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A GEOCHEMICAL ASSESSMENT OF POTENTIAL GROUNDWATER STORAGE LOCATIONS WITHIN THE YAKIMA RIVER BASIN

WASHINGTON, USA

A Thesis

Presented to The Graduate Faculty Central Washington University

In Partial Fulfillment of the Requirements for the Degree Master of Science Geological Sciences

> by Silas S. Sleeper May 2020

CENTRAL WASHINGTON UNIVERSITY

Graduate Studies

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ABSTRACT

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June 2020

Currently in the Yakima River Basin more people possess surface water rights than there is available surface water. As a result, the local community devised the Yakima River Basin Integrated Water Management Plan, with the goal of creating a sustainable source of water for the foreseeable future. One of seven elements outlined in this plan is groundwater storage. The idea is to take available water during high spring flows and store it in the subsurface. The water will then be used to increase stream flows and decrease stream water temperatures during the summer months. A main challenge associated with groundwater storage is determining the fate of the recharged water. In this project we analyzed major ions and stable isotopes of surface waters and groundwaters within three regions (Roslyn, Kittitas Valley and Moxee Valley) to determine water-rock interactions, relative residence times, recharge regimes and groundwater surface-water interactions. We found that irrigation water generally had heavier isotopic values $(\delta D > -115\%)$ and higher nitrogen levels when compared to natural groundwater. This allowed us to identify which aquifers were dominantly recharged by irrigation water versus aquifers that are recharged naturally (typically by snowmelt). Using our geochemical data, combined with known hydrogeologic units and structures we created conceptual models of groundwater relationships at each site. Additionally, we identified potential shallow aquifer recharge sites that have deep surficial aquifers overlain by large vadose zones. These conceptual models and identified locations can be used to inform future management decisions regarding groundwater storage.

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CHAPTER I

INTRODUCTION

Significance

Located on the east side of the Cascade Mountain Range, the Yakima River Basin (Figure 1) is the main water source for agriculture, and the dominant economic driver within the central Washington region, with approximately 95% of the surface water usage for irrigation. With a drainage area of 6200 mi², the Yakima River Basin is currently over allocated in its surface water rights, meaning that more people possess surface water rights than there is available surface water during drier years. This water deficit is compounded by the region's subarid climate and recent increases in population, farm land and temperature (Frankson et al., 2017). Estimates of groundwater pumpage (Figure 2) illustrates this increase in water use in the municipal, domestic and agriculture sectors since 1960. The deficit is also due to the fact that most of the water infrastructure within the region (Bumping Dam, Kachess Dam, Clear Creek Dam, Keechelus Dam, Tieton Dam, and Cle Elum Dam) was built prior to 1940 when the regional population was much smaller (Vaccaro et al., 2009). Thus, the current water storage infrastructure was never designed to be able to accommodate for the needs of the present demands. Consequently, during drier years, when water withdrawals exceed water availability, the community's junior water users (e.g. Kittitas Reclamation District and Roza Irrigation District) are prorated to a fraction of their water right (Vaccaro et al, 2009). These dry years greatly diminish the farming production of Kittitas County and Yakima County which is currently estimated to be a \$1.78 billion market (United States, Department of Agriculture, 2012).

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Figure 1. Map of the Yakima River Basin that is color coded based on mean annual precipitation. This precipitation trend is due to the rain shadow effect caused by the Cascade Mountains. Figure source: Vaccaro and Olsen (2007).

46 Estimates of Ground-Water Pumpage from the Yakima River Basin Aquifer System, Washington, 1960-2000



Figure 2. Estimated annual groundwater pumpage for the Yakima River Basin. Figure source: Vaccaro and Sumioka (2006).

In addition to the already strained water resources of the region, climate change predictions bring grave implications for the future. Pacific Northwest climate models predict that increased temperatures will decrease snowpack as precipitation shifts from snow to rain, causing earlier spring melt and prolonging the dry season (Frankson et al., 2017). A longer dry season means that more water will be lost to evaporation, the chance of forest fires will increase, and the amount of available water for rivers and farms will decrease.

The Yakima River Basin Integrated Water Management Plan

The combination of the regions aging water infrastructure and the recent increases in population, agriculture, water usage, and temperature has caused the Yakima Basin community to plan new water resource solutions, leading to the Yakima River Basin Integrated Water Management Plan (YRBIP, summarized in Figure 3). The 30 year YRBIP was passed through the legislature and funded in 2013 with the goal of finding sustainable water solutions for the region. Currently the plan is in its "initial development phase' and has hundreds of millions of dollars entirely dedicated to water resource projects throughout the Yakima River Basin. One of the YRBIP's seven main goals is to increase groundwater storage within the basin. Groundwater storage refers to two methods of storage: aquifer storage and recovery, and shallow aquifer recharge (SAR). The difference between these two groundwater storage techniques is how the water enters the subsurface. In aquifer storage and recovery, the water is pumped down into the sub-surface while in SAR, water is diverted from streams onto an infiltration zone where the water naturally infiltrates into the shallow aquifer (Figure 4). Groundwater storage is beneficial when compared to surface water storage (i.e. dams and reservoirs) because it limits water-loss via evaporation (e.g., Lake Kachess loses ~9,610 acre-ft of water annually to evaporation (WRCC 2020)), is more cost effective (Dillon, 2002; Vose et al., 2017), is less environmentally destructive, and requires less land area than dams/reservoirs. The ideal SAR system takes excess water from the spring melt (snow melt) and stores it underground (via infiltration). The water is then recovered during the dry season when the farms and river ecosystems need it most (Figure 3). This strategic re-distribution of water is intended to decrease summertime stream temperatures and increase flows keeping the Yakima River a suitable habitat for fish species that are listed under the Federal Endangered Species Act (e.g., bull trout & steelhead trout). It also is a way of fulfilling the water needs of the Yakama Nation Indian Tribes, environmental organizations and the agriculture industry within the basin.



Figure 3. The Yakima Integrated Plan's seven goals. Groundwater storage is outlined as one of the seven main goals. Figure from Sandisen et al. (2012)

Ideal Shallow Aquifer Recharge System



Figure 4. A conceptual model of a shallow aquifer recharge (SAR) system.

Currently in the Yakima Basin there are two managed aquifer recharge projects in motion. The first aquifer recharge project began in 2014, when the City of Yakima constructed an aquifer storage and recovery facility. The facility, which began operation in 2015, takes water from the Naches River during high flows, treats the water to drinking water standards and then injects it into underground storage for use in the municipal water supply. This aquifer recharge provides the City of Yakima a buffer for droughts/water shortages. The main disadvantage of injecting water into the ground is the high costs that go into treating water to drinking water standards and pumping water. The cost is so high that the volume of recharged water is suitable for municipal use but cannot positively influence the summer stream temperatures or flows. On a tributary or smaller river, the stream temperatures may be affected by aquifer storage and recovery but on a river the size of the Yakima, a groundwater storage system that involves pumping water is too expensive to make a significant contribution to stream flow or temperature. The second managed aquifer recharge project currently happening in the Yakima Basin is a shallow aquifer recharge (SAR) project. This project diverts water (~2,500 ac-ft in 2016) onto an alluvial fan in the Toppenish Basin in order to raise the water table and restore natural vegetation. Because SAR can handle much larger volumes of water with lower annual costs compared to aquifer storage and recovery, it is the preferred method when the overall goal is to increase summer stream flows and decrease stream temperatures for a river the size of the Yakima.

Using Geochemistry as a Tool

A main challenge of SAR is correctly predicting the fate of the artificially recharged water. The speed and direction of the recharged water is controlled by subsurface barriers to flow and preferential flow paths which are currently poorly understood. To get at this question of

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groundwater movement, major ion and stable isotope (δ^{18} O and δ D) analyses are tools consistently used within the scientific community to determine groundwater/surface water and groundwater/groundwater interactions, relative groundwater ages, and flow patterns (e.g., Yaun et al 2011; Blasch and Bryson 2007; Criss and Davisson 1996; Taylor and Gazis 2014). Stable isotope analyses (δ^{18} O and δ D) are especially useful for determining groundwater/surface water interactions, while major ion analyses are useful for highlighting groundwater - rock interactions as well as some anthropogenic influences (e.g., high nitrate indicate agriculture influence).

In this project, groundwater and surface water samples were taken from three regions within the Yakima Basin (Figure 4) to determine the SAR suitability. The sampled waters were analyzed for major ion compositions and stable isotope ratios (¹⁸O/¹⁶O and D/H). These geochemical results were then analyzed to determine the extent of groundwater-surface water interaction and geochemical fingerprints of each separate waterbody. Combined with previous knowledge of the subsurface, (e.g., hydrogeologic unit lithologies and thicknesses, structural geology, etc.) the geochemical data are interpreted to create conceptual models of groundwater relationships at each site. These models can be used by the YRBIP to inform future water management decisions.

Hydrogeologic Setting

A surficial geology map of the Yakima Basin is shown in Figure 5. The geology of the Yakima Basin is dominated by the Columbia River Basalt Group, which are voluminous lava flows that covered the region between ~17 and ~6 Ma rock resetting the landscape to negligible relief (Cheney & Hayman, 2009). Since then, GPS measurements and paleomagnetic declination anomalies suggest that a gradual clockwise rotation of northern Oregon and southern Washington State has been occurring over the last 15–10 Ma (McCaffery et al., 2013). This

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clockwise rotation caused shortening and compression within the crust creating the anticlinal ridges and synclinal valleys known as the Yakima fold belt.



Figure 5. Simplified surficial geology of the Yakima Basin. Figure from Vaccaro et al. (2009).

The Yakima fold belt comprises 14 anticlines developed in pre–Miocene basement rocks and Columbia River Basalts (Reidel et al., 2013). These anticlines are important because they compartmentalize much of the surface water and groundwater flow within the basin. Due to their structure and depth, the basalt anticlines force water into single corridors, which hydraulically connect the sequential synclinal basins (Packard et al, 1996). As a consequence, the river switches from an erosional regime as it passes through the narrow/compartmentalized anticline valleys to a depositional regime within the wide synclinal basins. This pattern of erosion and deposition dominates the geologic makeup of these synclinal valleys, which is primarily composed of basalt bedrock overlain by thick sedimentary deposits that reach depths up to 240 m (Vacarro et al., 2009). Because of the large depth of these deposits, Vacarro et al. (2009) separated them into three distinct basin fill units (Table 1). Two out of our three study areas (Kittitas and Moxee Valley), are located within these synclinal valleys enclosed by basalt mountain ridges.

Structural basin	Mapped	11-14	Litheless	Thickness (ft)			
name	area (mi²)	Unit	Lithology	Range	Average	Median	
Roslyn basin	70	1	Alluvial, lacustrine, and glacial deposits	0 to 360	80	80	
		2	Fine-grained lacustrine clay and silt deposits	0 to 530	180	170	
		3	Coarse-grained sand and gravel deposits	0 to 240	60	50	
		Total basin thickness	All deposits	0 to 700	150	110	
Kittitas basin	270	1 (alluvial)	Floodplain alluvial deposits	0 to 100	30	10	
		2 (unconsolidated)	Loess, alluvial fan, glacial terrace, and Thorp gravel deposits	0 to 790	180	150	
		3 (consolidated)	Ellensburg Formation and undefined continental sedimentary deposits	0 to 2,040	600	350	
		Total basin thickness	All deposits	0 to 2,120	500	270	
Yakima basin	230	1 (alluvial)	Floodplain alluvial deposits	0 to 120	20	20	
		2 (unconsolidated)	Loess, alluvial fan, glacial terrace, and Thorp gravel deposits	0 to 350	90	80	
3 (consolidated) Ellensburg Formation and undefined continental sedimentary deposits		0 to 1,840	510	450			
		Total basin thickness	All deposits	0 to 1,840	530	410	

Table 1. Table categorizing the basin fill units within the Yakima River Basin. Table modified from Vaccaro et al., 2009.

Geologic Setting of the Headwaters and Roslyn Mines

The headwaters of the Yakima River Basin lie on the eastern side of the Cascade Range.

The Cascade Range is comprised of a complex assortment of sedimentary rocks, metamorphic

rocks, and intrusive and extrusive igneous rocks. The Roslyn study area (our third study area) is located in this head water region between Lake Cle Elum and the city of Cle Elum. The surficial geology of the Roslyn study area is primarily composed of unconsolidated glacial and nonglacial deposits (Gendaszek et al., 2014). Beneath the surficial geology lies a thick sedimentary unit known as the Roslyn Formation. The Roslyn Formation is made up interbedded layers of sandstone, shale and coal (Saunders 1914). Within the Roslyn Formation three coal seams were extensively mined (known as coal seams 1, 5, and 6). Due to the extensive mining of these three shafts their combined pore and void space is estimated to be ~20,000 acre–feet (Packard, 1981). The abundant pore space created by these abandoned coal mines provide a unique opportunity for managed aquifer recharge.

A common public concern when mixing water and coal mines is the reaction that occurs when sulfide–bearing (S^{2-}) minerals are exposed to water (H₂O) and oxygen (O₂), forming sulfuric acid (H₂SO₄). This reaction causes acidification of the water, which allows further dissolution of other heavy metals (e.g. Cu, Pb, Hg, Mn). The common term for this type of water is acid mine drainage; and it is the cause of severe environmental problems worldwide. Acid mine drainage has been linked to contaminated drinking water, corroded pipes/infrastructure, and the destruction of aquatic ecosystems (e.g., Wright et al., 2018).

The degree to which mine–water becomes acidic is based primarily on the concentration of sulfur within the mines. Generally, the higher the sulfur content, the more acidic the water (Jacobs & Testa 2014). Because mines with low sulfur content are not as toxic, there are documented cases of overlying communities using mine water for their public water supplies (e.g., Ferrell, 1992). Whereas average coal in the United Statas has between 0.8-5 % sulfur content (University of Wisconsin, 2017), Beikman et al., (1961) reported that the sulfur content

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of the Roslyn coal mines was about 0.4% on average; thus, the Roslyn Coal Mines are considered to have very low sulfur concentrations. In a 1981 study (Packard, 1981), every water sample collected from the Roslyn coal mines was in the alkaline range (pH>7), supporting the idea that sulfur concentration for the Roslyn coal is low and that the mines did not produce acidic waters. This in turn suggests that heavy metals are not dissolved in the waters that interact with the mine rocks. To confirm this, a separate objective of this research for the Roslyn study area was to measure trace elements/ heavy metals in wells that interact with the coal mines to determine if the mines can be used to safely store water.

Stable Isotope Fundamentals

Stable isotope ratios (${}^{18}O/{}^{16}O$ and D/H) are used commonly in the scientific community to categorize and separate waterbodies. Aside from the most common isotopes of oxygen (${}^{16}O$) and hydrogen (1 H), ${}^{18}O$ and 2 H (δ D) are the second most abundant stable isotopes with two more neutrons than ${}^{16}O$ and one more neutron than 1 H. Evaporation and precipitation cause isotopic ratios of water masses to change (known as fractionation). As a result, isotope ratios vary substantially with geographic location. This allows researchers to determine recharge regimes for different water bodies (e.g., Atkison et al. 2014; Blasch and Bryson 2007; Yaun et al 2011). For example, Atkison et al. (2014) used stable isotope data to show that within one flood plain there were two separate hydrological regimes interacting; one primarily recharged by the adjoining river and the other recharged from distant highlands. Stable isotope ratios are also very useful for determining the extent surface water/groundwater interactions. Because oxygen and hydrogen are major constituents in water, isotope ratios change linearly relative to mixing ratios. For example, a mixture of one liter of water with a δ D value of -120% and one liter of water with a δ D value of -115%, while other mixtures will have values along a mixing

line between the two end members (Figure 6). This allows scientists to not only identify isotopically distinct water bodies but identify zones of mixing.



Figure 6. A stable isotope mixing example.

Because a mixture of waters produces an intermediate stable isotope ratio, these signatures can then be used to identify barriers to flow. For example, if two nearby wells penetrating down to similar depths have different isotopic compositions we can assume that these wells are drawing water from two separate water bodies, thus indicating the presence of a barrier to flow.

Irrigation and spring snowmelt events are the two main processes that recharge groundwater in Kittitas and Moxee Valley. Because the reservoirs that supply the irrigation water are located in the headwaters of the Cascade Mountains, the recharge regimes represent different geographic regions and their isotopic ratios differ significantly. Thus, Yakima River water and irrigation water drawn from the Yakima River are generally heavier when compared to the other surface water types (i.e., inland tributaries) in the region. The difference is so distinct that by using stable isotopes we can differentiate between the two surface water types (Vacarro et al., 2009). In

addition, surface water is generally heavier than groundwater in the Yakima River Basin (Figure 7) which allows us to further classify water types based on their isotopic value.



Figure 7. A δ^{18} O vs δ D plot of groundwater, surface water and precipitation in the Yakima River Basin. Surface water is significantly lighter and therefore can be used to determine which aquifers are recharged via surface water. Figure modified from Vaccaro et al. 2009.

Major Ions Explained

In addition to stable isotope ratios, a second line of geochemical information comes from major ion concentrations: calcium (Ca²⁺), magnesium (Mg²⁺), potassium (K⁺), sodium (Na⁺), ammonium (NH₄⁺), chloride (Cl⁻), sulfate (SO₄⁻), nitrate (NO₃⁻), phosphate (PO₄⁻) and bicarbonate(HCO₃⁻). Major ions are important to measure because they record interactions

between water and rock, length of water rock interaction and possible anthropogenic influence (e.g., nitrate from agriculture). When water falls as precipitation the major ion concentrations are extremely low due to the distillation process in evaporation; but as the water travels through different environments, chemical reactions (e.g., dissolution and chemical weathering of minerals, formation of precipitates, ion exchange, acid–base reactions, oxidation–reduction reactions) contribute to the waters' major ion geochemistry. For groundwater, dissolution and chemical weathering of subsurface minerals causes the water to chemically evolve and become more concentrated in major ions over time. Figure 8 demonstrates the many different origins of major ions in groundwater.

Aqueous Species	Origin
Na^+	NaCl dissolution (some pollution)
	Plagioclase weathering
	Rainwater addition
\mathbf{K}^+	Biotite weathering
	K–feldspar weathering
Mg^{2+}	Amphibole and pyroxene weathering
	Biotite (and chlorite) weathering
	Dolomite weathering
	Olivine weathering
	Rainwater addition
Ca^{2+}	Calcite weathering
	Plagioclase weathering
	Dolomite weathering
HCO_3^-	Calcite and dolomite weathering
	Silicate weathering
\mathbf{SO}_4^{2-}	Pyrite weathering (some pollution)
	CaSO ₄ dissolution
	Rainwater addition
Cl^{-}	NaCl dissolution (some pollution)
	Rainwater addition

Figure 8. The origin of major aqueous species in groundwater. Figure modified from Berner and Berner (1996).

CHAPTER II

METHODS

Sample Collection

A total of 116 water samples were collected throughout the Yakima Basin (Figure 9 and 10) during this study, including 99 groundwater samples from wells and 17 surface water samples (Table 1, 2, and 3). Groundwater sites were chosen based on the location, quality of well logs and well geology. When identifying wells, we wanted wells in the same area that penetrate into different lithologic units at different depths. Online resources were used to find and correlate well logs with addresses (Kittitas County Property Search, 2020; Washington State Well Report Viewer, 2020). However, the groundwater sampling success rate was only ~30% (3/10 houses visited resulted in sample collection), so many of the wells sampled were based off of well accessibility and well logs were not always available. Sampling occurred between August 2019 and November 2019. When possible the sample was collected from the closest water source to the well, usually from an outdoor spigot or garden hose. Sampling from outside the house also proved to be a beneficial way to bypass the filtration and/or softener systems. If the water passed through a softener system, it was noted and excluded from the piper diagrams. Prior to sample collection, pH, electrical conductivity (EC), temperature and dissolved oxygen (DO) were constantly monitored until the readings stabilized (usually 3-5 minutes) to ensure that the delivery system was sufficiently purged and the water samples collected were representative of the aquifer's water. Once the readings stabilized, the water sample was collected and the final values of pH, EC, temperature and DO recorded (Tables 2, 3, and, 4).

At each sample location two water samples were collected: (1) for major ion and stable isotopes analyses. Samples were filtered with a 0.45– μ m filter and stored in new 60–ml

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polyethylene bottles, and sealed with tape to prevent evaporation; (2) for alkalinity titrations, unfiltered samples were collected in a 300–ml polyethylene bottle. For the Roslyn study area, the sample collected for major ions and stable isotope analyses would also be used to measure trace elements, and thus acid washed 60–ml polyethylene bottles were used. Prior to any sample collection, bottles were rinsed three times with the filtered sample water.

Geochemical Analysis

All geochemical analyses were performed in the Central Washington University laboratories of either the Geological Sciences or Chemistry Departments. Major anion and cation analyses were measured by both the Dionex ICS–5000 Ion Chromatograph (located in the Murdock Lab in the Geological Sciences Department) and the Dionex DX 500 Ion Chromatograph (located in the Chemistry Department). Samples were measured by both ion chromatographs in order to check the accuracy of the results (Appendix B). Uncertainty for major ions was 10% based on the QC results. Detection limits for the Dionex DX 500 Ion Chromatograph were determined by Holt (2012) and are 0.092, 0.085, 0.043, 0.17, 0.107, 0.088, 0.142, 0.087, and 0.181 ppm for F⁻, Cl⁻, NO₃⁻, SO₄⁻, Na⁺, NH₄⁺, K⁺, Mg⁺, and Ca⁺, respectively.

Alkalinity was determined by titration in the laboratory within 3 days of sample collection. Alkalinity titrations were conducted by adding 0.01 M HCl to 100 ml of sample until the acid converted all of the sample's bicarbonate ions (HCO_3^-) to carbonic acid (H_2CO_3). A Gran plot is then used to determine the equivalence point which was then used to calculate the bicarbonate (HCO_3^-) concentration of each sample. This calculation assumes that the alkalinity is dominated by bicarbonate, based on the intermediate pH values of the samples.



Figure 9. Map of study regions, modified from Vaccaro et al. (2009). Boxes outline study areas: Roslyn, Kittitas Valley, and Moxee Valley.



Figure 10. Sampled locations on top of a surficial geology map. Blue dots represent surface water samples while black dots represent groundwater samples (LIDAR from Washington DNR).

Table 2	. General	description	of sam	pling	locations	in	Roslyn
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Well Name	Well Name General Description		Well	Surface	Latitude	Longitude
		Sampled	Depth (ft)	Elevation (ft)		
Borders Reservoir						
Guzzi60	On the southern bank of Lake Cle Elum	10.20.19	127	2229	47.238	-121.044
Guzzi30	On the southern bank of Lake Cle Elum	10.20.19	124	2229	47.240	-121.044
Salmon14030	~0.5 miles east of Lake Cle Elum	11.03.19	_	2329	47.234	-121.044
Coal interaction						
likely						
Fan (11/12)	0.01 miles east of the Cle Elum River, overflow point for the Roslyn Mines	11.12.19	705	2074	47.238	-121.044
Vinegar390	Between Lake Cle Elum and the fan house	10.20.19	99	2219	47.223	-120.994
Vinegar481	Between Lake Cle Elum and the fan house	10.20.19	171	2230	47.239	-121.045
Vinegar420	Between Lake Cle Elum and the fan house	10.26.19	120	2225	47.187	-121.002
Shaft421	Located between Roslyn and Cle Elum	10.26.19	325	2125	47.187	-121.000
Shaft181	Located between Roslyn and Cle Elum	11.03.19	300	2117	47.206	-120.940
Ridgeview	On hillside north of Cle Elum	11.05.19	250	2252	47.224	-121.033
Ridge360	On hillside north of Cle Elum	11.12.19	250	2601	47.240	-121.044
Tamarack101	Between Lake Cle Elum and the fan house	11.03.19	_	2182	47.207	-120.974
Coal interaction not						
expected						
RoslynRidge	New housing development on hillside north of Ronald	11.03.19	_	2426	47.168	-120.834
W-WA103	Inside the town of Roslyn	10.20.19	40	2264	47.208	-120.977
Easton	East of Easton	11.05.19	-	2172	47.242	-121.171
Borders Cle Elum R.						
Woodduck1161	~0.3 miles east of the Cle Elum River downstream from fan house	10.26.19	46	1969	47.403	-121.097
Woodduck1281	~0.3 miles east of the Cle Elum River downstream from fan house	10.26.19	43	1975	47.272	-121.072
Surface Water						
Salmon La Sac R.	Salmon La Sac River which is a main tributary to Cle Elum Lake	11.03.19	n.a	2400	47.253	-121.066
Cle Elum Lake	Reservoir, located up gradient of all wells except Salmon14030	11.03.19	n.a	2223	47.243	-121.038
Teanaway R.	River south of Cle Elum on Highway 10	11.03.19	n.a	1810	47.242	-121.171

n.a. = not applicable

North of Irrigation		Date				
		Sampled				
a 40						
Grn18	Above irrigation canals, amidst natural vegetation	08.21.19	840	2705	47.156	-120.632
W122	N end of transect, above influence of irrigation	09.05.19	420	2336	47.106	-120.500
Clk64	Perched on basalt hills E of Cooke Canyon	09.09.19	566	3000	47.106	-120.368
Chr90	N end of transect, above irrigation canals	10.02.19	409	2303	47.103	-120.496
W117	N end of transect, above irrigation canals	10.02.19	235	2284	47.101	-120.497
W268	N end of transect, above irrigation canals	10.02.19	345	2382	47.110	-120.495
Chr20	E of Naneum Creek, above irrigation canals	10.03.19	185	2288	47.102	-120.471
Chr33	E of Naneum Creek, above irrigation canals	10.03.19	180	2340	47.103	-120.454
Prk	Group home located at the mouth of Parke Creek Canyon	09.03.19	360	2112	47.015	-120.321
Ck23	Between Coleman Creek and Cooke Creek, above irrigation canals	09.09.19	_	2215	47.067	-120.387
North Valley						
Af20	N end of transect, amidst hay fields	08.20.19	280	1992	47.065	-120.498
Af86	N end of transect, amidst hay fields	08.20.19	385	1967	47.066	-120.507
W64	N end of transect, amidst hay fields	08.20.19	200	1905	47.051	-120.496
W45	N end of transect, amidst hay fields	08.20.19	170	1829	47.040	-120.500
L97	N end of transect, amidst hay fields	08.21.19	220	2047	47.070	-120.483
L45	N end of transect, amidst hay fields	08.21.19	200	1999	47.063	-120.482
Bar90	N end of transect, amidst hay fields	08.27.19	120	2060	47.073	-120.491
W70	N end of transect, amidst hay fields	08.27.19	_	1987	47.062	-120.489
Bar94	N end of transect, amidst hay fields	08.28.19	163	2044	47.071	-120.492
Center Valley						
3rd26	Middle of transect located near Ellensburg High School	10.14.19	125	1596	46.995	-120.506
Pf20	Middle of transect located near Ellensburg High School	10.14.19	172	1579	46.996	-120.518
Tj39	S half of transect located E of the I–90 & I–82 junction, amidst hay	10.14.19	30	1509	46.964	-120.481
	fields					
Tj39(b)	S half of transect located E of the I–90 & I–82 junction, amidst hay	10.14.19	125	1509	46.964	-120.481
5 ()	fields					
W127	Middle of transect, amidst hay fields	10.27.19	_	1679	47.011	-120.498
Sor17	Between Ellensburg and Badger Pocket, amidst hay fields	10.27.19	_	1523	46.942	-120.432
South Valley						
Trl60	S end of the transect, ~2 miles N of Manastash Ridge	10.22.19	183	1618	46.926	-120.431
Trl32	S end of the transect, ~1.5 miles N of Manastash Ridge	10.22.19	137	1549	46.928	-120.462
Or51	S end of the transect, ~1.5 miles N of Manastash Ridge	10.23.19	125	1554	46.923	-120.457
Tr130	S end of the transect, ~1.5 miles N of Manastash Ridge	10.23.19	138	1495	46.928	-120.471

Table 3. General descriptions of sampling locations in Kittitas Valley

Well Name	General Description	Date	Well	Surface	Latitude	Longitude
		Sampled	Depth	Elevation		
			(ft)	(ft)		
West Valley						
RB20	SW section of Kittitas Valley, amidst hay fields	08.27.19	140	1533	46.951	-120.559
Mn10	SW section of Kittitas Valley, amidst hay fields	08.28.19	110	1600	46.971	-120.584
Badger Pocket						
Boh501	In Badger Pocket, on local terrace above Badger Creek, amidst hay fields	08.27.19	145	1963	46.876	-120.318
UpB91	In Badger Pocket on W floodplain of Badger Creek	09.11.19	_	1835	46.890	-120.339
Mor	Abandoned well in Badger Pocket located on E floodplain of Badger Creek	09.11.19	_	1766	46.897	-120.346
Cm14	In Badger Pocket on terrace E of Badger Creek	09.11.19	550	1833	46.899	-120.339
Km100	In Badger Pocket located at the base of a terrace to the W of Badger Creek	09.11.19	_	1702	46.907	-120.368
By61	In Badger Pocket, ~100ft south of the pump ditch Irrigation canal	10.03.19	188	2104	46.885	-120.307
UpB17	In Badger Pocket, ~400yrds south of the pump ditch Irrigation canal	10.03.19	182	2083	46.869	-120.295
WPA51	In Badger Pocket, on terrace W of Badger Creek, amidst hay fields	10.03.19	290	2003	46.882	-120.351
Bor	In Badger Pocket, on terrace W of Badger Creek, amidst hay fields	10.03.19	163	2012	46.878	-120.340
Km89	In Badger Pocket located at the base of a terrace to the W of Badger Creek	10.03.19	-	1758	46.906	-120.369
North West						
Valley						
Man22	0.25mi E Yakima R. and 0.25mi W of the Kittitas Valley Anticline	11.11.19	365	1602	47.052	-120.640
Man20	0.25mi E Yakima R. and 0.25mi W of the Kittitas Valley Anticline	11.12.19	60	1598	47.051	-120.638
Hwy10	On terrace E of the Yakima R. and W of the Kittitas Valley Anticline	11.14.19	385	1797	47.103	-120.708
Man60	0.25mi E Yakima R. and 0.25mi W of the Kittitas Valley Anticline	11.14.19	37	1608	47.056	-120.645
Surface Water						
Yakima R. (TRP)	Yakima R. at N entrance to Kittitas Valley	09.03.19	n.a.	1676	47.101	-120.702
Yakima R. (BV)	Inside the Yakima Canyon, all Kittitas Valley water flows to this point	09.03.19	n.a.	1371	46.885	-120.480
North Branch	An irrigation canal at the N end of the transect	08.28.19	n.a.	2077	47.075	-120.498
Canal	C C C C C C C C C C C C C C C C C C C					
Naneum Cr.	Tributary N of Yakima R. near mouth of Naneum Canyon	09.03.19	n.a.	2288	47.103	-120.476
Badger Cr.	Tributary to the Yakima R. Located in badger pocket	09.03.19	n.a.	1681	46.912	-120.370
Wilson Cr.	Tributary N of the Yakima R., directly E of Yakima R. Canyon	09.03.19	n.a.	1410	46.913	-120.508
Cherry Cr.	Tributary N of the Yakima R., mainly fed via irrigation ditches	09.03.19	n.a.	1429	46.926	-120.496
Manastash Cr.	Tributary S of Yakima R.	09.03.19	n.a.	1592	46.995	-120.591
Taneum Cr.	Tributary S of Yakima R.	09.03.19	n.a.	1855	47.082	-120.736
Reecer Cr.	Tributary N of Yakima R. Above influence of irrigation	09.03.19	n.a.	2171	47.117	-120.593
Coleman Cr.	At mouth of Coleman Canyon	09.30.19	n.a.	2396	47.085	-120.399
Caribou Cr.	~1.2mi S of the mouth of Caribou Canvon	09.30.19	n.a.	2030	47.046	-120.367
						1=0.007

Table 3. General descriptions of sampling locations in Kittitas Valley. - Continued

n.a. = not applicable

Well Name	General Description	Date	Well	Surface	Latitude	Longitude
		Sampled	Depth (ft)	Elevation (ft)		
North of						
Agriculture						
Cla18	At S base of Yakima Ridge Anticline, above influence of irrigation	10.05.19	840	1589	46.604	-120.378
Cla23	At S base of Yakima Ridge Anticline, above influence of irrigation	10.05.19	545	1550	46.601	-120.378
Cla15	At S base of Yakima Ridge Anticline, above influence of irrigation	10.05.19	768	1612	46.604	-120.376
North Valley						
Ter70	N end of transect, below irrigation canal, amidst agriculture	10.04.19	243	1185	46.594	-120.416
Bit50	N end of transect, just above (N) of irrigation canal	10.04.19	445	1266	46.598	-120.404
Bit71	N end of transect, just above (N) of irrigation canal	10.04.19	245	1199	46.594	-120.404
Bit81	N end of transect, just above (N) of irrigation canal	10.04.19	180	1186	46.592	-120.404
Bit80	N end of transect, just above (N) of irrigation canal	10.04.19	180	1189	46.593	-120.404
Loc40	N end of transect, below irrigation canal, amidst agriculture	10.05.19	245	1183	46.600	-120.423
Ter59	N end of transect, just above (N) of irrigation canal	10.05.19	268	1215	46.603	-120.420
Bit09	N end of transect, just above (N) of irrigation canal	10.05.19	360	1276	46.601	-120.407
Middle Valley						
Bea23	~0.5mi S of East Valley High School	10.29.19	140	1030	46.566	-120.403
Cay22	In middle valley, ~1.5mi E of Yakima R.	10.29.19	113	988	46.569	-120.429
Mie9	Middle of Moxee Valley, on a local high point, amidst agriculture	10.05.19	290	1221	46.575	-120.379
Duf86	Middle of Moxee Valley, amidst agriculture	10.05.19	105	1108	46.570	-120.386
Bel65	Middle of valley, E of Moxee	10.29.20	60	1009	46.557	-120.414
Bir22	In middle of the valley, ~1 mile E of Yakima R.	10.27.19	80	974	46.559	-120.440
East Valley						
Des38	SE end of Moxee Valley, amidst agriculture	10.05.19	150	1219	46.531	-120.298
WA-24	SE end of Moxee Valley, on a local high point, amidst agriculture	10.05.19	220	1286	46.541	-120.299
Hof35	S end of Moxee Valley, on a local high point, amidst agriculture	10.05.19	170	1301	46.542	-120.298
Hof34	S end of Moxee Valley, on a local high point, amidst agriculture	10.05.19	195	1300	46.544	-120.302
Hof25	S end of Moxee Valley, on a local high point, amidst agriculture	10.05.19	316	1269	46.545	-120.304
Pos12	NE end of Moxee Valley, amidst agriculture	10.05.19	425	1361	46.562	-120.304
South Valley						
Gam02	S end of transect, amidst agriculture	10.06.19	110	1071	46.541	-120.400
Gam76	S end of transect, amidst agriculture	10.06.19	65-90	1073	46.541	-120.400
Gam5	S end of transect, amidst agriculture	10.06.19	60	979	46.542	-120.434
Bea85	Middle of transect, directly south of Moxee	10.29.19	94	1051	46.549	-120.388
Bea68	S end of transect, amidst agriculture	10.06.19	122	1024	46.549	-120.410

Table 4. General descriptions of sampling locations in Moxee Valley

Konnowac Pass						
Kon14	S end of transect, above agriculture on the west side of Konnowac	10.06.19	685	1275	46.512	-120.375
	pass					
Surface Water						
Yakima R. (LU)	Yakima R. at Luma Cr. recreation site	10.29.19	n.a	1292	46.813	-120.450
Moxee Cr.	S end of Moxee Valley, at Beane Rd Bridge	10.29.19	n.a	1163	46.540	-120.313
YR@Moxee (MX)	Yakima R. at the end of W Birchfield Rd	10.29.19	n.a	1000	46.585	-120.459
11 11						

Table 3. General descriptions of sampling locations in Moxee Valley. -Continued

n.a. = not applicable
Charge balance errors were calculated using Equation 1. 95.5% of samples had charge balance errors less than 10%, and with the exception of one sample the remaining 4.5% of samples all had charge balance errors under 15%. Charge balance errors greater than 10% are highlighted in yellow in the results section; these major ion concentrations are not used in this report. This overall low charge balance error indicates that there is not systematic error in either the titration or the ion chromatography measurements and that the measured major ions constitute the majority of the ionic charge in these samples.

$$CBE = rac{\sum cations - |\sum anions|}{\sum cations + |\sum anions|} \times 100$$

Equation 1. The charge balance error (CBE) equation that is used to check accuracy of major ion results. Cations (Na⁺, NH₄⁺, K⁺, Mg²⁺, and Ca²⁺) and anions (F⁻, Cl⁻, NO₃⁻, SO₄⁻, and HCO₃⁻) are in calculated in millequivalents. If the sum of the cation and anion charges are equal, then the CBE is 0.

