Abandoned  New well Method: Dug Bored Cable Driven	Dict	0 5
	Reconditioned - Rotary - Jetted	MED BASAIT	5- 90
(5)	DIMENSIONS: Diameter of well 8inches.		0 170
(0)			70 270
	Drilled 287 feet. Depth of completed well 289 ff.	- 1.	70 289
(6)	CONSTRUCTION DETAILS:	DASA 11.	10 37
	Casing installed:         8         Diam from +/ 11. to 20 ft.           Welded Line: installed Interest installed Interest I		
	Perforations: Yea Y No		
	Type of perforations SAW C 2 T  SIZE of perforations in by 2 in by 50 perforations from 250 ft. to 270 ft.		
	perforations from the local fit		-
	perforations from ft. to ft.		
	Screens: Yes No L		
	Manufacturer's Name		
	Type Model No	Breef Street Carlo Street St. N. V. Second	lback P
_	Diam Slot size trom ft. to ft.	RECEIVE	
	Diam Slot size from ft. to ft.		
	Cravel analysis V. N. N. A. B.	HH-0-1 2019	
	Gravel packed: Yes No Size of gravel	302 01 2010	
	Gravel placed fromft. toft.	Dept of Ecology	1
	Surface seal: Yes B No To what depth? 10 II.  Material used in seal BENON: TE - CEMENT	Central Regional Of	lice
	Did any strata contain unusable water? Yes No		
	Type of water?Depth of strate	orn 2 0 1000	
	Method of sealing strata off	SEP 2 9 1982	
(7)	PUMP: Manufacturer's Name		
	Туре		
	Landaudece elevation		<del></del>
	above mean sea level ft.		
	Static level 160 ft. below top of well Date		
- 1	Artesian pressure lbs. per square inch Date		
	Artesian water is controlled by (Cap. varve. etc.))	2 ///	
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level  Was a pump test made? Yes No If yes, by whom?	Work started 7-19 19 Completed 7-17	1972
	Yield: gal./min_with ft_drawdown after hre.	WELL CONSTRUCTOR CERTIFICATION:	
	gal, min with it drawdown after hre.	I constructed and/or accept responsibility for constructi	ion of this well.
		and its compliance with all Washington well construct	tion standards.
	Recovery data (time taken as zero whan pump turned off) (water level measured from walf top to water level) Time Water Level Type Water Level Type Water Level	Materials used and the information reported above are t knowledge and belief	rue to my best
	Time Water Level Time Water Level Time Water Level	NAME BACK DELL ING CO. (PERSON FIRM OR CORPORATION) (T	YPE OR PRINT)
		Address Bts BEK 10.0 ELLENSE.	<b>Y</b>
	Date of test	4 T	/
	Bailer lest gal./min. with ft_drawdown after hrs.	(Signed) Truck Doub License No.	12
,	Airrest 50 gal./min. with stem set at 280 H. for 1 hrs	Contractor's	
,	Artesian flow g p m Date	No PLUCE RPC 133 NY Date 7-17	
1	emperature of water Was a chemical analysis made? Yes No	(USE ADDITIONAL SHEETS IF NECESSAR)	Y) 🖈

10N	121	E 2	2	N/I	í
LUIN	124	1 - 1	12	VI	ı

WATER WELL REPORT	CURRENT	
Original & 1st copy - Ecology, 2st copy - owner, 3st copy - driller	Notice of Intent No. AHP775	DEPT OF
E C O L O G Y	Unique Ecology Well ID Tag No. W15075	7 Pecon COL
Construction/Decommission ("x" in circle)  Construction	Water Right Permit No. G4-34963	2
Decommission ORIGINAL INSTALLATION Notice		2 2
	Property Owner Name Archie DenHoed	13
//00.	Well Street Address 62801 N. Griffin Rd.	The series
PROPOSED USE: Domestic Industrial Municipal DeWater Imgation Test Well Other	City Grandview County BEN	
	Location NW1/4-1/4 SW1/4 Sec 32 Twn 10	N R 24 EWM Curcle
TYPE OF WORK: Owner's number of well (if more than one)  New well Reconditioned Nethod: Dug Bored Driven Cable Rotary Jetted	Lat/Long (s, t, r Lat Deg La	WWM L one
DIMENSIONS: Diameter of well 16" inches, drilled 460' ft.	Still REQUIRED) Long Deg Lo	ong Min/Sec
Depth of completed well 460' ft.		
CONSTRUCTION DETAILS  Casing Welded 24 Duam from +1 ft. to 20' ft	Tax Parcel No.	
Casing	CONSTRUCTION OR DECOMMISSION	ON PROCEDURE
☐ Threaded "Diam from ft to ft  Perforations: ☐ Yes ☑ No	Formation: Describe by color, character, size of material an	
Type of perforator used	nature of the material in each stratum penetrated, with at least	st one entry for each change of
SIZE of perfs	information. (USE ADDITIONAL SHEETS IF NECE	FROM TO
Screens: Yes No K-Pac Location	Brown Silty Soil	0 5
Manufacturer's Name	Caliche & Broken rock	5 15
Type         Model No           Diam.         Slot size         from         ft. to         ft.	Med. hard gray & brown basalt	15 44
Diam. Slot size from ft. to ft.	Med. soft brown & gray basalt	44 56
Gravel/Filter packed: Ves V No Size of gravel/sand	Hard gray basalt	56 65
Materials placed from ft. to ft.	Med. hard gray & brown basalt	65 106
Surface Seal: Yes No To what depth? 193' ft.	Soft brown clay	106 144
Material used in seal cement	Brown Sandstone	144 176
Did any strata contain unusable water?	Soft broken brown basalt	176 193
Type of water Depth of strata	Hard gray basalt	193 207
Niethod of sealing strata off	Soft reddish brown visicular basalt some tan	
PUMP: Manufacturer's Name	claystone Little water 30gpm	207 218
	Med. hard gray & brown basalt	218 236
WATER LEVELS: Land-surface elevation above mean sea levelft.	Hard gray basalt	236 298
Static level 208' ft. below top of well Date  Artesian pressure lbs. per square inch Date	Soft broken brown basalt Some visicular with	200
Artesian water is controlled by	Brown clay Water 400	298   337   342
(cap, valve, etc.)	Med. hard brown & gray basalt	337 342 342 353
WELL TESTS: Drawdown is amount water level is lowered below static level	Med. soft dark gray porus basalt some green clay  Med. hard dark gray basalt 600 water	353 381
Was a pump test made? ☐ Yes ☐ No If yes, by whom?	Fractured dark gray basalt	381 384
Yield: gal/min with ft. drawdown after hrs. Yield: gal/min with ft. drawdown after hrs.	Med. hard fractured gray basalt	384 405
Yield: gal/min. with ft. drawdown after hrs.	Hard gray basalt 110 psi Rig air only	405 460
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	The good of the control of the contr	
Time Water Level Time Water Level Time Water Level	100	
	16" pipe to 193'	
	15" & 14 7/8 to 456'	RECHIVED
Date of testgal /min. withft. drawdown afterhrs.		Robert W Hard
Airtest 1200 gal/min. with stem set at 400 ft. for l hrs.		1111 0 1 2019
Artesian flow		JUL U LUIS
Temperature of water Was a chemical analysis made? ☐ Yes ☐ No		Dent of Ecology
	Start Date 5-24-05 Comple	red Pate at - 600 gional Offic
WELL CONSTRUCTION CERTIFICATION: I constructed and/or acc		
Washington well construction standards. Materials used and the information	on reported above are true to my best knowledge	and belief.
□ Druller □ Engineer □ Trainee Name (Proc) Larry McLanahan	Drilling Company BJ Exploration Co., Inc.	
Driller/Engineer/Trainee Signature Cony m.	Address 404 N. Conway Street	
Driller or trainee License No 0337	City, State, Zip Kennewick, WA 99336	
II TRAINEE,	Contractor's	
Driller's Licensed No.	Registration No BJENPC1132QK	Date 6-23-05
Driller's Signature	Ecology	is an Equal Opportunity Employer
The state of the s		and the second s