For the Roslyn study area samples and a subset of the Kittitas Valley samples, an Agilent 8900 Triple Quad Inductively Coupled Mass Spectrometer (ICPMS) was used to determine the concentrations of the following elements: Be, Na, Mg, Al, K, Ca, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Mo, Ag, Cd, Sb, Ba, Ti, Th, U and Pb. Multi–element standard solutions of concentrations 1 ppb, 10 ppb, 50 ppb, 100 ppb, 250 ppb, 500 ppb, 750 ppb, 1000 ppb, 15000 ppb, 2000 ppb, 2500 ppb, 3000 ppb, 4000 ppb and 5000 ppb were used to establish calibration curves. Quality control (QC) samples, replicates, and blanks were run throughout the process to ensure accuracy and precision. Based on the QC samples, uncertainty is less than 10%. Detection limits for trace elements were determined by multiplying the standard deviation of the replicate QC samples by three (EPA, 2016). Because the samples run were diluted by a factor of five the

calculated detection limits were multiplied by five, giving the detection limits presented in Table 5 for 5x diluted samples. All samples were under the detection limit for the following elements: Be, Co, Se, Ag, Cd, Sb, Ti, and Th.

Table 5. Trace element detection limits in ppb for 5x diluted samples. Detection limits were determined as per stated in EPA (2016).

Be	Al	V	Cr	Mn	Fe	Со	Ni	Cu	Zn	U
0.37	0.34	0.14	0.21	0.11	15.58	0.21	0.33	0.27	0.50	0.08
As	Se	Mo	Ag	Cd	Sb	Ba	Ti	Pb	Th	
0.31	0.96	0.10	0.16	0.27	0.24	0.38	0.17	0.15	0.44	

For quality assurance 27 samples were analyzed for Cl, NO₃, SO₄, Na, Mg, K, and Ca on both the Dionex ICS–5000 Ion Chromatograph and Dionex DX 500 Ion Chromatograph; these analyses are plotted against each other in Appendix B. In addition, 21 samples were analyzed for Ca, Mg, K, and Na on the Dionex ICS–5000 Ion Chromatograph, the Dionex DX 500 Ion Chromatograph and the Agilent 8900 Triple Quad Inductively Coupled Mass Spectrometer. The results from the three instruments were then plotted against each other (Appendix B). The graphs presented in Appendix B show that the measurements made by the three instruments agree except for NO₃⁻, which is discussed further in the Appendix. The Dionex ICS–5000 Ion Chromatograph was the instrument that we used to measure all major ion data, which is presented in Table 6, 7, and 8.

Oxygen and hydrogen isotope ratios were determined using the Picarro L2130–I Isotopic H₂O Analyzer. The Picarro L2130–I Isotopic H₂O Analyzer uses Cavity Ring–Down Spectroscopy technology to determine relative abundances of water molecules with ¹⁸O,¹⁷O, ¹⁶O, D and H. The instrument's operating system then uses the measurements to calculate the oxygen and hydrogen isotope ratios, reported in the standard δ–notation in per mil units (Equation 2). Absolute isotope ratios were calibrated using three IAEA standards (VSMOW, GISP, SLAP) and five internal laboratory standards. Calibration verification was accomplished by comparison with internal water standards obtained from Dartmouth College Stable Isotope Geochemistry Laboratory. Uncertainty based on replicate measurements of the internal lab standards and of unknown samples is < 0.04‰ for δ^{18} O and < 0.2‰ for δ D.

$$\delta^{18} O = \left(\frac{\frac{{}^{18}O}{{}^{16}O}_{smp} - \frac{{}^{18}O}{{}^{16}O}_{SMOW}}{\frac{{}^{18}O}{{}^{16}O}_{SMOW}}\right) * 1000 \quad \delta D = \left(\frac{\frac{D}{H}_{smp} - \frac{D}{H}_{SMOW}}{\frac{D}{H}_{SMOW}}\right) * 1000$$

Equation 2. The two equations used to obtain the standard δ -notation in per mil units. Where smp = sample and SMOW = standard mean ocean water.

CHAPTER III

RESULTS

Major Ions

Major ion data, pH and electrical conductivity values for all water sampled collected are located in Tables 6, 7, and 8. Major ion data that had charge balance errors >10% are marked with an asterisk and are not used in this study. Sample location details are located in Tables 2, 3 and 4. The major ion data is also presented on a Piper Plot (Figure 11). Piper diagrams are graphical representations of the major ion percentages for each sample (as opposed to concentrations). HCO₃ is the dominant anion in all samples while within the cation triangle there is a larger distribution of chemistries. Thus, different groupings (neutral, Ca²⁺ dominated and Na⁺ dominated) can be identified. With the exception of one sample, every surface water collected has >70% Ca²⁺ content. Standard deviations and ranges for major ions are presented in Table 9.

Trace Elements

Trace element data for select water samples are presented in parts per billion (ppb) in Tables 11 and 12. At the bottom of Table 11 and 12, the national drinking water limits defined by the EPA are included for reference.

Stable Isotopes

All stable isotope values can be found in table 6, 7, and 8. Stable isotope values are also plotted on a δD vs $\delta^{18}O$ plot in Figure 12. Groundwater samples are color coded based on the study area and the surface waters are all blue. Local meteoric water lines (LMWL) represent the isotope values of precipitation collected at a specific location. In Figure 12 the LMWL for Cle

Elum and Snoqualmie are included. The maximum, minimum and average stable isotope values for each study area can be found in Table 10.

Table 6. Geochemical data for Roslyn

Well Name	EC	pН	Ca	Mg	Na	K	Cl	NO ₃	SO ₄	HCO ₃	Charge Balance	δD	δ ¹⁸ Ο
	(µS/cm)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	Error (%)	(‰)	(‰)
Borders													
Reservoir													
Guz60	12.44	6.9	29.4	25.9	9.9	1.5	27.81	n.r	5.0	248	0	-100	-13.6
Guz30	10.73	7	25.5	23.4	7.9	1.1	12.95	n.r	4.0	216	0	-100	-13.7
Salmon	10	7.8	29.5	12.9	20.7	1.1	3.76	n.r	6.5	214	0	-100	-13.3
Near Coal Shafts													
Fan	_	7.8	22.5	17.4	43.0	1.5	12.05	n.r	12.4	324	9	-99	-13.5
Vin390	12	7.4	45.0	10.0	71.8	2.3	14.22	n.r	11.8	406	3	-100	-13.6
Vin481	_	_	42.9	9.5	82.2	2.4	14.78	n.r	13.0	408	1	-101	-13.6
Vin420	13	7.8	19.7	3.9	123.2	4.1	17.83	n.r	8.7	435	3	-101	-13.6
Shaft42	7.6	8.8	4.4	0.1	78.3	0.7	2.25	n.r	4.9	232	2	-114	-15.2
Shaft18	_	_	5.2	0.2	75.0	0.8	2.60	n.r	6.1	223	1	-116	-15.5
Ridge	_	_	32.7	4.7	91.0	0.7	0.07	n.r	7.9	359	1	-112	-15.0
Ridge360	5	6.9	6.9	0.3	67.8	0.7	0.52	n.r	5.5	210	2	-113	-15.4
Tam101	_	_	18.9	2.0	55.1	1.3	6.78	n.r	2.0	227	3	-102	-13.9
Away From Coal													
Shafts													
RoslynRidge	9	7.7	18.9	2.0	55.6	1.4	7.08	n.r	2.2	232	3	-103	-14.0
WA103	2.3	7.9	14.9	1.7	2.9	0.7	2.01	n.r	1.9	52	9	-94	-13.2
Easton	_	_	12.6	2.3	3.7	0.8	1.21	n.r	2.1	0	_	-94	-13.0
Borders Cle													
Elum R.													
Wood16	10	7.3	14.7	20.3	3.3	1.4	4.89	n.r	2.1	154	1	-103	-13.8
Wood12	10	7.2	15.0	15.1	3.9	1.0	3.14	n.r	1.8	127	2	-106	-14.3
Surface Waters													
Salmon R.	7.3	6.7	6.6	3.6	1.2	1.8	1.83	n.r	1.4	39	7	-95	-13.1
Cle Elum Lake	1	8.1	8.0	3.4	1.3	0.8	0.92	n.r	1.5	40	8	-97	-13.1
Teanaway R.	_	_	16.2	6.1	2.5	0.7	1.33	n.r	2.7	84	2	-102	-14.0
Detection Limit			0.1	0.1	0.1	0.1	0.1	0.1	0.1	10			

bdl., below detection limit; –, not measured

n.r., not reported. For this study area NO_3 is excluded because the samples were collected in acid washed bottles which may increase the background concentrations of NO_3 .

Well Name	EC	pН	Ca	Mg	Na	K	Cl	NO ₃	SO ₄	HCO ₃	Charge Balance	δD	δ ¹⁸ O
	(µS/cm)	-	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	Error (%)	(‰)	(‰)
North of													
Irrigation													
Grn18	208	7.6	19	9.4	11.5	3.8	1.8	1.2	3.5	133	3	-120	-15.5
W122	86	7.8	24.4	10.5	16.2	3.8	6.9	3.9	6.2	172	1	-121	-15.8
Clk64	58	6.7	18	10.9	9.5	2.2	2	0.9	2.5	134	2	-118	-15.0
Chr90	16	7.9	28.6	15	21.1	3.9	11.6	6.9	10.1	227	1	-120	-15.4
W117	13	7.7	25.7	13.5	17.8	4.7	5.7	4.5	5.6	192	2	-120	-15.5
W268	10	7.9	23.3	11.3	12.5	3.9	4.5	2.2	8	160	2	-119	-15.3
Chr20	20	7.6	30.4	11.5	28.5	6.3	6.1	4.1	6.4	232	1	-120	-15.6
Chr33	15	7.5	25.1	13.4	9.8	1.9	3	2.2	2.9	162	3	-122	-15.9
Prk	80	67.7	19.6	7.6	15.7	3.8	2.8	3.5	4.8	137	3	-121	-15.9
Ck23	30	7.3	22.8	10.8	12.4	4.7	7.1	21.6	7.2	129	12*	-120	-15.5
North Valley													
Af20	77	7.33	20.59	10.1	6.33	2.4	1	0.9	0.9	130	1	-118	-15.8
Af86	77	8	20	6.2	10.7	2.8	0.9	1.0	2	119	2	-121	-16.2
W64	62	7.2	18.4	8.7	5.9	2.5	0.9	bdl.	1.5	115	2	-119	-16.0
W45	85	7	20.4	9.6	6.8	2.1	1.3	bdl.	1.3	133	0	-116	-15.6
L97	106	7.3	20.8	9.5	8.2	2.5	1.1	0.9	1.6	343	2	-121	-16.0
L45	185	7.1	19.9	9.9	7.4	39.5	36.4	bdl.	1.9	189	1	-119	-15.8
Bar90	53	7.4	2.4	0.2	35.9	0.5	0.6	bdl.	1	100	2	-118	-15.8
W70	61	7.9	23.9	8.4	8.6	2.9	0.9	1.0	1.5	143	0	-121	-16.1
Bar94	46	7.1	17.6	8.4	4.8	2.3	1.9	bdl.	1.8	110	1	-119	-16.1
Center													
Valley													
3rd26	12	6.8	41.5	17.2	11.7	2.7	3.3	1.2	3.9	254	1	-103	-13.8
Pf20	7	7	30.1	13.9	8.6	2.6	3.1	2.3	4	186	1	-99	-13.4
Tj39	10	6.9	43.5	19.6	15.5	5.8	15.2	12.2	18.1	269	2	-103	-13.9
Tj39(b)	6	7.3	22.2	10.4	13.5	1.9	1.4	1.2	2.2	157	1	-117	-15.6
W127	108	6.9	42.2	18.6	13.1	2.6	6.2	1.1	3.8	258	0	-97	-13.0
Sor17	92	7.8	25.2	11.2	22.8	3.6	3.7	1.1	6.1	200	0	-123	-15.8
South Valley													
Trl60	N/A	7.7	63.1	22.7	28.1	6.2	14.9	18.7	37.3	379	2	-120	-15.7
Trl32	N/A	N/A	74.6	28.4	32.1	6.2	10	12.8	20.3	463	0	-96	-13.0
Or51	15	7.7	67.6	26	32.5	5.5	15	23.1	24.7	419	1	-100	-13.5
Trl30	15	7.7	54.3	21.1	46.3	5.9	9.5	18.8	18	394	1	-94	-12.8

Table 7. Geochemical data for Kittitas Valley

Well Name	EC (µS/cm)	рН	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	Cl (mg/L)	NO3 (mg/L)	SO ₄ (mg/L)	HCO ₃ (mg/L)	Charge Balance Error (%)	δD (‰)	δ ¹⁸ Ο (‰)
West Valley													
RB20	67	6.8	21.6	10.9	9.3	4.7	4.3	2.8	6.8	144	3	-118	-15.6
Mn10	62	7.4	14	5.7	4.2	2	1.3	8.2	2.1	108	12*	-99	-13.4
Badger Pocket													
Boh501	304	7.8	83.4	38	96.6	7	26.2	26.6	110.6	716	0	-109	-14.2
UpB91	23	7.4	44.3	19.1	27.3	4.6	14	9.7	27.8	310	0	-113	-14.9
Mor	15	7.1	31.4	13	10	4.5	13	7.3	20.2	187	2	-128	-16.6
Cm14	21	7.6	31.9	14	23	3.8	8.3	5.8	15.3	231	1	-122	-15.6
Km100	19	7.4	29.3	12.8	16	6.9	11.6	5.9	14.7	202	1	-123	-16.0
By61	28	7.8	21.5	9.4	18.9	3.1	7.7	9.4	3.7	154	4	-91	-12.5
UpB17	23	7.7	50.5	23.1	42.8	3.5	4.2	1.6	4.3	393	1	-91	-12.4
WPA51	14	7.9	20.6	9.6	19.5	4	5.7	2.5	14.8	154	5	-126	-16.4
Bor	32	7.6	53	25.3	36.6	4.3	7.7	10.9	20.7	382	1	-97	-13.2
Km89	24	7.7	39.6	16.8	23.4	4.4	11.5	6.1	21.3	263	2	-113	-14.9
North West													
Valley													
Man22	13	8	15.5	4.2	15.4	2.1	2.3	0.4	4.8	110	1	-131	-17.1
Man20	N/A	N/A	14.5	5.2	5.5	1.1	3	0.6	2.2	83	2	-99	-13.3
Hwy10	10	7.6	45.1	25.5	19.4	4.1	6.3	10.7	7.2	316	1	-108	-14.4
Man60	30	7.2	13.1	5	4.5	1.8	3.6	0.4	1.6	75	3	-96	-13.1
Surface Water													
Yakima R. (TRP)	76	7.7	9.8	bdl.	2.1	0.7	1.9	0.8	1.2	40	5	-94	-12.7
Yakima R. (BV)	70	7.9	13.4	4.8	4	1.2	2.7	1.0	2.3	65	9	-95	-12.9
North Branch	33	7.6	8.4	0.9	2.2	0.7	1.8		1.3	27	9	-90	-12.3
Canal								0.9					
Naneum Cr.	82	8	12.4	4.5	3.7	1.8	0.7	bdl.	1	51	18*	-113	-15.3
Badger Cr.	128	7.7	13.8	3.7	5.2	0.8	2.3	1.2	2.9	63	9	-91	-12.3
Wilson Cr.	132	7.9	22.1	8.2	8.5	8.1	9.9	1.9	5.3	134	4	-93	-12.6
Cherry Cr.	100	7.9	20.1	6.7	8.5	1.7	3.4	1.8	5.1	110	4	-92	-12.5
Manastash Cr.	95	7.6	9	bdl.	2.6	1	1.4	bdl.	1.5	42	9	-95	-12.7
Taneum Cr.	20	7.8	8	bdl.	2	0.5	1.6	0.8	1.4	33	3	-90	-12.0
Reecer Cr.	131	8.3	12.6	5.1	4.1	2.4	bdl.	bdl.	bdl.	63	11*	-108	-14.5
Coleman Cr.	N/A	N/A	16.4	7.2	6.1	2.8	1.2	bdl.	4.6	105	1	-115	-15.2
CaribouCr.	9	7.4	27.6	12.5	11.5	5.9	4.2	1.1	4.6	186	0	-114	-14.9
Detection Limit			0.1	0.1	0.1	0.1	0.1	0.1	0.1	10			

Table 7. Geochemical data for Kittitas Valley. -Continued

Well Name	EC	pН	Ca	Mg	Na	K	Cl	NO ₃	SO ₄	HCO ₃	Charge Balance	δD	δ ¹⁸ O
	(µS/cm)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	Error (%)	(‰)	(‰)
North of													
Agriculture	10		10.1	2.7	40.4	7.02		0.0	1.0	201	1	120	17.0
Cla18	12	7.7	13.1	3.7	48.4	7.03	6.6	0.0	1.8	204	1	-139	-17.3
Cla23	15	7.5	36.0	17.3	19.3	4.16	8.3	5.0	17.5	249	1	-123	-15.1
Cla15	17	7.8	33.9	15.7	33.1	5.77	8.9	3.6	18.7	281	0	-125	-15.3
North Valley													
Ter70	1	8.0	2.3	0.2	59.4	1.19	5.0	1.9	12.6	164	1	-100	-13.5
Bit50	11	7.9	25.1	7.2	18.2	3.48	7.6	2.9	17.4	160	2	-134	-16.7
Bit71	11	7.2	28.5	9.1	19.3	3	6.5	2.7	8.1	189	0	-98	-13.3
Bit81	9	7.8	21.8	7.2	15.3	2.74	4.0	5.3	3.8	137	4	-99	-13.4
Bit80	10	7.1	24.9	8.3	16.8	2.85	4.5	6.1	5.1	153	4	-98	-13.4
Loc40	6.26	7.3	17.4	6.4	6.4	2.01	3.7	1.6	4.5	97	4	-94	-12.6
Ter59	15	7.4	35.4	12.9	25.9	2.34	15.2	21.2	13.7	220	6	-107	-12.9
Bit09	19	7.5	42.9	13.2	35.9	5.2	20.1	12.9	33.0	286	2	-122	-15.2
Middle													
Valley													
Bea23	_	_	2.3	0.2	85.4	0.68	19.0	0.4	2.5	244	2	-134	-16.8
Cay22	5	8.1	24.3	8.6	25.4	5.96	6.0	0.4	12.2	198	1	-129	-16.0
Mie9	24	7.5	2.3	0.2	128.8	1.89	16.4	0.4	36.9	359	1	-122	-15.5
Duf86	23	8	2.35	0.2	134.5	0.73	14.7	10.5	34.5	359	1	-101	-13.6
Bel65	_	_	36.2	13.5	623.7	5.4	36.6	19.7	74.0	688	46*	-113	-14.7
Bir22	7.3	8	21.2	7.5	24.8	5.28	5.2	0.4	9.1	178	1	-128	-16.0
East Valley													
Des38	19	7.7	36.3	13.9	49.1	5.95	9.3	0.4	49.6	328	1	-132	-16.7
WA-24	19.5	7.9	2.5	0.3	109.8	4.56	26.7	0.4	22.9	319	2	-129	-16.3
Hof35	17	8.1	29.6	13.1	45.6	6.39	31.9	0.4	24.8	294	1	-126	-15.6
Hof34	23	7.8	52.2	21.5	36.7	5.62	56.1	0.5	58.9	381	1	-121	-14.9
Hof25	15	8.4	2.4	0.7	91.4	1.17	22.6	0.4	15.1	261	1	-135	-17.0
Pos12	12.9	7.7	24.5	11.7	26.5	6.62	8.0	0.4	1.4	223	2	-126	-15.5
South Valley													
Gam02	30	7.9	70.2	34.9	90.1	3.21	49.4	42.8	50.4	611	2	-101	-13.5
Gam76	27	7.7	76.7	30.8	65.0	4.15	31.5	69.2	52.5	502	6	-102	-13.7
Gam5	23.6	7.9	59.9	23.0	69.6	4.8	23.7	24.4	57.5	475	1	-109	-14.4
Bea85	17	7.4	48.7	18.7	108.2	6.08	29.9	24.7	59.1	534	0	-115	-15.0
Bea68	56.3	7.7	101.5	46.8	115.9	6.42	31.8	77.4	108.1	845	1	-101	-13.5

Table 8. Geochemical data for Moxee Valley.

Well Name	EC	pН	Ca	Mg	Na	K	Cl	NO ₃	SO ₄	HCO ₃	Charge Balance	δD	δ ¹⁸ O
	(µS/cm)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	Error (%)	(‰)	(‰)
Konnowac													
Pass													
Kon14	12	8.6	12.8	2.5	54.4	13.83	17.6	0.4	1.2	224	2	-143	-17.1
Surface													
Waters													
Yakima R.	7	7.8	26.6	13.7	14.4	5.08	8.0	1.5	8.8	188	2	-98	-13.2
(LU)													
Yakima R.	_	7.9	15.4	5.0	6.3	1.88	4.2	10.7	4.0	86	3	-105	-13.7
(MX)													
Moxee Cr.	_	_	59.8	21.6	110.8	8.96	27.3	2.9	76.5	610	1	-100	-13.2
Detection			0.1	0.1	0.1	0.1	0.1	0.1	0.1	10			
Limit													

 $\label{eq:constraint} \textbf{Table 8.} Geochemical \ data \ for \ Moxee \ Valley. - Continued$

bdl., below detection limit; -, not measured; *, charge balance error > 10%

Study Area	F	Cl	NO_2	SO_4	NO ₃	HCO ₃ (mg/L)	Na	K	Mg	Ca
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	-	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Roslyn										
Standard Deviation	0.06	7.4	2.4	3.8	5.1	122	38.6	0.8	8.1	11.8
Range	0.2	27.7	7.9	11.6	24.1	395	122	3.4	25.8	40.6
Max	0.2	27.8	8.6	13	24.1	434	132	4.1	25.9	45.0
Min	0	0.1	7.9	1.4	0	38.5	1.5	0.7	0.1	4.4
Medium	0	3.5	5.3	4.5	1.4	223	31.8	1.1	4.3	17.5
Kittitas										
Standard Deviation	0.3	0.9	2.4	22.3	6.1	145	18.4	5.0	8.4	18.6
Range	1.1	35.8	9.91	133	23.3	730	99	39	42.2	88.8
Max	1.13	36.4	9.91	134	24.6	757	100	39.5	42.2	91.2
Min	0	0.6	0	0.9	1.3	27.5	1.8	0.5	0	2.4
Medium	0.1	3.7	3.5	4.4	3.0	154	99	3.5	10.6	22
Moxee										
Standard Deviation	0.4	13.7	2.0	27.0	17.0	183	108	2.7	10.8	23.9
Range	2.5	52.5	8.6	107	69.5	758	617	13.5	46.7	99.2
Max	2.5	56.2	10.9	108	69.5	845	624	13.8	46.8	102
Min	0	3.7	2.3	1.2	0	86	6.3	0.7	0.1	2.3
Medium	0.5	15.0	5.4	17.4	3.0	255	47	4.7	10.4	25.9
All Study Areas										
Standard Deviation	0.3	7.3	2.3	17.7	9.4	164.0	55.0	2.8	9.1	18.1
Range	1.3	38.7	8.8	83.9	39.0	627	279	18.6	38.2	76.2
Max	1.3	40.1	9.8	85.0	39.4	678	285	19.1	38.3	79.4
Min	0	1.5	3.4	1.2	0.4	50	3.2	0.6	0.1	3.0
Medium	0.2	7.4	4.7	8.8	2.5	210	59.3	3.1	8.4	21.8

Table 9. Standard Deviations and Ranges for Major Ions

Study Area	δD (‰)	δ^{18} O (‰)	Number of Samples
Roslyn Groundwater			
Max	-94	-13	17
Min	-114	-15.4	
Average	-104	-14	
Roslyn Surface Water			3
Max	-94	-13.1	
Min	-102	-14	
Average	-98	-13	
Kittitas Groundwater			48
Max	-91	-17.1	
Min	-131	-12.3	
Average	-115	-15.2	
Kittitas Surface Water			13
Max	-89	-12.1	
Min	-115	-15.3	
Average	-98	-13.3	
Moxee Groundwater			29
Max	-93	-12.9	
Min	-142	-17.8	
Average	-117	-15	
Moxee Surface Water			3
Max	-98	-13.2	
Min	-106	-13.7	
Average	-101	-13.4	

Table 10. Maximum, minimum and average values for stable isotope samples.



Figure 11. A Piper Diagram of all collected water samples.

Well Name	Al	V	Cr	Mn	Fe	Ni	Cu	Zn	As	Mo	Ba	Pb	U
	(ppb)												
Borders													
Reservoir													
Guzzi60	bdl.	bdl.	bdl.	19.5	bdl.	8.1	bdl.	719.7	0.0	bdl.	5.0	bdl.	bdl.
Guzzi30	bdl.	1.4	1.9	4.9	bdl.	7.3	1.2	558.9	bdl.	0.1	4.1	bdl.	bdl.
Salmon14030	2.0	1.5	1.7	0.5	bdl.	1.9	9.3	66.7	2.2	1.0	32.0	0.2	0.1
Near Coal Shafts													
Fan (11/12)	3.1	2.1	1.1	0.2	16.6	4.2	0.7	0.9	0.8	0.8	83.1	bdl.	bdl.
Vinegar390	bdl.	bdl.	bdl.	29.0	bdl.	bdl.	bdl.	2.0	0.7	0.3	280.5	bdl.	bdl.
Vinegar481	0.8	bdl.	bdl.	8.7	bdl.	0.5	29.4	110.2	bdl.	0.2	304.4	0.2	bdl.
Vinegar420	0.5	bdl.	bdl.	10.0	33.2	bdl.	bdl.	3.0	bdl.	0.3	236.6	bdl.	bdl.
Shaft421	1.4	bdl.	bdl.	0.3	bdl.	bdl.	bdl.	1.1	bdl.	bdl.	1.6	bdl.	bdl.
Shaft181	1.1	bdl.	bdl.	0.7	bdl.	bdl.	0.4	47.7	bdl.	bdl.	3.4	bdl.	bdl.
Ridgeview	bdl.	bdl.	bdl.	25.9	bdl.	bdl.	0.4	3.1	bdl.	0.2	28.0	bdl.	bdl.
Ridge360	0.5	bdl.	bdl.	0.9	bdl.	bdl.	3.7	24.6	bdl.	0.2	5.5	bdl.	bdl.
Tamarack101	0.8	bdl.	bdl.	0.2	bdl.	bdl.	3.5	21.2	bdl.	0.3	97.5	bdl.	bdl.
Away from Coal													
Shafts													
RoslynRidge	0.4	bdl.	bdl.	0.2	bdl.	bdl.	2.3	7.9	bdl.	0.3	98.8	bdl.	bdl.
W-WA103	2.2	0.7	0.0	bdl.	bdl.	bdl.	9.2	9.4	bdl.	bdl.	2.1	bdl.	bdl.
Borders Cle													
Elum R.													
Woodduck1161	0.9	1.6	4.8	0.9	bdl.	0.9	13.5	4.0	1.3	bdl.	2.8	bdl.	bdl.
Woodduck1281	1.3	1.6	4.5	8.4	29.7	0.4	0.4	1.4	1.3	bdl.	2.0	bdl.	bdl.
Surface Water													
Salmon La Sac R.	9.7	0.2	0.7	0.7	bdl.	2.2	bdl.	0.3	0.7	0.1	3.1	bdl.	bdl.
Cle Elum Lake	3.6	0.2	0.4	4.8	bdl.	2.2	bdl.	0.4	0.5	0.1	3.1	bdl.	bdl.
Teanaway R.	2.7	0.3	0.6	2.9	bdl.	1.1	0.5	0.5	bdl.	bdl.	6.9	bdl.	bdl.
Legal Limit	50	n.a.	100	50	300	100	1000	5000	10	n.a.	2000	15	30
Detection Limit	0.34	.014	0.21	0.11	15.58	0.33	0.27	0.50	0.31	0.10	0.38	0.15	0.08

Table 11. Trace element data for Roslyn

bdl., below detection limit; -, not measured; n.a., not applicable

Well Name	Al	V	Cr	Mn	Fe	Ni	Cu	Zn	As	Mo	Ba	Pb
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
North of						• • • •				• • • • /	• • • • /	• • • /
Irrigation												
W122	0.6	31.3	0.5	bdl.	bdl.	bdl.	bdl.	178.1	0.5	0.5	3.2	bdl.
Clk64	bdl.	bdl.	bdl.	93.0	19.8	bdl.	bdl.	14.2	0.3	0.3	4.5	bdl.
Chr90	0.5	30.2	0.3	0.6	bdl.	bdl.	1.4	95.5	0.4	0.8	3.8	bdl.
W117	0.5	28.0	0.3	bdl.	bdl.	bdl.	0.5	255.9	0.4	1.0	2.0	bdl.
W268	0.7	29.3	0.4	bdl.	bdl.	bdl.	3.1	18.1	0.4	0.5	4.4	bdl.
Chr20	0.6	10.0	0.2	0.2	bdl.	bdl.	9.6	4.7	bdl.	0.4	6.1	bdl.
Chr33	0.5	45.8	0.3	0.7	bdl.	bdl.	bdl.	16.9	0.5	0.2	9.9	bdl.
Ck23	0.8	21.6	bdl.	0.2	bdl.	bdl.	0.3	8.1	0.4	0.5	3.3	bdl.
South Valley												
Trl60	bdl.	3.6	bdl.	bdl.	bdl.	bdl.	0.4	0.8	bdl.	0.0	18.5	bdl.
Trl32	bdl.	6.0	bdl.	bdl.	bdl.	bdl.	0.4	0.8	bdl.	0.0	27.0	bdl.
Or51	0.4	6.5	bdl.	bdl.	bdl.	bdl.	bdl.	bdl.	bdl.	0.1	24.4	bdl.
Badger Pocket												
Boh501	bdl.	9.9	bdl.	0.9	bdl.	bdl.	0.4	27.7	0.3	0.6	11.7	bdl.
UpB91	0.9	20.2	0.4	0.3	bdl.	bdl.	11.8	8.4	0.5	0.8	49.0	bdl.
Mor	0.7	14.2	0.9	bdl.	bdl.	bdl.	0.3	0.5	0.4	0.2	51.3	bdl.
Cm14	0.5	37.6	0.4	0.1	bdl.	bdl.	bdl.	9.1	1.0	1.0	38.5	bdl.
Km100	0.5	25.9	0.9	0.3	bdl.	bdl.	1.3	9.6	0.7	0.4	38.5	bdl.
By61	0.5	48.7	bdl.	0.1	bdl.	bdl.	0.7	101.6	1.9	0.8	6.5	0.3
UpB17	0.7	46.0	bdl.	bdl.	bdl.	bdl.	32.7	14.2	2.1	1.4	6.6	0.2
WPA51	0.6	32.7	0.7	0.5	bdl.	bdl.	0.4	48.9	1.2	1.4	20.2	bdl.
Bor	0.6	27.7	0.1	0.5	bdl.	bdl.	1.8	29.6	1.2	0.7	58.9	bdl.
Km89	0.6	23.5	bdl.	2.8	bdl.	bdl.	5.0	96.2	0.7	0.5	41.9	0.1
Legal Limit	50	n.a.	100	50	300	100	1000	5000	10	n.a.	2000	15
Detection Limit	0.34	.014	0.21	0.11	15.58	0.33	0.27	0.50	0.31	0.10	0.38	0.15

 Table 12. Trace element data for Kittitas Valley

bdl., below detection limit; -, not measured; n.a., not applicable



Figure 12. δ^{18} O vs δ D plot of all collected water samples. Uncertainty based on replicate measurements of the internal lab standards and of unknown samples is < 0.04‰ for δ^{18} O and < 0.2‰ for δ D. Local meteoric water lines (LMWL) from Snoqualmie Pass and Cle Elum are shown.

CHAPTER IV

DISCUSSION

Isotopic Composition of Yakima River Water and Irrigation Water: Signature of Artificial Recharge.

The isotopic composition of the Yakima River varies both seasonally and with location (Figure 13) along the river (United States, Geological Survey, 2020), but it tends to fall within a relatively narrow range (-107% to -93% for δ D); Yakima River water is isotopically heavier than water from tributaries whose water originates as snowmelt from further inland (Figure 14). During the irrigation season, the Yakima River serves as a conduit from the reservoirs to the major irrigation districts within the basin, whose networks are supplied from different diversion points along the Yakima River. As a result, the Yakima River and irrigation water are nearly identical isotopically, with deuterium isotope values between -89% and -106%. Because of slower movement through canal systems and increased evaporation, measured irrigation water tends to be slightly heavier isotopically, falling toward the top of that range (Figure 14).



Figure 13. USGS data demonstrating the temporal changes in isotopic composition for Yakima River water. Data is from the USGS National Water Information System (NWIS) sites 12500405 and 12510500.



Figure 14. Difference in isotope values from different types of surface waters in the Yakima River Basin. The NWIS Yakima River data was collected at USGS sites 12500405 and 12510500. All other data was collected in this study.

One way that we can examine the relationship between isotopes and recharge regimes is by comparing between the isotopic composition of groundwater from nearby wells of different depth. In local scenarios, groundwater collected from deeper wells are almost always lighter isotopically. This trend is illustrated in various locations in both Kittitas Valley (Figure 15) and Moxee Valley (Figure 16). We interpret this trend to reflect surficial aquifers that are significantly influenced by irrigation or Yakima River water (the heavier isotopic signature, green in the figures) and deeper aquifers with groundwater that has been recharged naturally, either recently or in the past (the lighter isotopic signatures, yellow or red in the figures). Past isotopic studies in the region (Vlassopoulos et al., 2009) indicate that the deeper basalt aquifers within the Columbia River basalts tend to have lighter isotopic signatures, with δD values that are typically below –130‰.



Figure 15. Three local groups in Kittitas Valley that demonstrate the relationship between isotopes and depth. The top number is the δD value (‰) and the bottom number is the depth of the well (ft). Groups are color coded based off δD values; green: >–108‰, yellow: –108‰ <– 121‰, red: <–122‰.



Figure 16. Three local groups in Moxee Valley that demonstrate the relationship between isotopes and depth. The top number is the δD value (‰) and the bottom number is the depth of the well (ft). Groups are color coded based off isotopic values; green: >-108‰, yellow: -108‰ <-121‰, red: <-122‰.

Extent of Irrigation Water Influence

When plotting isotopes versus depth for Kittitas and Moxee Valleys there are clear thresholds for the depth of irrigation-water dominance in aquifers (Figure 17). In Moxee Valley, heavy isotopes (δD >–115‰) are not found at depths greater than 270 ft, indicating that 270 ft is the maximum depth of that region's surficial aquifer. With the exception of one point, in Kittitas Valley, heavy isotopic signatures are not found deeper than 200 ft (Figure 17). The one deeper occurrence of this Yakima-River signature in Kittitas Valley was groundwater collected from a well located on an irrigated terrace approximately 200 ft above the Yakima River and 0.27 mi from the river. Thus, the well in question extends ≤200 ft below the river's surface and has two potential sources for isotopically heavy water (the river and irrigation).

In addition to these depth constraints, stable isotope signatures can be used to constrain the extent of Yakima River/ irrigation waters geographically as well. As expected in Kittitas and Moxee Valley, irrigation water was not found in wells located up-gradient of widespread agriculture. However, within the boundaries of widespread agriculture the type of water collected (irrigation vs natural) often depended on the depth of the individual well and not the location.





Figure 17. The relationship between δD (‰) and depth (ft) for groundwaters collected in a) Kittitas and b) Moxee Valleys. The vertical line represents the depth at which irrigation water is no longer observed. The horizontal line represents the isotopic value at which irrigation water is no longer detected; we consider this our shallow aquifer threshold.

In addition to influencing the groundwater, irrigation water can influence tributaries during the growing season. For example, up-gradient of the irrigation canals in Kittitas Valley the tributaries, Manastash and Taneum Creek collected in 2005 and 2006 had δD values of – 110‰ and –107‰ (Taylor and Gazis 2014), respectively, while δD values of samples from the same tributaries collected below the irrigation canals in this study were –89‰ and –95‰ (Figure 18). This data informs us that within the borders of the canal systems, streams may be heavily influenced by the application of irrigation water.



Figure 18. A map presenting the δD values (‰) of tributaries above and below the irrigation canals located on the west side of Kittitas Valley. Light blue numbers represent samples taken above the canal while green numbers are taken below the canal.

Surface water consistently has lower nitrogen values than groundwater (Table 6, 7, and 8). The highest total N (nitrate-N) concentrations recorded in surface waters within Moxee Valley is 0.65 ppm which was collected at Moxee Creek. The high nitrogen concentration of Moxee Creek is likely because the creek is largely fed by irrigation runoff. The highest total N concentration recorded in Kittitas Valley was at Wilson Creek (0.4 ppm) where it enters the Yakima River; at this location, Wilson Creek is dominated by irrigation run off. Because surface waters have low concentrations of total nitrogen we assume that increases in nitrogen are the result of agriculture or possibly leaky septic systems.

Total Nitrogen Concentrations and Isotope Values

In both Kittitas Valley and Moxee Valley, total nitrogen concentrations (nitrate-N) were used to identify irrigation waters and confirm that the heavy Yakima-River isotopic signature is in fact irrigation water in most cases. The link between total nitrogen and heavy isotopic signatures is seen in multiple local scenarios when wells penetrate down to different depths. Based on Figure 16, the lowest δD value of groundwater that is substantially influenced by Yakima-River derived water is -115%. This defines the shallow aquifer. Figure 19 plots of plotting δD vs total nitrogen and uses this δD value to define the shallow aquifer threshold. The majority of the total nitrogen concentrations above 2 ppm are waters with this heavier isotopic signature. This nitrogen is most likely derived from agricultural fertilizers transported to the groundwater by irrigation water. Thus, this relationship further supports the idea that we can use isotopes to delineate the extent of the surficial aquifer.



Figure 19: The relationship between δD (‰) and total N (nitrate-N) in groundwaters collected in Kittitas and Moxee Valleys. The vertical dotted line represents the nitrogen threshold for shallow aquifers (2 ppm). The horizontal lines represent the δD threshold for shallow aquifers (-115‰).

Out of all the water samples collected only three groundwater samples were over the drinking water limit for nitrogen. These three wells were all shallow (<125 ft), surrounded by agriculture, and had groundwater with isotopic values representative of irrigation water.

Overall surface water has low concentrations of N and heavier isotopes when compared to groundwater. Using these chemical components together we are able to differentiate between two different surface water recharge regimes; recharge with agriculture interaction, and recharge without agriculture interaction.

In a few cases, groundwater is isotopically similar to irrigation water but the nitrogen concentrations are low. Interestingly, the five wells in Moxee Valley that fell into this category were all less than 0.15 mi from the same irrigation canal (Figure 20). We expect that the isotopic and chemical composition of water in the irrigation canal near the five wells is similar to the Yakima River near Moxee. Comparison of a variety of chemical constituents indicate that the wells and the Yakima River water at Moxee are chemically similar, with only slightly higher concentrations of bicarbonate and total N (Figure 21) in the wells. Past studies have also concluded that artificial recharge in the Yakima Basin is divided between irrigation water applied on fields and irrigation water leaking out of canals (Vaccaro and Olsen, 2007a).



Figure 20. A Google Earth image showing the locations of the wells relative to the irrigation canal. The numbers inside of the green boxes are the δD isotopic values. The blue box represents the δD value taken from the Yakima River at Moxee.



Figure 21. Four Graphs Showing Geochemical Clusters in Moxee. The canal influenced wells are shown on Figure 20 and are orange in this figure.

Kittitas Valley

Nine out of the thirteen surface water samples taken in Kittitas Valley had δD values heavier than -95.0% (Figure 22). The other four surface waters were sampled from the easternmost tributaries of the Yakima River (Reecer Creek, Naneum Creek, Coleman Creek and Caribou Creek) and are thus, expected to have lighter isotopic values. These four tributaries were also sampled at low discharge (post-dry season and pre-wet season). Therefore, the isotopic similarity between these four streams and groundwater (Figure 22) could be because the streams are either recharged by resident groundwater, winter precipitation or a combination of the two.



Figure 22. δ^{18} O vs δ D plot, demonstrating the isotopic difference between surface water and groundwater in Kittitas Valley. The green line represents the local meteoric water line of Cle Elum, WA.

Kittitas Valley Transect

When looking at Kittitas Valley (Figure 23 and Figure 24), groundwater both above and below the North Branch canal have similar isotopic values. The canal acts as a border separating a natural shrub-steppe ecosystem and widespread irrigated agriculture; thus, one might expect that isotope signatures of groundwater below the canal would become heavier due to irrigation infiltration. However, influence of irrigation water was not detected in sampled wells until five miles south of the North Branch Canal. Furthermore, many of the wells up-gradient from the canal terminate in basalt aquifers which are sometimes observed to have older, isotopically lighter water (Taylor and Gazis 2014). The observed relatively constant, intermediate isotopic values indicate that the groundwater is not connected to the surficial aquifer; thus, the shallow aquifer in this region is likely above a depth 120 ft (the shallowest well depth sampled in the area).

Although the isotopic compositions don't change above and below the canal the major ion concentrations do. The six wells that were sampled both above the canal and the Naneum Creek floodplain generally have much higher major ion concentrations (specifically Na⁺) than the nine wells below (Figure 25). This similar isotopic composition suggests that the precipitation/surface water that recharges both areas are the same. However, the increased major ion concentrations may indicate that the water below the flood plain is more dilute due to either: 1) loss of exchangeable cations due to continued leaching through irrigation, or 2) shorter residence times when compared with the wells above the floodplain (Figure 25). The Piper diagram (Figure 26) shows that major ions above the canal have a higher percentage of Na⁺ and a lower percentage of HCO3 which may suggest influence from the Kittitas Valley basalt groundwater identified in Taylor and Gazis (2014).



Figure 23. A map of Kittitas Valley displaying δD isotopic values (‰) of water samples. Samples are color coded based on the δD value (‰). Blue samples represent surface water.

Cross-section of Kittitas Valley based on lithologic depths from Vaccaro et al. (2006) and δD values.





Figure 24. A N-S cross-section of Kittitas Valley showing δD values (‰) of water samples. Blue boxes represent surface water, green boxes are groundwaters with significant irrigation-water influence, yellow boxes are groundwaters with little surface-water influence. (maroon wells are wells recorded by Taylor and Gazis (2014). We do not know the depth of the well at the 7.5-mile mark which is why it is surrounded with question marks.

Approximately 7.5 to 8-miles from the north end of the transect, three wells tested at depths of 125ft, 172ft, and unknown, are isotopically similar to irrigation water implying that the surficial aquifer in this area is relatively deep (Figure 24). This region may be a good candidate for SAR if other criteria are met (i.e., a deep vadose zone, medium to high storativity and transmissivity, land availability, etc.). Interestingly, the isotopic change recorded in our data coincides with a reverse fault identified recently by WA Department of Natural Resources (personal communication, Andrew Sandowski, 2020). Thus, it may be possible that this fault marks an offset of hydrogeologic units and serves as either a barrier to flow or a conduit for surface water to the shallow aquifer downgradient.

Further south in the Kittitas Valley transect, we can infer from the isotope values near mile 11 of the transect that the shallow aquifer influenced by irrigation water is between 30 ft and 130 ft below the surface. At mile-13 two wells indicate that the shallow aquifer is at least 137 ft deep. The static water level recorded in the logs for these well (appendix C, D, and E) are 45 ft and 20 ft below land surface. The 45 ft water level was recorded in April while the 20-ft below was recorded in August. This could represent a seasonal fluctuation in water level that represents a significant influx of irrigation water. Alternatively, these different static water levels represent heterogeneities in confining layers that create a locally perched aquifer. Nevertheless, the southern part of this Kittitas Valley transect is the best suited location for a SAR system due to the depth of its surficial aquifers, its sufficiently deep vadose zone, and its close proximity to the Yakima River main stem (which is the ideal end point for the recharged water).



Figure 25. A satellite image showing Na⁺ percentages from wells in the northern most section of the Kittitas Valley cross section. The Na⁺ values are colorcoded (green < 20 %, yellow >20 %). The dotted green lines represent the Naneum Creek floodplain. The blue box represents Naneum Creek's Na⁺ %.

Kittitas Valley Major Ion Data

Major ion data samples from Kittitas Valley and Badger Pocket were plotted on a Piper diagram (Figure 26). We looked to find relationships between major ion geochemistry and many other factors (e.g., depth, isotopic composition, location and geologic unit) and were unable to find any consistent relationship. These three surface water samples collected from Taneum Creek, Manastash Creek and the Yakima River at Thorp were outliers without any measurable Mg. We are unsure why these samples have such low Mg but each sample had less than 10% of a charge balance error indicating that these samples were measured correctly. Also one sample (well Bar90) has a high relative abundance of Na⁺ Although similar Na⁺ concentrations are seen in groundwater throughout the valley (wells Tr132, Tr130, Or51, and Bor) they also have higher concentrations of Mg^{2+} , and Ca²⁺ placing them in the neutral zone in the cation triangle. In the anion triangle wells Mor and Boh501 are significantly less dominated by bicarbonate and carbonate. Well Mor has one of the lowest concentrations of bicarbonate recorded in Badger Pocket (187 mg/L) while Boh501 has the highest major ion concentrations recorded in all of Kittitas Valley.

This Piper diagram has similar clusters in both the cation and anion triangles when compared to the groundwater geochemistry data of Taylor and Gazis (2014), also from Kittitas Valley. The anion chemistry is dominated by bicarbonate and carbonate while the major cation cluster falls within the ranges of Mg = 40-60% Ca = 40-60% and Na+K = 15-30%. The largest differences seen between the two major ion data sets are not in the clusters but in the outliers. Three main differences in major ion chemistries between the Taylor and Gazis (2014) data set and our own; 1) the absence of Mg in some surface waters in our data; and 2) Taylor and Gazis (2014) observed high Na values in groundwater from basalt aquifers on the southwest side of the valley; 3) Taylor and Gazis (2014) groundwater data was not so tightly clustered near the carbonate corner of the anion triangle on the Piper diagram.



Figure 26. Piper diagram of samples taken in Kittitas Valley and Badger Pocket. Blue dots represent surface water while black dots represent groundwater.

Results Compared to Gibson and Campana (2018)

Gibson and Campana (2018) created and utilized a model to identify potential groundwater recharge locations in the Yakima Basin. In Kittitas Valley they identified five suitable locations for aquifer recharge (Figure 27). The first location Gibson and Campana (2018) identified is located in northern Kittitas Valley, between the Yakima River and the Kittitas Valley Anticline. One reason Gibson and Campana (2018) justified this location is because the water level is estimated to be 50 ft below the surface in the winter. However, we sampled a 37-ft well in this region that is used for domestic purposes year round, implying that the water table must not drop below 37 ft. Therefore, the Gibson and Campana's (2018) estimated water table height of 50 ft may be an overestimate and should be examined more carefully if this region is to be explored for SAR. Locations 2 and 3 identified by Gibson and Campana (2018) are located near the intersection of Brickmill Rd and Wilson Creek Rd. We sampled a 170 ft deep well (AKW860) 0.25 mi NW of this intersection. The isotopic signature of groundwater from that well does not show any irrigation-water influence, indicating that it is not connected to the surficial aquifer. Although we believe that the surficial aquifer is above 170 ft depth, it is possible that the surficial aquifer at this location extends to a depth that is sufficient for shallow aquifer recharge. Sites 4 and 5 are near (~0.5 mi) Manastash Creek and are deemed suitable by Gibson and Campana because the depth to static water level is ~100 ft. However, USGS water level measurements of 13 wells in the area (Figure 28) show that the average depth to the water table is 47.5 ft and the max depth measured is 82.4 ft (Table 13). Thus, sites 4 and 5 are still a viable option for SAR but the water level estimates from Gibson and Campana (2018) are not supported by the areas recorded water level measurements. In addition, we did not collect and geochemical data from this area so we are unsure of the true depth of the surficial aquifer.



Figure 27. Suitable locations for groundwater storage in Kittitas Valley identified by Gibson and Campana (2018). The yellow star represents a SAR location identified in this study. Figure modified from Gibson and Campana (2018).



Figure 28. A map showing USGS wells in the same area as Gibson and Campana's sites 4 and 5. The yellow diamonds represent wells with recorded water level measurements, which are presented below in Table 13.
Well	USGS Site Number	Date measured	Depth to water table (feet)
#			(USGS)
1	475835120395001	1997-07-14	21
2	465844120392501	1975-04-25	60
3	465831120390601	1987-08-03	73
3	465831120390601	2000-03-09	82.42
3	465831120390601	2001-03-09	78.20
3	465831120390601	2001-08-21	81.35
4	465822120393301	1979-03-07	15
4	465822120393301	1979-03-07	25
5	465847120383801	1991-10-18	54
5	465847120383801	2000-08-30	49.45
6	465813120392901	1973-12-09	12
7	465819120392201	1976-01-23	10
8	465848120385301	1992-11-10	65
8	465848120385301	2000-09-14	57.62
9	465852120392101	1991-05-20	19
9	465852120392101	2000-08-30	56.90
10	465852120384901	1990-07-24	70
10	465852120384901	2000-09-14	52.38
10	465852120384901	2001-03-28	46.48
10	465852120384901	2001-08-21	55.87
10	465852120384901	2002-03-27	47.94
11	465856120384601	2000-09-14	35.98
12	465813120392701	1973-12-12	30
13	465757120394201	1994-12-02	29
13	465757120394201	2000-08-31	60.60

Table 13. USGS water level measurements near Gibson and Campana's (2018) sites 4 and 5. Data from United States, Geological Survey NWIS (2020).

Badger Pocket

Badger Pocket, an elevated region on the southeast side of the Kittitas Valley, is primarily used for agriculture (Figure 24). It is considered a pocket due to the basalt hills that surround it on three sides with only one main road connecting it to the rest of Kittitas Valley. The loess deposits that have accumulated in Badger Pocket are intensively farmed, particularly for hay. Ten groundwater samples were collected from Badger Pocket but only five of those samples had known depths. Badger Pocket has a wide range of isotopic values (-91% < -128% for δ D) that may be due in part to the fact that Badger Pocket is the eastern most location sampled in Kittitas Valley; precipitation becomes isotopically lighter the further east you are from the Cascade crest. Thus, the isotopic difference between natural recharge and irrigation recharge is even more distinct within Badger Pocket. Alternatively, this range of isotopic values could indicate a wide range in well depth and thus a combination of Yakima-River influenced water and older groundwaters that likely reside in basalt aquifers.

While sampling in Badger Pocket the owner of well UpB17 mentioned he had two wells, one well drilled to 83 ft and the other to 182 ft. The 182 ft well on this property was isotopically the same as irrigation water while his shallower well was dry. This suggests that there is a >80 ft deep unsaturated zone overlying a >182 ft deep surficial aquifer. This single set of observations suggests a location that is ideal for SAR, a notably deep vadose zone with an even deeper surficial aquifer beneath it. Considering that this farm encompasses 58 acres, has an 80 ft deep vadose zone and a porosity of 23.6 to 46.6 (estimated in Manger, 1963) the storage potential of this single farm is between ~1135 acre-ft and ~2242 acre-ft.

Further NW in Badger Pocket (WPA and Bor), two wells are located at the same elevation, approximately 0.6 mi apart. The WPA well is 290 ft deep while the Bor well is 163 ft deep. Groundwater from the shallower well is isotopically identical to irrigation water and has higher nitrogen concentrations than the deep well. The deep well (WPA) had one of the lightest isotopic values collected in Kittitas Valley which may be representative of resident groundwater in Badger Pocket. In addition, the reported water level for the well (Bor) is 104 ft below surface which indicates a 163 ft deep shallow aquifer with a 104 ft deep unsaturated zone. Thus, this area may also be suitable for managed groundwater recharge.

Moxee Valley

Similar to Kittitas Valley, Moxee Valley is located in the rain shadow of the Cascade Mountains causing a large isotopic difference between natural recharge from local precipitation and artificial recharge from Yakima River irrigation water. In contrast to Kittitas Valley, it does not have as many moderate-sized tributaries bringing water from the local highlands into the valley. Isotope values for Moxee samples are shown in map view in Figure 29. As in previous figures, isotope signatures are color coded based on their δD values, Green = > -109‰ Yellow= -109‰ to -122‰ Red = < -122‰. The green category is representative of irrigation water while the red is representative of groundwater that shows no signs of influence from irrigation water and is likely deeper and older. All deuterium values that are < -122‰ have below average nitrogen concentrations which indicates that these waters do not have significant irrigation water inputs (Figure 19). The yellow category may be either be a separate, intermediate natural groundwater or a mix between the two end members (irrigation and deeper, isotopically lighter water). Yellow groundwaters that have nitrogen concentrations above the shallow aquifer threshold determined previously (2 ppm) are likely the latter.



Figure 29. Map of Moxee Valley displaying δD values. Values are color coded based off their δD values (‰).

In the north-south cross-section (Figure 30), the northern third of the transect has irrigation water signatures in three wells reaching depths of 180 and 245 ft below ground surface. Irrigation water found at such depths is a promising sign for potential SAR because it means that the surficial aquifer may be as deep as 245 ft. Furthermore, the static water levels recorded in the three wells were all deeper than 100 ft. Hence, this location may be well suited for SAR because it is close to a canal, is connected to the surficial aquifer, and has a large vadose zone.

In the south central part of the Moxee Valley, four wells (Gam02, Gam76, Gam5 and Bea68) are isotopically similar to irrigation water (Figure 30). The depth to water reported in logs for three of those wells, which were drilled at different times, are 40 ft in January (ACL563) and 11 ft (130920) and 25 ft (APT908) in May. These higher water levels during irrigation season are consistent with the isotopic evidence that the wells are recharged by irrigation water. Therefore, it is possible that this portion of Moxee Valley may also be suitable for SAR if recharged during the winter months.

Cross-section of Moxee Valley based on lithologic depths from Vaccaro et al. (2006) with δD values presented 6.5 A' 0.5 Miles 1 -113 -114 Unit 2 Unit 3 Basalt Basalt

Figure 30. A N-S cross-section of Moxee Valley showing δD values of water samples. Blue boxes represent surface water, green boxes are groundwater with significant irrigation-water influence, yellow boxes are groundwaters with little surface-water influence. Descriptions of lithologic units 2 and 3 are covered in Table 1.

Comparing Data to 2007 DOE Report

Out of the 31 groundwater samples collected in Moxee Valley two wells (AHT021 and AHT031) were also part of a 2007 DOE study, in which they measured water levels in June and January as well as temperature, pH, conductivity, DO, fecal coliform, total N, total P, organic carbon and other water chemical parameters. Table 14 shows combined data from both studies. The depth to groundwater for both wells are <15ft yet their isotopic values indicate that they are not dominated by irrigation water. Well AHT021 has light isotopic values ($\delta D = -132$) suggesting that it taps a confined aquifer and the water level measurement in the DOE report represents its potentiometric surface. This idea is supported by the low nitrogen concentrations recorded in the water sampled in both studies. Well AHT031 is located in the center of Moxee Valley and has a depth to groundwater of 14ft. This well has an intermediate isotopic value ($\delta D = -113$). because of the relatively high nitrogen concentrations recorded in both studies (Table 14), this water appears to be a mixture of irrigation and natural groundwater. Thus, the surficial aquifer and deep aquifer waters are mixing either in the well or in the subsurface. The well log for this well indicates a 20 ft seal at the top. Thus, if the water is indeed mixing in the well then the shallow aquifer must be deeper than 20ft.

Well ID	Date	Study	Well	Depth to	TotalN	Chloride	δD
	Sampled		Depth	Groundwater (ft)	(mg/L)	(mg/L)	
			(ft)				
AHT021	01/10/2006	DOE	150	12.5	0.01	7.29	
Desmarias	06/14/2006	DOE		14.5	0.01	9.43	
	08/29/2019	CWU			0.09	9.34	-132
AHT031	06/15/2006	DOE	60	14	4.27	28.5	
Bell	08/05/2019	CWU			4.44	35.6	-113

Table 14. Comparison between this study and 2007 DOE study for wells AHT021 and AHT031.

The 2007 DOE study also sampled a well (AHT025) that is immediately adjacent to a well that we sampled (Well report ID 952392). Table 15 shows the comparisons between these two wells. The most significant differences between the two wells are the well depths (37ft and 140ft) and nitrogen content. Therefore, it is likely that the 37ft well is drawing water from the shallow aquifer while the 140ft well is drawing water from a deeper aquifer that is disconnected from irrigation water. This inference is supported by the isotopic composition of water from the deeper well. In addition, the depth to groundwater reported by the driller and the DOE ranged from 3.5 to 5.1ft, indicating that the water table is very close to the surface at this location. Moreover, the shallow well terminates at 37.5 ft and the deep well log reports that a "cemented gravel layer" is present from 39-58 ft which may be the confining layer beneath the surficial aquifer. This information provides us with constraints on the both the shallow aquifer and deep aquifer at this exact location (Figure 31).

Address	Unique Well ID/ Report ID	Date Sampled	Study	Well Depth	Depth to Groundwater (ft)	Nitrite + Nitrate as N	Chloride (mg/L)	δD
						(mg/L)		
Beaudry Rd 2326	AHT025	01/12/2006	DOE	37.5	4.4	6.32	11.7	
		06/15/2006	DOE		5.1	10.9	20.1	
		02/05/1975	Well Log		3.5			
Beaudry Rd 2327	952392	08/29/2019	CWU	140		2.1	19	-133
		12/17/1990	Well Log		16			

Table 15. Comparing neighboring wells from this study and the 2007 DOE study



Figure 31. Constraints on the deep aquifer at location Beaudry Rd 2327 and Beaudry Rd 2326 Moxee, WA

The major ion data from the Moxee Valley samples are plotted on a Piper diagram in Figure 32. Major ion geochemical signatures do not appear to be correlated with depth, location, or stable isotope ratio. However, the two water samples with elevated Na⁺ concentrations were similar are both deep (840 and 685ft), penetrate into the basalt, have very light isotopic values (-140 and -143 for δ D), and are located up gradient of agriculture. This unique geochemical signature is similar to basalt waters from the southwest side of Kittitas Valley analyzed in Taylor and Gazis (2014) and elsewhere in the Columbia Basin (Holt, 2012). The higher Na and low δ D are characteristic of older, more evolved groundwaters. The surface water with high Na on the Piper plot is from Moxee Creek, which serves as a drainage system for agriculture east of the Roza Canal

system. Thus, the agricultural water that drains into Moxee Creek comes from the ground. Thus, the high Na⁺ recorded may be due to the difference in water source, land use or water quantity when compared to the other surface water samples.



Figure 32. Piper diagram for Moxee Valley. Black dots represent groundwater while blue dots represent surface water. The orange circle encompasses two wells that are believed to be withdrawing very deep and old groundwater from the basalts.

Storage Estimates

With our data we constrained the shallow aquifer depths in both Kittitas and Moxee Valley which allow us to make very general estimates of the irrigation water currently stored in each region. By multiplying our shallow aquifer thresholds, estimated porosity and recorded water depths we are able to estimate the total amount of stored irrigation water (Table 16). The thickness used in these estimates are based on the shallow aquifer thresholds and the water levels reported by the DOE, USGS or in the well logs. Porosity values are estimated in Manger (1963). Google Earth is used to determine the surface area of each study region (Figure 33 and Figure 34). The high area estimate encompasses the entire valley that is within the canal borders while the low area estimate generally encompasses the regions where irrigation water is found within wells.

Study	Area (acres)	Porosity	Saturated	Estimate of Stored Water
Region			Thickness (ft)	(acre-ft)
Kittitas				
Valley				
High Estimate	155,000	46.6	50	3,610,000
Low Estimate	54,000	23.6	20	254,000
Moxee Valley				
High Estimate	25,000	46.6	90	1,050,000
Low Estimate	14,000	23.6	30	99,100

Table 16. A table presenting the high and low estimates of currently stored irrigation water in Kittitas and Moxee Valley.



Figure 33. A Map of Kittitas Valley showing the high and low area's used for the storage estimates. Area estimates used in Table 15 are colored in green (low) and brown (high). Yellow stars represent our identified SAR location.



Figure 34. A Map of Moxee Valley showing the high and low area's used for the storage estimates. Area estimates used in Table 15 are colored in green (low) and brown (high). Yellow stars represent our identified SAR location.

In addition to estimating the amount of irrigation water currently stored within Kittitas and Moxee Valley, by multiplying the area, porosity and depth of the unsaturated zone we can also estimate the amount of storage space for our identified SAR sites (Table 17). Area estimates are based off of the distribution of irrigation influenced wells, shown in Figures 35, 36 and 37, range from 1,200 to 88,000 acre-ft. To put these storage values in context, the Cle Elum Reservoir has a storage capacity of ~437,000 acre-ft (United States, Bureau of Reclamation, 2020).

SAR Location	Area (acres)	Porosity	Unsaturated	Estimate of Stored Water
		(%)	Thickness (ft)	(acre-ft)
Kittitas Valley				
High Estimate	680	46.6	45	14,000
Low Estimate	260	23.6	20	1,200
Badger Pocket				
High Estimate	2,100	46.6	90	88,000
Low Estimate	1,100	23.6	50	13,000
Moxee Valley				
High Estimate	450	46.6	120	25,000
Low Estimate	195	23.6	80	3,700

Table 17. A table presenting the high and low storage space estimates at identified SAR locations.



Figure 35. A Map of our first identified SAR site in Kittitas Valley. Boxes next to the wells show the δD value over the well depth. Area estimates used in Table 16 are colored in green (low) and brown (high).



Figure 36. A Map of our second identified SAR site in Badger Pocket. Boxes next to the wells show the δD value over the well depth. Area estimates used in Table 16 are colored in green (low) and brown (high).



Figure 37. A Map of our third identified SAR site in Moxee Valley. Boxes next to the wells show the δD value over the well depth. Area estimates used in Table 16 are colored in green (low) and brown (high).

Roslyn Study Area

The Roslyn study area differs from the other two because at this location our primary objective is to assess the quality of the water that interacts with the Roslyn Mines whereas the other two study locations (Kittitas and Moxee Valley) our research focuses more on groundwater movement and recharge regimes.

In order to sample water from the Roslyn Mines we accessed a well-known mine overflow point commonly called "fanhouse". When the mines were operational, the fanhouse used overflowing water to turn a large fan which provided fresh air for the miners in the coal shafts. Although the fanhouse is no longer used mine water continues to seep out of the fanhouse which has created a swamp around the house (Figure 38). The fanhouse water is a good representation of the mine water because of the extended path the water must travel to reach the fan house (Figure 39).



Figure 38. A picture of the fanhouse. The fanhouse is a groundwater overflow point for the Roslyn Mines located on the Suncadia property directly east of the Cle Elum River.



Figure 39. A cross section of the Roslyn Mine shafts. Note that the fanhouse is the "spill point" for the mine water. Figure from Packard (1981).