#### WATER WELL REPORT STATE OF WASHINGTON

ř			10N/24E-31Q1	
Repo	ind copy - Owner's Copy		ELL REPORT Application No WASHINGTON Permit No	
=	1)	OWNER: Name CHATEAU STE. MICHELLE	Address P.O. Box 1976 Woodinville WA 98072	
3	(2)		_ SW 14 SE 14 Sec 31 T.10 N. R.24E W.M.	
S		ing and distance from section or subdivision corner		
돧		PROPOSED USE: Domestic & Industrial   Municipal	(10) WELL LOG:	
o		Irrigation   Test Well   Other	Formation: Describe by color, character, size of muterial and structure, and show thickness of aquifers and the kind and nature of the material in each	
	(1)	TYPE OF WORK: Owner's number of well of more than one)	show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.	
ij	( * /	New well XX Method: Dug   Bored	MATERIAL FROM TO	
ä		Deepened Cable Driven Reconditioned Rotary Jetted	Overburden	
Information			Basalt, soft 7 45	
₫	(5)	DIMENSIONS: Diameter of well 6 inches.  Drilled 250 ft Depth of completed well 250 ft.		
ē			Basalt, medium 45 105	
÷	(6)	CONSTRUCTION DETAILS:	Clay, brown 105 125	
ō		Casing installed: 6 Diam from +1 ft. to 19 ft.  Threaded Diam from ft. to ft. to ft.	105 125	
b		Welded XQX Diam. from ft. to ft.	Clay, gray w/sand 125 185	
Data and/or		Perforations: Yes   No 20	Sand w/water (25 GPM) 185 190	
ate		Type of perforator used	103 1790	
		SIZE of perforations in. by in. perforations from	Basalt, fractured 190 198	
Ę,		perforations from ft. to ft.	Basalt, medium 198 238	
5			Basalt, medium 198 238	
ä		Screens: Yes No XX	Basalt, fractured w/water (7GPM) 238 245	
Warranty the		Type Model No		
Na		Diam Slot size from ft to ft.  Diam Slot size from ft to ft.	Basalt, medium, black 245 250	
NOT		Gravel placed from Size of gravel:	BECEIVED	
		Surface seal: Yes No D To what depth? 19 ft.	240' PVC Liner Installed	
does		Material used in seal . bentonite	6" Drive shoe installed JUL 01 2019	
ρ		Did any strata contain unusable water? Yes No Mar Type of water?	Packer set at 210' Dept of Economic	
og		Method of sealing strata off	Packer set at 210' Central Regions'	
픙	(7)	PUMP: Manufacturer's Name	PVC LINER PERFORATED with skill saw	
ш.	_	Туре: Н.Р	Size of perforations 1/16 x 5 inch	
₹	(8)	WATER LEVELS: Land-surface elevation above mean sea level	100 perforationsfrom 210 to 250	
¥	itatu	above mean sea level ft. c level 150 ft below top of well Date 5/14/85 man pressure libs per square inch Date  Artesian water is controlled by		
Je!	irtes	Artesian water is controlled by		
Ħ.		(Cap. valve, etc.)  WFLL TESTS: Drawdown is amount water level is		
B.		lowered below static level	Work started 5/10 1985 Completed 5/14 1985	
w	reld		WELL DRILLER'S STATEMENT:	
<u>•</u>		ESTIMATED AIRLIFT " "	This well was drilled under my jurisdiction and this report is	
£;	leco	very data (time taken as zero when pump turned off) (water level	true to the best of my knowledge and belief.	
ep	Tin	neasured from well top to water level;	NAME PONDEROSA DRILLING & DEVELOPMENT INC.	
Δ		nc Water Level Time Water Level Time Water Level	(Person, firm, or corporation) (Type or print)	
he			Address E. 6010 Broadway, Spokane, WA 99212	
$\vdash$		ate of test	(Signal)	
	aile	r test gal./min. with ft. drawdown after	James M Doyle (Well Driller)	
		erature of water. Was a chemical analysis made? Yes No	License 50 1287 Date 5/14/ 19 85	
			N. 6/2/11	
		USE ADDITIONAL SHE	ELTS OF NECESSARY,	

File Original and First Copy with, Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

#### WATER WELL REPORT STATE OF WASHINGTON

10N/24E-31C1

Application No. .....

	64-239651
	1100000114
T	10 4 - 1 1 Janaham
Permit No	

(1) OWNER: Name David Strickland	Address Routo 2 Box 2720B Grandvoit	. Wash	.റൂട്ടറുറ
(2) LOCATION OF WELL: County County	WTON SELL NEW ALMY Sec 31 T.	ON. R2	14 <sub>w.м.</sub>
ering and distance from section or subdivision corner	1/4		
PROPOSED USE: Domestic 🖰 Industrial 🗆 Municipal 🗆	(10) WELL LOG:		
Irrigation   Test Well   Other	Formation: Describe by color, character, size of materia show thickness of aquifers and the kind and nature of t stratum penetrated, with at least one entry for each cl	l and stru he materi hange of	cture, and al in each formation.
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM	то
New well ☐ Method; Dug ☐ Bored ☐  Deepened ☐ Cable ☐ Driven ☐	Brown Clay	0	10
Reconditioned Rotary Jetted	Cemented Gravel	10	28
8	Brown broken rock	. 28	42
(5) DIMENSIONS: Diameter of well inches.	brown rock	742	b0 ·
Drilled ft. Depth of completed well ft.	Casing 8" 250 sealed bento	-	cemen
(6) CONSTRUCTION DETAILS:	black rock	50	87
	spft grey rock clay seams	8.7	100
Casing installed: $\frac{8}{6}$ "Diam from $\frac{0}{160}$ ft. to $\frac{50}{320}$ ft. Threaded $\frac{1}{20}$ Threaded	Brown rock soft	1.00	
Threaded D "Diam. from tt. to J20 ft.	lavyflow grev	125	125
Welded '' Diam from ft. to ft.	Cavy area lined to 201 C		200
Perforations: Yes No torch		1 1,	
Type of perforator used	Porous rock water Bearing	200	225
SIZE of perforations in. by in.	soft cavy area cemented	225	250.
perforations fromft, toft,	drilled 250 recemented case		
perforations from ft. to ft.	soft decomposed basalt	250	3.50
perforations from ft. to ft.	quicksand and clayblue	1	383
Circumst	cemented redribled same pro	blem	
Screens: Yes   No @	lined with a 6" liner		
Manufacturer's Name			
Diam. Slot size from ft to ft.	DECLINE		
Diam. Slot size from tt. to tt.	BULLIAL	11 1	
Gravel packed: Yes No. No. Size of gravel:	17/31 6 1977		
Gravel placed from	.,		
Symfore cont. X	DEPARTMENT OF FCOL	3.1.	, ; ·
Surface seal: Yes \( \) No \( \) To what depth? 50 ft.  Material used in seal Bentonite	CENTRAL REGIONAL OF	-07	<u></u>
	Tau. OIVAL Hall	:02	·.
Did any strata contain unusable water? Yes No T			
Method of sealing strata off		PORT IN	O II House It
	RF	CLI	V lone la
(7) PUMP: Manufacturer's Name.	T lines	Contract of the contract of th	
Type:		11 0 1	2019
(8) WATER LEVELS: Land surface elevation		י ט בוע	2011
above mean sea level	6	aut of T	90
Static level 6.4.7 ft. below top of well Date DEDT 1.5. ( Artesian pressure lbs. per square inch, Date	Cen	E B	1115
Artesian water is controlled by			
(Cap, valve, etc.)	•		
(9) WELL TESTS: Y Drawdown is amount water level is			
Was a pump test made? Yes No Of If yes by whom?	Work started August: 10, 19 75. Completed Se	ent l	, 19.79
Yield: 35 gal./min. with 100 ft, drawdown after 6 hrs.	WELL DRILLER'S STATEMENT:		
ji 10 11 11 11 11 11 11 11 11 11 11 11 11			· ·
	This well was drilled under my jurisdiction a true to the best of my knowledge and belief.	ind this	report is
Passagant data (time taken the gare many human dark) (minter level		anhais	
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	Great Western Drilling A Presently Martel Previousl	v Bank	TOLY C
Time Water Level Time Nater Level Time Water Level	***************************************	Type or pr	**************
-37			
	Address Friday Harbor WAsh . Nine	Mile	Falls
	Don Forman Estacada ore		
Date of test	Don Forman Estacada ore	<i>-</i>	
er testgal./min. withft. drawdown afterhrs.	don't know (Well Driller)		, .
Tresian nowg.p.m. Dateg.p.m.	"Has one" - S-nt	95	. 100
Temperature of water	License No. Date Depo		., 19.±27
	This as recalled by A.C. Engelh		50
I Don't have a log of this wells applyional sheet of the company has been selected to the company h	and it itselfs and its in the same of the	Idl't	1:
ECY 050-1-20 UT egon records The company had been been	May have a tog in Friday Harb	or Wis	3
. 3/14/71		(*)	

10N/24E-31C1

File Original and First Copy with Department of Ecology Second Copy - Owner's Copy Third Copy - Dritter's Copy

## WATER WELL REPOR

Application No

Second Copy - Owner's Copy Third Copy - Driffer's Copy	STATE OF V	VASIUNGTON	Permit tio.	74 -	23965
(1) OWNER: Name Dist (	- Turning	Address			,
(2) LOCATION OF WELL: Coun			NW . Sec. 3/ T.	D .: 12	Jelwa -
Bearing and distance from section or subdis				A.	C
(3) PROPOSED USE: Domestic [	] Industrial [] Municipal []	(10) WELL LOG:	and the transport of the state		
Irrigation 1	J. Test Well [] Other []	Formation: Describe by color.	, character, size of materia	il and stru	cture, and
A TYPE OF WORK. Sweet's nu	mber of well	show thickness of aquifers an stratum penetrated, with at t	least one entry for each c	hange of	formation.
(4) TYPE OF WORK: Sweet's man the more than New well [7]	Method: Dug G Bored D	MATER	RIAL	FROM	то
Deepened P	Cable Driven D	- GRAY BANGALT	MARY	RAZO	<b>5</b> 50.
Reconditioned []	Rotary   Jetted	131 W. Garrier	(1)	1520	5-41
	r of well / I menes.	VC CON Fra	Sisy Merco	210	
Drilled 1/3.5 ft Depth of ed	ompleted well 、という. 代.	Block Boside	med hard	510	7/5
(6) CONSTRUCTION DETAILS:	,	They che chi	Cood some wa		
Casing installed: /C " Diam.	from - 12 to to CEC to	TOTAL PETERSON	5 HOGY WITH	17/2	2.33
Threaded - "Diam.	from fi. to . ft.	1 - 11 -11		-	
Welned Q "Diam.	from It in It.				
Perforations: Yes C No E				1	
Type of periorator used					
SIZE of perforations  perforations from	in by in.				
perforacións from	ft. to ft.			-	
perferations from	. ft to		***************************************		
Screens: Yes 7 No. 8		[NETS]		-	
Manufacturer & Name		1	हेडिगाणांड इंडिगाणांड	1	
Type Diam Sict size	Model No . ft. ft.	1117.		1	The section of the se
	from ft. to ft.	ΜΔ	Y 1 - 4 - 1000		
Gravel nacked:			1 4 1980		
Gravel packed: Yes   NopX	ft to ft.			<del></del>	
				<del></del>	
Surface seal: Yes D No D To	what depth? ft.				
Did any strata contain unusable	e water? Yes D No D		B	EL	LIVED
Type of water? Method of scaling strata off	Depth of strata				
		the an authorization is not freezen freezent freezent freezent and settlement and		-HHL-	<del>0 1 2</del> 019
(7) PUMP: Manuseturer's Name	", u.e.				s = -logar
Tyre:	Н.Р			Dept	of Ecology
above mea	in ser level		C	entral H	egional
	p of well Date // 25 17				
Artesian water is controlled by	W   F   100 000 000 000 000 000 000 000 000 0				
	(Cap, valve stc)				
(9) WELL TESTS: Drawdown I	s amount water level is	Work started	. 19 Completed		10
Was a jump test made? Yes [Y No □] If yo Yield: gal m.n with it	The second secon	WELL DRILLER'S ST			
Yield: and man with the	300 / Ser-	50			
Comment of the state of	ic "c'nifer "	This well was drilled u true to the best of my kn	nowledge and belief.	ind this i	eport is
Recovery feath thind Add Add Faro where personnel from well top to water level)	ump turned off) (water level	11	13.1/		
	evel   Time Water Level	NAME / JAM / N F. 17	n, or corporation)	ype or pr	int)
TABOURA TO	: 27/2:	Address AT 12/1362		1/1/1	· ·
- 1 J Mar W. 29	i ((6	Address	and the state of t	r. z. z. l L. (	/
Date of test : // '2: - //		(Signed)	Tilleant	di.	
	. drawdown after 3. hrs.	(Segueta)	(Well Driller)	/t	
	I analysis made? Tes O No O	License No.	Date //	25	. 19. 25
***************************************					,,