For the trace and major elements measured, every Roslyn groundwater sample was below the federal drinking water limit set by the EPA (Table 11). Although the mine overflow point (Figure 38 and 39) did have elevated values of aluminum and iron, (which are common elements found in acid mine drainage) higher values of aluminum were found in upstream surface waters and higher concentrations of iron were found in two residential wells. Furthermore, the dissolution of heavy metals can only occur at low pH values and every pH value recorded in this study area was >6.8 (Table 2). In addition, the bicarbonate values recorded in and around the mines indicate that the groundwater has a sufficient capability to neutralize acid. Therefore, based on the chemistry, it is not likely that the flooded Roslyn mines will turn acidic or form acid mine drainage (Singer and Stumm 1970, Förstner and Prosi 1979). When compared to the region's groundwater, surface water had relatively high values of aluminum and nickel. Out of these surface water samples the sample with the highest aluminum, nickel concentrations were collected in a small tributary far above anthropogenic influence. Thus, these levels of Al and Ni are likely byproducts of natural weathering in this region. Though arsenic concentrations were well below the legal limit, the highest recorded samples were collected from three wells, two of which were located next to the Cle Elum River (Wood16, and Wood12) the other was located adjacent to Lake Cle Elum (Salmon). The same three wells had high concentrations in V and Cr relative to the rest of the sample pool.

The water in Lake Cle Elum (which lies up gradient from the mines) is isotopically indistinguishable from the water flowing out of the old mine shafts (Figure 40). Therefore, it is likely that either the reservoir is recharging the shallow aquifer which in turn recharges the mine shafts or that isotopically similar precipitation is recharging both the lake and the mines.



Figure 40. δD A Map of δD Isotopic Values Collected in the Roslyn Study Area. Blue boxes represent surface water. (note the color coding is different in this study area because of the isotopic difference in natural precipitation).

The Piper diagram for the Roslyn study area (Figure 41) shows a large variation in major cation chemistry within the water samples collected. Within the variations, three groupings, often referred to as hydrochemical facies, were identified. Facies P1 is outlined in blue and is classified based on its low proportions of sodium and potassium. Facies P1 includes all surface waters collected in this study region as well as wells that border the Lake Cle Elum reservoir (Guz60 and Guz30) and wells that border the Cle Elum River (Wood16 and Wood12). This indicates that surface water in this area can be characterized by low amounts of low sodium and potassium.

Facies P2 contains the sample taken directly from the mine's overflow shaft as well as one well adjacent to Lake Cle Elum, and two wells between Lake Cle Elum and the mine overflow point. These wells in turn are isotopically indistinguishable from the reservoir. These similarities in water chemistry suggest that these waters are all freely interacting and mixing and thus support the idea that the reservoir is recharging the shallowest aquifer which in turn is recharging the mine shafts. Facies P3 is categorized by its high concentrations of sodium and potassium which is thought to represent a more chemically evolved water (Holt, 2012). Furthermore, the wells that make up P3 are thought to be drawing water from the underlying Roslyn Formation while P1 is likely drawing less-evolved water from the overlying unconsolidated sediment. P2 is a mixture between the P1 and P3 based on the positions in the cation triangle. This mixture may be due to the fact that the extensive mine system is likely recharged with water from both the surficial aquifers and deep sedimentary aquifers in the region.



Figure 41. Piper diagram of Roslyn study region. The piper diagram shows 3 major geochemical facies (P1) Ca^{2+} type, (P2) Intermediate cation type, (P3) Na^+-K^+ type.

CHAPTER V

CONCLUSION/SUMMARY

In this study, 99 groundwater samples and 17 surface water samples were collected from three study areas in the Yakima River Basin and analyzed for stable isotope ratios and major ion concentrations. In Moxee and Kittitas Valleys relationships between stable isotopes, well depths and nitrogen concentrations were used to identify aquifers that are dominantly recharged by irrigation water vs aquifers that are recharged naturally (i.e., snowmelt). Geochemical fingerprinting of irrigation water allowed us to determine the extent of the surficial aquifers in Kittitas and Moxee Valleys and estimate the amount of irrigation-derived water that is stored in these valleys through current and past farming practices. These estimates range from x to y, depending on the assumed area, porosity, and saturated thickness. This information about the extent of irrigation water and the surficial aquifer is useful for assessing suitability for shallow aquifer recharge (SAR) because a working SAR system must have a shallow aquifer that is deep enough to accommodate the recharged water. Furthermore, we were able to geochemically classify other water types as well which allowed us to locate leaky sections of canals. By combining our geochemical data with past literature we made conceptual models for Kittitas and Moxee Valleys that demonstrate groundwater relationships. These conceptual models delineate the different water types found in Kittitas and Moxee Valleys and can be used in the future to make water management decisions.

In our third study area (Roslyn), we focused our study on the groundwater quality of water in and around the old coal mines by including trace element concentrations to the geochemical data. Studies have assessed the storage capacity within the abandoned mine shafts to be ~20,000 acre-ft (Packard, 1981), but this is the first comprehensive geochemical study to

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look at the groundwater quality in and around the mines. From the 15 groundwater samples collected in and around the mines we found no evidence for groundwater acidification or increased trace metal concentrations. This result is consistent with the low sulfur content (0.01%) of the coal in the Roslyn mines. Furthermore, groundwaters from domestic wells that penetrate into coal layers (according to the well logs) are geochemically similar to the water flowing out of the mines. Thus, people are already using the mine water as a drinking supply.

Possible Shallow Aquifer Recharge Sites in Kittitas Valley

In Kittitas Valley many of the samples collected were along a north-south transect of the valley; this transect was used to create a conceptual model demonstrating groundwater relationships (Figure 24). Our results suggest that the most suitable place for SAR along this transect is in the southern end near Thrall Rd. In this area (mile 14), three wells of depths of 125 to 138 ft were dominated by irrigation water indicating that the surficial aquifer consistently extends to depths greater than 125 ft. The logs for these three wells record depths to water of 45 ft (in April), 20 ft (in July), and 3 ft (in September). This seasonal variation supports the model of a shallow aquifer recharged by irrigation waters during the irrigation season, developing a recharge mound throughout the season. If the water table prior to irrigation is ~45 ft below the surface, this is a sufficient depth for SAR. In addition, this location is only ~2 mi from the Yakima River which is the targeted endpoint for the stored groundwater. By multiplying the porosity for unconsolidated materials by the area of the properties and by the unsaturated thickness this potential SAR location may be able to store between to ~1,200 to 13,000 acre-ft (Table 16).

Possible Shallow Aquifer Recharge Sites in Badger Pocket

Badger Pocket, an elevated region on the southeast side of the Kittitas Valley, is primarily used for agriculture. One farm within Badger Pocket has a dry well 80 ft deep and a 180 ft deep well whose water is significantly influenced by irrigation water. This information indicates that, at least locally, there is an 80 ft deep vadose zone and a surficial aquifer that extends to a depth of 180 ft or more. By multiplying the porosity for unconsolidated materials by the area of the properties and by the unsaturated thickness this potential SAR location may be able to store between to ~13,000 to 88,000 acre-ft (Table 16).

Possible Shallow Aquifer Recharge Sites in Moxee Valley

In Moxee Valley, there is a cluster of wells in the northern part of the transect that penetrate to between 180 and 245 ft and are all dominated by irrigation water (Figure 65). This well cluster is unique (Mile 1.2), because although they are isotopically similar to irrigation water, they have below-average nitrate concentrations. It appears that they are geochemically identical to canal water before it is applied to fields, indicating that this area is being recharged via leaks in the existing canal. This location is also suitable for SAR because irrigation water is found at great depths (180-245 ft) and all of the well logs report a static water level deeper than 100 ft. Therefore, the data suggests that there is a ~100 ft vadose zone above a surficial aquifer that extends down to 180-245 ft below the surface. By multiplying the porosity for unconsolidated materials by the area of the properties and by the unsaturated thickness this potential SAR location may be able to store between to 3,700 to 25,000 acre-ft (Table 16). Two other wells in this area extend to deeper depths (360 and 445 ft) and are isotopically representative of naturally recharged groundwater. Thus, there is a boundary between the two water types (irrigation water and natural water) at ~250-350 ft below the surface. Moving

forward, this information can be used to develop a plan of shallow aquifer storage in the area that may include reducing canal leakage and managed recharge.

Lessons Learned/Future Recommendations

For future groundwater research in this region, stable isotope analysis, a relatively inexpensive technique that can be used to fingerprint different water types, has proven to be helpful when deciphering aquifer boundaries and recharge regimes. In the Yakima River basin, the Cascade rain shadow has created stable isotope variations that enhance our ability to delineate different water types. The relationship between stable isotopes and depth is particularly valuable in that it can constrain the depth to which groundwaters are influenced by irrigation recharge. Future researchers in Kittitas Valley should investigate groundwater flow across the "Craig's Hill" fault. In addition, eastern tributaries (Reecer Creek, Naneum Creek, Coleman Creek, and Caribou Creek) should be sampled in the winter and spring to determine if the isotope values match that of the nearby groundwater ($-121 < \delta D < -116\%$). This would partially test the hypothesis that the groundwater in the northern part of the valley is primarily recharged from the Naneum anticline. Age dating methods (³H, ¹⁴C, CFCs, and SF₆) applied to groundwaters with these intermediate isotopic compositions and the isotopically lightest ($\delta D < -128\%$) would further constrain the extent to which these intermediate values represent modern versus prehistoric recharge.

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Legend

Sampled Locations

- Groundwater
- Surface Water

Geologic Units 500K

Unconsolidated Sediments

- Qa, Quaternary alluvium QIs, Quaternary mass-wasting deposits
- QI, Quaternary loess
- Qf, Pleistocene outburst-flood deposits
- Qad, Pleistocene alpine glacial drift

Sedimentary Rocks and Deposits

- QTc, Quaternary-Tertiary continental sedimentary rocks and deposits
- Tc, Tertiary continental sedimentary rocks

Volcanic Rocks and Deposits

- Qv, Quaternary volcanic rocks Tv/cr/ Tertiary volcanic rocks Columbia Riv
- Tv(cr), Tertiary volcanic rocks, Columbia River Basalt Group
- Tv, Tertiary volcanic rocks
- Tvt, Tertiary fragmental volcanic rocks

Intrusive Rocks

- Ti, Tertiary intrusive rocks
- MZi, Mesozoic intrusive rocks

Metasedimentary and Metavolcanic Rocks

MZms, Mesozoic metasedimentary rocks

Metamorphic Rocks (Amphibolite Facies and Higher)

- MZPZhm, Mesozoic-Paleozoic heterogeneous metamorphic rocks
- MZPZam, Mesozoic-Paleozoic amphibolite
- MZog, Mesozoic orthogneiss

Other Features

Water tz, Tectonic zones; areas of intense cataclasis, including mylonitization

APPENDIXES

APPENDIX A- DETAILED MAPS



Map A1. Sampled locations overlain on a surficial geology map



Map A2. The borders of the three study areas



Map A3. Sampled Locations in the Roslyn area



Map A4. Sampled locations in Kittitas Valley


Map A5. Sampled locations in Moxee Valley



Map A6. A satellite image of all sampled locations.



Map A7. A map showing the mean annual recharge for current conditions, 1960-2001. Map from Vaccaro et al., 2009

APPENDIX B- INSTRUMENT COMPATIBILITY

Anion concentrations measured by Dionex ICS-5000 Ion Chromatograph (Geological Sciences Department) vs the Dionex DX 500 Ion Chromatograph (Chemistry Department). Orange lines represent a slope of 1.





Cation concentrations measured by Dionex ICS-5000 Ion Chromatograph (located in the Geological Sciences Department) vs the Dionex DX 500 Ion Chromatograph (located in the Chemistry Department). Orange lines represent a slope of 1.

For quality assurance concentrations measured by Agilent 8900 Triple Quad Inductively Coupled Mass Spectrometer (ICPMS) (Geological Sciences Department) vs the Dionex DX 500 Ion Chromatograph (Chemistry Department). Orange lines represent a slope of 1.



DISCUSSION

All of the graphs presented above in Appendix B show that the three instruments agree with the exception of NO_3^- . NO_3^- concentrations reported from the ICS-5000 are higher than the concentrations reported from the DX 500 for all values under 6 ppm. For NO_3^- the largest difference measured between the two instruments is 1.76 ppm while the average difference between the two instruments is 0.9 ppm. This data indicates that one of the two instruments is slightly off when measuring NO_3^- at small concentrations (<6 ppm).

APPENDIX C- ROSLYN WELL LOGS

Well Name	General Description	Unique Well ID/Report ID
Borders Reservoir		
Guzzi60	On the southern bank of Lake Cle Elum	AFH700
Guzzi30	On the southern bank of Lake Cle Elum	AGM991
Salmon14030	~0.5 miles east of Lake Cle Elum	
Coal interaction		
likely		
Fan (11/12)	0.01 miles east of the Cle Elum River,	
	overflow point for the Roslyn Mines	
Vinegar390	Between Lake Cle Elum and the fan house	AKH884
Vinegar481	Between Lake Cle Elum and the fan house	ALE138
Vinegar420	Between Lake Cle Elum and the fan house	364931
Shaft421	Located between Roslyn and Cle Elum	AKW776
Shaft181	Located between Roslyn and Cle Elum	ALE962
Ridgeview	On hillside north of Cle Elum	
Ridge360	On hillside north of Cle Elum	AKW793
Tamarack101	Between Lake Cle Elum and the fan house	
Coal interaction		
not expected		
RoslynRidge	New housing development on hillside north of Ronald	
W-WA103	Inside the town of Roslyn	
Easton	East of Easton	
Borders Cle Elum		
R.		
Woodduck1161	~0.3 miles east of the Cle Elum River	BAF978
	downstream from fan house	
Woodduck1281	~0.3 miles east of the Cle Elum River	BJA238
	downstream from fan house	
Surface Water		
Salmon La Sac R.	Salmon La Sac River which is a main tributary	
	to Cle Elum Lake	
Cle Elum Lake	Reservoir, located up gradient of all wells except Salmon 14030	
Teanaway R.	River south of Cle Elum on Highway 10	

Fi Di Sc	te Original with epartment of Ecology cond Cozy - Owned's Cozy	
Ť	Ind Copy - Driller's Copy 101616	Water Right Permit No
(1) OWNER Name Onn Parish Ad	dress:
(2)	LOCATION OF WELL, County KITTO Tas	W 1/4 NW/14 Sec 2 T2O NR 14 WM
(2)	a) STREET ADDRESS OF WELL (or nearest address)	∧
(3)	PROPOSED USE Domestic Industrial Municipal	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION
(4)	Type OF WORK Overage author of well (I more than one) Type OF WORK Overage author of well (I more than one)	Formation Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information indicate all water encountered.
	Hew Weil Method Despened Dug Bored Reconditioned Cable Driven Decommission Rotary	Gravel + Yellow 0 40
(5)	DIMENSIONS Diameter of well unches	Sand Gracel 40 65
_	Dniledfeet Depth of completed well12_1tt	Brains Same Las TU
(6)	Construction Details Casing installed Welded Diam fromft toft Unor installed Diam fromft toft Threaded Diam fromft toft	Brown Cementer Gravel 74 DI Sand Gravel 21 127
	Perforations 🗆 Yes 🕱 No	
	Type of perforator used	
	perforations fromft toft	
_	Screens Yes Yes K-Pac Location Manufacturer's Name	DEPT UF ECO
	Gravel/Filter packed □ Yes 🖂 🖧 □ Size of gravel/sandt Material placed fromt tot	SEP. 0 5 2000
	Surface seal State ON To what depth?	CION DES
(7)	PUMP Manufacturer's Name	
_	ТуреН Р	
(8)	WATER LEVELS Land-surface of evation above mean sea level	Work Started S/10/01 Completed S/11/01
	(Cap, valve etc.)	WELL CONSTRUCTION CERTIFICATION
(9)	WELL TESTS Drawdown is amount water level is lowered below static level Was a pump test made? Yes No If yes, by whom? Yield gal /mm with ft drawdown after hrs Yield _gal /mm with ft drawdown after hrs Yield _gal /mm with ft drawdown after hrs Yield _gal /mm with ft drawdown after hrs Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	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 Type or Produkting
ECY	Bailer test	Contractor's Registration No WATER WOOD DOB S/15/07 (USE ADDITIONAL SHEETS IF NECESSARY) Ecology is an Equal Opportunity and Affirmative Action employer For special accommodation needs, contact the Water Resources Program at (360) 407- 6600 The TDD number is (360) 407-6006

Note: Personally Identifying Info redacted due to privacy concerns.

~		
	WATER WELL REPORT	CURRENT Notice of Intent No W13653つ
	Cology 2nd copy owner 3rd copy driller	Unique Ecology Well ID Tag No
	Construction/Decommission (x in circle) 128364	Wilson Bucks Demont Mo
ビッ	Construction	Water Right Permit No
8	O Decommission ORIGINAL CONSTRUCTION Notice	Decentry Output Name
e l		Property Owner Hank
<u><u> </u></u>	PROPOSED USE Domestic Lindustrial Municipal	Well Street Address
<u>e</u>	TYPE OF WORK (papers number of well (if more than one)	City Cle Elum County KIII GO
5	New Well Reconditioned Method 20 ug Bored Driven	Location WW1/4 1/4 DW1/4 Sec. Twn 20 R Y or one
is	Cable Kotary Jeticd	Lat/Long Lat Deg Lat Min/Sec
ŧ.	DIMENSIONS Diameter of well inches drilled ft	(strstall
5	Depth of completed well ft	
ç	CONSTRUCTION DETAILS / // //	
8	Casing Welded Diam from 7 Z ft to 7 ft	CONSTRUCTION OR DECOMMISSION PROCEDURE Formation Describe by color character size of material and structure and the
a	Instance Liner installed Diam from It to It	kind and nature of the material in each stratum penetrated with at least one
Ę		entry for each change of information Indicate all water encountered (LISE ADDITIONAL SHEETS IF NECESSARY.)
e	Type of perforator used	MATERIAL FROM TO
5	SIZE of perfsin byin and no of perfsfromft toft	Sumitonsoil Brm 04
ĥ.	Screens Ves KPac Location	Ciau + aray Malte A 4 47
Ę –	Manufacturer s Name	Sanay day Br. ms 47 65
S.	TypeModel No	Sanduchi Brarms 6573
Ĕ	Diam Slot Size from ft to ft	Sapatillar 000 7
8	Gravel/Fulter nacked Diver DNo Disce of gravel/sand	c nutarav avail
at	Materials placed fromft toft	matty (Nor MH 3 97
Ó	Surface Seal Yes No To what depth? 20 ft	Sand Br. m 97 106
e P	Maternals used in seal_ Genonite	clay anou Br
2	Did any strata contain unusable water? Yes	maity color m 100 110
f	Type of water?Depth of strata	Sultysand some
ra	PUMP Manufacturer's Name	peergrouer mathy cm 110 by
ar	Туре Н Р	
5	WATER LEVELS Land surface elevation above mean sea levelft	
5	Static levelft below top of well Date	
ž	Artesian pressurelbs per square inch Date	
S	(cap valve etc.)	UF EUQUA
ě	WELL TESTS Drawdown is amount water level is lowered below static level	Received
Š	Was a pump test made? Yes No If yes by whom?	FEB 2 7 2020
b.	Yield gal /min with ft drawdown after hrs	10 2 400 m
ĕ	Yield gal/min_with ft_drawdown after hrs	The second secon
ů.	Recovery data (time taken as zero when pump turned off)(water level measured from well top to water level)	741 REGION
Ξ.	Time Water Level Time Water Level Time Water Level	
÷.		
e	Date of test	
8	Bailer testgal/mm withft drawdown afterhrs	
ar	Artestft forhrs Artestan flow g n m Date	1/22/62
e b	Temperature of waterWas a chemical analysis made? Yes No	Start Date_124105Completed Date_12110.7
Õ	WELL CONSTRUCTION CERTIFICATION constructed and/or accept response	insibility for construction of this well and its compliance with all
ę	Washington well construction standards Materials used and the information re	ported above are true to my best knowledge and behef
F	Moniler Engineer Trainee Name (Provided The Local The	_ Drilling Company Water IT lab Well Drilling
	Driller/Engineer/Trainee Signature	- Address
	Driller or Trainee License No 1000 >	City State Zipi
	If trainee, licensed driller s	- Contractors WATERW DQDD DB 2/3/03
	Signature and License no	Ecology is an Equal Opportunity Employer ECY 050 1 20 (Rev 4/01)
	-	

Note: Personally Identifying Info redacted due to privacy concerns.

WATER NELL REPORT Start Card No Unique Well I D # Water Right Permit wo ₩ 170590 STATE OF WASHINGTON 136449 Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report. -- ----- ------ OWNER Name Address (2) LOCATION OF WELL County KITTITAS (2a) STREET ADDRESS OF WELL for nearest address) WW 174 SB 1/4 Sec 12 T 20 N , R 14B WM K (3) PROPOSED USE DOMESTIC -----(10) WELL LOG -----. (4) TYPE OF WORK Owner's Number of well (If more than one) Method ROTARY 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 NEW WELL (5) DIMENSIONS Diameter of well 6 inches Drilled 99 ft Depth of completed well 98 5 ft at least one entry for each change in formation MATERIAL BROWN CLAY BROWN CLAY ROCKY GRAVEL LOOSE ELACK GRAVEL BROWN CLAY GRAVEL BROWN SILTY GRAVEL WATER BEARING BROWN SANDY GRAVEL FROM T0 (6) CONSTRUCTION DETAILS Casing installed 6 WELDED 3 33 39 61 89 99 * Dia from +2 * Dia from * Dia from 33 39 61 89 ft to 985 ft to ft to ft ft Perforations NO Type of perforator used SIZE of perforations perforations from perforations from HEGION OFFICE in by 11 ft to ft to ft to ft ft ft 0 1 2003 perforations from Rengined Screens NO Manufacturer's Name Ь Type Dian Model No CENTR slot size slot size from ft to ft to ft ft Diam Gravel packed NO Gravel placed from Size of gravel o ft ft to Surface seal YES To what depth? 19 Material used in seal BENTONITE Did any strata contain unusable water? NO Type of water? Depth of strata Method of sealing strata off SEAL MATHOD 1 (7) PUNP Manufacturer's Name Type ft ft -. Туре Н Р (8) WATER LEVELS above mean sea level Static level 69 ft below top of well Date 07/24/03 Artesian Pressure Artesian water controlled by Work started 07/24/03 Completed 07/24/03 WELL CONSTRUCTOR CERTIFICATION (9) WELL TESTS Drawdown is amount water level is lowered below static level
 Was a pump test made? NO If yes, by whon? Yield gal /min with ft drawdown after hrs I constructor Cartification I constructed and/or accept responsibility for con struction 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 Recovery data Time Water Level Time Water Level Time Water Level NAME TUNNATER DRILLING, INC (Person, firm, or corporation) (Type or print) 4 ADDRESS Date of test / / Baller test gal/min ft drawdown after hrs Air test 16 gal/min w/ stem set at 98 ft for 1 25 hrs Artesian flow g p m Date Temperature of water Was a chemical analysis made? NO ticense No 1249 SIGNED Contractor's Ъе Р Registration No TUMWADP 011 L2 Date 07/25/03

Note: Personally Identifying Info redacted due to privacy concerns.

File C Depa Seco Third	Inginal with Iment of Ecology and Copy Owner's Copy Copy Differ's Copy 21883	Notice of Intent
(1)	OWNER Name Addre	138
(2)	LOCATION OF WELL County KITT ITAS	W 1/4 3W 1/4 Sec_12_T20_NR_74_WM
(2a)	STREET ADDRESS OF WELL (or nearest address)	
_	TAX PARCEL NO	WELL LOC & DECOMMISSIONING PROCEDURE DESCRIPTION
(3)	PROPOSED USE Domestic Industrial Municipal Irrigation Test Well Other DeWater	(10) WELL COURT DEScribe by color character size of material and structure and the kind and nature of the material in each stratum penetrated with at least one entry for each change of information indicate all water encountered
(4)	TYPE OF WORK Owners number of well (if more than one)	MATERIAL FROM TO
	Deepened Dug Bored Depend Drygg Depended Drygg	
	Decommission	DIRT 0 0
(5)	DIMENSIONS Diameter of wel 6 inches	1540 F C POURT 5 95
	Dniledfeet Depth of completed well /20ft	CEMENI GRITUSE 5 15
(6)	CONSTRUCTION DETAILS	BROKEN BASALT 95 120
	Welded 6 Dism from 0 ft to 100 ft	
	C Threaded Diam fromft toft	
	Perforations 🗆 Yes 📌 No	
	Type of perforator used	
	SIZE of perforationsin byin	-
	perforations fromft 10ft	12 1 1 111
_	An art but at the	
	Screens Ves ValNo L K Pac Location	1131 0 7 1999 1
	Type Model No	
	DeamSlot Sizefromft 10ft	UU TE DOUGO
_		DETACTNER BEGIN ON CO
	Gravel/Filter packed Yes 440 Size of gravel/sand	CENIUS
_	Matenal placed fromft tot	
	Surface seal 44/48 INo To what depth? 20ft	
	Did any strata contain unusable water? Yes No	
	Type of water?Depth of strata Method of sealing strata off	
_	men og er seening av nie en	
(7)	PUMP Manufacturers Name	
_	iypeirei	
(8)	WATER LEVELS Land surface elevation above mean sea level Static level 50 ft below top of well Artesian pressure Ibs per square inch Date	Work Started Completed 9/5/97
	(Cap valve etc.)	WELL CONSTRUCTION CERTIFICATION
(9)	WELL TESTS Drawdown is amount water level is lowered below static level	I constructed and/or accept responsibility for construction of this well and it
(-)	Was a pump test made? Yes No If yes by whom?	compliance with all Washington well construction standards. Materials use and the information reported above are true to my best knowledge and belie
	Yieldgal /min withhrs trawdown afterhrs Yield gal /min withhrs trawdown afterhrs	Type or Print Name HIKE HOREFEEDDase No 236/
	Yieldgal /min_withft drawdown afterhrs	(Licensed Dniler/Engineer)
	Recovery data (time taken as zero when pump turned off) (water level measured from well too to water level)	Trainee NameLicense No
	Time Water Level Time Water Level Time Water Level	Drilling Company BACH DRILLING CO
		(Signed) License No
		Address
	Date of test	Contractors
	Aurtestgal /min_withft drawdown afterhrs	Registration No MIKE BOCI3 304 Date 9/5 9
	Artesian flowg p m Date	(USE ADDITIONAL SHEETS IF NECESSARY)
	Temperature of water Was a chemical analysis made? Yes No	Ecology is an Equal Opportunity and Attemption Action employer. For specia

Note: Personally Identifying Info redacted due to privacy concerns.

Unique Ecology Well ID Tag No Water Right Permit No Property Owner Name Well Street Address Oity Rosald County Kittias Location NM1/4-1/4 SW1/4 Sec 12 Twn 20 Lat/Long (s, t, r Lat Deg N 47 Lat	
Water Right Permit No Property Owner Name Well Street Address City Ronald County Kittitas Location NW1/4-1/4 SW 1/4 See 12 Twn 20 Lat/Long (s, t, r Lat Deg N47 Lat	
Property Owner Name	R_14 EWM Z excle
Well Street Address County Kittias City Ronald County Kittias Location NW1/4-1/4 SW1/4 Sec 12 Twn 20 Lat/Long (s, t, r Lat Deg N 47 Lat	R_14 EWM C cocle
City Resald County Kittitas Location NWI/4-1/4 SW1/4 See 12 Twn 20 Lat/Long (s, t, r Lat Deg N 47 Lat	R_14 EWM C cocle
NWI/4-1/4 SW 1/4 Sec 12 Twn 20 Lat/Long (s, t, r Lat Deg N 47 Lat	R_14 EWM Coccle
Lat/Long (s, t, r Lat Deg <u>N 47</u> Lat	WWM Cone
Lat Deg N 47 Lat	nate (% of 14.479
2-SUDEDIDED)	Mill/Sec 14/428
Long Deg W121 Lor	1g Min/Sec 02.682
fax Parcel No	
CONSTRUCTION OR DECOMMISSION	PROCEDURE
Fornation: Describe by color, character, size of material and	structure, and the kind and
ature of the material in each stratum penetrated, with at least information. (USE ADDITIONAL SHEETS IF NECES	one entry for each change of SARY.)
MATERIAL	FROM TO
ill Reven alor, annual ashbias	0 6
nown clay, graver, coones	28 32
Jray shale	32 56
Juay soft sandstone	56 64
flack shale	64 77
shale	88 94
jray sandstone	94 102
šiack coul	102 105
aray sandstone w/ shale layers WB (a) 154-155	105 161
stay sandstone w/ volds - lose of reduit w/o	101 111
	OT OF ECOL
(HINCISVED
	HAN 1 2 2008)
6	5
k k	AL MEGION
Re-+ R-+- 01.05.06	ad Data, 01-05-05
	ax Parcel No. CONSTRUCTION OR DECOMMISSION Fornation: Describe by color, character, size of material and i ature of the material in each statum penetrated, with a least information. (USE ADDITIONAL SHEETS IF NECES MATERIAL ill trown clay, gravel, cobbles trown clay, gravel, cobbles trown clay, gravel, cobbles trown clay, gravel, cobbles tray shale inay soft sandstone tiack shale iray sandstone tiack coal iray sandstone w/ shale layers: WB (à) 154-159 iray sandstone w/ voids - lose of return WB (à) 154-159 iray sandstone w/ voids - lose of return (b) (b) 154-159 iray sandstone w/ voids - lose of return (b) iray sandstone (b) 154-159 iray sandston

Note: Personally Identifying Info redacted due to privacy concerns.