5 File Original and Pierra	7
File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy	WATER WI
Third Copy - Driller's Copy	STATE OF
(1) OWNER: Name De	Ibert M Van Winn
( CATION OF WEL	L: County Benton
(3) PROPOSED USE: Dependence Recondition  (4) TYPE OF WORK: Consequence Recondition  (5) DIMENSIONS: Drilled 3.90 ft 1  (6) CONSTRUCTION DECASING INStalled: 100 Melded 100 Meld	or subdivision corner 1320' W
(3) PROPOSED USE: D	Domestic 💢 Industrial 🗀 Municipal 🗆
I	rrigation Test Well   Other
(4) TYPE OF WORK:	owner's number of well aif more than one)
New well	Method: Dug   Bored
. Deepened Recondition	☐ Cable ☐ Driven ☐ Rotary 🕱 Jetted ☐
(5) DIMENSIONS:	
0.74	Diameter of well 8 inches. Depth of completed well 390 ft.
(6) CONSTRUCTION DE	
`	,
	Diam from O ft to 112 ft.
Welded 💆	7" Diam. from O ft. to BO ft.
Perforations: Yes 🛭	No
Type of perforator use	d 18 X6 S1015
SIZE of perforations	ns from 240 ft to 380 ft
	ns from ft. to ft.
perforation	ns from ft. to ft.
Screens: Yes 🗆 No 🕱	
Manufacturer's Name	Model No
	e from ft. to ft.
Diam Slot siz	e from ft. to ft.
Gravel packed: Yes	No 🔁 Size of gravel:
Gravel placed from	ft. to ft.
Surface seal: Yes -	No 💢 To what depth? ft.
Material used in seal  Did any strata contai	
	Depth of strata
Method of sealing stra	ta off
(7) PUMP: Manufacturer's N	
Type: Submer	S. D. D. L. H.P. D. H.P. D.
(8) WATER LEVELS:	Land-surface elevation 1325 ft.
	t. below top of well Date 2/13/82
Artesian pressure	rolled by
	(Cap, valve, etc.)
(9) WELL TESTS:	Drawdown is amount water level is owered below static level
Was a pump test made? Yes  Yield: gal./min. with	No X - If yes, by whom?
" gar, min. with	r. qrawdown after mis.
7 "	, , ,
Recovery data (time taken as ze measured from well top to wa	ero when pump turned off) (water level ater level)
Time Water Level   Time	Water Level   Time Water Level
,	

	<u>.</u>	A.	1259510N/24	E-32F1	/ "
File Depa Seco Thir	nd Copy — Owner's Copy	ELL REPORT WASHINGTON	Application Permit No.	No	2775
<u>(1)</u>	OWNER: Name Delbert M. Valy Will	Me Address 510 AVOH		Wa. 9	8930
É	cation of well: County Benton and distance from section or subdivision corner 1320 W		Center of Sec		245 M.
(3)	PROPOSED USE: Domestic 🖂 Industrial 🗆 Municipal Irrigation 🛱 Test Well 🗀 Other	(10) WELL LOG:	Ŧ.		
(4)	TYPE OF WORK: Owner's number of well (if more than one)	Formation: Describe by color show thickness of aquifers a stratum penetrated, with at MATE	teast one entry for each	the mater change of	al in each formation.
	New well  Method: Dug  Bored  Deepened  Cable Driven  Reconditioned Rotary  Jetted	Top Soil, O/a	x gravel	0	20'
(5)	DIMENSIONS: Diameter of well 8" inche Drilled 3.90 ft Depth of completed well 3.90 ft		+sand	90'	102'
(6)	CONSTRUCTION DETAILS:	Black Basa	14	240	370
	Casing installed: 10" Diam from 0 ft. to 112 ft. Threaded Diam from 0 ft. to 202 ft. Welded Diam from 0 ft. to 380 ft.	ft.			
	Perforations: Yes No	Cetnent fifted	+redrilled	202	2.40
1	Screens: Yes   No M    Manufacturer's Name	et.		REC	EIVEL
	Gravel placed from Size of gravel:			JUL	1 2019
	Surface seal: Yes \( \) No \( \) To what depth? \( \) 1  Material used in seal.  Did any strata contain unusable water? Yes \( \) No \( \)  Type of water? \( \) Depth of strata  Method of sealing strata off			Dept o	Ecolo V
	PUMP: Manufacturer's Name Berhley Type: Submersable HP 5	DEGEIN		,	
Stat	water Levels: Land-surface elevation 1325 above mean sea level 1325 fit level 25 ft below top of well Date 213/8 sian pressure lbs. per square inch. Date Artesian water is controlled by (Cap, valve, etc.)	DEPARTMENT OF CONTRAL REGIONS			
	WELL TESTS: Drawdown is amount water level is lowered below static level a pump test made? Yes D No X - If yes, by whom?	Work started 2//	, 19 <b>77</b> Completed	4/14	1677
Yiel		This well was drilled	under my jurisdiction	and this	report is
1	overy data (time taken as zero when pump turned off) (water level measured from well top to water level)  me Water Level   Time Water Level   Time Water Level	el NAME Columbia	knowledge and belief.	2	
		Address Dot av	ailable	(Type or p	
	e of testft. drawdown afterhr	[Signed] (not av.	ailable) All	Van Co.	Winkle
	sian flowg.p.m. Dateperature of water	1 *	Date	115/	, 1984

File Original and First Copy with Department of Ecology Second Copy—Owner's Copy Third Copy—Driller's Copy

#### WATER WELL REPORT

772.7 10N/24E-33NW1 Start Card No. 08.4422

STATE OF WASHINGTON

Water Right Permit No. 61-27 71 B

(1)	OWNER: Name DENhord FARMS	Address	$(\mathcal{D}$
(20)	LOCATION OF WELL: County BENTON	W , NW , Sec 33 T. 76 N. R2	4_w.m.
(2a)	STREET ADDDRESS OF WELL (or nearest address)		
(3)	PROPOSED USE: ☐ Domestic Industrial ☐ . Municipal ☐ DeWater ☐ Test Well ☐ Other ☐	(10) WELL LOG or ABANDONMENT PROCEDURE DESCR	and show
(4)	TYPE OF WORK: Owner's number of well	thickness of aquifers and the kind and nature of the material in each stratum pe with at least one entry for each change of information.	enetrated,
	Abandoned New well Method: Dug Bored	MATERIAL FROM	то
	Deepened Cable Driven	Pirt	7
	Reconditioned Rotary Jetted	MED. BASAIT 7	95
(5)	DIMENSIONS: Diameter of well /2 " inches.		170
	Drilled 2/5 feet. Depth of completed well ft.		205
/E)	T. T		215
(6)	CONSTRUCTION DETAILS:		
	Casing installed: /2 Diam. from 0 ft. to /97 ft.		
	Liner installed		_
	Threaded Diam. from ft. to ft.		
	Perforations: Yes No		
	Type of perforator used		
	SIZE of perforations in. by in.	N	
	perforations fromft. toft.		
	perforations fromft. toft.		
	perforations fromft. toft.		
	Screens: Yes No 2	PARA PARA	
	Manufacturer's Name	IN B B B U V B INI:	
	Type Model No	. 1175	
	DiamSlot sizefromft. toft	101 - 6 1992 11VI	
-	Diam. Slot size from ft. to ft.	1111 1000 - 0 1002	
	Gravel packed: Yes No Size of gravel		
	Gravel placed from	DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE	
	Surface seal: Yes No To what depth? 197 ft.	WASHINGTON TO STAND OF THE STANDARD OF THE STA	
	Material used in sealCEMENT		
	Did any-strata contain unusable water? Yes No		
	Type of water?Depth of strata	RECEIVE	Land Land
	Method of sealing strata off		240
(7)	PUMP: Manufacturer's Name	111 0 1 21	119
	- 100000	30	cau
	Type: H.P.	Dent of Espira	i Office
	WATER LEVELS: Land-surface elevation above mean sea level	Central Regional	
	Static level 40 ft. below top of well Date		
	Artesian water is controlled by		
	(Cap, valve, etc.))	Work started 9-22 ,19. Completed 9-27	, 1992
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level  Was a pump test made? Yes No If yes, by whom?	, is. completed 1	, 19
	Yield: gal./min, with ft. drawdown after hrs.	WELL CONSTRUCTOR CERTIFICATION:	
	" " " " " " "	I constructed and/or accept responsibility for construction of th	nis well,
_	n n n n	and its compliance with all Washington well construction sta Materials used and the information reported above are true to n	indards.
	Recovery data (time taken as zero when pump turned off) (water level measured	knowledge and belief.	, 5050
	from well top to water level) Time Water Level Time Water Level Time Water Level	NAME BACK Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR P	
		Address Rts. Box 1010 Ellensburg, a	Ua.
	Date of test	1 - 1	
J.,	N 21	(Signed) Wille Back License No 22	
	Bailer test gal./min. with ft. drawdown after hrs.	Contractor's (WELL DRILLER)	
	Airtest 700 gal./min. with stem set at ft. for hrs.	Registration No. MIKEBOC 133 N4 Date //- /	1097
	Artesian flow g.p.m. Date	Date 1	197
	Temperature of water Was a chemical analysis made? Yes No	(USE ADDITIONAL SHEETS IF NECESSARY)	