Contract, Original & 1st copy Ecology 2nd copy owner 3rd copy driller	Notice of Intent No VVIII 3.3 A
Construction/Decommission () in cucle)	Unique Ecology Well ID Tag No
Construction 140423	Water Right Permit No
O Decommission ORIGINAL CONSTRUCTION Notice	
	Property Owner Name
DeWater	Well Street Address
TYPE OF WORK Owners number of well (if more than one)	City CherElman County KJHVICIS
Sew Well Reconditioned Method Dug Bored Driven	Location1/4 1/4 Sul1/4 Sec21 Twn 20 R15 EWM ci
Deepened Cable & Rotary Jetted	Lat/Long Lat Dee Lat Mus/Sao
DIMENSIONS Diameter of wellinches, dniledft Depth of completed wellft	(s.t.r still REQUIRED) Long Dag Lan Minister L. M.
CONSTRUCTION DETAILS	Tax Parcel No
Casing Welded _b Diam from +4 ft to 145 ft	CONSTRUCTION OR DECOMMISSION PROCEDURE Enginetion Describe by color, character, size of material and character, and the
Diam from ft to ft	kind and nature of the material in each stratum penetrated with at least one
Perforations Yes No	 entry for each change of information indicate all water encountered (USE ADDITIONAL SHEETS IF NECESSARY)
Type of perforator used	MATERIAL FROM TO
SIZE of perfsin byin and no of perfs fromft tof	dortzakbles 0 10
Screens Yes Mi No K Pac Location	Squid, graves 10 10
TypeModel No	clay, gravel 70 130
DiamSlot Sizefromft toft	have white sandstre 130 280
DiamSlot Sizefromft toft	Howersondstore, shale 280 525
Gravel/Filter packed Yes IN 0 Size of gravel/sand	
Surface Seal Wyes No To what depth? 20 ft	
Materials used in seal BantonTte	
Did any strata contain unusable water? 🔤 Yes 🖉 No	
Type of water?Depth of strata Method of sealure strata off	RECEIVED
PUMP Manufacturer's Name	DCT 1 7 2003
Туре Н Р	
WATER LEVELS Land surface elevation above mean sea levelft	WELL DRILLING UNIT
Static level_105ft below top of well_Date_Scott_M	
Artesian water is controlled by	3 2003
(cap valve etc.)	
WELL TESTS Drawdown is amount water level is lowered below static level Was a pump test made? Yes Who If yes by whom?	TEGION OF
Yieldft drawdown afterhrs	
Yieldgal /min_withft_drawdown afterhrs Yieldgal /min_withft_drawdown afterhrs	
Recovery data (tune taken as zero when pump turned off)(water level measured from	
Time Water Level Time Water Level Time Water Level	
Data of last	
Bailer testgal /min_withR drawdown afterhrs	
Arriest 20-25 gal/men with stem set at 305 ft for 215 hrs	
Temperature of waterWas a chemical analysis made?	Start Date Sept 17, 2003 Completed Date Sept 19,20
WELL CONSTRUCTION CERTIFICATION I constructed and/or accept resp	consibility 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
Duller Engineer Traince Name (Print) NI Ko Doch	_ Drilling Company _ Dech Well Drilling
Duller/Engineer/Traince Signature	- Address
Driller or Trainee License No	City, State Zip_
(Contractors MEKERN 122 14
Sumature and Liddeller's	- Registration No Concerto Son Date Kapt 1

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REFORT	Notice of Intent No. W10524	0	
Cology, 2nd copy - owner, 3rd copy - driller	Unique Ecology Well ID Tag No.		
Construction/Decommission ("x" in circle) 203 258	Water Right Permit No.		
O Decommission ORIGINAL CONSTRUCTION Notice			
of Intent Number	Property Owner Name		
PROPOSED USE: Doenestic 🗌 Industrial 🔲 Municipal	Well Street Address		
DeWater Irrigation Test Well Other	City de Elun County:	KH4	as
TYPE OF WORK: Owner's number of well (if more than one)	Location 44 14 1/4 1/E14 Son 21		S COM
New Well Reconditioned Method: Dug Bored Driven			· www
	Lat/Long: Lat Deg	Lat Min/Sec	
Depth of completed well '300 ft.	REQUIRED) Long Deg	Long Min/Se	ac
CONSTRUCTION DETAILS	Tax Parcel No.		
Casing Welded Diam. from fit to 155_ft.	CONSTRUCTION OR DECOMMISSI	ON PROCED	URE
Installed: MLiner installed Diam. from 0 ft. to 30 b ft.	Formation: Describe by color, character, size of m kind and nature of the material in each stratum per	aterial and stru etrated, with a	scture, and the
U Threaded Diam. fromft. toft.	entry for each change of information. Indicate all	water encounte	rred.
Type of perforator used Skill Saw	MATERIAL	FROM	70
SIZE of perfs 12_in. by 14 in. and no. of perfs 210 from 190 ft. to 300 ft.		PROM	10
Screens: Yes No K-Pac Location	10015011	10	25
Manufacturer's Name	averel leave 1	25	150
TypeModel No	Shale	150	153
Diam. Slot Size from ft. to ft.	Sandstore	153	245
Gravel/Filter nacked: Vec PNo Size of gravel/sand	Shile	245	250
Materials placed fromft.	Sandstone	250	300
Surface Seal: #Yes No , To what depth? 20ft			
Materials used in scal			
Did any strata contain unusable water? Yes No			
Method of sealing strata off			
PUMP: Manufacturer's Name	COLOGY		
Type:H.P	A A	<u> </u>	
WATER LEVELS: Land-surface elevation above mean sea levelft.	5 Re 1 8	1	
Static level <u>SL</u> ft. below top of well Date <u>SJDb</u>	44	Ð.	<u> </u>
Artesian water is controlled by		1	
(cap,valve, etc.)	CENTAN' a		
WELL TESTS: Drawdown is amount water level is lowered below static level.			
Yield:gal/min. withft. drawdown after hrs.			
Yield:gal/min. withft. drawdown afterhrs.			
rieu:gat/min. wimH. drawdown anerhrs. Recovery data (time taken as zero when pump turned off)(water level measured from			-
well top to water level) Time Water Lavel Time Water Lavel			
Think which Level Think which Devel Think which Level		146 1	1
Date of test			
Airtest 15-18 gal/min. with stem set at 280 ft. for 272 hrs.			
Artesian flowg.p.m. Date	Start Date 5/1/06 Completed D	ate 5/2/	oz
remperandre of water was a chemical analysis made? Li Tes Esto		1 07	Data and
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respo Washington well construction standards. Materials used and the information re	onsibility for construction of this well, and its eported above are true to my best knowledge a	compliance v nd belief.	with all
Driller Engineer Trainen Name (Brief) Jereur Rosen	Drilling Company Rough Dr	This	
Deiller/Engineer/Trainee Signature			
Dellar or Tening Lingues No. 2531	- Address		
Diffier or Trainee License INO.	City, State, Zip	T+ - 1-	
If trainee, licensed driller's	- Registration No.	5/3	3/01

Note: Personally Identifying Info redacted due to privacy concerns.

nteat Ne <u>W</u>		
alogy Well ID Tag No		
(Permit No	ABG	N
_		
nter Name		
Address		
County_	12. Hrt	<u>~S</u>
14_14 ME14_xec 22	THE DOLD R	5 <u>e</u> r,,,
Lat Deg	Lat MudSec	ww.
h Long Dev	Long Marile	
Nu		
STRUCTION OR DECOMMISSI	ON PROCED	URE
or of the maintail on each stowers per	terrated with a	a least our
TONAL STRETS IP NSCESSARY	Nator Productor	æd
MATERIAL	FROM	TO
-	0	10
caboles_	10	30
wedin vocis	30	150
when NOTIC AS	Hor,	500
- var. 15	500	550
vorte	585	634
make	135	765
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Way L Joseff Comments	L.T.	114
ovoq.s_remplaceta	and Treated	100 .
are interior of this well, and its c are interior my best knowledge a	ind belief	wh all
Company Back Wel	1 Duil	lim
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ie Zap,		
Ae lar	2p.	Zap. 5. Altern 244 (20.14)

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REPORT	CURRENT Notice of Intent No. W 251112	
Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	House of Intent No. W20112	
Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No.	
Construction 2000 0 Decommission ORIGINAL INSTALLATION Notice	water Right Permit No.	
of Intent Number	Property Owner Name	d
PROPOSED USE: Z Domestic D Industrial D Municipal	Well Street Address	~
DeWater	City Cle ELum County Kittas	DAG EWM
TYPE OF WORK: Owner's number of well (if more than one)	Location NW 1/4-1/4 NW 1/4 Sec 32 1wn20	K_15 or 2/ chec wwm one
New well Reconditioned Michael: Dug Bored Driven Deepened Cable Z Rotary Jetted	(Lat/Long (s, t, r Lat Deg N 47 Lat	t Min/Sec 11.247
DIMENSIONS: Diameter of well 6 inches, drilled 46 ft.	Still REQUIRED) Long Deg W 121 Long	ng Min/Sec00.145
Depth of completed well 43 1/2 ft. CONSTRUCTION DETAILS	Tax Parcel No.	
Casing 2 Welded 6 "Diam. from +1/2 ft. to 43 1/2 ft.		
Installed: Liner installed Dians. from ft. to ft. Threaded Dians. from ft. to ft. to ft.	CONSTRUCTION OR DECOMMISSION	PROCEDURE
Perforations: Yes ZNo	Formation: Describe by color, character, size of material and a nature of the material in each stratum penetrated, with at least intermediate of the strategies of the strat	structure, and the kind and one entry for each change of 26 A D V
SIZE of perfsft. toft.	MATERIAL	FROM TO
Screens: Yes Z No K-Pac Location	Brown clay, gravel, cobbles	0 13
Manufacterer's Name	Brown clay, gravel	13 17
DiamSlot sizefromft. toft.	Gray sifty gravel WB Brown sandy computed gravel	17 19
Gravel/Filter packed: Yes Z No Size of envel/sand	Brown sandy gravel WB	34 44
Materials placed fromft. toft.	Brown silt, fine sand	44 46
Type of water? Depth of strata Type of water? Depth of strata Webod of soling strata off	JUN 1.3 2008	ининания и на
Temperature of water Was a chemical analysis made? L Yes Z No	Start Date 05-01-08 Complete	ad Date 05-01-08
		t its compliance with a

Note: Personally Identifying Info redacted due to privacy concerns.

		•	
WATED WELL DEPODT	CURRENT		
Original & 1" copy - Ecology, 2" copy - awper, 3" copy - deiller	W35874	7	
ECOLOGY Construction (Decompletion (A. B.).		-	
Construction	Unique Ecology Well ID Tag No.		
Decommission ORIGINAL INSTALLATION	Water Right Permit No.		
Notice of Intent Number	Property Owner Name		100
PROPOSED USE: Domenic I Industrial I Municipal	Well Street Address		
DeWater I Inigation Test Well Other	on Cle Flue on Kit	he	
TYPE OF WORK: Owner's number of well (if more than one)	UE UE 22 20	in .	
The New well Reconditioned Method : Dug Bored Drives	Location - 1/4-1/4 - 1/4 Sec 3/2 Twn _ 20	R 15 ET	WM 🕼
DIMENSIONS: Diameter of well inches Adhed - a	(441 SUBREQUIRED)	W	WM []
Depth of completed well 43 g.	Lat/Long		
CONSTRUCTION DETAILS	Lat Deg Lat M	lin/Sec	
Casing Welded Diam. from + 3 ft. to 10 ft.		Milly Sec	- S52
Installed: Liner installed" Diam. fromft. toft.	Tax parcel No. (Required)		20 E
Perforations: Yes 2 No			
Type of perforator used	Formation: Describe by color, character, simo	ION PROCEE	URE
SIZE of perfsin. byin. and no. of perfs from # no #	and the kind and nature of the material in each	stratum penetra	ted, with at
Screens: C Yes 2 No K-Pao Location	feast one entry for each change of information.	(USE ADDITI	ONAL
Manufacturer's Name	MATERIAL	FROM	TTO
Type Model No	topse il.	0	5
DiamR toR	grave 1/10bbe3	1,5	32
Gravel/Filter packed: C Yes E No Site of gravel/sand	Send Granel	51	43
Materials placed from ft. to ft.			
Surface Seats # Yes Q.No To what depth? 15 a.		1	
Menterial used in seal Bendon te			
Type of water? Deeds of score			
Method of sealing strata off		-	
PUMP: Manufacturer's Name			
Type:H.P.	RECE	195-53	
Static level 1 h below ton of will there 11/17/17		1 Low	
Artesian pressure lbs. per square inch Date	KOV 30	2017	
Artesian water is costrolled by (cap, valve, etc.)	104.20	400	
WELL TESTS: Downdown is amount water level is lowered below static level	Central Control Contro	pipgy	
Yield:pal/min. withR. drawdown after hrs.		alUffice	
Yield:gal/min. withft. drawdown after hrs.			
Yield:ft. drawdown afterbrs.			<u> </u>
well top to water level)		1	
Time Water Level Time Water Level Time Water Level		4	
		1	
Date of test			
Bailer text and/min with the deserters after	· ·	+	
		1	
Annual and a sea been and a sea of the total and the sea of the sea			
	11/12/12	11/15	115
remperature of water Was a chemical analysis made? 🔲 Yes 📓 No	Start Date Completed Date .	1.111	
Temperature of water Was a chemical analysis made? □ Yes ■ No WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept resp construction standards. Materials used and the information reported above are to Driller/Engineer □ Trainee Name Driller/Engineer/Trainee Signature	start Date Completed Date , onsibility for construction of this well, and its complian- rue to my best knowledge and belief. 	ce with all Wash	hington well
Driller or trainee License No. #2.536	City, State, Zip		
IF TRAINEE: Driller's License No:	Contractor's		-1
ECY 050-1-20 (Rev 02-2010) To require 4D.4	Registration No. MIKEBDC942R6 Da	= 1/1	1117
at 360-407-6872. Persons with impaired hearing may call Washington Relay S	aus in a format for the visually impaired, call Ecology lervice at 711. Persons with speech disability may call	TTY at \$77.83	S Program
그는 아이들은 사람이 많은 것은 것은 것을 다 같은 것을 다 가지 않는 것을 만들었다. 것은 것은 것은 것을 가지 않는 것을 다 가지 않는 것을 다 가지 않는 것을 것을 수 있다. 이렇게 말 하는 것을	A REAL PROPERTY AND A REAL		177.177.177.C.

Note: Personally Identifying Info redacted due to privacy concerns.

Well Name	General Description	Unique Well ID/ Report ID
North of		1000012
Irrigation		
Grn18	Above irrigation canals, amidst natural vegetation	114045
W122	N end of transect, above influence of irrigation	117909
Clk64	Perched on basalt hills E of Cooke Canyon	ALE717
Chr90	N end of transect, above irrigation canals	
W117	N end of transect, above irrigation canals	ACE847
W268	N end of transect, above irrigation canals	APG092
Chr20	E of Naneum Creek, above irrigation canals	BCF654
Chr33	E of Naneum Creek, above irrigation canals	AKW771
Prk	Group home located at the mouth of Parke Creek Canyon	BJA353
Ck23	Between Coleman Creek and Cooke Creek, above irrigation canals	
North Valley		
Af20	N end of transect, amidst hay fields	AKW761
Af86	N end of transect, amidst hay fields	BCF670
W64	N end of transect, amidst hay fields	BJA252
W45	N end of transect, amidst hay fields	AKW860
L97	N end of transect, amidst hay fields	
L45	N end of transect, amidst hay fields	BAP350
Bar90	N end of transect, amidst hay fields	119247
W70	N end of transect, amidst hay fields	
Bar94	N end of transect, amidst hay fields	BBJ414
Center		
Valley		
3rd26	Middle of transect located near Ellensburg High School	BAF788
Pf20	Middle of transect located near Ellensburg High School	BAF620
Tj39	S half of transect located E of the I-90 & I-82 junction, amidst hay fields	ALK738
Tj39(b)	S half of transect located E of the I-90 & I-82 junction, amidst hay fields	
W127	Middle of transect, amidst hay fields	
Sor17	Between Ellensburg and Badger Pocket, amidst hay fields	
South Valley		
Trl60	S end of the transect, ~2 miles N of Manastash Ridge	ALE060
Trl32	S end of the transect, ~1.5 miles N of Manastash Ridge	BAF692
Or51	S end of the transect, ~1.5 miles N of Manastash Ridge	AKL756
Trl30	S end of the transect, ~1.5 miles N of Manastash Ridge	AGL601
West Valley		
RB20	SW section of Kittitas Valley, amidst hay fields	ABX615
Mn10	SW section of Kittitas Valley, amidst hay fields	
Badger		
Pocket		ACIVC17
Bon501	In Badger Pocket, on local terrace above Badger Creek, amidst hay fields	ACX61/
UpB91 Mar	In Badger Pocket on W floodplam of Badger Creek	
Mor Cm14	Abandoned well in Badger Pocket located on E floodplain of Badger Creek	
Cm14	In Badger Pocket on terrace E of Badger Creek	
Km100	In Badger Pocket located at the base of a terrace to the W of Badger Creek	
DYOI UpB17	In Dauger Pocket, ~10011 south of the nump ditch Imigation canal	
Орб17 WDA51	In Dadger Pocket, ~400 yeas south of the pullip ditch infigation canal	
WPAJI Bor	In Dauger Focket, on terrace W of Dadger Creek, amidst hay fields	ACV616
Km89	In Badger Pocket located at the base of a terrace to the W of Badger Creek	ACAUIO

APPENDIX D- KITTITAS VALLEY WELL LOGS

North West Valley		
Man22	0.25mi E Yakima R. and 0.25mi W of the Kittitas Valley Anticline	BIF315
Man20	0.25mi E Yakima R. and 0.25mi W of the Kittitas Valley Anticline	
Hwy10	On terrace E of the Yakima R. and W of the Kittitas Valley Anticline	
Man60	0.25mi E Yakima R. and 0.25mi W of the Kittitas Valley Anticline	ACL650

	File Depa Seco Thir	Original and First Copy with ariment of Ecology WATER WE ad Copy - Owner's Copy STATE OF W	1920 ILL REPORT Application N ADDITION Permit No.	ío	A
	(1)	OWNER: Name	Address		
F	,	LOCATION OF WELL: County Kitteles	- E & NEwson 7 Th	9N B	18 64 14
å	Венг	ring and distance from section or subdivision corner			
ř	(3)	PROPOSED USE: Domentic of Industrial D Municipal	(10) WELL LOG:		
e		Irrigation D Test Well D Other D	Formation: Describe by color, character, size of material	and stru	cture, and
3	(4)	TYPE OF WORK: Owner's number of well	stratum penetrated, with at least one entry for each ch	ange of	formation.
IIS	,	New well S. Method: Dug [] Bored []	MATERIAL	FROM	TO
	_	Deepened Cable Driven D Reconditioned Rotary Z Jetted	Rock, Breken, dont Filler	0	22
	(5)	DIMENSIONS: Diameter of well 6 inches. Drilled 540 ft. Depth of completed well 5.32 ft.	Gravel, Computed	72	89
lat	(6)	CONSTRUCTION DETAILS:	Basalt, Broken	89	105
forn		Casing installed: 6. Diam. from 0. ft. to H.S.ft. Threaded Diam. from ft. to ft. ft.	Dusalt, Clay filler	105	180
e e		Welded Diam. from ft. to ft.	Besalt, Solid	180	260
ort		Type of perforator used. SIZE of perforations in, by	Basalt, Soft	260	551
/pu		perforsions from	Busolt, Selid	551	806
ata a		Screens: Yes O No D	Breaks 660-684		
ŏ		Manufacturer's Name			
the		Diam. Slot size from ft. to ft	Kech, Hon & Combal, Brobu	806	840
anty		Gravel placed: Yes D No # Size of gravel	Comented hale from 115		
Varr		Surface seal: Yes & No D To what depth? - 100 A.	to 570		
2		Did any strata contain unusable water? Yes No			
Z	_	Method of scaling strata off	DECEIVEDI		
loes	(7)	PUMP: Manufacturer's Name			
gy	(8) Stati	WATER LEVELS: Land-surface elevation above mean sea level.			
	Arte	Ariesian water is controlled by	CENTRAL REGION OFFICE		
Û	(9)	WELL TESTS: Drawdown is amount water level is			
0	Was	a pump test made? Yes Z No I If yes, by whom?	Work started OC. [2.4 . 19 5.8 Completed JU	ne 1	19 89
eni	Yield	i: U/Ou gal/min. with ft. drawdown after hrs.	WELL DRILLER'S STATEMENT:		
Ē		35 pm 10 775	This well was drilled under my jurisdiction at true to the best of my knowledge and belief	nd this	report is
an	Reco	very data (time taken as zero when pump turned off) (water level		-	
heb	Tu	neagured from well top to water level) me Water Level Time Water Level Time Water Level	NAME Eastwood Drilling	, In	
Pe			Address.		
	<u>_</u>	Date of test	[8igned]		
	Arten	erature of water	License No. 113 Date 6-	2	19.82
	ECY	(USE ADDITIONAL EX	ERTS IF NECESSARY)		•
_					

Note: Personally Identifying Info redacted due to privacy concerns.

ll Report.	File (Depi Seco Third	Original and First Copy with arbment of Ecology and Copy — Owner's Copy d Copy — Driller's Copy STATE OF W	91art Card No. <u>37</u> LL REPORT UNQUE WELL LD. 4 ASHINGTON Water Right Permit No	7435	
ş		OWNER: NameAdda			
this V	(2) (2=)		. <u>SE</u> 14 14 Bec <u>30_</u> T/	2_ N.R_	<u>19 ww</u> .j
uo uo	(3)	PROPOSED USE: Br Domestic Industriel Municipel impetion DeWater Text Wei Other	(10) WELL LOG or ABANDONMENT PROCEDURE D Formation: Describe by color, character, size of material and abucture, and and the sind and name of the material in each stratum persentatio, with a	ESCRIPTI	ON as of aquiffers retry for each
Ĕ	(4)	TYPE OF WORK: Owner's number of well (If more than one)	change of information.	-	
ů.		Abendoned New well Method: Dug Bored Despended To Cable Despended Reconditioned Storacy B Jetted D	BACALT AADI MED	190	215
Ē	(5)	DIMENSIONS: Diamater of well 6 * inches.	SANDSTONE	215	2.95
ø	()	Drilled 180 test. Depth of completed well 460 n.	BASALT GREY MED	225	245
윤	100	CONSTRUCTION DETAIL 9.	BASALT BROWN MED	245	265
F	(6)	CONSTRUCTION DETAILS:	SANDSTONE BRUNN MED	265	460
¥		Casing installed: Diam. from ft. to ft.	CLAYSTONE INTERBEDS W/B		
Ĕ		Liner installed Difference in the second sec			
a	_		BULK OF WATER @ 450-10	62	
fa		Perforations: Yes I No IP	44.44.5	411-	
õ		SIZE of performance in by in	BO GPM (O	760	
ø		perforations from ft. to ft.	60 gpm @	vie	
£		perforations fromft. toft.			
2		perforations fromf. toft.			
E	_	Bornana: Van No D			
a		Manufacturer's Name			
a		Type Model No.			
IS.		Diam. Slot size from ft. to ft.			
F		DiamSlot sizehomf. tof.	COT 2 A 1994		
Ö		Gravel packed: Yes No 🖌 Size of gravel	001.2 4 1004		
z		Gravel placed from ft. to ft.			
s	_				
ē		Surface seel: Yes No to what depoint n.			
12		Did any strate contain unusable water? Yes No			
6		Type of water? Depth of strata		<u> </u>	
읒		Method of sealing strate off		<u> </u>	
8	_			<u> </u>	
ш	(7)	PUMP: Manufacturer's Name			
5			phylod and	0/16	
Ŧ	(8)	WATER LEVELS: above mean see level t	work Stand 19. Completed	4/10	_ 127
e		State level R. below top of well Date	WELL CONSTRUCTOR CERTIFICATION:		
E		Artesian water is controlled by	I constructed and/or accept responsibility for construction	of this we	il, and its
E	_	(Cap. veive, etc.)	compliance with all Washington well construction standard	s. Materials	used and
ğ	(9)	WELL TESTS: Drawdown is amount water level is lowered below static level			
ő		Was a pump test made? Yes No By I If yes, by whom?	NAME G. P. M DRILLING E DA	mp	
۵		TRAC:	P PERSON PARK ON CONFUSION OF THE OF		
Ē	_		Addrese	_	
5	_	a in a B B	(Signed) Licens	No. C	790
ē		recurvery carts (arrier taken as zero when pump turned on) (whole level measured non weat top to water level)	WELL DAULERO		
	1	Time water Level Time Water Level Time Water Level	Contractor's A A M D B D A T / N B		
e,	_		NoDate &	116	1994
F				ARYO	
	-	Dante of best A/Ko /94			
		Baller test gel/min. with ht. drawdown after hrs.	Fonjony is an Equal Opportunity and Alternative Action	emolower	For ene-
		Airtost <u>BO</u> gal/min, with storn set at <u>760</u> it, for <u>2</u> hrs.	cial accommodation needs, contact the Water Resource	e Progran	at (206)
		Arseelan Row g.p.m. Dete Terroperature of water Was a chemical analysis marks? Yes	407-8600. The TDD number is (206) 407-6006.		
			1		
	ECY	060-1-29 (893) ** 1			0
-	_			_	

Note: Personally Identifying Info redacted due to privacy concerns.

(1) OWNER: Name		Address		-
(2) LOCATION OF WELL: County KITTITA	S	- 1/4 SW 1/4 Sec 29 T.	19 N.,R _2	00
(2a) STREET ADDRESS OF WELL (or neare	st address)			_
TAX PARCEL NO.		LmNP		
(3) PROPOSED USE: X Domestic Indu	strial Municipal	(10) WELL LOG or DECOMMISSIONING PROCEDU	RE DESCRI	PTIC
Imigation Tes	Well Other	Formation: Describe by color, character, size of material and structure, native of the material in each stratum penetrated, with at least one enti-	and the kind any y for each chang	d Qe
DeWater		of information. Indicate all water encountered.		_
(4) TYPE OF WORK: Owner's number of well (I X New Well M	ethod;	MATERIAL	FROM	T
Deepened	Dug Bored	SOIL BASALT & BOLDERS	0	
Reconditioned	Cable Driven	BASALT & CLAY	11	
	Protarylacher	BASALT	25	_
(5) DIMENSIONS: Diameter of well	8 inches.	BASALT & CLAY THEIF @ 96	93	_
Diffed _060 Rect. Departer compresses we		BASALT	126	-
(6) CONSTRUCTION DETAILS:		BASALT GREY BROWN BROKEN	224	
Casing installed: XWelded 8 * Diam. from +1	1/2 ft. to 251 ft.	BASALT DARK GREY HARD	247	
X Liner installed 6. * Diam. from	226 ft to 556 ft.	BASALT BROKEN & CLAY	276	
Threaded* Diam. from	ft. 10 ft.	BASALT BLACK BROWN & CLAY BROWN	286	
Perforations: XYes No		BASALT BLACK BROWN	289	
Type of perforator used TORCH		BASALT DARK GREY	297	_
SIZE of perforations 1/8 in. by	8 in.	BASALT BROKEN GREY BROWN & CLAY SC	FT 345	
50 perforations from 480	ft to ft.	BASALT BLACK BROWN	418	
perforations from	ft. to ft.	SHALE CLAY GREEN	456	
		BASALT DARK GREY	4/5 V 502	
Screens: Yes XINO K-Pac Location		SOFT	1 303	
Type	Model No.	BASALT	507	
Diam. Slot size from	ft. to ft.	BASALT GREY RED & YELLOW SHALE CLAY	510	_
Diam. Slot size from	ft. to ft.	SOFT	647	
Gravel/Filter packed: Yes X No Size	of gravel/sand	GLAY TAN SANDSTONE SAND & SHALE CLAY LAVERS	546	
Material placed from	ft. to ft.	GREY	010	
Surface seal: XYes No To what	t depth? 220 ft.	Bergin		
Material used in seal BENTONITE	754	25 GPM @ 500	$ \rightarrow $	_
Did any strata contain unusable water? []Yes	X No	20 GPM @ 460 4CC 2.7 2005		
Method of sealing strata off				
(7) DUMD. Manufactureds Name		- Second Second	/	
(7) POMP: Manadader a Mana	H.P.	AEGION OF		
(a) WATED LEVEL 0. Land surface elevation			L	
(8) WATER LEVELS. above mean sea level	f.	Work Started 11/15/2005 . 19. Completed 11/	23/2005	, 19
Static level 397 ft. below top	of well Date 11/23/2005	WELL CONSTRUCTION CERTIFICATION:		
Artesian pressure lbs. per squa	are inch Date	I constructed and/or accept responsibility for construction	of this well, a	nd it
Artestan water is controlled by (Cap, va	ve, etc)	compliance with all Washington well construction standar and the information reported above are true to my best k	os. Materiais nowledge and	belie
(A) MELL TECTO, Drawfown is amount water love	is lowned below static level			_
Was a pump test made? Yes XNo If yes, by	whom?	Type or Print Name TOM MCGUIRE Lice	1se No. 035	7
Yield: gal./min. with ft. draw	vdown after hrs.	Trainee Name Lice	ise No.	
Yield: gal./min. with ft. draw	down after hrs.	Delling Competity DIOV DOLL IN MELL DOLL IN		
rield: gal/min, with ft, draw	www.namernrs.	Uning Comment of the Cart of Rilling	3 ING.	
Recovery data (time taken as zero when pump turn from well top to water level)	ed off) (water level measured	(Signed) Lice	ise No. 035	7
Time Water Level Time Water Level	Time Water Level	(Licensed Driller/Engineer)		
TELEVISION		Address 1301 LANCASTER RD SELAH, WA	98942	
		Contractor's		
Data al last		Registration No. RICKPWD042J2 Date 11	28/2005	_, 19
Bailer test oal inio with P	drawdown after bre	(USE ADDITIONAL SHEETS IF NECE	SSARY)	
Airtest 25 gal./min. with stem set at	500 ft. for 1 hrs.	Ecology is an Equal Opportunity and Affirmative Acti	on employer	. Fe
Artesian flow g.p.m	Date	special accommodation needs, contact the Water Re	sources Pro	ogra
Temperature of water Was a chemical an	alyses made? 🗌 Yes 🕱 No	(360) 407-6600. The TDD number is (360) 407-600	5.	

Note: Personally Identifying Info redacted due to privacy concerns.