Original & 1" copy - Ecology, 2" copy - owner, 3" copy - wifth OLOG E C 0 L 0 C Y Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No. AHP774		
Construction/Decommission ("x" in circle)  Construction  Decommission ORIGINAL INSTALLATION Notice AUG. 0, 1 20	Water Right Permit No. CG4-31301C		N
Decommission ORIGINAL INSTALLATION Notice ALG. U. 1	Property Owner Name Desert Hills Vineyard (	andy Denhoed	d)
1828S of Intent Number	Well Street Address 61603 N. Wilgus Rd.		
	1-5		
PROPOSED USE: Domestic Industrial Municipal DeWater Irrigation Test Well Other	City Grandview County Benton		. [7]
TYPE OF WORK: Owner's number of well (if more than one)	Location <u>SW1/4-1/4</u> <u>SW1/4</u> Sec <u>33</u> Twn <u>10N</u>	R_24 EW	cucle
New well Reconditioned Method: Dug Bored Driven	Lat/Long (s, t, r Lat Deg Lat		
Deepened ☐ Cable ☑ Rotary ☐ Jetted			
DIMENSIONS: Diameter of well 12" inches, drilled 515 ft.  Depth of completed well 515 ft.	Still <b>REQUIRED</b> ) Long Deg Lo	ng Min/See	c
Depth of completed well 515 ft.  CONSTRUCTION DETAILS	Tax Parcel No.		
Casing Di Welded 24" " Diam from +1 8 to 10' 8			
nstalled:         ✓ Liner installed         12 <sup>n</sup> Diam. from +1         ft to 197°         ft           Threaded         Diam. from         ft to         ft	CONSTRUCTION OR DECOMMISSION	N PROCEDU	JRE
Perforations: Yes No	Formation: Describe by color, character, size of material and		
Type of perforator used	nature of the material in each stratum penetrated, with at least information. (USE ADDITIONAL SHEETS IF NECE		ach change of
SIZE of perfsin_byin and no_of perfsfromft_toft	MATERIAL	FROM	то
Screens: Yes No K-Pac Location	Soft brown silt	0	12
Vanufacturer's Name	Med. hard brown & gray basalt	12	33
Type         Model No.           Diam.         Slot size         from         ft. to         ft.	Reddish brown basalt soft	33	37
Diam. Slot size from ft. to ft.	Med. hard gray & brown basalt	37	53
Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand	Hard gray basalt	53	75
	Soft Brown Sandstone	75	154
Surface Seal: Ves No To what depth? 197! ft  Material used in seal centent	Med. soft reddish brown & black basalt	154	160
Did any strata contain unusable water?	Trace of Tan Clay Med. hard gray basalt	154	160
'ype of water' Depth of strata	Hard gray basalt	173	173 258
Aethod of sealing strata off	Broken Brown & gray visicular basalt some tan	173	230
TMP: Manufacturer's Name	claystone	258	262
ype: H.P.	Med. hard gray basalt	262	268
VATER LEVELS: Land-surface elevation above mean sea levelft.	Broken brown & gray basalt some visicular Trace of	-	
tatic level 184' ft. below top of well Date	tan claystone water 5 gpm	268	273
artesian pressurelbs. per square inch	Hard gray basalt	273	285
rtesian water is controlled by(cap, valve, etc.)	Med. soft broken brown & gray basalt some brown		
VELL TESTS: Drawdown is amount water level is lowered below static level	clay Water 200gpm	285	305
Vas a pump test made?   Yes No If yes, by whom?	Med. hard gray basalt some porus with green clay	305	330
field:     gal/min. with     ft. drawdown after     hrs.       field:     gal/min. with     ft. drawdown after     hrs.	Hard light gray basalt  Med soft dark gray porus basalt with some green	330	366
'ield:gal./min. with ft. drawdown after hrs.	claystone little reddish brown basalt	366	373
ecovery data (time taken as zero when pump turned off) (water level measured from well	Med. hard dark gray basalt	373	390
p to mater teres	Soft reddish brown basalt	390	395
The second secon	Med. hard brown & gray basalt	395	423
	Hard dark gray basalt	423	457
	Med. soft porus dark gray basalt Trace of hard green		
	clay water	457	462
	Med. hard dark gray basalt	462	468
By and Date	Reddish brown basalt med. soft  Porus basalt, trace of hard greeen clay	468	472
emperature of water Was a chemical analysis made? ☐ Yes ☐ No			
		ed Date 7-6-0	
ELL CONSTRUCTION CERTIFICATION: I constructed and/or acce	ept responsibility for construction of this well, and	l its complia	ince with all
shington well construction standards. Materials used and the information		nd belief.	
riller   Engineer   Traince Name (Print)   Larry McLanahan	Drilling Company BJ Exploration Co., Inc.		
Her/Enguneer Trainee Signature Trainee Signature Trainee License No. 0337	Address 404 North Conway Street		
	City, State, Zip Kennewick, WA 99336  Contractor's	· · ·	
FRAINEE, iller's Licensed No	Contractor's  Registration No. BJENPCI132QK	1	19-15
	_   Registration No. Dist. ArCH32QR.	Date /	4700



ECY 050-1-20 (Rev 3/05)

WATER WELL REPORT  Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller  E t 0 1 0 6 Y  Construction/Decommission ("x" in circle)  Construction  Decommission ORIGINAL INSTALLATION Notice  of Intent Number  PROPOSED USE: Domestic Industrial Municipal  DeWater Irrigation Test Well Cther  TYPE OF WORK: Owner's number of well (if more than one)  New well Reconditioned Method: Dug Bored Driven  Deepened Cable Rectary Jetted  DIMENSIONS: Diameter of well 12" inches, drilled 515 ft.  Depth of completed well 515 ft.  CONSTRUCTION DETAILS  Casing Welded 24" Diam. from +1 ft to 19" ft Installed: Liner installed 12" Diam. from +1 ft to 197" ft Threaded Diam from ft to ft to ft	CURRENT Notice of Intent No. W150759  Unique Ecology Well ID Tag No. AHP7 4  Water Right Permit No. CG4-31301C  Property Owner Name Desert Hills Vineyard (AM)  Well Street Address 61603 N. Wilgus Rd.  City Grandview County Benton Location SW1/4-1/4 SW1/4 Sec 33 Twn 10N  Lat/Long (s, t, r Lat Deg Lat Still REQUIRED) Long Deg Log  Tax Parcel No.  CONSTRUCTION OR DECOMMISSION  Formation: Describe by color, character, size of material and nature of the material in each stratum penetrated, with at least information. (USE ADDITIONAL SHEETS IF NECES)	R 24 EWN or WWM Min/Sec	Cucle one
SIZE of perfs in by in and no, of perfs from ft to ft	MATERIAL	FROM	то
Screens: Yes No K-Pac Location	Med. hard gray basalt	475	495
Nanufacturer's Name	Med. soft gray & black porus basalt	495	512
Type         Model No.           Diam.         Slot size         from         ft. to         ft.           Diam.         Slot size         from         ft. to         ft.	Green Sandstone & clay	512	515
Diam. Slot size from ft. to ft.			
Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand			
Materials placed fromft. toft.			
Surface Seal:   Yes □ No To what depth? 197' ft.			
Material used in seal cement			
Did any strata contain unusable water?			
Type of water Depth of strata			
Method of sealing strata off			
PUMP: Manufacturer's Name			
Type HP			
WATER LEVELS: Land-surface elevation above mean sea level ft.			
Static level 184' ft. below top of well Date			
Artesian pressurelbs. per square inch Date	12" casing 197'		
Artesian water is controlled by	11 7/8" hole to 197' to 515'		
(cap, valve, etc.)	11.70 1010 1017 10 313		
WELL TESTS: Drawdown is amount water level is lowered below static level			
Was a pump test made?			
Yield:     gal./min. with     ft. drawdown after     hrs.       Yield:     gal./min. with     ft. drawdown after     hrs.			
Yield: gal./min. with ft. drawdown after hrs.			
Recovery data (time taken as zero when pump turned off) (water level measured from well	DE		less less
top to water level)	nr.	FIV	Total Rose
Time Water Level Time Water Level _ Time Water Level .			
	JU	11 2	119
Data of tast		V 1 L	7.11
Date of test	Dep	1 of Eco:	
Bailer testgal/min. withft. drawdown afterhrs.	Centre	Fire II	
Arrest 750 gal/min. with stem set at 500 ft. for 1 hrs.			
Artesian flow			
Temperature of water Was a chemical analysis made? ☐ Yes ☐ No	Start Date 6-24-05 Complete	ed Date 7-6-05	
WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accommodation well construction standards. Materials used and the information priller	ept responsibility for construction of this well, and	l its complian	
Driller/Engineer/Trainee Signature aury	Address 404 North Conway Street		
Driller or trainee License No. 0337	City, State, Zip Kennewick, WA 99336		
If TRAINEE, Driller's Licensed No.	Contractor's	Date 7-2	915
Driller's Signature	Registration No. BJENPCH32QK		
	Ecology is	s an Equal Oppor	tunity Employer.

36790

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

## WATER WELL REPORT

Start Card No. WY8307 UNIQUE WELL I.D. # ABX 444

10N/24E-32R1

STATE OF WASHINGTON

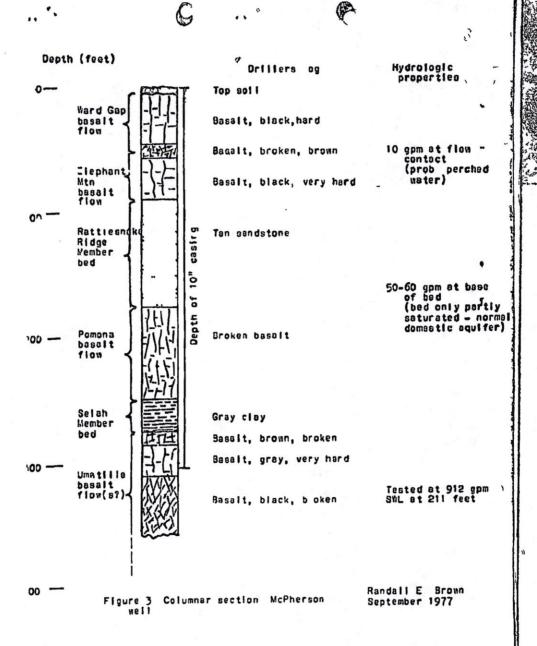
Water Right Permit No.

(1)	OWNER: Name Ed Harsh field Add	ress ft2 Box 2632 Granduses	11219	
(2a)	STREET ADDRESS OF WELL (or nearest address) Since as MYSO	. SF 1/4 SF 1/4 Sec 32 T.	/ <i>O</i> _N.,R_	R R
	PROPOSED USE: Domestic Industrial Industrial Municipal Industrial	(10) WELL LOG or ABANDONMENT PROCEDURE D		
(4)	☐ DeWater Test Well ☐ Other ☐  TYPE OF WORK: Owner's number of well	Formation: Describe by color, character, size of material and structure, and and the kind and nature of the material in each stratum penetrated, with a change of information.		
(4)	(If more than one)	MATERIAL	FROM	то
	Abandoned New.well Method: Dug Bored Deepened S Cable Driven	a pentlole	0	200
	Reconditioned □ Rotary   ■ Jetted □	Black BUSALT	200	278
(5)	DIMENSIONS: Diameter of well inches.	Bhoken BASAlt	278	2.90
	Drilled 290 feet. Depth of completed well 290 ft.	( water Generica)		
(C)	CONCENIOTION DETAILS			·
(6)	CONSTRUCTION DETAILS:			
	Casing Installed: Diam. from UNLOGY Into ft.			
	Welded        * Diam. fromft. toft.        ft.        ft.        ft.        ft.        ft.        ft.        ft.	17 H		
	Tilleaded   Diam. from n. to n.			
	Perforations: Yes No 🔀	-0.		
	Type of perforator used			
	SIZE of perforations in. by in.			,
	perforations from ft. to ft.	2 40		. :
	perforations fromft. toft.			
	perforations from ft. to ft.			
	Screens: Yes No M	<i>2</i>	N	
	Manufacturer's Name		*	
	Type Model No	The of the same and the same an		
	DiamSlot sizefromft. toft.	THE COET WEET		
	DiamSlot sizefromft. toft.			,
	Gravel packed: Yes No Size of gravel			
	Gravel placed fromft. toft.	ALG 2 IP MORE		
	Surface seal: Yes No D To what depth?ft.	DEC	FIN	/ED
	Material used in seal	n n	A LL II W	Barrier Breed
	Did any strata contain unusable water? Yes No 🗵	1111	0.4.0	040
	Type of water? Depth of strata  Method of sealing strata off	JUL	. 0 1 2	1119
	method of sealing strata off	Dept	of Eco	agv
(7)	PUMP: Manufacturer's Name	Central	Regiona	Office
. ,	Type:H.P		-	
(8)	WATER LEVELS: Land-surface elevation	Work Started 4-8 1975Completed 4-	11	. 19 9.5
. ,	Static level 195, above mean sea level ft. below top of well Date 54195	, or company		
	Artesian pressure lbs. per square inch Date	WELL CONSTRUCTOR CERTIFICATION:		
	Artesian water is controlled by(Cap, valve, etc.)	I constructed and/or accept responsibility for construction compliance with all Washington well construction standards		
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level	the information reported above are true to my best knowledge		
	Was a pump test made? Yes No If yes, by whom?	NAME CHOWE DUILLE		
	Yield:gal./min. withft. drawdown afterhrs.	(PERSON, FIRM, OR CORPORATION) (TYPE OR	PRINT)	
	" " " "	Address At 1 Bax 1006 Prosse	1 41	N
	" " " "		_	3.00
	Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	(Signed) Licens	se No. 22	235
	me Water Level Time Water Level Time Water Level	Contractor's		
		Registration . OCT		0-
		No. W Da 9957 Date 5-11		, 19 75
		(USE ADDITIONAL SHEETS IF NECESSA	ARY)	
	Date of test	1.0	- s: •	
	Bailer testgal./min. with ft. drawdown after hrs.  Airtest After 45 gal./min. with stem set at _2 90 ft. for hrs.	Ecology is an Equal Opportunity and Affirmative Action cial accommodation needs, contact the Water Resource:		
	Artesian flow g.p.m. Date  Temperature of water Was a chemical analysis made? Yes No X	407-6600. The TDD number is (206) 407-6006.	or rogram	ut (200)

JUL 0 1 2019 Dept of Ecoley Central Regional C

he Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

THE RESERVE OF THE PROPERTY OF



JUL 01 2019

Dept of Boo Central Remark . The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

James McPhearson

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Airport Road DREGON 97801 278-4187	SER 1 A TOOL
Qual 210° CE	FPARTALINT OF FCOLOGY
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Box 1207 PENDLETON

	Test Number. Rig Foreman.	****	ed St (	eorge		_	WELL T	rest LOG 2"		Phopa 503 278	4197 DEDANS	ACIVI OF ECOLOG
	Pump Batting	285 + B	elsto		. Air L	285°			Well Dopth3.	501	Date 8-	RESTACT OFFICE
' '	START TIME	RPM CHECK	GPM READING	REAL	INE	ORFICE READING	OROP PIPĚ	BOIAT BISE	COLUMN SIZE	PUMP IN	STALLED L	WATER TEMP
,	4:00	1500	465	320	211'	14"		8	6	Special Control		63
30	4103	1500	465	320	211'	14"	19 N					
,	4:15	1500	480	320	211'	15"						
	4:30	1500	473	320	211'	14 5"				Increaso RP	M, Clear, Cold	
Ĺ	4:35	1600	548	320	211'	20"	7 8			145		in yel
	4:43	1600	348	320	211'	20"						
	5:00	1600	548	320	211'	20"				Increase RPM	Clear	
	5103	1700	366	329	211'	21.5"					- 74 T	
_	5:15~	1700	566	320	211'	21 5"					Late and	
س.	5:30	1700	554	320	211'	20 5"			is .	Increase RPA	, Clear	
	5:35 '	1800	662	320	211'	29.5"					V 1	
•	8:45	1800	662	320	211'	29.5"			3.	1		
•	6 00	1800	662	320	211'	29,5"				Increase RPM	, Clear	7.5
	6:05	1900	726	320	211'	35"						
	6:15	1900	726	320	211'	35"				-		- 1
•	6 8 30 '	1900	726	320	211'	35"				145		100

FARMORE PUMP & IRRIGATION

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Dept of Ecology Central Regional Onl

The Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty the Data and/or the Information on the Department of Ecology does NOT Warranty Box 1307 Abport Rosd FENDLETON, CRECON 97201 Please 503 278-4187 Increase RPM Increase RFM Increase RP Wash Depth FARMORE PUMP & IRRIGATION WELL TEST LOG 37.5 ... 50" 20 55" 33 3 33 211 211 211' 211, 211 211 211 211 211' 211 211 320 326 324 320 320 326 320 320 320 326 32\$ Dept of Ecclogation of Central Regional Of Well Report. 872 2 709 X 820 820 872 2200 1900 2000 2200 7 30 7 45 7 50 7 55 8 8 05 6.45 7 20

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James McFhearson

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PAGE 10+2 1-800-443-3427 File Original and First Copy with ER WELL REPORT SAW-ING Department of Ecology Second Copy-Owner's Copy 4 29632 Third Copy-Driller's Copy Water Right Pormit No. 6 OWNER: Name JOHN ANDERSON GRANDVIEW WA LOCATION OF WELL: COUNTY BENTON (2) STREET ADDDRESS OF WELL (or nearest address) Shipes & GRIFFIN Roads (1/2 mile GAST on Domestic PROPOSED USE: Industrial Municipal (10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION Irrigation Test Well Other Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. TYPE OF WORK: Owner's number of well (if more than one) (4) MATERIAL New well Method: Dug Bored 4 10P 201 BRN Deepened Cable Driven Reconditioned Rotary N Jetted H white Brown HARDPAN 4 5, 5.3 DIMENSIONS: Diameter of well 59 FRACTURED BSUT. MH FRACTURED BSLI 80 14 feet. Depth of completed well 400 BASALT 1-89 BLK-CONSTRUCTION DETAILS: Entabled 7yds conert 96 FRACTURED BASALT MH 9 U 10 Casing installed: · Diam. from + / 96 BASALT BLK 100 Welded \* Diam from PRACTUREOBSUT BRN BUK VVH 100 101 Liner installed Threaded Diam. from\_ RATTIES VAKO HEMBER No X Perforations: Yes SHALE CLAY FRACTURED BSUT-GRY -12 101 Type of perforator used CIAY SHALE GREY М 121 138 SIZE of perforations CIAY MS 138 139 139 GREY CLAY SHALE M-H 150 SHALE CIAY GRAVE BASAIT perforations from MS 150 186 CORESESAND LAYEREU CIAY perforations from Screens: Yes V 86. FRACTILEEU POUROUS BASALT BIK 190 14 Manufacturer's Name Parous BSLT-YELLOW CLAY MIX 190 VH 201 Type Model No GUARTZ BASALT GRAVE! CLAY RIK MS 202 201 COARSE SAND WATER BEARING WHITE 2104 202 POROUS BASALT BURNED RED MS 214 210 Gravel packed: Yes No Size of grave Black BASALT \_400.GPM H 214 219 221 Sch BSCT - WHITESAND - CAVING CLAYSHALE Gravel placed from 219 VII ANDSTONE CIAYSHALE BOLT MH 231 221 No To what depth? Surface seal: Yes BASALT SAND IN FRACTURES BLK 231 230 Material used in seal. BIACK BASALT (PROMONAL FLOW) H 234 Did any strata contain unusable water? Yes No X clmatilla DON ASSITT Type of water? Depth of strata Method of sealing strata off. PUMP: Manufacturer's Name H.P Type: Land-surface elevation above mean sea level \_ 1140 WATER LEVELS: Static level 196.6 tt. below top of well Date 12/13/88 Artesian pressure .... \_ lbs. per square inch Date \_ 12/13/00 Artesian water is controlled by (Cap.[Valveretc.)) Workstarted\_ WELL TESTS: Drawdown is amount water level lattowered below static level
Was a pump test made? Yes No If yes, by whom?