Bepertment of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy	STATE OF W		
(1) OWNER: Name	Adda		
(2) LOCATION OF WELL ST Kithers		N/W 20 /	0 10
(2) ECCATION OF WELL: CAMY FAIL 1000			7_N.R/7
(3) PROPOSED USE: AF Domestic Industrial D	Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE D	ESCRIPTION
	Other ()	and the kind and rature of the material in each stratum penetrated, with a charge of information	show thickness of it least one entry
(4) TYPE OF WORK: (If more than one)		MATERIAL	FROM
Abandoned Deepened Cable C	Bored [OK loom MCobbles	0 .
Reconditioned Rotary	Jetted 🗆	ables - Boulders Mcleache - 14d clay	21
(5) DIMENSIONS: Diameter of well 10 × 6	7 hohee	Cobbles - Anolders BIK UN	17 .
United 232_reet. Depth of completed well	<u> </u>	Cospies - Ing & gland & Comented	27 9
(6) CONSTRUCTION DETAILS:	'	Cobbles Marcalt ALN-RIK H	48
Ceeing Installed: Diam. from ft. Welded View from T	275	Baga 14 w/ Ton shale VH	56 6
Liner installed Threaded Threa		Ploken Brisp H -/ BBrate glands	63 7
Perforationary Van Pranto and City		Bildken Brankt " gAnnisin BIK	74 7
Type of perforator usedK(1 Screw		FRAC DASAR JAKEN Shale	76 9
SIZE of perforations B in. by 6	in.	Boss At RIT W/ croner Son dy Swale	79 10
a220 performations from5t to	235_1	bloken 3th Art Old 1 Tokan Share	111 1
Perforations from ft. to		Broken BASATT OFN/BIK ~ Rounded 5.	171 2
			-
Manufacturer's Name			
Туре н	Addel No.		_ +
Diam. Slot size from from			
Diam Slot size tom t	. tot.		
Gravel packed: Yes No-E Size of gravel			
	~~~^*		
Surface seal: Yes C No L To what depth?	×n	TOTAL STATE OF BOLLOST	
Did any strata contain unusable water? Yes D No		CENTRAL NEWON OTTO	
Type of water? Depth of at	rata		
Method of sealing strats off	ł		
(7) PUMP: Manufacturer's Name			
Туре:	H.P		
(8) WATER LEVELS: Land surface elevation	,	Work Started 1-24-97.19. Completed 1-2	8 97.
Static level ft. below top of well De		WELL CONSTRUCTOR CERTIFICATION:	
Artesian water is controlled by		I constructed and/or accept meconability for construction	of this well as
(Cap, valve,	.enc.)	compliance with all Washington well construction standards	Materials used
Was a purpo test made? Yes No Hum humber but when	Now static level		
Yield: gel./min. with ft. drawdown eff	er hrs.	NAME VUCTER MUDD WELL DY THINGS	PRINT)
		Address	
- APPROF AIRLIFY 11 9Pm	· ·	(Cinned)	ABR
Recovery data (time taken as zero when pump turned off) (water level top to water level)	ei measured from well	(adian) (windownia) 20908	206
Time Water Lovel Time Water Lovel Time	e Water Level	Contractor's	-
		NOWATERMWOUYU2 1-11-	97 .19
		USE ADDITIONAL SHEETS IF NECESSA	(RY)
Baller test cal/min. with the descent			
Airtest gal/min, with stom set at ft. ft	or hrs.	Ecology is an Equal Opportunity and Affirmative Action e	mployer. For
Artesian flow g.p.m. Date		cial accommodation needs, contact the Water Resources 407-8900. The TDD surphyria (208) 407-8006	Program at (

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REPORT Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	CURRENT Notice of Intent No. W186986
	Unique Ecology Well ID Tag No.
O Construction 2681-91	Water Right Permit No.
O Decommission ORIGINAL INSTALLATION Notice	Property Owner Name
of Intent Number	Wall Street Address
PROPOSED USE: Domestic Industrial Manicipal	an Ellenchung ann 10 Hittes
DeWater Imigation Test Well Other	City CIEVIS County County Con 197105
TYPE OF WORK: Owner's number of well (if more than one)	Location UM/4-1/40 9/4 Second Twn 9 R/9 and arcle
Denver well Deconditioned Method: Dug Decond Driven	Lat/Long (s, t, r Lat Deg Lat Min/Sec
DIMENSIONS: Diameter of well SC. L inches, doiled 2.26 ft.	Still REOUIRED
Depth of completed well 345 ft.	Long Deg Long Min/Sec
CONSTRUCTION DETAILS & From +1 =+ to 70 f	Tax Parcel No
Lasing Br Welded Dam. from 47 ft to 409 ft. Installed: Dr Liner installed 11(1 Diam. from -0.0 ft. to 345 ft.	CONSTRUCTION OR DECOMMISSION PROCEDURE
Dism. from ft. to ft.	Formation: Describe by color, character, size of material and structure, and the kind and
Type of performer used SKill SCNAD	ature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)
SIZE of perfs_7_ in. by in. and no. of perfs Orone 395t. to345	MATERIAL FROM TO
Screens: Yes BrNo K-Pac Location	top Soil 0 1
Type Model No.	Brown Churd Chick 20
Diam. Stot size from ft to ft.	prown ( ay or copies ( 3.5
Gravel/Filter packed: D Yes DNo D Size of gravel/sand	Fractured Basalt 35 105
Materials placed fromft. toft.	
Surface Seal: 19 Yes D No To what depth? 35 ft.	Black Basalt 105 115
Material used in stal	Frat and 8 on 14 116 205
Type of water? Depth of strata	- Fractured Dasard IIS 200
Method of sealing strata off	Black & Brown Base/ 205 265
PUMP: Manufacturer's Name	
	Fractured Base / 265 315
Static level /2/ the below top of well Date 7-27-07	multi Calin Sadet 315 240
Artesian pressure lbs. per square inchr Date	Water
Artesian water is controlled by (can, value, etc.)	lite Grey Clay 340 345
WELL TESTS: Drawdown is amount water level is lowered below static level	
Was a pump test made?  Yes If yes, by whom?	
Yield: gal/min. with ft. drawdown after hrs. Yield: gal/min. with ft. drawdown after hrs.	OF ECOV
Yield:gal/min_withft_drawdown afterhrs.	Device a
Recovery data (ume 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	AUG 1 3 200P
Date of test	The orest
Baller testgab/min. withfl. drawdown afterhrs.	Set and a set of the s
Airtest 50 gal/min. with stem set at 340 ft. for 2 hrs.	
Artesian flow g.p.m. Date	
Temperature of water Was a chemical analysis made?  Yes No	Start Date 2-18-07 Completed Date 7-27-07
WELL CONCEPTION CERTIFICATION. I service the address	some exceeded billing for construction of this well, and its compliance with all
WELL CONSTRUCTION CERTIFICATION: I constructed and/or a Washington well construction standards. Materials used and the information	tion reported above are true to my best knowledge and belief.
Driller D Engineer D Trainee Name (Drive Mile a Mara field	I Drilling Company (1) ater man well Drilling
Driller/Engineen/Traince Signature	Address
Driller or trainee License No. 2361	City, State, Zip
IT TRAINEE,	Contractor's
Driller's Licensed No	Registration No[1]H1CK/MUT440# -70107
terme sugniture	Ecology is an Equal Opportunity Employer.
FCY 050-1-20 (Rev 3/05) The Department of Ecology does	NOT warranty the Data and/or Information on this Well Rep

Note: Personally Identifying Info redacted due to privacy concerns.

		N Yana Y		
por	WATED WELL DEDODT	CURRENT		
å	VYAICK WELL/KEFURI     Original & 1 st copy - Ecology, 2 st copy - awner, 3 st copy - driller	Notice of Intent No W27293	6	
=	ECOLOGY Constantion Decompletion ("" : BECEIV	F Digue Ecology Well ID Tee No.		
S	Construction 468269	Winter Dicht Domit No.		,
S	Decommission ORIGINAL INSTALLATION	water Right Permit No.		
Ē	Notice of Intent Number NOV 1 0 20	IIZProperty Owner Name		
Ē	PROPOSED USE: M Domestic Industrial Municipal DeWater Descurces F	rogram Street Address	n	
ō	TYPE OF WORK: Owner's number of well (if more than one)	Diggy Elleusburg County Kitte	tas	
5	New well Reconditioned Method : Dug Dored Driven	Location M1/4-1/4 I/4 Sec S Twn Let R	19 EWM	K.
ati	Cable Rotary Jetted	(s, t, r Still REQUIRED)	Ov WWM	
Ë	Depth of completed well Sit:			- · ·
<u>p</u>	CONSTRUCTION DETAILS	Lat/Long Lat Deg Lat Min/Se		
<u> </u>	Installed: Diam. from 15 ft. to 185 ft.	Tax Parcel No. (Required)	Sec	17 No
ē	Threaded Diam. From ft. to ft.	ract area rise (required)		
节	Terrorations: Tres get No	CONSTRUCTION OR DECOMMISSION P	ROCEDURE	
ō	SIZE of perfsin, byin, and no. of perfsfromft. toft.	nature of the material in each stratum penetrated, with at least	one entry for each c	hange
þ	Screens: Yes 🎲 No 🗋 K-Pac Location	of information. (USE ADDITIONAL SHEETS IF NECESSA	EROM The	
ar	Manufacturer's Name	tonset	0	5
ta	Type Model No Diam Slot size from ft to ft.	quarets	5 2	2
ñ	Diam. Slot size from fi- to ft.	Stoken vork	32 3	0
ē	Gravel/Filter packed: Yes 🗱 No Size of gravel/sand	vock	10 1	18
윤	Surface Seat: Q Ver D No. Touried death? A fi	Sandspre/vock	128 1	85
≩	Material used in seal Danton De // emert			
an	Did any strate contain unusable water?			
L I	Type of water? Depth of strata			
ž.	Method of sealing strata off		10	
F	PUMP: Manufacturer's Name	C.	-	- ·
2	WATER LEVELS: Land-sinfact elevation above mean sea level #		Q .	
~	Static level Un. below top of well Date Nov. 2, 20()			
l ă	Artesian pressure lbs. per square inch Date		-01	
e e	Artesian,water is controlled by (cap, valve, etc.)	62	8	
	WELL TESTS: Drawdown is amount water level is lowered below static level		÷	
ĕ	Was a pump test made? 🔲 Yes , 🗿 No If yes, by whom?		0	
8	Yield:gal/min. withft drawdown afterhrs.			
ш	Vield:gal/min. withft drawdown afterhrs.	JEP	I OF ECO	·
ď	Recovery data (time takon as zero when pump turned off) (winter level measured from well top to water level)	/ No.	HCOWED CA	
Ħ	Time Water Level Time Water Level Time Water Level		6 2012	
ē		8	· /	
£		The second se	and a	
a	Date of test		Girwi ton	
ě	Bailer testgal/min. withft. drawdown afterhrs.			
	Airtest 10 gal/min, with stem set at 10 ft. for 2 has.	Start Date 131, 2012 Completed Date	· Nov. 2	200
Ĕ	Antessan nowg p.m. Late	Start Dute Completed Dat	000000	18012
ייק	remperante of water was a cleance analyse mader res .			
	WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responses	ensibility for construction of this well, and its compliance wi	th all Washington	well
	construction standards. Materials used and the information reported above are tr	Deilling Company	1 TA	H-
	Driller/Engineer/Trainee Signature	Address		
	Driller or trainee, License No:	City, State, Zip		
	Driller's Signature:	Registration No.		
	ECN 050 1-20 (Base 0200) 16 - 16 - 16 - 16 - 16 - 16 - 16 - 16	MIKEBOCS	7420	L
	ECX 050-1-20 (Rev 02/10) If you need this document in an alternate format, ph Persons with hearing loss can call 711 for. Washington Rel	ease can the trater resources Program as 560-407-6872. ay Service, Persons with a speech disability can call 877-83	13-6341.	
			+	
				_

Note: Personally Identifying Info redacted due to privacy concerns.

ECOLOGY Original & 1st copy Ecology 2nd copy owner 3rd copy driller	Unique Ecology Well ID Tag No		
Construction/Decommission (x w circle) ♥ Construction / 41613	Water Right Permit No		
O Decommission ORIGINAL CONSTRUCTION Notice of Intent Number			
PROPOSED USE Domestic Industrial Municipal	Wall Streat Address		
DeWater Imgation Test Well Other	Curry Edd gave Journey County	Citta	4
TYPE OF WORK Owners number of well (if more than one)	Location 1/4 1/4 Mw1/4 Sec. 34 T	TA R.	19 EEWM
Deepened Deepened Deepened Determined Deepened	Lat/Long Lat Date		WWM
DIMENSIONS Diameter of well_6inches drilled_150_ft	(s,t,r still REQUIRED) Long Deg	Lat Min/Sec	and
Depth of completed well 150 ft	Tax Parcel No	THE MINUS	the second
Casing Welded _ Diam from +4ft to 150 ft	CONSTRUCTION OR DECOMMISSIO	ON PROCED	URE
Installed Diam fromft toft	Formation Describe by color character size of ma kind and nature of the material in each stratum per	etrated with a	icture and t it least one
Diam from It to It	entry for each change of information. Indicate all v	vater encounte	red
Type of perforator used	MATERIAL	FROM	то
SIZE of perfsin byin and no of perfs fromft toft	dort	0	10
Screens  Yes  No K Pac Location			
TypeModel No	PROKEN BROWN BASACT	10	186
DiamR Slot Sizefromft toft			
Gravel/Editer parked Ver Bella Star of annulland		8	
Materials placed fromft toft	IS OT		
Surface Seal Wyes No To what depth? 20ft	AC	ND1	
Materials used in seal <u>DCANDERA</u> TC	<u>m</u>	17	<u> </u>
Type of water?Depth of strata		-0	1
Method of sealing strata off	RECEIVED So	2	5
PUMP Manufacturer's Name Type H P	NOV 2 0 2003	75Pt OF	100
WATER LEVELS Land surface elevation above mean sea levelft	DEDARTMENT OF FORLINY	BAR 2	F
Static level 85ft below top of well Date	WELL D HEMGILIN	aug Z	4 2003
Artesian pressure war is controlled by		C. A.	1
(cap valve etc.)		REGI	
WELL TESTS Drawdown is amount water level is lowered below static level Was a pump test made? Yes 20 No If yes by whom?			
Yieldgal /min withft drawdown afterhrs			
Yieldgal /man withft drawdown afterhrs			
Recovery data (tune 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			
			-
Date of test			
Airtest gal /min with stem set at 160 ft for 212 hrs			
Artesian flow g p m Date Temperature of water Was a chemical analysis mode? Yes We No	Start Date 9-26-03 Completed Da	10/1/0	3
WELL CONSTRUCTION CERTIFICATION   constructed and/or accept resp	onsibility for construction of this well and its of	ompliance v	with all
Washington well construction standards Materials used and the information in	eported above are true to my best knowledge a	nd belief	
Driller LEngineer Trainee Name (Print)	_ Drilling Company Koch Liel	V RV.I	line.
Driller/Engineer/Trainee Signature	— Address .		
Drifter of Trainee License No	Contractors MTE 500 (32)	14 1	1 ->
If trainee, licensed driller's Signature and License no	- Registration No	ate 10-	1-05
(	<ul> <li>Ecology is an Equal Opportunity Employer</li> </ul>	ECY 050 1/2	20 (Rev 4/01

Note: Personally Identifying Info redacted due to privacy concerns.

	by with WATER WE	LL REPORT Blart Card No	0 868 1.d. #	o L
	Name	Address		
Æ	TION OF WELL: County Kittitas	- NW 14 NW 14 500 34	18 N. R.	20 W.M.
(3)	PROPOSED USE: Domestic Industrial Data Municipal	(10) WELL LOG or ABANDONMENT PROCES	URE DESC	CRIPTION
(4)	DeWater Test Well Other      TYPE OF WORK: Owner's number of well	Formation: Describe by color, character, size of material thickness of aquifers and the kind and nature of the material i with at least-one entry for each change of information.	and structure each stratum	, and show penetrated,
	Abandoned Dew well B Method: Dug D Bored D	MATERIAL	FROM	TO
	Deepened Cable Driven	Dirt - chy.	0	10
_	Reconditioned L Rotary M Jetted L	MEDIUM BINCK BASAIT	10	140
(5)	DIMENSIONS: Diameter of well inches.	SANDSTONE	140	189
	Drilledfeet. Depth of completed wellft.	MEDIUM BASALT	180	340
(6)	CONSTRUCTION DETAILS:	Fractured BASA It	340	360
(0)				
	Welded P 4 Diam. from 0 ft. to 200 ft.			
	Liner installed			
-	Inreaded Diam. fromft. toft.			
	Perforations: Yes No			_
	Type of periorator used			_
	SIZE of perforations in, by in,			-
	perforations fromft. toft.			
	perforations from fl. to fl.			
-	perforations from H. to H.			
	Screens: Yes No			
	manuraciurer e name		-	-
1	Diam Sictaire from With A	· · · · · · · · · · · · · · · · · · ·		
	Diam Slot size from thito th			
-	Gravel packed: Yes No To			
	Size of gravel			
-	Gravel placed fromR. 10R.			
	Surface seal: Yes No To what depth? 2.5 11.	121		
	Material used in seal CEMENT			-
	Did any strate contain unusable water? Yes No	100 2 1 1993 10		
	Type of water?Depth of strata			
-	Method of sealing strate off	DEPARTMENT OF ECOLOGY		
(7)	PUMP: Manufacturer's Name	CENTRAL REGION OFFICE		-
	Туре:Н.Р			-
(8)	WATER LEVELS: Land-surface elevation			
(0)	Static level 260 tt, below top of well Date			
	Artesian presaure Ibs. per square inch Date			
	Artesian water is controlled by (Can value atc.))		1	
(9)	WELL TESTS: Drawdows is amount water level is lowered below static level	Work started 4 - 28	-12	. 19.93
(0)	Was a pump lest made? Yes No If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION		
	Yield: gal./min. with ft, drawdown after hrs.	Logarituded and/or accent research/like for a	netruction -	this well
-	n n n n	and its compliance with all Washington well of	onstruction	standards.
_	H H H H	Materials used and the information reported abo knowledge and belief	ve 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)			×
	Time Water Level Time Water Level Time Water Level	NAME BACK Drilling Go.		
_		OPERSON, FIRM, OR CORPORATION	CTYPE C	R PRINT)
_		Address.		
	Data at least			
	Prote of 1681	(Signed).	ie No. 27	2
	Baller test gal./min. with ft. drawdown after hra.	Contractor's (WELL DRILLER)		
	Airtest gel./min. with stem set at 360 ft. for hrs.	Registration Roc 133 114 - 7-15		
	Artesian flow g.p.m. Date	No. MIRE DUC 135 N7 Date 1915		_, 19.7.5
	Temperature of water Was a chemical analysis made? Yes No	(USE ADDITIONAL SHEETS IF NEC	ESSARY)	
		face including once of the		63

Note: Personally Identifying Info redacted due to privacy concerns.

WATED WELL REPORT	CURRENT WILZA	22	
WATER WELL RECEIVED	Notice of Intent No	7	
t c a L e e , Original & Ist copy Ecology 2nd copy owner Sta copy anner	Unique Ecology Well ID Tag No _		
Construction/Decommussion ( ) in circle) JUL 3 0 2003	Water Right Permit No		
O Decommission ORIGINAL CONSTRUCTION TRIGINGE ECOLOGY			
of Intent NumberWELL DRILLING JINIT	Property Owner Name.		·
PROPOSED USE BOOMestic Industrial Municipal	Well Street Address		
DeWater Imgation Test Well Other	C. Elleus brug County &	re tt ite	rs
TYPE OF WORK Owner's number of well (if more than one)	NEW SEL 7	18 1	9 EWM circl
Bored Driven	Location Means 1/4 Sec 1	wa yo wa	www.
Deepened Cable Rotary Jetted	Lat/Long Lat Deg	Lat Min/Sec	
DIMENSIONS Diameter of well 6 inches drilled 240 ft	(s t r still REQUIRED) Long Deg	l one Min/Se	e
Depth of completed well 240 ft	Tax Based No. 18-19-070		124
CONSTRUCTION DETAILS	Tax Parcel No 10-10-10-		
Casing Welded 6 Diam from to the Doch	CONSTRUCTION OR DECOMMISSIO	aternal and stru-	cture and the
Installed Liner installed Diam fromft toft	kind and nature of the material in each stratum per	etrated with a	t least one
Diam from It to It	entry for each change of information Indicate all v	vater encounter	red
Perforations	USE ADDITIONAL SHEETS IF NECESSART	Encir	TO
Type of perforator used SK(11.2000	MATEKIAL	PROM	10
SIZE of perist A in by 7 in and no of peris from it to it			
Screens Yes No K Pac Location	SOIL, COBBLET	0	25
Type Model No			100
DiamSlot Sizefromft toft	CEMENTER GRAVEL	25	155
DiamSlot Sizefromft toft			
Gravel/Fulter packed Ves No Size of gravel/sand	BASALT, BLK HARD	155	185
Materials placed fromft toft			
Surface Seal Yes- No > To what depth? 20 ft	BASALT LG FRACTURED	185	280
Materials used in seal BEWSOWTE			
Did any strata contain unusable water I Yes Did No			
Type of water?Depth of strata	RECEIVED		
Method of sealing strata off	ALIC 9 6 2003		
PUMP Manufacturer's Name	100 2 0 2000		
ТуреНР	DEPARTMENT OF ECOLOGY		
WATER LEVELS Land surface elevation above mean sea levelft	WELL DIALEING UNA		
Static level 22 ft below top of well Date	STO COD TH	8	
Artesian pressureios per square inch Oure			
(cap valve etc.)	AUG 2 9 2000 TO	8	
WELL TESTS Drawdown is amount water level is lowered below static level	A AND	CAN.	
Was a pump test made? 🗌 Yes 🙀 No If yes by whom?	14	CALL .	
Yieldgal/man_withft_drawdown afterhrs	ACOLON OF EBOOR	Wer J	
Yield gal/min withit drawdown afterhrs	AUE 0	2003	
Recovery data (tune taken as zero when pump turned off)(water level measured from	A MIST	5 8	<u> </u>
well top to water level)		S	
Time water Level Time water Level Time water Level	AL ME	61020	
Date of test			
Date of testft drawdown afterhrs			
Date of test			
Date of test	Start Date July 12 20 Completed D	hate Juh	1 15 20
Date of test	Start Date July 12 20 Completed D	ate Juh	1 15 2P
Date of test	Start Date July 12 20 Completed D nsibility for construction of this well and its ported above are true to my best knowledge a	compliance v	15 2 1 15 2 vith all
Date of test	Start Date July 12 20 Completed D nsibility for construction of this well and its ported above are true to my best knowledge 2 Drilling Company IR 2 1 M	compliance v and belief	152 152 vith all
Date of test       gal /mn withft drawdown afterhrs         Bailer test       gal /mn with stem set atft forhrs         Aritestgal /mn with stem set atft forhrs         Aritestgal /mn with stem set atft forhrs         Temperature of waterWas a chemical analysis made? □ Yes □ No         WELL CONSTRUCTION CERTIFICATION I constructed and/or accept respon         Washington well construction standards Materials used and the information rep         Duller □ Engineer □ Traince Name (Print) C_C (3 ACH)         Duller □ Engineer □ Traince Name (Print)	Start Date July 12 20 Completed D nsibility for construction of this well and its ported above are true to my best knowledge a Drilling Company 12 20 1 1 1	compliance v and belief well f	152 1152 vuth all
Date of test       gal /mn withft drawdown afterhrs         Bailer test       gal /mn with stem set at(t forhrs         Aritest 20gal /mn with stem set at(t forhrs         Mathematical analysis made?       Yes         YesNo         WELL CONSTRUCTION CERTIFICATION I constructed and/or accept respondence washington well construction standards Materials used and the information repover Washington well construction standards Materials used and the information repover the prime information reprimatic prime information reprime informatic	Start Date July 12 20 Completed D nsibility for construction of this well and its ported above are true to my best knowledge : Drilling Company IR 20 L M Address -	compliance v and belief	152 with all
Date of test       gal /mn withft drawdown afterhrs         Bailer test       gal /mn with stem set at(t forhrs         Airtest 20gal /mn with stem set at(t forhrs         Airtest 20gal /mn with stem set at(t forhrs         Airtest 20gal /mn with stem set at(t forhrs         Market 20gal /mn with stem set atft forhrs         Airtest 20gal /mn with stem set atft forhrs         Market 20gal /mn with stem set atft forhrs         Airtest 20gal /mn with stem set atft forhrs         Temperature of waterWas a chemical analysis made? ] Yes ] No         WELL CONSTRUCTION CERTIFICATION I constructed and/or accept respondence was and the information report Washington well construction standards Materials used and the information report 0 for the formation report 0 for the format	Start Date July 12 20 Completed D nsibility for construction of this well and its ported above are true to my best knowledge a 	compliance v and behef well f	152p
Date of test       gal /mn withft drawdown afterhrs         Bailer test       gal /mn with stem set atft forhrs         Aritest 20gal /mn with stem set atft forhrs         Temperature of waterwas a chemical analysis made? ] Yes ] No         WELL CONSTRUCTION CERTIFICATION I constructed and/or accept respondence was and the information rep         M Dniller ] Engineer ] Traince Name (Print)	Start Date July 12 20 Completed D nsibility for construction of this well and its ported above are true to my best knowledge a 	ate Juch compliance v and behef will f	152 152 with all
Date of test	Start Date July 12 20 Completed D nsibility for construction of this well and its ported above are true to my best knowledge a Drilling Company 12 and 14 M Address - Cuty State Zip. Contractor s M KE BW 133 Registration Not KE BW 133	ate Juda compliance v and belief will f	152 152 with all 1~17/m 1/1/m

Note: Personally Identifying Info redacted due to privacy concerns.

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		-		
Ĕ		a	21	
8		COLUMN TAKEN	21	1
ē	WATER WELL REPORT			
<u>م</u>	.Original & 1" copy - Ecology, 2" copy - owner, 3" copy of the	Notice of Intent No		
l≕ `	ECOLOGY	Minigue Ecology Well ID Tag No.		
<u>e</u>	Construction/Decommission ("x" in circle)	Wandue Beology wen ID Tag No		
<b>S</b> .	●Construction 468∂66	Water/Right Permit No.		
v) .	O Decommission ORIGINAL INSTALLATION Notice	Property Owner Name		
2	of Intent Number	Teperty Owner tvanie		-
12	THE RE	Well Street Address		
5	PROPOSED USE: Domestic D Industrial D Municipal	City Ellewshim County K	itt ofa	5
ž I	Dewater Dimgation Difest well Diother	Structure David	ies four	<u> </u>
1 <b>5</b> 🗆	TYPE OF WORK: Owner's number of well (if more than one)	Location DE1/4-1/4 DE-1/4 Sec 1 Twn	KIA 🛸	circle
Ē	New well  Reconditioned Method : Dug Bored Driven		.wwm	
9	Deepened Deted	Lat/Long (s, t, r Lat Deg Lat	Min/Sec	
18 17	DIMENSIONS: Diameter of well 6 inches, drilled 355 ft.	Still REOUIRED)		
ō	Depth of completed well 385 n	Long Deg	ng Min/Sec	
12 1	CONSTRUCTION DETAILS	Tax Parcel No.		
	Cusing Welded b " Diam. from + 2 ft. to 57 ft.			
ž	Installed: I Liner installed Diam. from ft. to ft. to ft.	CONSTRUCTION OR DECOMMISSION	PROCEDUE	RE
<b>?</b> H	Perforations: 9 Ves D No.	Formation: Describe by color, character, size of material and	structure, and the	kind and
5 L	Ture of performing used Strill Sourced	nature of the material in each stratum penetrated, with at least	one entry for eac	h change of
5	SIZE of series 1) - in by that is and an at much 1) Sam 28 385	information. (USE ADDITIONAL SHEETS IF NECES	SARY.)	·
Ě	State or perior the state of th	MATERIAL	FROM	<u>, TO</u>
σ.	Servens: Li res la No Li K-rac Location	+ psoil	$\Box Q$	- <u>S</u>
ង	Manufacturer's Name	Greet / Voctors	5	30
ā	TypeModel No.	braken stor K	30	80
	Diam. Slot size from ft. to ft.	voelc	80	131
e -	Gravel/Filter packed: Ses B No Size of gravel/sand	Sandshare	131	151
÷	Materials placed fromfl. tofl.	barthan words	151	355
l> ⊡	Surface Seal: Ves DNo To what depth?	S dela	300	375
E .	Material used in seal be when it / rement	Janaghar	236-	342
in the second se	Did area strata contain unusible water?	IOC-M		-0-0-
	Type of water? Densh of strata		· · · ·	
ž l	Method of sealing strata off			
P ⊢	PILMD, Manufacturer's Manus			
5	Type: H.P.			
ĭž ⊢	WATED I EVELO, Land information above more an local			
5	Statis lowel UPD A below top of well. Drive			
ĕ	Static level tr_below top of well Date			
<u> </u>	Artesian pressure tos. per square incir LAtte			
2	(cap, valve, etc.)			
<b>16</b> 1	WELL TESTS: Drawdown is amount water level is lowered below static level			
ō	Was a nump text-made?  Yes B No If yes, by whom?			
0	Vield all min with ft drawlown after hrs	· · · · · · · · · · · · · · · · · · ·		
100	Yield:gal/min, withft. drawdown afterhrs.			
	Yieldgal/min_withft_drawdown afterhrs.			
ō	Recovery data (time taken as zero when pump turned off) (Water level measured from well ten in water level)			
12 I	ngrap your notly Time Water Level Time Water Level Time Water Level			
e i	The state of the s			
8				· · ·
12	Data of land			
g	Lawe on rest			
5	Baller testgal.mun. withft. drawdown afterhrs.			
o i	Ainest gal/min. with stem set atth orhrs.			
<b>o</b> 1	Artešian flow g.p.m. Date			
1 <u>8</u>   1	Temperature of water Was a chemical analysis made? D Yes 🖷 No	7/10/2		ICI Davis
5 L		Start Date // 10/ 2012 Complete	ed Date	1 Streps
. v	VELL CONSTRUCTION CERTIFICATION: I constructed and/or acc	ept responsibility for construction of this well, and	d its complian	ce with all
Ŵ	Vashington well construction standards. Materials used and the information	on reported above are true to my best knowledge a	nd belief.	
	Driller D Engineer D Trainer Name (Print) Teles Roads	Drilling Company Read Der 1100		
	aller Deninger Polices Constants		-	4
D		Address		
D	riller or trainee License No	City, State, Zip		
(F	f TRAINEE,	Confractor's	plo -	1 19 1
10	Driller's Licensed No.	Registration No. MTREBUCT No	Date	- 17 13,002
l l	Driller's Signature	Ecology is an	Equal Opportuni	ty Employer.
	ov or a tay (n tay) The Department of Evelopy de M	OT warranty the Data and/or Informati	on on this	Well Report
E	CX 050-1-20 (Rev 3/05) Ine Department of Ecology does N	or warranty the Data and/or information	on on this	Well Report.

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REPORT	CURRENT	1.0	
Original & I" copy - Kenlegy, 3rd copy - mener, 3rd copy - &rither	Notice of Intent No. W31 ADG		
ECOLOGY Construction/Decommission ("r" in circle)	Counce Ecology Well III Tao Mo.		
Construction	Water Right Permit No.		
Decommission ORIGINAL INSTALLATION	Property Owner Manage		
PROPOSED USE: Domestic Didustrial Municipal	Well Street Address		
The Water The Investion The The Well The Other	Facelus K		
TYPE OF WORK: Owner's member of well (if more than one)	City L Course Course I	4 19	
af Nov well   Reconditional Method: Dug   Bored   Drives Deepened   Cable   Rotery   Jened	(s, t, r Still REQUIRED)	0 8 6 7 EV	VM
Difficient the second of the second difference of and becker, doiled 200 a	i abi our	393	11 161
CONSTRUCTION DETAILS	Lat Dog	Lat Min/Sec	
Carainer I Welderd 6 - Diam. from +3 A. to 50 A	Long Deg	Long Min/Sec	28
Installed Liver installed 4 Dises from 10 & to 170 R.	Tax purcel bin. (itequined)		
Perforations: at Yos [] No	1	-	
Type of performance skills	Formation: Describe by color, character a	MISSION PROCED	URE
1721 of parts 12 in by 14 in and on of parts 12 from 130 is to 170	and the kind sual entering of the material in-	each stanburn penetrat	ed, with st
Annalistance's Name	SHEETS IF NECESSARY.)	non (USE ADDITI	man
Type Model No	MATERIAL	FROM	TO
ham <u>Slot size</u> <u>by a</u> <u>b</u>	tobales	8	36
Gravel/Filter packed: Ves II No Size of enveltand	Anaton arck	36	45
daterials placed from the to \$	Biskey Work	45	70
ierface Seal; I Yes 🛛 Ng To what depth? 1 K tt.	worker	100	107
Anterial used in and USE-use(Pio.c).C. Not any strain contain unenable water? Ves No	Sandstone	109	115
Type of water? Depth of anals	Sandstone	153	150
Method at teating, teats of: PUIMP1 Manufacturer's Mone	Busken week	1158	180
Dype: II.P.	worch,	180	300
WATER LEVELS: I and an first obvious above open sea level			
Arussian pressure Ibs. per transe inch Data			1
Artesian water is controlled by (cap, valve, etc.)			
The a pump has sudd's [] Yes [] He Hyus, by when?	Da		
field:gal./winfl. drawdown allerlwx.	150	0.	
Testat:	40	STILL	
townery don fune taken on ever obserptory to not aff france level wenamed fran	APP 1	, 50	
firms Water Level Time Water Level Time Water Level	Gentral OF P	2018	
	Hagion	0/000	
and the second second second second		Ome	
Jate of test			
hilor tostBil /min_with ft, drawdown.athor bes.			
tareat LO gal/min. with stem set at 180 ft. for 2 her		1	-
Menian Bow g.p.m. Date:			
ferogenetise of water When the chemical analysis made (! Ynz _ Bt No.	Start Date 4 (S/I) Completed D	4111/1	8
WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept re-	sponsibility for construction of this well, and its comp	pliance with all Wash	ington well
and the information reported above are	true to my best knowledge and belief.		
Driller/Degineer/Trainee Signature	Drilling Company Bach Drilling Compa	any .	_
Driller or traince License No. #2.536	City, State, Zip		
IF TRAINING Duffer's Liennes Nec Duffer's Sumature:	Conductor's	- 41	
ECY 050-1-30 (Rev 03-2010) To remnest ADA accommodation Inclusion met-	right in a farmat for the simulia habeled, and Peri	Dete -1/1 11	110

Note: Personally Identifying Info redacted due to privacy concerns.

(1) OWNER Name	Address
(2) LOCATION OF WELL County KITTITAS	NE 1/4 SW 1/4 Sec 19 T 18 N R 19
TAX PARCEL NO	
	(
(3) PROPOSED USE X Domestic Industrial Municipal	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTIO Formation Describe by color character size of material and structure and the kind and
DeWater	nature of the material in each stratum penetrated with at least one entry for each change of information indicate all water encountered
(4) TYPE OF WORK Owner's number of well (if more than one)	MATERIAL FROM T
Deepened Dug Bored	TOP SOIL DARK BROWN 0
Decommission X Rotary Jetted	CLAY TAN 125
(5) DIMENSIONS Drameter of well 6 inches	GRAVEL AND CLAY 135
Dnilled 170 feet Depth of completed well 170 ft	20 GPM @ 80
(6) CONSTRUCTION DETAILS	50+ GPM @ 120
Casing Installed XIWelded 6 Diam from +3 ft to 169 ft	
Liner installed Diam from ft to ft	
Type of perforator used	
SIZE of perforations in by in	
perforations from the to the fit	
perforations from ft to ft	
Screens Yes XINo K Pac Location	
Manufacturer's Name	DEPT OF ECO
Type Model No	Received C
Diam Slot size from ft to ft	G MAY 1.2 mm
Gravel/Filter packed Yes XNo Size of gravel/sand	E 403
Material placed from ft to ft	
Surface seal XYes No To what depth? 24 ft	PEGINY
Did any strata contain unusable water? Yes X No	
Type of water? Depth of strata	
Method of sealing strata off	
(7) PUMP Manufacturer's Name HP	and a second
above mean sea levelft	Work Started 5/6/2003 19 Completed 5/6/2003 19
Static level ft below top of well Date 5/6/2003	WELL CONSTRUCTION CERTIFICATION
Artesian water is controlled by	I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials use
(Cap valve etc)	and the information reported above are true to my best knowledge and belie
(9) WELL TESTS Drawdown is amount water level is lowered below static level Was a nume test made? Ves XINs. If we benchang?	Type or Print Name RICK POULIN License No 942
Yield gal/min with ft drawdown after hrs	(Licensed Differ/Engineer)
Yield gai/min with ft drawdown after hrs	
Tiena gaumin wan it drawdown after hrs	Crising Company RICK POULIN WELL DRILLING
recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	(Signed) License No 942
Time Water Level Time Water Level Time Water Level	(Licensed Dinlet/Engineer)
	Contractor s
Deb of lock	Registration No RICKPWD042J2 Date 5/7/2003 19
Bailer test gal./min with ft drawdown after hrs	(USE ADDITIONAL SHEETS IF NECESSARY)
Autest 50+ gal/min with stem set at 120 ft for 1 hrs	Ecology is an Equal Opportunity and Affirmative Action employer For
Artesian flow g p m Date	special accommodation needs contact the Water Resources Program a
vals a chemical analyses made? [_] Yes [X] No	(300) 407 6000 The TDD number is (360) 407 6006

Note: Personally Identifying Info redacted due to privacy concerns.

'	7	
-	WATED WELL DEBODT	CURRENT
	Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	Notice of Intent No. W254777
- 60	01001 361684	Unique Ecology Well ID Tag No.
2	Construction Decommission ( x in circle)	Water Right Permit No.
ō	Decommission ORIGINAL INSTALLATION Notice	Property Owner Name
·* ·	of Intent Number	Wall Street A direct
PRO	OPOSED USE: Domiestič D Industrial D Municipal	Wen Street Address
	DeWater Dirrigation D'Test Well Other	City ECCENSIONAS County KINT HAS
TY	PFOF WORK: Owner/s.number of well (if more than one)	Location/VM1/4-1/40121/4 Sec D Twn D R 9 contained
	New well. Reconditioned Method: Dug Bored Driven	Lat/Long (s, t, r Lat Deg Lat Min/Sec
DIN	MENSIONS: Diameter of well 6 inches, drilled 2.00 ft	Still REQUIRED
	Depth of completed wellft.	Long DegLong Min/Sec
CON	Instruction Details	Tax Parcel No.
Inst	talled: Diner installed _4 Diam. from - 5 ft to 2001.	CONSTRUCTION OR DECOMMISSION PROCEDURE
Perf	forations:	Formation? Describe by color, character; size of, material and; structure, and the kind and
Typ	e of perforitor used	information. (USE ADDI/TIONAL SHEETS IF NECESSARY:)
SIZ	E of perfs in. by in. and so of perfs from ft. to ft.	MATERIAL FROM TO
Man	eens: U yes ue no U K-Pac Location	gravel - cobbles 0 85
Тур	Model No.	Basalt with white 12 200
Diar	mSlot sizefromft, toft, mSlot sizefromft, toft.	
Gra	wel/Filter packed: D Yes B No D Size of gravel/sand	
Mat	remain praced fromft toft	
Sur	face Seal: BY Yes DNo To what depth? 20 ft	
Did	any strate contain unusable water?	
Тур	Depth of strata	
Met	ihod of sealing strata off	
PUN	MP: Manufacturer.'s'Name e:H.P	
WA	TER LEVELS: Land-surface élevation above mean sea level ft.	
Stat	tic level -5 n below top of well Date 10/14/09	
Aite	esian pressure Ibs: per square inclif Date	
- Ane	(cap, valve, etc.)	
WE	LL TESTS: Drawdown is amount water level is lowered below static level	RECEIVEN
Was	s a pump lest made? Ves Ves If yes, by whom?	
Yiel	Id:gal/min.withft. drawdown after fris. Id:gal/min. withft. drawdown after hris.	NOV 30 2009
Yiel	id:gal./min:withff. drawdown afterhrs.	Elemente estat
top i	to water fevel)	DEPARTMENT OF ECOLOGY - CENTRAL REGIMAL OFFICE
Tim	water Level Time Water Level Time Water Level	
-		
Date	e jof test	
Bail	ler, testgal /min. withft. drawdown afterbrs.	
Airt	test 10 - 15 gal/min. with stem set at ft. for hes.	
Arte	estan flow g.n.m. Date	
rem	uberenne de meine - men e energien en en hen de mei en a no, wit tigt	Start Date 16/11/09 Completed Date 10/14/00
WÉI	LI: CONSTRUCTION CERTIFICATION:   constructed and/or acc	cent responsibility for construction of this well, and its compliance with all.
Wasl	hington well construction standards. Materials used and the information	on reported above are true to my best knowledge and belief.
<b>P</b> Dri	iller D Engineer, D Trainee Name (Bring) Mike BACL	Drilling Company BACK Dr, 11, 19 Co.
Drille	n/Engineer/Traince Signature	Address
Dnille	r. or. trainee License No. 22	City, State, Zip.
Drift	RAINEE, initial Jacoused No.	Remittering No MIKE BOCISZNY In Inter
Drille	er's Signature	Ecology is an Equal Opportunity Employer