Yield: Was a pump test made? Yes No WELL CONSTRUCTOR CERTIFICATION: gal./min. with Yield: Constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards.
Materials used and the information reported above are true to my best Recovery data (time taken as zero when pump turned off) (water level measured to the control of knowledge and belief. from well top to water level) CETIME IL RIWATER LEVEL ICS Water Level WELL BVILLA NAME Jec AIR (Signed). gal./min. with 4 dot ft. drawdown after Bailer test Contractor's Registration 132 K1 gal./min. with stem set at Date 12/14/88 Artesian flow \_ g.p.m. Date \_ Was a chemical analysis made? Yes \_\_\_ No \_\_\_ Temperature of water (USE ADDITIONAL SHEETS IF NECESSARY) 3 ECY 050-1-20 (10/87) -1329

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy Third Copy—Driller's Copy

1) OWNER: Name—O

(2) LOCATION OF WEL

(2e) STREET ADDDRESS (

## WATER WELL REPORT

Start Card No. 07815

1446 L 2

STATE OF WASHINGTON Water State Participa 64 296 32

(1)		
-	OWNER: Name John Anderson	Address POBOL SS GRAHOULEW WA.
	2	CC 11 C 2 3.1
(2)	LOCATION OF WELL: County BENTON	SE NWW SOC 5 T. 9 N. RZYWM.
(28)	STREET ADDDRESS OF WELL (or nearest address, Shipes & GR	IFFIN Roads (12 m EAST ON SNIPES)
(3)	PROPOSED USE: Domestic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
	□ DeWater Test Well □ Other □	Formation: Describe by color, character, size of material and structure, and show
(4)	TYPE OF WORK: Owner's number of well	thickness of squiters and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.
• •	Abandoned New well Method: Dug Bored	MATERIAL FROM TO
	Deepened Cable Driven	FRACTURED BASAIT VH 236 239
		KRAY BLACK CREVICEN BOXT VH 239 240
(5)	DIMENSIONS: Diameter of well 10 × 8 inches.	GRAY BASALT NO FRACTURES VVH 240 246
	Drilled 400 feet. Depth of completed well 400 ft.	Black Basalt, TRACE H30 VH 246 261
(6)	CONSTRUCTION DETAILS:	PILLOW Palagomite Caving MH 269 272
	Casing installed: 10 Diam. from + 1 11. to 245 h.	FRATULES BASALT, H 212 260
	Welded	WATER BOLPM ON FRAC RSLT H 260 283
		FRACTURED BASALT CREY VH 283 299
	Perforations: Yes No 🗵	SOUN GRAY BASALT, 100 GPM VVH 299 303
	Type of perforator used	BASALT RUBBLE IN CHEVICES COM VYYH 303 308
	SIZE of perforations in. by in. by ft. to ft.	FRACTURED BASALT LEAY VH 308 313
	perforations from the to the first terms of the fir	PHLOW Blank, Porous Ben'ALK M H 313 339
	perforations from tt. to t.	MULTICOLOGIA FRACTURED RELL Brows M.H. 339 348
	Screens: Yee No No	GREEN SHAVE IN FRACTURED BELT MH 339 348
	Manufacturer's Name	BANLY FRATURED BELT BIK, VH 370 380
	Typa Model No	BADLY FRACTURED BASALT VIT 380 355
	DismSlot sizefromft.10ft.	Solia BASALT 7 VYH 395 400
	Diam	
	Size of grave)	360.4.2
	Gravel placed from ft. to ft.	
-		390 EPM WITH 300 A PURAN SHT
•	Surface seal: Yes No Townst depth?	Prosesse Contraction of the second
·	Surface seel: Yes No Townst depth? 245 H. Material used in seel RENTONUE CEMENT	
	Surface seal: Yeal No To what depth? 2 15 11.  Material used in seal BENTON UTS CEMENT  Did any strate contain unusable water? Yea No (2)	
•	Surface seel: Yes No Townst depth? 245 H. Material used in seel RENTONUE CEMENT	
•	Surface seal: Yeal No To what depth? 2 15 H.  Material used in seal RENTONUE CEMENT  Did any strate contain unusable water? Yea No 2  Type of water? Depth of strate  Method of sealing strate off	RECEIVED
7)	Surface seel: Yes No To what depth? 2 15 H.  Material used in seel RENTOHUE CEMENT  Did any strate contain unusable water? Yes No Type of water?  Method of seeling strate off	
7)	Surface seel: Yes No To what depth? 3 H.  Material used in seel RENTONIE CEMENT  Did any strate contain unusable water? Yes No Type of water?  Method of seeling strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation	JAN 2 7 1989 JUL 0 2019
7)	Surface seel: Yes No To what depth? St. M. Material used in seel RENTONUE CEMENT.  Did any strate contain unusable water? Yes No Type of water?  Method of sealing strate off	RECEIVED
7)	Surface seel: Yes No To what depth? Static level 42. H. No To what depth? Static level 42. H. Land-surface elevation show the state of	JAN 2 7 1989 JUL 0 2019
7)	Surface seel: Yes No To what depth? Static level 42. 4. No To what depth? To what depth? Static level 42. 4. No To what depth? Static level 42. 4.	JAN 2 7 1989 JUL 0 2019  Central Regulation
7)	Surface seel: Yeal No To what depth? At Material used in seet RENTON IS CEMENT  Did any strate contain unusable water? Yeal No Type of water?  Depth of strate  Method of seeling strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level  Static level 42. It below top of well Date 12. It.  Artesian pressure libe. per square inch Date Artesian water is controlled by (Cap. valve, etc.))  WELL TESTS: Drawdown is amount water level is lowered below static level.	JAN 2 7 1989 JUL 0 2019
7) 8)	Surface seel: Yes No To what depth?   Material used in seel RENTONIE CEMENT  Did any strate contain unusable water? Yes No Tope of water?  Method of seeling strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level 140 ft.  Static level 42 ft. below top of well Date 42 ft.  Artesian pressure   Ibs. per square inch Date Artesian water is controlled by (Cap. valve, etc.))  WELL TESTS: Drawdown is amount water level is lowered below static level was a pump test made? Yes No If yes, by whom?	PECEIVED  JAN 2 7 1989 JUL 0 2019  Central Factorial Control Facto
7) 8)	Surface seel: Yeal No To what depth? At Material used in seet RENTON IS CEMENT  Did any strate contain unusable water? Yeal No Type of water?  Depth of strate  Method of seeling strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level  Static level 42. It below top of well Date 12. It.  Artesian pressure libe. per square inch Date Artesian water is controlled by (Cap. valve, etc.))  WELL TESTS: Drawdown is amount water level is lowered below static level.	Work started 12~3-88, 19. Completed 1-21-89 19.  WELL CONSTRUCTOR CERTIFICATION:  I constructed and/or accept responsibility for construction of this well,
7)	Surface seel: Yes No To what depth?   Material used in seet RENTON IS CEMENT  Did any strate contain unusable water? Yes No Type of water?  Method of seating strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level  Static level 42. It below top of well Date 1/2 31  Artesian pressure   Ibs. per square inch Date   Artesian water is controlled by (Cap. valve, etc.))  WELL TESTS: Drawdown is amount water level is lowered below static level was a pump teet made? Yes No I If yes, by whom? The Artesian water geal./min. with 1/2 ft. drawdown after 2 yes hre.	Work started 12-3-88, 19. Completed 1-21-89, 19.  Well constructor certification:  I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my beat
7)	Surface seel: Yes No To what depth?   Material used in seel RENTOH (IG CEMENT  Did any strate contain unusable water? Yes No Type of water?  Method of seeling strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean see level  Static level 12.4 ft. below top of well Date 1/2.4 ft.  Artesian pressure   Ibs. per square inch Date   Artesian water is controlled by (Cap. velve, etc.))  WELL TESTS: Drawdown is amount water level is lowered below static level was a pump test made? Yes No   If yes, by whom?   It A ft.    West   Gal./min. with   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   If yes, by whom?   It A ft.    The static level   It A ft.    The static level	Work started 12-3-88, 19. Completed 1-2/-89, 19.  Well Constructor Certification:  I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards.
7)	Surface seel: Yes No To what depth?   Material used in seet RENTON IS CEMENT  Did any strate contain unusable water? Yes No Type of water?  Method of seeling strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level 140 ft.  Static level 42 ft. below top of well Date 4/2 ft.  Artesian pressure   Ibs. per square inch Date Artesian water is controlled by (Cap. vslve, etc.))  WELL TESTS: Drawdown is amount water level is lowered below static level was a pump teat made? Yes No If yes, by whom? The Pump ft.  Was a pump teat made? Yes No If yes, by whom? The Pump ft. drawdown after 2 ft.  Precovery data (time taken as zero when pump turned off) (water level measured	Work started 12-3-88, 19. Completed 1-21-89, 19.  Well constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.
7)	Surface seel: Yey No To what depth? At Material used in seel RENTOHUE CEMENT  Did any strate contain unusable water? Yes No Type of water?  Depth of strate  Method of sealing strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level 140 ft. Static level 42 ft. below top of well Date 44 ft. below top of well Date 45 ft. drawdown static level Was a pump teat made? Yee No 16 ft. gel. / min. with 46 ft. drawdown after 27 hrs.  Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	Work started 12-3-88, 19. Completed 1-2/-89, 19  Well Constructor Certification:  I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.  NAME RIEBE WELL ORIUMA (ACCEPTION)  (PERSON, FIRM, OR CORPORATION)  (TYPE OR PRINT)
7)	Surface seel: Yey No To what depth? At Material used in seel RENTOHUE CEMENT  Did any strate contain unusable water? Yes No Type of water?  Depth of strate  Method of sealing strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level 140 ft. Static level 42 ft. below top of well Date 44 ft. below top of well Date 45 ft. drawdown static level Was a pump teat made? Yee No 16 ft. gel. / min. with 46 ft. drawdown after 27 hrs.  Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	Work started 12-3-88, 19. Completed 1-21-89, 19.  Well constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.
7)	Surface seel: Yey No To what depth? At Material used in seel RENTOHUE CEMENT  Did any strate contain unusable water? Yes No Type of water?  Depth of strate  Method of sealing strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level 140 ft. Static level 42 ft. below top of well Date 44 ft. below top of well Date 45 ft. drawdown static level Was a pump teat made? Yee No 16 ft. gel. / min. with 46 ft. drawdown after 27 hrs.  Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	Work started 12-3-88, 19. Completed 1-2/-89, 19  Well Constructor Certification:  I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.  NAME RIEBE WELL ORIUMA (ACCEPTION)  (PERSON, FIRM, OR CORPORATION)  (TYPE OR PRINT)
7) 8) 9)	Surface seel: Yey No To what depth? Attended in seel RENTOHUE CEMENT  Did any strate contain unusable water? Yes No Type of water?  Method of sealing strate off  PUMP: Manufacturer's Name  Type: H.P.  WATER LEVELS: Land-surface elevation above mean sea level  Static level 42. ft. below top of well Date 4.2. Attended ny results and the sealing strate off.  Artesian pressure libs. per square inch Date Artesian water is controlled by (Cap. valve, etc.))  WELL TESTS: Drawdown is amount water level is lowered below static level was a pump test made? Yee No I if yes, by whom? The Pump is lowered below static level was a pump test made? Yee No I if yes, by whom? The Pump is lowered below static level was a pump test made? The gel. /min. with 1.5. ft. drawdown after 2.7. hrs.  Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)  Time Water Level Time Water Level Time Water Level	Work started 12-3-88, 19. Completed 1-21-89, 19.  Well constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my beat knowledge and belief.  NAME RIEBE Well DRIVING INC.  (PERSON, FIRM, OR CORPORATION)  (TYPE OR PRINT)  Address POBOV 10866, AKIMER WA.  (Signed)  (WELL DRIVER)
9)	Surface seel: Yes No To what depth?    Material used in sest    Material used    Material used	Work started 12-3-88, 19. Completed 1-2/-89, 19  Well Constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.  NAME RIEBE Well DRILLER (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)  Address POBOY 10866, AKIMA WA.  (Signed) (WELL DRILLER)  Contractor's Registration
9)	Surface seel: Yes No To what depth?    Material used in seel	Work started 12-3-88, 19. Completed 1-21-89, 19.  Well constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my beat knowledge and belief.  NAME RIEBE Well DRIVING INC.  (PERSON, FIRM, OR CORPORATION)  (TYPE OR PRINT)  Address POBOV 10866, AKIMER WA.  (Signed)  (WELL DRIVER)