Ļ		
	acau to (Revision) The Department of Ecology does N	I I warranty the lists and/or information on this Wall Reno

Note: Personally Identifying Info redacted due to privacy concerns.

(1) OWNER: Name       Addres         (1) OWNER: Name       Addres         (1) OWNER: Name       Addres         (1) ORATION OF WELL: County, K. (1:1-7.2	) File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy	WATER WE	LL REPORT	Application No. 73	77
1000000000000000000000000000000000000	(1) OWNER: Name		444	-	
PORTAGE TO WARK Compared and Control Control          PORTAGE TO WARK Compared and Control Control            (1) PROPOSED USE: Demonster of valid value of and control	( OCATION OF WELL:	K. H. TAS	UT= . NB		A
(3) PROPOSED USE: Domestic D'Industrial Municipal Intration       [10) WELL LOG:         (3) PROPOSED USE: Dimension Test Well Other Dependent Of More Well Net well D'Internet number well Better the State of the State of the State of the State Dependent Of More Well State of the State of t	Bearing and distance from section or sub	inty 21 1 1 1 1 1 2	- 1/1	A Sect. 10. 1-152. A., A	
(3) PROFUSED SED       Dennation (printmatrial)       Number of a state of the state o		-/	(10) WELL LOG:		
(4) TYPE OF WORK:       Under a number of well         (4) TYPE OF WORK:       Under a number of well         (5) DIMENSIONS:       Dispessed         (6) CONSTRUCTION DETAILS:       Casing installed:         (7) FURCTION DETAILS:       Casing installed:         (8) DIMENSIONS:       Diam.from         (9) CONSTRUCTION DETAILS:       Casing installed:         (9) CONSTRUCTION DETAILS:       Casing installed:         (9) WELL TESTS:       Data.from         (9) Type       No B*         (9) Type       No B*         (9) WELL TESTS:       Data from         (9) WELL TESTS:       Data from         (9) WELL TESTS:       Data from standard (mather of the lipse of profestional from         (17) FURCHS       No G#         (17) WELL TESTS:       Data from standard (mather of the lipse of profestional from         (17) WELL TESTS:       Data from standard (mather of the lipse of profestional from         (17) WELL TESTS:       Data from standard (mather of the lipse of profestional from         (17) WELL TESTS:       Data from standard (mather of the lipse of profestional from         (18) WELL TESTS:       Data from standard (mather of the lipse of profestional from         (19) WELL TESTS:       Data from standard (mather of the lipse of profestindard (mather of the lipse of profestindard (mather o	(3) PROPOSED USE: Domestic	Industrial      Municipal     Test Well     Other	Formation: Describe by color, charact	er, size of material and str	ucture, and
(4) TYPE OF WORK: Direct products at well       Direct public to be a bord of the bar of the			show thickness of aguiters and the ki stratum penetrated, with at least one	nd and nature of the mater entry for each change of	formation.
Size well     Description     Description     Description     Description       (5) DIMENSIONS:     Dames or well     Actes of Actes     Description     Description       (6) CONSTRUCTION DETAILS:     Cassing installed:     Description     R. 10     R.       (7) FORTRUCTION DETAILS:     Cassing installed:     Description     R. 10     R.       (8) CONSTRUCTION DETAILS:     Cassing installed:     Description     R. 10     R.       (9) FORTRUCTION DETAILS:     Cassing installed:     Description     R. 10     R.       (9) Fortrations:     Yeel     No B     Description     R. 10     R.       (9) Fortrations:     Yeel     No B     Size of perforstions:     R. 10     R.       (17) FURP:     Monitarium's Nume     Model No.     R.     Description       (17) FURP:     Monitarium's Nume     Model No.     R.       (17) FURP:     Monitarium's Nume     Model No.     R.       (18) Date in one al.     Description     R. 10     R.       (19) WELL TESTS:     Land-enfore elervision     M.       (10) Wetel Level <th>(4) TYPE OF WORK: Owner's (if more</th> <th>han one)</th> <th>MATERIAL</th> <th>FROM</th> <th>TO</th>	(4) TYPE OF WORK: Owner's (if more	han one)	MATERIAL	FROM	TO
Reconstitutions         Relary Of Jetted           (5) DIMENSIONS:         Diameter of well         Unchast           pritted J.O.         The Dight of completed well. (2-0, r.	Deepened	Cable Driven	cobbles - dit	0	25
(5) DIMMENSIONS:       Disputer overliked will /2-0 fr.         Disting JAO       n. Daph of completed will /2-0 fr.         (6) CONSTRUCTION DETAILS:       Caracal from of the formation of the formatio	Reconditioned []	Rotary - Jetted	CENENT COOVE	25	-
Duiled. J. C. nt. Depth of completed well. /2-2. nt.       Completed J. 2.0. nt. Depth of completed well. /2-2. nt.         (6) CONSTRUCTION DETAILS:       Completed well. /2-2. nt.       Completed J. 2.0. nt.         Casing installed:       - Dam. from R. to R.       R. 10. nt.         Threaded D	(5) DIMENSIONS: Diam	ter of well 6 inches		~	
(6) CONSTRUCTION DETAILS:         Casing installed:	Drilled /2.0 ft. Depth of	completed well 12-0 ft.	CEMENT SCAUEL -	SANdStoNE 95	120
Casing installed:       4 - Dign. from       0. A. to       0. to       0. to       0. to	(6) CONSTRUCTION DETAIL	S:	-6. 9pm		
Threaded       "Diam. from       f. to       f.         Weided       "Diam. from       f. to       f.         Perforations:       year       f. to       f.         Size of perforations from       f. to       f.	Casing installed: 6 Diar	trom 0 tt to 100 tt.			<u> </u>
Weided No R. to R. to R.         Perforations: Yee No R. to R.         SIZE of perforations from R. to R.	Threaded D	. from			+
Perforations: Yes 0       No C/         Type of perforations from       n. box         Sizz of perforations from       n. box         manufacturer's Name       n. box         Screens: Yes 0       No C/         Manufacturer's Name       n. box         Type       manufacturer's Name         Type       No C/         Manufacturer's Name       n. box         Type       No C/         Manufacturer's Name       n. box         Type       No C/         Manufacturer's Name       n. box         Type       No C/         Gravel packed: Yes 0       No C/         Gravel packed: Yes 0       No C/         Type of water/       Type of water/         Material used in neal       C// Arit Cost 1	Welded	from			
Type of perforations used       in. by       in.         Size of perforations from       ft. to       ft.         Diam       Slot size       from       ft. to         Diam       Slot size       from       ft. to         Gravel packed from       ft. to       ft.         Material used in seal       ft. at fc. at	Perforations: Yes 🗆 No 🗗				
	Type of perforator used	in by in			
perforstions from       ft. to       ft.         Screens: Yes       No ff         Type       No ff         Diam       Slot size         from       ft. to         Diam       Slot size         Type       No ff         Gravel packed: Yes       No ff         Gravel packed: Yes       No ff         Statistic       from         Gravel packed: Yes       No ff         Size size       from         Gravel packed: Yes       No ff         No ff       from         Size size       from         Size size       from         Type of water       Debto of sizes         Type of water       Babow mass is leving         Size size       from with from with from water is controlled by         (f) PUMP:       Manufacturer's Name         Type:       from with grave of water         Artesian pressure       from with grave withen grave of mass <t< th=""><th>perforations from</th><th>. ft. to</th><th></th><th></th><th><u> </u></th></t<>	perforations from	. ft. to			<u> </u>
Screens: Yes I Note:       Yes Model No.         Neuralization:       Note:         Type       Note:         Diam.       Slot size         Type       Note:         Diam.       Slot size         Type       Note:         Otam.       Slot size         Type       Note:         Otam.       Slot size         Type       No (g' Size of gravel)         Gravel packed:       Yes (The Source of gravel)         Gravel packed:       Yes (The Source of gravel)         Surface seal:       Yes (The Source of gravel)         Type of water?       Depth of strate.         Material use to neal.       Depth of strate.         Method of sealing strate contain unuable water?       Yes (The Non-         Manualization:       No (Cap, valve, etc.)         No (g) WELL TESTS:       Dever static level is bover bound;         Surface from well on to water bound;       No (Cap, valve, etc.)         Yield:       gal/min. with       R. drawdown after         Time       West Level Time       Meter Level Time         Time       West Level Time       Meter Level Time         Balter test.       Cap advalve after       Areading trevel of tagal mater level	perforations from	n			<u> </u>
Screens: ye	perforations from	п. ю			
Manufacturer's Name         Type         Diam.       Slot size         form       Slot size         Gravel packed:       yee         Material used in seal.       Static contain number water?         Method of sealing strate off       Minoreal sealing strate off         Type:       Handlacturer's Name         Type:       Land-surface slowellon         Static level       2.0         Recovery data (trans the sealing static level         Mas a pump test made? Yee       No         Yield:       gal./min. with         Recovery data (time taken as zero when pump turned off) (weiter level         Material from well top to water level         Time       Water Level         Time       Water Level         Time       Water Level         Static it rest       Time         Time       Water Level       Time         <	Screens: Yes D No B				
Diam       Slot size       from       ft. to       ft.         Diam       Slot size       from       ft. to       ft.         Gravel packed:       Yes       No (y') size of revel:       ft.         Gravel packed:       Yes       No (y') size of revel:       ft.         Gravel packed:       Yes       No (y')       ft.       ft.         Gravel packed:       Yes       No (y')       ft.       ft.         Gravel packed:       Yes (y')       No (y')       ft.       ft.         Sufface scal:       Yes (y')       No (y')       ft.       ft.         Did any strate contain unuable water?       Yes (y')       No       ft.       ft.         Type of water?       Depth of strate.       HP       ft.       ft.         (f) PUMP:       Manufacturer's Name.       HP       ft.       ft.         (f) PUMP:       Manufacturer's Name.       HP       ft.       ft.         (f) PUMP:       Manufacturer's Name.       HP       ft.       ft.         (f) WHP:       Manufacturer's Name.       HP       ft.       ft.         (g) WELL TESTS:       Land-surface sterel       ft.       ft.       ft.         (g) Wet startest	Manufacturer's Name	Model No			
Diam       Slot size       from       R. to       R.         Gravel placed from       Gravel placed from       R. to       R.         Material uses for seal.       Size of gravel placed from       R.         Material uses for sealing strate contain unuasible water?       No (J * Size of gravel placed from       R.         Method of sealing strate contain unuasible water?       Depth of strate.       No (J * Size of gravel placed from         (7) PUMP: Manufacturer's Name.       HP       Recover manne seal level       R.         (8) WATEB LEVELS:       Landswirface sferstion       R.         Artesian presuite	Diam	from ft. to ft.			
Gravel packed: Yes No C Size of gravel: Gravel placed from R. to	Diam. Slot size	from			
Gravei placed from       f. to       f.         Surface stall used in seal       Deskit deplay       2.0       ft.         Material used in seal       Deskit deplay       2.0       ft.         Type of water?       Depth of strata       Montacturer's Name.         Type:       Bail       Bail       Bail         (7) PUMP:       Manutacturer's Name.       ft.       ft.         Type of water?       Depth of strata       ft.       ft.         (8) WATEB LEVELS:       Land surface stevetion       ft.       ft.         Static level       2.0       ft. balow top of water       ft.         (8) WATEB LEVELS:       Land surface stevetion       ft.         Artestan water is controlled by       (Cap, valve, etc.)       week started /02.6	Gravel packed: Yes D No (	Size of gravel:			
Surface seal: yes of No D To what depth? 20 ft.         Material used in seal. Case if Case i	Gravel placed from	ft. to ft.			
Material used in seal.       d. a.	Surface seal: Yes BY No D	To what depth? 20 ft.			
Type of water?       Depth of strata         Method of sealing strata off       MOV 2 4 198:         (7) PUMP:       Manufacturer's Name         Type:       HP         (8) WATER LEVELS:       Land-surface sievation         above mean sea level       ft         Static level       2.0         Artesian water is controlled by       (Cap, valve, etc.)         (9) WELL TESTS:       Drawdown is amount water level         Was a pump test made? Yes  > No    Li yes, by whom?       Image: Monoral termine         """"""""""""""""""""""""""""""""""""	Material used in seal	ble water? Yes D No D	1252		
Method of sealing strate off         (7) PUMP: Manufacturer's Name         Type:         (8) WATER LEVELS: Land-surface elevation         Static level         (8) WATER LEVELS: Land-surface elevation         Static level         (9) WELL TESTS: Drawdown is smoont water level         (9) WELL TESTS: Drawdown is smoont water level         (10) Weth TESTS: Drawdown is smoont water level         (11) Was a pump test made? Yes         (12) Was a pump test made? Yes         (13) Weth TESTS: Drawdown aster bere         (14) Weth gal/min. with         (15) Time Water Level         (16) Water Level         Time Water Level       Time Water Level	Type of water?	Depth of strata			
(7) PUMP: Manufacturer's Name.         Type:         (8) WATER LEVELS: Land-surface elevation         above mean sea leval         Artesian presure         Artesian presure         Artesian presure         (9) WELL TESTS:         Dowerdown is amount water level is lowered below static level         (9) WELL TESTS:         Dowerdown is amount water level is lowered below static level         Was a pump test mader Yes □ No □ If yes, by whom?         Yield:       gal/min. with	Method of sealing strata off		WW 24	987	
Type:       HP	(7) PUMP: Manufacturer's Name				+
(8) WATER LEVELS:       Land-surface elevation above mean sea level.         Static level       2.0         Artesian pressure       Ibs. per equare inch. Data	Туре:				
Static level 20       ft. below top of well Date         Artesian presure       Ibs. per equare 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 mader Yes       No If yee, by whom?         Wield:       gal./min. with         """"""""""""""""""""""""""""""""""""	(8) WATER LEVELS: Land-	ntace elevation			
Artesian presuite       Ibs. per square inch. Data	Static level 20 ft. below	top of well Date			
(Cap, valve, etc.)         Work started /0-2.6         (Particle for the started /0-2.6         Work started /0-2.6         "         "         "         "         "         "         "         "         "         "         "         "         "         "         "         "         "         "         "         "         "         " </th <th>Artesian pressure</th> <th>square inch Date</th> <th></th> <th></th> <th><u> </u></th>	Artesian pressure	square inch Date			<u> </u>
(9) WELL TESTS:       Drawdown is amount water level is lowered below static is vel         Was a pump text made? Yes   No   If yes, by whom?       Work started /0-26		(Cap, valve, etc.)			
Was a pump test made? Yes No I if yes, by whom?	(9) WELL TESTS: Drawdor lowered	n is amount water level is below static level	Work started 10-26 18.8	7. Completed 10-28	1087
Tend	Was a pump test made? Yes No	t yes, by whom?	WELL DRILLER'S STATE	MENT:	
Becovery data (time taken as zero when plump turned off) (water level measured from well top to water level Time Water Level Time Water Level       true to the best of my knowled to the	"		This well was drilled under	my jurisdiction and thi	
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         Time Water Level       Time Water Level       Time Water Level       Time Water Level       (Person, firm, or cooperstion)       (Type or print)         ate of test			true to the best of my knowled	tod belle!	
Time       Water Level       Time       Water Level       Time       Water Level       (Person, frm, or cooperstion)       (Type or print)         afte of test	Recovery data (time taken as zero who measured from well top to water law	s pump turned off) (water lavel	Back Dall.	Baan 3 Valiat Second 44	
Address.       ate of iss;	Time Water Level Time Wate	Level Time Water Level	(Person, firm, or o	osporation) (Type or	print)
ate of test Baller test			Address		
ate of test					
Baller test 2 gal/min, with ft, drawdown after has (www.Driller) Artesian flow g.p.m. Date Temperature of water Was a chemical analysis mader Yes I No I License No. 2.2. Date / - 7. 14	wite of test		[Signed].		
Temperature of water Was a chamical analysis mader Yes D No D Lionnee No. 2.2 Date // 7 11	Bailer test	ft. drawdown after		(wes Driller)	
	Temperature of water Was a che	iical analysis madet Yes 🛛 No 💭	Lione No. 2.2	Date /# - 7	
(USE ADDITIONAL CHEETS IF NECESSARY)		UBE ADDITIONAL E	HERETS IF NECESSARY)		
ECY 050-1-20	ECY 050-1-20				

Note: Personally Identifying Info redacted due to privacy concerns.

Original & I* copy - Ecology, 2* congr. ser.et, 3* copy - drifter       Notice of latent No. <u>W2272211</u> UNCC       Construction OPCGINAL INSTALLATION       378/301         Decommission ORGINAL INSTALLATION       378/301         Decommission ORGINAL INSTALLATION       State of latent Number         PROFEDISE:       Decommission ORGINAL INSTALLATION         PROFEDISE:       Decommission ORGINAL INSTALLATION         Property Owner Name       Property Owner Name         PROFEDISE:       Decommission ORGINAL INSTALLATION         Profesion:       Vent Minimum         Profesion:       Vent Minimum         Profesion:       Vent Minimum         Profesion:       Vent Minimum         Profesion:       Vent Monimum         Statis der Minim Minimum       A to mannum	Origin & 1 st cap - Eology. 2 st cap - enser, 3 st cap - driller         Construction         Construction         Decommission ORGINAL INSTALLATION         PROPOSIDUSE:       Decommission ORGINAL INSTALLATION         Propression       County Kittlian         Device       Depared         Depared       Decommission ORGINAL INSTALLATION         Propression       County Kittlian         Depared       Depared         Depared       Depared         Depared       Depared         Depared       Depared         Depared       Depared         Statistic       Statistic         Dire       R to         Dire       R to         Dire       Notice of Instant Statistic         Dire       R to	Ordpat & 1 ⁴ case - Ecolog, 3 ^{ar} cagr - esser, 3 ^{ar} cagr - drafter       Notice of Intent No. W222211         Construction	Origin A 1" exp - Ecology, 1" exp - serse, 3" exp - drifter         Construction/Decommission ("X: in circle)         Construction/Decommission (X: in circle)         Construction/Decommission (X: in circle)         Decommission (NRDIAL INSTALLATION)         PROFONDUSE: Based of the set Namber         PROFONDUSE: Based of the set Namber         Decommission (NRDIAL INSTALLATION)         Property Owner Name         PROFONDUSE: Based of the set Namber         Decommission (NRDIAL INSTALLATION)         Decommission (NRDIAL INSTALLATION)         Property Owner Name         Decommission (NRDIAL INSTALLATION)         Decommission (NRDIALINSTALLATION) <t< th=""><th>WATER WELL REPORT</th><th>CURRENT</th><th></th><th></th></t<>	WATER WELL REPORT	CURRENT		
Divertion       Construction/Decommission ("K" in circle)         Construction       978131         Decommission (ORGINAL INSTALLATION )       978131         Non-well       Nancipal         Developminission (ORGINAL INSTALLATION )       97810158: 80         POSDDUSE: Domestic in balancial di Mancipal       Developmini ("Intern Number")         Proteine: Domestic in balancial di Mancipal       Developmini ("Intern Number")         Portorito: Domestic in balancial di Come than con- Degina di metto di form than con- Deginal di Circle ("Intern Nume")       Developmini ("Intern Nume")         Net well       Reconditioned Methol: [] One Deginal       Construction NEL/4-1/4 NM/1/4 Scc Qit Two 18 R 19       rew well Sci Or protecticol (Str ADTION DETAILS)         NYRECTION DETAILS       Gradinal di Str Adtion (Str ADTION DETAILS)       Construction (Str ADTIONAL Str Adtion (Str Adtion (Str Adtion (Str Adtional di	ECOUCY       Construction       378/33         Construction       378/33         Decommission OR/GINAL INSTALLATION       PROVSEDUSE: Dimension OR/GINAL INSTALLATION         Matter Right Permit No.	ECOLOGY       Construction       378331         Construction       378331         Decommission ORIGINAL INSTALLATION       Manicipal         Decommission ORIGINAL INSTALLATION       Calade & Read         Decommission Proceedings       Wide Manicipal         ONNEXCENTOP INFORCED       Construction         Original State of wells       Calade & Read         Decommission ORIGONALISECONS       Calade & Read         Decommission ORIGONALISECONS       Construction         Decommission ORIGINAL INSTALLATION       Calade & Read         Decommission ORIGONALISECONS       Calade & Reade	ECOUCY       Construction       Decommission       O'X '' in circle's         Mark Status       Notice of Intent Number       Notice of Intent Number         PORONSOLVES.       Implant       Tark Note         Decommission       Notice of Intent Number       Notice of Intent Number         Devices       Implant       Tark Note         Devices       Statistics       Note well       Implant         Devices       Statistics       Note well       Implant         Devices       Statistics       Note well       Implant         Distant of well (Statistics       Note well       Implant       Implant         Distant of well (Statistics       Note well (Statistics       Implant       Implant         Statistics       Note well (Statistics       Note well (Statistics       Implant       Implant         Statistics       Note well (Statistics       Note well (Statistics       Note well (Statistics       Note well (Statistics         Statistics       Note well (Statistics       Note well (Statistics       Note w	Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	Notice of Intent No. W 272211		
Construction       978,131         Decommission ORIGINAL INSTALLATION       Notice of Intent Number         PROSED USE:       Denomin:       Intent Number         PROSED USE:       Denomin:       Intent Number         PROSED USE:       Denomin:       Intent Number         PROF WORK:       Overs' is unified of the Number       Overs' is unified of the Number         PROF WORK:       Overs' is unified of the Number       Decide of Number         Decide of complete divel 16:06.       Ready       Decide of Complete divelopment of Well 20:06.         PROF WORK:       Overs' is unified of 12:0.       Decide of Complete divelopment of Well 20:06.         Promoter of well 20:06.       Promoter of well 20:06.       Decide of Number         Synthetic 20:07.       Name       Name         Promoter of well 20:06.       Promoter of Well 20:06.       Decide of Name         Synthetic 20:07.       Name       Name       Reader of Promoter of Name         Synthetic 20:07.       Name       Reader of Name       Reader of Name         Synthetic 20:07.       Name       Reader of Name       Reader of Name         Synthetic 20:07.       Name       Reader of Name       Reader of Name         Synthetic 20:07.       Name       Reader of Name       Reader of Name </td <td>□ Oristruction       978/331         □ Decommission ORIGINAL INSTALLATON         □ Origonal Network       □ Origonal Network         □ Origonal Network       □ Origonal</td> <td>□ Construction       978,131         □ Decomnission ORGINAL INSTAIL_LATON         Notice of Inten Number         PRODOXED USE:       Decomnission Characteria         □ DeWate:       Internet         □ DeWate:       Internet         □ DeWate:       Internet         □ Demond:       Deam         □ Demond:       Demond:         □ Demond:<!--</td--><td>□       0.517112101         □       Notice of Intent Number         □       Notice of Intent Number         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □<!--</td--><td>ECOLOGY Construction/Decommission ("x" in circle)</td><td>Unique Ecology Well ID Tag No.</td><td></td><td></td></td></td>	□ Oristruction       978/331         □ Decommission ORIGINAL INSTALLATON         □ Origonal Network       □ Origonal Network         □ Origonal Network       □ Origonal	□ Construction       978,131         □ Decomnission ORGINAL INSTAIL_LATON         Notice of Inten Number         PRODOXED USE:       Decomnission Characteria         □ DeWate:       Internet         □ DeWate:       Internet         □ DeWate:       Internet         □ Demond:       Deam         □ Demond:       Demond:         □ Demond: </td <td>□       0.517112101         □       Notice of Intent Number         □       Notice of Intent Number         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □<!--</td--><td>ECOLOGY Construction/Decommission ("x" in circle)</td><td>Unique Ecology Well ID Tag No.</td><td></td><td></td></td>	□       0.517112101         □       Notice of Intent Number         □       Notice of Intent Number         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □       0.0048         □ </td <td>ECOLOGY Construction/Decommission ("x" in circle)</td> <td>Unique Ecology Well ID Tag No.</td> <td></td> <td></td>	ECOLOGY Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No.		
Decommission CREGINAL INSTALLATION         Notice of Intern Number         PROSEDUSE: B Denset: B Induced B Manicipal         Deviate: Diriginin: D'reta Well Coher         Deviate: Diriginin: D'reta Well Coher         PE OF WORK: Owner's sumber of well (if more than coc)         Deviate: Diriginin: D'reta Well Coher         Ster well B Reconditioned Attribut Ob B B Bood         Depth of completed well folga         New well Charmanial of 122 Dam. from 122.12.n to 140.4.         Depth of completed well folga         NYRUCTION DETAILS:         Depth of completed well folga         NYRUCTION DETAILS:         Depth of completed well folga         Stream: D' Name         Gef post 2020. Stream from 1.000         B rown cary bins of form 1.000         Natice of Name         Stream from 1.000         Natice of Name         Stream from 1.000         Natice of Name         Stream from 1.000         Stream from 1.000         Natice of Name         Stream from 1.000         Stream from 1.0000         Stream from 1.0000         Stream from 1.00000 <td>□ Decommission ORCINAL INSTALLATION Notice of Intent Number       Property Owner Name         PROPOSID USE: S Dennetic □ Intent Number       Weil Steet Address         DetWard       Detward       Odder         Diversel       Detward       Connty Kittlata         Device       Connty Kittlata       Connty Kittlata         Depted completed well \$\fraction the one one one one one one one one one on</td> <td>I Decommission ORGINAL INSTALLATION     Notice of Intern Number     PROPOSIONE: © Dennetic of well (if more has not)     Decome impairing in prevention of the Number of Decome impairing in the Number of Decome impairies of Decome impairing</td> <td>□ Decommission ORACINAL INSTALLATION       Projectly Owner Name         ■ PROPOSED USES       © Downert       Induced intern Number         □ Devices       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Not Not Not Address         □ Devices       Not well       Induced intern Number       Not Not Not Address         □ Devices       Not Not Not Address       Not Not Not Address       Not Not Not Address         Strete Gerof 20th Not Not Not Not Not Not Not Address       Not Not Not Not Not Not Not Not Not Not</td> <td>Construction 378131</td> <td>Water Right Permit No.</td> <td></td> <td></td>	□ Decommission ORCINAL INSTALLATION Notice of Intent Number       Property Owner Name         PROPOSID USE: S Dennetic □ Intent Number       Weil Steet Address         DetWard       Detward       Odder         Diversel       Detward       Connty Kittlata         Device       Connty Kittlata       Connty Kittlata         Depted completed well \$\fraction the one one one one one one one one one on	I Decommission ORGINAL INSTALLATION     Notice of Intern Number     PROPOSIONE: © Dennetic of well (if more has not)     Decome impairing in prevention of the Number of Decome impairing in the Number of Decome impairies of Decome impairing	□ Decommission ORACINAL INSTALLATION       Projectly Owner Name         ■ PROPOSED USES       © Downert       Induced intern Number         □ Devices       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Well Stretch Address         □ Devices       Not well       Induced intern Number       Not Not Not Address         □ Devices       Not well       Induced intern Number       Not Not Not Address         □ Devices       Not Not Not Address       Not Not Not Address       Not Not Not Address         Strete Gerof 20th Not Not Not Not Not Not Not Address       Not	Construction 378131	Water Right Permit No.		
Notice of Intent Nummer         Not well Intent Nummer         County Kittlas         County Kittlas <td>PROPOSED USE:       Donestic       Denoticity       Denoticity<!--</td--><td>PROPOSED USE:       Denomini</td><td>PROPORTING USE:       Detection       Detection       Detection       Detection         PTFO OFWARD:       Detection       Detection       Detection       County KEBBas         PTFO OFWARD:       Detection       Administration       Detection       County KEBBas         Detection       Administration       Detection       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       Coun</td><td>Decommission ORIGINAL INSTALLATION</td><td>Property Owner Name</td><td></td><td></td></td>	PROPOSED USE:       Donestic       Denoticity       Denoticity </td <td>PROPOSED USE:       Denomini</td> <td>PROPORTING USE:       Detection       Detection       Detection       Detection         PTFO OFWARD:       Detection       Detection       Detection       County KEBBas         PTFO OFWARD:       Detection       Administration       Detection       County KEBBas         Detection       Administration       Detection       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       Coun</td> <td>Decommission ORIGINAL INSTALLATION</td> <td>Property Owner Name</td> <td></td> <td></td>	PROPOSED USE:       Denomini	PROPORTING USE:       Detection       Detection       Detection       Detection         PTFO OFWARD:       Detection       Detection       Detection       County KEBBas         PTFO OFWARD:       Detection       Administration       Detection       County KEBBas         Detection       Administration       Detection       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       County KEBBas       County KEBBas       County KEBBas         Detection       County KEBBas       Coun	Decommission ORIGINAL INSTALLATION	Property Owner Name		
CWARE       Inrigition       Test Well       Other         PE OF WORK:       Owner's sumber of well (if more its man one)       Control (iff man one)       Control (iff man one)         PE OF WORK:       Owner's sumber of well (if more its man one)       Control (iff man one)       Control (iff man one)         Despinant       Despinant       Control (iff man one)       Control (iff man one)       Control (iff man one)         Structure       Despinant       Control (iff man one)         Structure       "Despinant       Other (iff man one)       Control (iff man one) <td>□ DeVate       □ Inigian       □ Test Weil       ○ Odee         DTPE OF WORK:       Owner if summer of well (if more than one)       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □</td> <td>Covaries       Impain       Test Will       Other         TYPE OF WORK:       Covers's number of well (if more than one)       Covers's number of</td> <td>Image: Note: The of events and of event (from the norm)       City Ellensberg       County Kittlas         In New not         Recording of from the norm)       City Ellensberg       County Kittlas         Disk not         Recording of from the norm)       City Ellensberg       County Kittlas         Disk not         County Kittlas       County Kittlas         Disk not         County Kittlas       County Kittlas         Disk not         County Kittlas       County Kittlas         Disk not         City Ellensberg       County Kittlas         Size         City Ellensberg       County Kittlas         Disk not         City Ellensberg       County Kittlas         Size         City Ellensberg       County Kittlas         Disk not         Size         City Ellensberg         Disk not         Size         City Ellensberg         D</td> <td>PROPOSEDUSE: Domestic Industrial Municipal</td> <td>Well Street Address</td> <td></td> <td></td>	□ DeVate       □ Inigian       □ Test Weil       ○ Odee         DTPE OF WORK:       Owner if summer of well (if more than one)       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □       □       □         ○ Devate       □ Reconditioned Activation in the coll       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □       □	Covaries       Impain       Test Will       Other         TYPE OF WORK:       Covers's number of well (if more than one)       Covers's number of	Image: Note: The of events and of event (from the norm)       City Ellensberg       County Kittlas         In New not         Recording of from the norm)       City Ellensberg       County Kittlas         Disk not         Recording of from the norm)       City Ellensberg       County Kittlas         Disk not         County Kittlas       County Kittlas         Disk not         County Kittlas       County Kittlas         Disk not         County Kittlas       County Kittlas         Disk not         City Ellensberg       County Kittlas         Size         City Ellensberg       County Kittlas         Disk not         City Ellensberg       County Kittlas         Size         City Ellensberg       County Kittlas         Disk not         Size         City Ellensberg         Disk not         Size         City Ellensberg         D	PROPOSEDUSE: Domestic Industrial Municipal	Well Street Address		
PF OF WORK: Covers's number of well (of more than cos)	TYPE OF WORK:       Coversity number of well (if more than eno)	TYPE OF WORK: Over: sumber of well (if more than one)       Origonal and the second isouth and the one of the one one one one one of the one of the one one one one of th	TYPE OF WORK:       Overy Teame of well (if more than cond)	DeWater Inrigition Test Well Other	City Ellenshern County Kititas		
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IRENTORS: Dameter of well§ inches, schligdig in	DIMENSIONS: Diameter of vell§ inches, deficiel§ n.       UNIVERSIONS: Diameter of vell§ inches, deficiel§ n.         Display of completed will § 3.0.	DIMENSOS: Diameter of vall§ inches, difficit§ n.       UNIT         Description       Widd       §° Deam from ±2.12 A to 140 h.         CONSTRUCTION DETAILS       Long Deg W120 Long Min/Sec 29.532         Dimension       §1 Dimension ±2.12 A to 163.8.         Brended       String       "Deam from	DIMENSIONS: Diameted of wells (and completed will State.         ONSTRUCTION DETAILS         CONSTRUCTION DETAILS         Conset det wells (and State	New well      Reconditioned Method:     Dug Bored Driven     Cable      Rotary Jetted	(s, t, r Still REQUIRED)	<u>10</u> 1.444	Or .
Structure in the second state of the second state second state of the second state of the secon	Department with regime       Department with regime         Consyntect:(Down Frants)       Construct:(Down from 222 ft to 152 ft to	CONSTRUCTION OFTAILS         Chaig       & Welded       @ Diam. from 12.01 /r. to 14.0. ft.         Immediation	CONSTRUCTON DTAILS       Lay Data Notation 1000         Case:       & Waldoll       (2) Them from 2212 a. to 149 h.         Lang Deg W120       Long Deg W120       Long Deg W120         Profestions:       (2) Them from 2212 h. to 149 h.       Long Deg W120       Long Deg W120         Profestions:       (2) Them from 2212 h. to 149 h.       Long Deg W120       Long Deg W120       Long Deg W120         Profestions:       (2) Them from 2212 h. to 149 h.       Long Deg W120	DIMENSIONS: Diameter of well 6 inches, drilled 163 ft.		w	₩М 🗆