File Original and First Copy with Department of Ecology Second Copy—Owner's Copy
Third Copy—Driller's Copy

448479

STATE OF WASHINGTON

ÚNIQUE	WELL	LD.	#	ABL	156

Water Right Permit No.

(1)	OWNER: Name Mike Hongue Hogue	Address Bt. Z, BOX 2898 Prosse	r, WA	99362
(-, (2a)	STREET ADDDRESS OF WELL (or nearest address) SALL FOR 5	Bt. SE & SW & Sec 32 T.	O_n., r_	24Ewpm3
(3)	PROPOSED USE: Domestic   Industrial   Municipal   Test Well   Other	(10) WELL LOG or ABANDONMENT PROCEDU  Formation: Describe by color, character, size of material a thickness of aquifers and the kind and nature of the material in a	RE DESC	RIPTION
(4)	TYPE OF WORK: Owner's number of well	with at least one entry for each change of information.	ach stratum	penetrated,
	Abandoned New well Method: Dug Bored	MATERIAL	FROM	TO
	Deepened ☐ Cable ☐ Driven ☐	Top Soil	0	5
	Reconditioned Rotary V Jetted	Brown BASAIT	5	15
(5)	DIMENSIONS: Diameter of well 6" inches.	Gray BASRIT	15	105
	Drilled 310' feet. Depth of completed well 310' ft.	Sand Stone	105	135
(e)		SAND Gravel PREKED	135	150
(6)		Red LAUM ROCK	150	210
	Casing installed: 6 Diam. from 0 ft. to 158 ft.	Black BASA/t	210	280
	Welded Liner installed Diam. from ft. to ft.	Broken BASAIT (WATER GEATING)	2.80	310
	Threaded Diam. from ft. to ft.	ABundance of wroter.		
	Perforations: Yes No			
	Type of perforator used			
	SIZE of perforations in. by in.			
	perforations fromft. toft.			
	perforations fromft. toft.			
	perforations fromft. toft.			
	Screens: Yes No Y			
	Manufacturer's Name			
	Type Model No	December of particular residence and residence and residence for managing of managing and a second of the St.		5-4-4
•	Diamft. toft.	10 E B E W E 6		
	DiamSlot-sizefrom:ft. toft.			
	Gravel packed: Yes No Size of gravel	(In)		
	Gravel placed fromft. toft.	(UU 10N - 7 1994 L <sup>2</sup> )!		
	25'			
		DEPARTMENT OF ECOLOGY		
	Material used in seal Bentonite	CENTRAL REGION OFFICE	rd.	
	Did any strata contain unusable water? Yes No	NACCO CONTRACTOR OF THE PROPERTY OF THE PROPER		
	Type of water?Depth of strata	DECE	IV/F	
	Method of sealing strata off	Hermi Vent Beam	B W Brown	
(7)	PUMP: Manufacturer's Name	1111 0	2010	=
	Type:H.P	JUL 0	1. 7013	
(8)	WATER LEVELS: Land-surface elevation above mean sea level ft.	Dept of	Ecology	1
	Static level 166 ft. below top of well Date 3-27-94	Central Rec	ional Off	ice
	Artesian pressure lbs. per square inch Date			
	Artesian water is controlled by(Cap, valve, etc.))			- 4
(g)	WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 4-20 , 1996 ompleted 4-	27.	
(0)	Was a pump test made? Yes No If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION.		
	Yield: gal, /min. with ft. drawdown after hrs.	WELL CONSTRUCTOR CERTIFICATION:		this wall
<u> </u>	" " " "	I constructed and/or accept responsibility for con- and its compliance with all Washington well cor-		
	" " "	Materials used and the information reported above	are true t	o my best
	Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	knowledge and belief.	,	
	Time Water Level Time Water Level Time Water Level	CARIALE DEILLING		
		NAME CYOUF Prilling (PERSON, FIRM, OR CORPORATION)	(TYPE O	R PRINT)
	*	Att Roy loud Drace.	a's m	99350
_		Address A TOSY TOSE Proses	V H	,,,,,,,
	Date of test	All mbal		90
	Bailer test gal./min. with ft, drawdown after hrs.	(WÉLL DRILLER)	No00	10
	Airtest AANK 150 gal./min. with stem set at 3/0 ft. for/ hrs.	Contractor's		
	Artesian flow g.p.m. Date	No. WD 0 49 JT Date 4-27		_, 19 99
	Temperature of water Was a chemical analysis made? Yes No			,
	Temperature or water was a chemical analysis made? Tes NO	(LISE ADDITIONAL SHEETS IE NECES	CADVI	4-

Driller's Signature:

WATER WELL REPORT	CURRENT
Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller	Notice of Intent No. WE14712
ECOLOGY State of Washington Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No. BCF827
Construction	Water Right Permit No.
Decommission ORIGINAL INSTALLATION   Notice of Intent Number	Property Owner Name _ Richard Boushey
PROPOSED USE:  Domestic  Industrial  Municipal	Well Street AddressCounty Line & Olsen Road
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other	
TYPE OF WORK: Owner's number of well (if more than one)	City Grandview County Benton
□ New well     ☑ Reconditioned     Method : □ Dug     □ Bored     □ Driven       ☑ Deepened     □ Cable     ☑ Rotary     □ Jetted	Location <u>SW</u> 1/4-1/4 <u>NW</u> 1/4 Sec <u>31</u> Twn <u>10</u> R <u>24</u> EWM ⊠ (s, t, r Still REQUIRED)
DIMENSIONS: Diameter of well 6 inches, drilled 323 ft.	(s, t, t still REQUIRED)
Depth of completed well 318ft.  CONSTRUCTION DETAILS	Lat/Long Lat Deg Lat Min/Sec
Casing Welded 4 " Diam. from 10 ft. to 290 ft.	Long Deg Long Min/Sec
Installed: \( \text{Liner installed } \( \frac{4}{2} \) Diam. from \( \frac{310}{2} \) ft, to \( \frac{318}{2} \) ft.	Tax Parcel No. (Required) 131042000005000
Threaded" Diam From ft. to ft.   Perforations:	
Type of perforator used	CONSTRUCTION OR DECOMMISSION PROCEDURE Formation. Describe by color, character, size of material and structure, and the kind and
SIZE of perfsin. by in. and no. of perfsfromft toft.	nature of the material in each stratum penetrated, with at least one entry for each change
Screens:   Yes No K-Pac Location	of information. (USE ADDITIONAL SHEETS IF NECESSARY )  MATERIAL FROM TO
Manufacturer's Name Western Well	MATERIAL FROM TO  Basalt (B & B) vesicular
Type PVC Model No	w/ deposits fractured W.B. 292 295
Diam. Slot size from ft. to ft.	Void 295 317
Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand	Void 295 317
Materials placed fromft. toft.	Basalt (B & B) ves. soft
Surface Seal:  Yes No To what depth?ft.  Material used in sealExisting	w/ Shale (Green/Grey) W.B. 317 322
Did any strata contain unusable water?	Clay (Green/Grey) 322 323
Type of water Depth of strata	Olay (Oreen/Grey) 322 323
Method of sealing strata off	
PUMP: Manufacturer's Name	
Type: H.P.	
WATER LEVELS: Land-surface elevation above mean sea level ft	
Static level 212 ft. below top of well Date 06/14/2012  Artesian pressure lbs. per square inch Date	RECEIVE
Artesian water is controlled by	
WELL TESTS: Drawdown is amount water level is lowered below static level	JUL 0 1 2019
Was a pump-test made? ☐ Yes ☐ No If yes, by whom?	OF ECOLOR Control of Ecolog
Yieldgal/min. withft. drawdown afterhrs	A) VEILLE REGIONAL OF
Yieldgal /min. withft. drawdown afterhrs. Yield:gal /min. withft. drawdown afterhrs.	Received
Recovery data (time taken as zero when pump turned off) (water level measured from	JUN 2 7 2012
well top to water level) Time Water Level Time Water Level Time Water Level	84
Time Water Level Time Water Level Time Water Level	Allen Marie
	AL REGIONS
Date of test	
Bailer testgal./min. withft. drawdown afterhrs.	
Airtest 42 gal./min. with stem set at 320 ft. for 1 hrs.	
Artesian flowg p.m Date	Start Date <u>06/13/2012</u> Completed Date <u>06/14/2012</u>
Temperature of water Was a chemical analysis made?	
WILL CONCERNICATION	
WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept resp construction standards. Materials used and the information reported above are to	
☑ Driller ☐ Engineer ☐ Trainee Name (Print) Michael Robinson	Drilling Company Robinson Drilling & Development, Inc.
Driller/Engineer/Traince Signature Wushen Lolon	Address 4902 Viewland Drive
Driller or trainee License No. 1544  IF TRAINEE: Driller's License No:	City, State, Zip Yakima , WA, 98908 · Contractor's

City, State, Zip Contractor's Registration No.

ROBINDD938QE

Date 06/15/2012

Tile O	ndelnal an	d First Cor	
Denaf	tment of E	cology	y with
Secon	d Copy -	Owner s Co	vgo
Third	Copy - D	riller s Cop	oy o

#### WATER WELL REPORT STATE OF WASHINGTON

10N/24E-31G1 Application No

Permit No

(1) OWNER Name Bichard & Candiff	Address 204 ASH Grandule	WWo:	3
(2) LOCATION OF WELL County Benton	- 5W 1 NE 14 Sec 31 T/		
Beating and distance from section or subdivision corner			
(3) PROPOSED USE Domestic X Industrial [ Municipal [	(10) WELL LOG		
Irrigation   Test Well   Other	Formation Describe by color character size of materia show thickness of aquifers and the kind and nature of stratum penetrated with at least one entry for each c	l and stru the mater hange of	acture and al in each formation
(4) TYPE OF WORK Owner's number of well (if more than one)	MATERIAL	FROM	то
New well 🞉 Method Dug ☐ Bored ☐  Deepened ☐ Cable ☐ Driven ☐	TOP 3011	2	.3
Reconditioned Rotary & Jetted	Prous Chay	1	7
(5) DIMENSIONS Diameter of well 86 inches	Brolsen BoselT	2	13
	Hord Besalt	13	225
Drilled ft Depth of completed well ft	Brolsen BaselT with Boil	225	250
(6) CONSTRUCTION DETAILS	Hard Dasa 17	255	305
0 11 1 9 1 26	Brolsen Basa CF	30.5	335
•	- Hard DasalT	335	240
Threaded ☐ Diam from ft to ft  Welded ☐ Diam from ft to ft	Hard Pag Sand Stone	340	350
Welded Diam from It to It	Hand Assa 15	350	200
Perforations Yes No No	Drolsen Basa 15	305	200
Type of perforator used	Hard MasolT	380	War
SIZE of perforations in by in	10000	200	405
perforations from ft to ft			
perforations from ft to ft			
perforations from ft to ft			
Screens Yes No X			-
Manufacturer s Name			
Type Model No _			
Diam Slot size from ft to ft			
Diam Slot size from ft to ft			
Graval marked			
Gravel packed Yes No No Size of gravel			
Gravel placed from ft to ft			
Surface seal Yes No D, To what depth? 20 ft		lead lean	
Material used in seal Puddeling Clay	, , ,	ME	CEIV
Did any strata contain unusable water? Yes No. 10	2 4077		100
Type of water? Depth of strata	JUN 15 19//	111	0 1 20
Method of sealing strata off	0\/		<u>- U L ZU</u>
(7) PUMP Manufacturer's Name V	DEPARTITUTE CONTRACTOR	Dep	05 100
	DENTITION DESIGN	Central	Re brant
Туре	U- 1		
(8) WATER LEVELS Land surface elevation			
above mean sea level ft Static level / 40 ft below top of well Date 4 ~/6~??			
Artesian pressure lbs per square inch Date			
Artesian water is controlled by			
(Cap valve etc)			
(9) WELL TESTS Drawdown is amount water level is lowered below static level			
Was a pump test made? Yes □ No □ If yes by whom?	Work started 4 ~ 14 19 79 Completed 4 ~	- 15	1977
Kield 3,5 gal/min with ft drawdown after hrs	WELL DRILLER'S STATEMENT		
By our Botery Blown		121 121	6
The state of the s	This well was drilled under my jurisdiction at true to the best of my knowledge and belief	nd this r	eport is
Recovery data (time taken as zero when pump turned off) (water level	and bence		
measured from well top to water level)	NAME Carman Water Well	SIN	10
Time Water Level Time Water Level Time Water Level	(Person firm or corporation) (T:	ype or pr	int)
	BT I Bay in non n	- 1	24
<i>Y</i>	Address BI 1 Box 1299 Bonis	20 61	/ /
Date of test	1 200		
Date of test  Sailer test gal/min with ft drawdown after hrs	[Signed]		
Artesian flow gai/min with ft drawdown after hrs	(Well Driller)	54	
Temperature of water Was a chemical analysis made? Yes □ No □	License No OG 99 Date 4-1	6	1929
	Dute ( )	-	YOU K
/IICE ADDITIONAL OF	PETE IE NEGEGGADIE	552	
(USE ADDITIONAL SHI	LEIS IF NECESSARY)		

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

#### WATER WELL REPORT STATE OF WASHINGTON

	in winding
Application	No GH-26327
	64-29608
Dannett N.	O I diana

(1) OWNER: Name Pobrat Lambrach T	Address GRANDVIEW		
(2) LOCATION OF WELL: County Yakima			
ring and distance from section or subdivision-corner			7.2 vy .N1.
(2) PROPOGED VICE	(10) WELL LOG:		112
(3) PROPOSED USE: Domestic 🗷 Industrial 🗆 Municipal 🗆			
Irrigation   Test Well   Other	Formation: Describe by color, character, size of material a show thickness of aquifers and the kind and nature of the stratum penetrated with a last contact.	materia	ture, and
(4) TYPE OF WORK: Owner's number of well (if more than one)	stratum penetrated, with at least one entry for each cha-	FROM	TO
New well  Method: Dug  Bored	TOP Soil	C	
Deepened Cable Driven D	Broken basalt Rock		12
Reconditioned Rotary Z Jetted	BROWN Clay with SAND	94	1170
(5) DIMENSIONS: Diameter of well	GRAY SAND STONE	74	100
Drilledft. Depth of completed wellft.	SAND WITH CORRSE	1.32	177
(c) CONCERNIONION DETINIC	ORAVE .	7/	- 22
(6) CONSTRUCTION DETAILS:		220	0110
Casing installed: S Diam. from ft. to 240 ft.	CONASE GRAINS	x SZ C/	240
Threaded Diam. from ft, to ft,			
Welded 🔯 1t.		$\overline{}$	
Perforations: Yes No D			
Type of perforator used miles			
SIZE of perforations			ā.
	- 19		
perforations from ft. to ft.	a Pitting	- 1	
	. W		
Screens: Yes No 🗷	0		
Manufacturer's Name			
Type Model No Diam. Slot size from ft. to ft.	enc:		-
Diam. Slot size from ft, to ft,	J		
	6.1.		
Gravel packed: Yes No No Size of gravel:			
Gravel placed from ft. to ft.			
Surface seal: Yes No   To what depth?	3 A		
Material used in seal Brouty			
Did any strata contain unusable water? Yes No 🕱			
Type of water? Depth of strata			
Method of sealing strata off			
(7) PUMP: Manufacturer's Name Martis pump	DECEIVE		
Туре: 546- нр 7/4	The desire	men street	
(8) WATER LEVELS. Land-surface elevation	HH 0.4 109	10	
above mean sea level ft.	JUL 0.1 40	10.	
Static level	Dept of Car	-	
Artesian pressurelbs: per square inch Date	Central P social		
(Cap, valve, etc.)			•
(9) WELL TESTS: Drawdown is amount water level is lowered below static level			<u>-</u> -
Was a pump test made? Yes \( \sigma\) No \( \text{X}\) If yes, by whom?	Work started 19 Completed		, 19
rield: gal./min. with ft. drawdown after hrs.	WELL DRILLER'S STATEMENT:		
" Pumped with Air 100 com"	This well was drilled under my jurisdiction and	d this w	mort is
	true to the best of my knowledge and belief.	1 11113 16	à cort la
Recovery data (time taken as zero when pump turned off) (water level			
measured from well top to water level)  Time Water Level   Time Water Level   Time Water Level	NAME MORIARTY DRILLING		
Time Water Debet 1 time Water Debet 1 time Water Debet	(Person, firm, or corporation) (Typ	e or prin	nt)
	Address Rt 2 Box 2007 Solah W	lash	
	11		•
te of test	[Signed] With Mount Ch.		
Bailer testgal/min. withft. drawdown afterhrs.	(Welf Driller)		
Artesian flow	1. DASC 0	21	
Temperature of water Was a chemical analysis made? Yes 🗆 No 🕎	License No. 0355 Date 9- 2	Z,	19.7.7