ing       SW Welded       6'       Dama from ±212 ft to 140 ft.         ible       Statistical       Statistical       Statistical       Statistical         ibreaded       ''Doma From into ±123 ft to 153 ft.       Atto       Atto         ibreaded       ''Doma From into ±123 ft to 153 ft.       Atto       Atto         ibreaded       ''Doma From into ±123 ft to 153 ft.       Atto       Atto         ibreaded       ''Doma from into ±123 ft to 153 ft.       Atto       Atto         ibreaded       ''Doma from into ±123 ft.       Into ±53 ft.       From into the sector into 0.         ibreaded       ''Doma from into ±123 ft.       Into ±53 ft.       From into the sector into 0.         ibreaded       ''Doma from into the into into into into into into into into	Chang       Structure	Casing:       Structure	Casing B Wided       6° Dam from 21/2/2.4 to 12/0.4         Long Deg W120       Long Min/Sec 29.532         Tax Parcel No. (Required)       Tax Parcel No. (Required)         Type of performance and Skill Base       CONSTRUCTION CONDECOMMENSION PROCEDURE         Stretes       Yes       No         Type of performance and Skill Base       Construction Co	CONSTRUCTION DETAILS	Lat/Long Lat Deg N47 Lat Min/Sec	04.262	
Iller: Biller:	Imarilleti Bi Liner installeti 41/2° Diam. From10	International distance       International distance       International distance         International distance       No         Proof operational consol Skill Sale       CONSTRUCTIONAL Skills representation of parts data structure and matching of matching and matching and matching and matching of matching and matching of matching and matching an	Intenditie         Binor installed 4127         Dam. From	Casing Welded. 6" Diam. from +2 1/2.ft. to 140 ft.	Long Deg W 120 Long Min	Sec 29.532	
Gegetions:       Q Yes       No         e of performation:       Skill Seaw.         constructions and Skill Seaw.       Skill Seaw.         and state of the material is each stratum peetrade. with a least on one try form.       Skill Seaw.         n.       Skill Seaw.       Skill Seaw.         n.       Skill Seaw.       Skill Seaw.         seaw.       Model No.       R.         n.       Skill Seaw.       Recentary.         seaw.       Model No.       Recentary.         n.       Skill Seaw.       Recentary.         setword Skill Seaw.       Skill Seaw.       Skill Seaw.         setword Skill Seaw.       Skill Seaw.       Skill Seaw.         setword Skill Seaw.       No       Skill Seaw.         setword Skill Seaw.       Skill Seaw.       Skill Seaw.         setword Skill Seaw.       Skill Seaw.       Skill Seaw.         setword Skill Seaw.       Skill Seaw.         setword Skill	Perfequines:  P	Perfequinat:       O       Yes       No         Type of performance and Skill Skill Skill       State Skill Ski	Prefegences       Prod       No         Type of performance and Skill Sew       CONSTRUCTION OR DECOMMISSION PROCEDURE         Formation: Decommission performance and the kind and anticine decimation. USE ADD on and and of performance decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Stretzer       Yes       No         Type of performance and the kind and anticine. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Formation: Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Type of vestor       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Type of vestor       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Type of vestor       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Type of vestor       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Type of vestor       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Brown carry Clap, Deciden Basalt       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Brown carry Clap, Deciden Basalt       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Brown carry Clap, Deciden Basalt       formation. Decimation. USE ADD CONSTRUCTION OR DECOMMISSION PROCEDURE         Type of vestor       MAY       formation. USE ADD CONSTRUCTION CREATED CONSTRUCTION CREATED CONSTRUCTION CREATED CONSTRUCTION CREATED CONSTR	Installed: G Liner installed <u>4 1/2</u> ° Diam. from <u>-123</u> ft. to <u>163</u> ft.	Tax Parcel No. (Required)		
e d performor used Skill saw	Dype of performance and Skell garw   SIZE of performance and skell garw   Manufacture's Name   Dype   Manufacture's Name   Dype   Madel No.   Size size   from   n. size size   from   n. to   n. to   n. size size   from   n. to    n. to   n. to  <	Type of performance and Skill Barw         SIZE of performance and Skill Barw         Main Size of performance and Skill Barw         Main Size of performance and Skill Barw         Main Size of performance and Skill Barw         Market also biased from       ft on         Size of performance and Skill Barw       ft on         Market also biased from       ft on         Size of performance and Skill Barw       ft on         Mareital sci and skill Barw       ft on         Mareital sci and skill Barw       ft on         Mareital sci and skin depitor       ft on	Type of perfuture of Skill Saw	Perforations: X Yes No	CONSTRUCTION OF DECOMMISSION	DOCEDUDE	
E of perf-1/Bin. by 10 is, and no. of perfs 4 floom 143h to 163h.         E of perf-1/Bin. by 10 is, and no. of perfs 4 floom 143h to 163h.         erens:       No         Kerse:       No         is bit size:       from         n.       Skit size:         from       ft.to         n.       Skit size:         from       ft.to         n.       ft.to         skit size:       ft.to         ft.to       ft.to <td>SiZE 0 forght <u>J</u>(<u>B</u>in, by <u>10</u> m, and no of perfs <u>115 m</u>, <u>142m</u> to <u>162m</u>.         Mgnufacturer's Name         Type         Size is modeling to the <u>network</u> and the <u>n</u></td> <td>SIZE of gene 1/20. by 10 in, and no of perfs 41 from 142 no 162 a.         SIZE of gene 1/20. by 10 in, and no of perfs 41 from 142 no 162 a.         Manufacturer's Name         Type         Stor size       from         Type       Max of the material area clear startum penetroded, with a fract order bity or lead, that and and and and and and and and and and</td> <td>SIZE of performance       by 10 m, and an of perfs 11 mon 143 to 152 a.         Manufacture's Name       Model No.         Type       Model No.         Statistic work in the set of strange methods with at lease of the material area charmanic. USE DATE NALL       FROM TO         Manufacture's Name       Model No.         Type       Model No.       A.         Dam.       Statistic       from at to a.         Statistic       To b. Size of previous A.       from and the offer A12 model No.         Dam.       Statistic       To b. Size of previous A.       from and the offer A12 model No.         Dam.       Statistic work in the size of strange method strange of the material area charmane method strange method strangem</td> <td>Type of perforator used Skill saw</td> <td>Formation: Describe by color, character, size of malerial and</td> <td>structure, and th</td> <td>e kind an</td>	SiZE 0 forght <u>J</u> ( <u>B</u> in, by <u>10</u> m, and no of perfs <u>115 m</u> , <u>142m</u> to <u>162m</u> .         Mgnufacturer's Name         Type         Size is modeling to the <u>network</u> and the <u>n</u>	SIZE of gene 1/20. by 10 in, and no of perfs 41 from 142 no 162 a.         SIZE of gene 1/20. by 10 in, and no of perfs 41 from 142 no 162 a.         Manufacturer's Name         Type         Stor size       from         Type       Max of the material area clear startum penetroded, with a fract order bity or lead, that and	SIZE of performance       by 10 m, and an of perfs 11 mon 143 to 152 a.         Manufacture's Name       Model No.         Type       Model No.         Statistic work in the set of strange methods with at lease of the material area charmanic. USE DATE NALL       FROM TO         Manufacture's Name       Model No.         Type       Model No.       A.         Dam.       Statistic       from at to a.         Statistic       To b. Size of previous A.       from and the offer A12 model No.         Dam.       Statistic       To b. Size of previous A.       from and the offer A12 model No.         Dam.       Statistic work in the size of strange method strange of the material area charmane method strange method strangem	Type of perforator used Skill saw	Formation: Describe by color, character, size of malerial and	structure, and th	e kind an
Here:       If Yes & Yes & Name       Model No.         a.	Nerversition       Disk to be all the book of the	Streeter       Disk       Disk       Disk       Disk       Disk       FROM       TO         Type	Serverse         Disk         Disk         Disk         MATERIAL         FROM         TO           Type	SIZE of perfs 1/8in. by 10 in. and no. of perfs 41 from 143 ft. to 163 ft.	of information. (USE ADDITIONAL SHEETS IF NECESS.	tone entry for e ARY.)	scp cpant
e	Type Model No.   Diam. Side size   Diam. Side size   from ft. to   ft. to ft.   CrassedFilter packed: Yes   Diam. Side size   GrassedFilter packed: Yes   Diam. Size of grasselize   GrassedFilter packed: Yes   Diam. Size of grasselize   GrassedFilter packed: Yes   Diam. Size of grasselize	Type       Model No.	Type	Manufacturer's Name	MATERIAL	FROM	TO
n       Skr size       from       ft. to       ft.         m       Skr size       ft. to       ft.       ft.         mill placed from       ft. to       ft.       ft.         gravel       WB @ 77 - 96'       58       98         Brown cemented gravel       98       139       141         Biastigravel       98       139       141         Brown cemented gravel, clay       144       163         sing reserver liss       parameter liss in pressame level 2033 ft.       ft.       ft.         is kevel@fth. telow top grap armeted wBth       ft.	DiamSter sizefromft toft.      ft.      ft.      ft.         DiamSter sizefromft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.onft.on	DiamSize sizefromfl tofl tof	Diam	Type Model No	Dk. brown clay, broken basalt	0	12
m.       Stot size       Truin       It. to       It.         read Fifter packed:       Yes       No       Size of gaveWand	Data	Data	Data	DiamSlot'size from ft. to ft.	Brown.clay, broken basait	12	-58
rever start packed:	gravel will get 7 - 96' 58   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Surface Seal: Ø Yes   No To what depth? 21 ft.   Waterial accident an unisable water?   Depth of strata   PUMP: Manificturer's Name     Pump test made?   Yes Ø No If yes, by whom?     Price of test     Sailer test     Sailer test     Sailer test     Start Date 05-05-10   Completed Date 05-06-10	Graver inter packets       Too       its       Disconstruction       State of particular states       State of partes	Graver and packet:       Dist 2: 100       Set of graves of graves and memory of the set of graves and graves of graves and graves.       Set as 2: 30       Se	Dam. Slot state from ft.40 ft.	Brown sandy clay, basalt		
face Seat: Ø Yes No To what depth? 21ft.   erial used in seal Bentonite any strate contain unisable water? Yes   any strate contain unisable water? Yes Ø No   any strate contain unisable water? Yes Ø No   bod of sealing strate off	Surface Seal: Sort yes No To what depth? 21:ft.         Material used in seal Benfonite         Did ary strate contain unisable water? Depth of strata         Did ary strate contain unisable water? Depth of strata         PUMP: Matificaturer's Name         PUMP: Matificaturer's Name         PUMP: Matificaturer's Name         PUMP: Matificaturer's Name	Surface Seal: Sort No To what depth? 21:9.	Surface Seal: Ø Yes       No       To what depth? 218.         Material used in seal Benfionite       Depth of starta         Material used in seal Benfionite       139         Material used of sealing strata off       Depth of starta         Methy devices contain unisable water?       Type of water?         Depth for starta       141         Black beast	Materials placed from fl. to fl. '	gravel WB @ 77 - 98'	58	98
erial used in seal Bentonite any strate contain unisable water? any strate contain unisable water? Brown sandstone Brown sands	Material used in seal Bentonite Did any strate contain unisable water? Did any strate controlled by Dif yes, by whom? Did any strate controlled by Dif yes, by whom? Did any strate controlled by Dif yes, by whom? Did any strate controlled by Dif yes, by whom? Did any strate controlled by Dif yes, by whom? Did any strate controlled by Dif yes, by whom? D	Material accd in seal Bentonite   Did ay stratu contain unisable water?   Pige of water?   Depth of strata     PUMP: Mathefacturer's Name   Type:   H.P.     PUMP: Mathefacturer's Name   Type:   H.P.     PUMP: Mathefacturer's Name   Type:   H.P.     WATER LEVELS: Land-surface elevation above mean sea level 2033 ft.   Static level ft. below top-of-well Date   Antesian pressure   Ubs. per square inch Date   Antesian pressure   Uss party interview and rest level   WELL/TESTS: Drandown is amourne water level is lowered below static level   Was a pump test mode?   Yield:	Material scal in scal Bentionite       If yes [2] No         Did any stata contain unsake water?       If yes [2] No         Did any stata contain unsake water?       Depth of strata         Method of scaling stata off       Depth of strata         PUMP: Mainfacture? Name       H.P.         WATER LEVELS: Land-surface elevation above mean sea level 2033 8.       Stric level 9fb: telow tep of well         Stric level 9fb: telow tep of well       Date ( <u>56-06-10</u> Antesian pressure       Ibs. per square inch. Date         Method file:       If yes, by whom?         Yeld:       pal/min. with _fb: drawdown atther         Pricet       pal/min. with _fb: drawdown atther         Pricet of teld       pal/min. with _fb: drawdown atther         Pricet of teld       pal/min. with _fb: drawdown atther         Pricet of teld <td>Surface-Seal: Xes Do To what depth? 21ft.</td> <td>basalt gravel</td> <td>98</td> <td>139</td>	Surface-Seal: Xes Do To what depth? 21ft.	basalt gravel	98	139
any strata contain unisable water?   Yes S No e of water? Depth of strata black basalt 141 144 Brown cemented gravel, clay 144 163 Brown cemented gravel, clay 144 164 Brown cemented gravel, clay 144 163 Brown cemented gravel, clay 144 163 Brown cemented gravel, clay 144 164 Brown cemented gravel, clay 14	Did any statu contain unisable water? Depth of strata	Did any strate contain unisable water?	Did any strate contain univable water? □ Yes S No Did any strate contain univable water? □ Depth of strata	Material used in seal Bentonite	Brown sandstone	139	141
e of water? Depth of strata	Type of water? Depth of strates   Method of sealing strate off   PUMP: Manufacturer's Name   PUMP: Manufacturer's Controlled by   Cap, valve, etc.)   WELL_TESTS: Drawdown is amount water level is lowered below static level Wata pump test made?   Nesign water is controlled by   Pield:	Type of water?	Type of water?       Depth of status         Method of scaling streat off       144         Type       The of water?         Method of scaling streat off       144         Type       163         Method of scaling streat off       144         Type       144         Type       163         Method for scaling streat off       144         Type       163         Mater Level S: Land-staface elevation above mass alevel 2033 ft.       163         Static kevel & the op of sell.       164         Artesian pressure       108 of type, by whom?       164         Wet J, TESTS: Drawdown is amount water level is lowered below static level       164         Wet J, TESTS: Drawdown is amount water level is lowered below static level       164         Wet J, TESTS: Drawdown after       brs.         Yield:       gal /min. with _ft. drawdown after       brs.         Yield:       gal /min. with _ft. drawdown after       brs.         Yield:       gal /min. with _ft. drawdown after       brs.         Methop of trial.       ft. drawdown after       brs.         Methop of trial.       ft. drawdown after       brs.         Static level for the optic of trial.       ft. drawdown after       brs.	Did any strata contain unusable water?	Black basalt	141	144
MP: Matulacturer's Name   e:   HP:   c:   t:   gal/min.with   ft.   gal/min.with	Writing of a searing strand off	Writight or searing brand off         PUMP: Mainflacturer's Name         Type:       H.P.         WATER LEVELS: Land-surface elevation above mean sea level 2033 ft.         Static level §ft. below top of well       Date 05-06-10         Antesian pressure       lbs. per square inch. Date         Antesian water is controlled by	Melby and stamp gran of	Type of water? Depth of strata	Brown cemented gravel, clay	144	163
with the symme       H.P.         is level §ft. below top of well       Date <u>Q5-Q5-10</u> sian water is controlled by	Control Mathubether Nethods         Cype:       H.P.         Type:       H.P.         WATER LEVELS: Land-surface elevation above mean sea level 2033 ft.         Static level §ft. below top of well       Date 05-06-10         Antesian pressure       lbs. per square inch Date         Antesian pressure       lbs. per square inch Date         MELL TESTS: Drawdown is amount water level is lowered below static level         Wasi a pump test made?       Yes         Yield:       gal/min. with         ft. drawdown after       hrs.         Yield:       gal/min. with         gal drain, with sign pr named agli freatir level assaured from eell(top to water level)       MAY 2.5 2010	POMP: Multipletter steame       H.P.         Type:       H.P.         Type:       H.P.         WATER LEVELS: Land-surface elevation above mean sea level 2033 ft.         Static level §ft. below top of well Date 05-06-10         Artesian pressure       Ibs. per square inch Date         Artesian is controlled by       (cap.,valve, etc.)         WELL TESTS: Drawdown is amount water level is lowered below static level         Was a pump test made?       Yes         Yield:       gal/min. with ft. drawdown after         hs.       hs.         Niccursery data (time token og zero when joing turned off) (water level         Was a fueler level)       Time         Time       Water Level         Time       Water Level         Bailer test       Ibs.         Bailer test       Ibs.         Artesian, flow       gp.m. Date 05-06-10         Temperature of water       Was a chemical analysis made?         Yes       No	POMP:       H.P.         WATER LEVELS:       Land-surface slevation above mean sea level 2033 (t.)         Satic level §th. televe to grave inch. Date	BUMB: Mandatanaria Mana			
TER LEVELS: Land-surface elevation above mean sea level 2033 ft. is level §ft. below top of well Date 05-06-10	WATER LEVELS: Land-surface elevation above mean sea level 2033 ft. Static level §ft. below top of well Date 05-06-10 Artesian pressurelbs. per square inch Date	WATER LEVELS: Land-surface elevation above mean sea level 2033 ft.         Static level §ft. below top of well Date 05-06-10         Artesian pressurelbs. per square inch Date	WATER LEVELS: Land-surface elevation above mean sea level 2033 ft.         Static level §ft. below top of well       Date <u>05-06-10</u> Antesian pressure	Type: H.P.			
ic level §ft. below top of well Date <u>05-06-10</u> sian pressurelbs. per square inch Date sian water is controlled by(cap,valve, etc.)  LL_TESTS: Drawdown is amount water level is lowered below static level (a pump test made?YesN Noft ges_by whôm? (dtgal/min. withft. drawdown afterhrs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. for 1bs. (dtgal/min. with stem set at 162 ft. (dtgal/min. with stem set at 162 ft. (dtgal/min. with s	Static level §ft. below top of well Date <u>05-05-10</u> Artesian pressurelbs. per square inch DateArtesian pressurelbs. per square inch DateArtesian pressurelbs. per square inch DateArtesian 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 S No If yes, by whom? Yield:gal/min. withft. drawdown afterhrs. Yield: Satier test	Static level §ft. below top of well Date 05-05-10	Static level §ft. below top of well       Date       05-05-10         Antesian pressure	WATER LEVELS: Land-surface elevation above mean sea level 2033 ft.			
sian pressurelbs. per square inchDate	Artesian pressurelbs, per square inch Duite	Artesian pressurelbs. per square inch Date	Antesian pressure       [bs, per square iach Date         Artesian water is controlled by	Static level-8ft. below top-of.well Date 05-06-10			
sian water is controlled by	Artesjan water is controlled by	Artegian water is controlled by	Artegian water is controlled by	Artesian:pressure lbs. per square inch Daite			
LL/TESTS: Drawdown is amount water level is lowered below static level         is pump test made?       Yes         Main withf. drawdown afterbrs.         id:pal/min. withf. drawdown afterbrs.         if of lest	WELL, TESTS: Drawdown is amount water level is lowered below static level         Was a pump test made?       Yes         Yield:	WELL/TESTS: Drawdown is amount water level is lowered below static level         Was a pump test made?       Yes         Yield:      gal/min. with         ft.dawdown after       hes.         Yield:       _gal/min. with         ft.dawdown after       hes.         Yield:       _gal/min. with         ft.dawdown after       hes.         Yield:       _gal/min. with         ft.dawdown after       hes.         Niedt:       _gal/min. with         ft.dawdown after       hes.         Yield:       _gal/min. with         ft.dawdown after       hes.         Welf; top to water level)       Time         Water Level       Time         Water Level       MAY 2.5 2010	WELL TEXTS: Drawdown is amount water level is lowered below static level         Was a pump test made?       Yes         Yield:      gal/min. withf. drawdown afterhrs.         Yield:       _gal/min. withf. drawdown afterhrs.         Without to stater level       MAY 2.5 2010         Time       Was g Level         Date of test	Artesian water is controlled by (cap_valve, etc.)			
a pump test made? Yes Yes No If yes, by whom? dd gal/min. withf. drawdown after hrs. dd gal/min. withf. drawdown after hrs. de gal/min. withf. drawdown after hrs. e Water Level Yes Noter Level MAY 25 2010 e Water Level MAY 25 2010 DEPRIMENT OF EQUES' - CENTRAL RESOUND. OFFICE e of test Inter. with sign set at 16211: for thes. est 7gal/min. with sign set at 16211: for thes.	Was a pump test made?       Yes       St No       If yes, by whom?	Was a pump test made?       Yes       ⊠ No       If yes, by whom?	Was a pump test made?       Yes       Ø No       If yes, by whom?         Yield:      gal/min. with       ft. drawdown after       hrs.         Yield:       _gal/min. with       ft. drawdown after       hrs.         Yield:       _gal/min. with       ft. drawdown after       hrs.         Yield:       _gal/min. with       ft. drawdown after       hrs.         With the water level       Time       Water Level       MAY       2.5 2010         Time       Water Level       Time       Water Level       MAY       2.5 2010         Date of test	WELL TESTS: Drawdown is amount water level is lowered below static level			
	Trots	Treat	Test	Was a pump test made? Xes No If yes, by whom?			
id:       _gal /min. with       _ft. drawdown after       _hrs.         grey data (time token us zero when joung named off) (water level measured from (top to water level)	Yield:	Yield:gal/min. withfl. drawdown afterhrs.         RECEIVED         Receivery data (time token op zero when pump turned off) (water level openasted from well(top to water level)         Time       Water Level         Time       Water Level         Time       Water Level         MAY       2.5 2010         Date of test	Yield:gal/min. withft. drawdown afterbrs.       PRECEIVED         iterative draw as zero when psimp named off feature level assassed from well(top to water level)       PRECEIVED         Time       Water Level       Time         Time       Water Level       Time         Date of test	Yreid:gal/min. withf. drawdown afterhrs Yield:gal/min. withft. drawdown afterhrs.			
			Interview data frame water areas       Interview water level       Interview water level         Time       Water Level       Time       Water Level         Image: Start Date of test       Image: Start Date 05-05-10       Completed Date 05-06-10         Date of test       Image: Start Date 05-05-10       Completed Date 05-06-10         WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best knowledge and belief.         Driller Defineer Trainee Signature       Image: Signature         Driller's Signature:       Image: Signature         IF TRAINEE: Driller's License No.       Image: Signature         ECY 0591-20 (Rev 02/10)       If you need this document in an alterniate format, please call the Water Resources Program at 360-407-6872.	Yield:gal/min. withft. drawdown afterhrs.			
e Water Level Time Water Level Time Water Level MAY 2.5 2010  to fiest	Time       Water Level       Time       Water Level       Time       Water Level	Time       Water Level       Time       Water Level       MAY       2.5       2010         Date of test	Time       Water Level       Time       Water Level       Time       Water Level       MAY       2.5       2010	Receivery data (line taken as zero when psimp turned off) (water level measured from well(top (o, water.level)	REC	EIVED	
e of test	Date of test	Date of test	Image: Signature       Image: Signature         Differ of test       Image: Signature         Bailer test       gal /min. with_istem set at 152/h: for fbrs.         Artesting flow       g.p.m. Date 05-06-10         Start Date 05-05-10       Completed Date 05-06-10         Temperature of water       West_L CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best knowledge and belief.         Diffler of trainee Signature       Driller of trainee Signature         Diffler's Signature:       ////////////////////////////////////	Time Water Level Time Water Level Time Water Level	MAV	2.5 2010	
es of test	Date of test	Dute of test	Date of test       Deferminent of test         Bailer test       gal /min. withR. drawdown afterhrs.         Artest 7_gal/min. with stem set at 152/h: for fbrs.       Artestine flow         Artestine flow       g.p.m. Date 05-06-10         Temperature of waterWas a chemical analysis made?       Yes IN No         WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best knowledge and belief.         Driller I Engineer I Traince Signature       Driller I Prainter Signature:         Driller's Signature:       ////////////////////////////////////			20 2010	
er (fest	Date of test	Date of test	Date of test		DEFRATMENT OF ECOLD	SY - CENTRAL REGIO	NAL OFFICE
er res gal/min. with sign set at 1620r. for Thes.	Satisf rest gal/min. with ft. drawdown/afterhrs.  Nirtest 7_gal/min. with stem set at 1620; for 1hes.  Antesian flow gp.m. Date 05-06-10 Start Date 05-05-10 Completed Date 05-06-10  Temperature of water Was a chemical analysis made? Yes 🛛 No	Issuier ressgal/min. withR drawdown/afterhrs. Airsest 7_gal/min. with stem set at 162ft: for 1hes. Artesian flowg.p.m. Date 05-06-10	Issuer rest       gal mmn. withP. drawdownafterhrs.         Airtest 7_gal min. with sizes set at 1620: for flys.         Artesian flow      g.p.m. Date 05-06-10         Temperature of waterWas a chemical analysis made?       Yes ⊠ No         WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best knowledge and belief.	Date of test			
Experiment wind spin stellar togeth for Jins.	Antestan flow gam. Date 05-06-10	Antenian Row       g.p.m. Date       05-06-10         Start Date       05-05-10       Completed Date       05-06-10         Temperature of water       Was a chemical analysis made?       Yes       No	Artesian flow	Isater testgal/min. withR drawdown/afterbrs.			
and the second s	Temperature of water	Temperature of water Was a chemical analysis made?  Yes  No	Temperature of water	Autorian Prov. and an United 05:06:10	Start Date 05-05-10 Completed De	te 05-06-1	0
and the second s	Companies of which we a control analysis made:	Tenergenner in mine and a differentien margine inner. 🔲 ten 🔯 tre	WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best knowledge and belief.            M Driller   Engineer   Traince _ blank fuict ) - Rorth Phothian         Driller/Engineer/Traince Signature         Driller or trainee License No.         124         IF TRAINEE: Driller's License No:         J         Differ or trainee License No.         Differ	Temperature of water Was a chemical analysis model:  Ver M Ma	completed be	00-00-1	
sup flow but Use	Compensate of which was a circuited analysis inder.		WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washingt construction standards. Materials used and the information reported above are true to my best knowledge and belief.            W Driller   Engineer   Trainee Lame (new ) Roott Phothian         Driller/Engineer/Trainee Signature         Driller or trainee License No.         I.24         IF TRAINEE: Driller's License No.         Driller's License No.         Driller's Signature         Registration No. TUMWADIP011LZ         Date 05-07         ECY 050-1-20 (Rev 02/10) If you need this document in an alternate format, please call the Water Resources Program at 360-407-6872.	Date of test	Start Date 05-05-10 Completed Da	37-02NTRAL RESID te 0.5-06-1	
UL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction of this well, and its compliance with all Washington we construct to the information properties and allows are tracting to the information of the information	WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we	and and the internation participation percented about one from the set the set the set	Driller/Engineer/Trainee Signature     Address       Driller or trainee License No.     124       IF TRAINEE: Driller's License No:     City. State, Zip       Driller's Signature:     Registration No. TUMWADIP011LZ       Date     05-07-2010       ECY, 050 ⁻¹ -20 (Rev 02/10)     If you need this document in an alterniate format, please call the Water Resources Program at 360-407-6872.	Summer Construction standards. Materials used and the information reported above are t Driller Engineer Trainee Mame (new) A Bratt Phythian	Drilling Company Turnwater Drilling & Pump Inc.		
LL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we struction standards. Materials-used and the information reported above are true to my best-knowledge and belief.      Driller	WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best knowledge and belief.	Construction statutards. Materials used and the information reported above are true to my best knowledge and benet.     Driller Engineer Trainee Mame (new) - Rratt Phythian     Drilline Commany     Tumwater Drilline & Pump Inc.	Driller or trainee Eicense No.     124     City, State, Zip       IF TRAINEE: Driller's License No:     Contractor's       Driller's Signature:     Registration No. TUMWADIP011LZ       Date     05-07-2010       ECY 050 ²¹ -20 (Rev 02/10)     If you need this document in an alterniate format, please call the Water Resources Program at 360-407-6872.	Driller/Engineer/Traince Signature	Address		
Address     Address     Address     Address     Address     Address     Address	WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best-knowledge and belief.         Image: Construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best-knowledge and belief.         Image: Construction of this well, and its compliance with all Washington we construction of this well, and its compliance with all Washington we construction of this well, and its compliance with all Washington we construction of this well, and its compliance with all Washington we construction of this well, and its compliance with all Washington we construction of this well, and its compliance with all Washington we construction of this well, and its compliance with all Washington we construction of the compliance with all Washington we construct to my best-knowledge and belief.         Image: Company of the compliance of the c	Construction standards. Instruction reported above are true to my best knowledge and benet.         Image: True in the information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my best knowledge and benet.         Image: True information reported above are true to my bes	ECY 050 ²¹ -20 (Rev 02/10) If you need this document in an alterniate format, please call the Water Resources Program at 360-407-6872.	Driller or trainee License No. 124 IE TRAINEE: Driller's License No.	City, State, Zip		
City, State, Zip	WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials used and the information reported above are true to my best-knowledge and belief.         Image: Driller Image:	Construction standards. waterials used and the information reported above are true to my best knowledge and benet.	ECY 050 ²¹ -20 (Rev 02/10) If you need this document in an alterriate format, please call the Water Resources Program at 360-407-6872.	Driller's Signature:	Registration No. TUMWADIP011LZ	Date 05-0	7-2010
	WELL CONSTRUCTION CERTIFICATION:       1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials-used and the information reported above are true to my best-knowledge and belief.         Driller Engineer Trainee Signature       Revit Phythian       Trilling Company         Driller or trainee License No.       124       City, State, Zip         IF TRAINEE: Driller's License No:       City, State, Zip       City, State, Zip         Driller's Signature:       Revit Trainee City, State, Zip       Date 05-07-2010	Construction standards. waternas/used and the information reported above are free to my best knowledge and benet.	ECY 059-1-20 (Rev 02/10) If you need this document in an alternate format, please call the Water Resources Program at 360-407-6872.				
Appendix or wire!       was a chemical analysis mader       Tes       El No         CLL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we struction standards. Materials-used and the information reported above are true to my best-knowledge and belief.         Driller   Engineer   Traince   Jume / Image / I	WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility for construction of this well, and its compliance with all Washington we construction standards. Materials-used and the information reported above are true to my best knowledge and belief.         Diller Engineer Traince Julane (note) Britt Phothian       Britt Phothian         Driller/Engineer/Traince Signature       Britt Phothian         Driller Signature:       City, State, Zip         Contractor's       Contractor's         Britter's Signature:       Date 05-07-2010	Construction statutary. wateriars/used and the information reported above are frue to my best knowledge and benet.         Image: Instruction statutary. materiars/used and the information reported above are frue to my best knowledge and benet.         Image: Instruction statutary. materiars/used and the information reported above are frue to my best knowledge and benet.         Image: Instruction statutary. materiars/used and the information reported above are frue to my best knowledge and benet.         Image: Instruction statutary. materiars/used and the information reported above are frue to my best knowledge and benet.         Image: Instruction statutary. materiars/used and the information reported above are frue to my best knowledge and benet.         Image: Instruction statutary. materiars/used and the information reported above are frue to my best knowledge and benet.         Image: Instruction statutary.         If TRAINEE: Driller's License No:         Image: Instruction statutary.         Driller Contractor's         Registration No. TUMWADIP011LZ.         Date: 05-07-2010	2	ECY 05071-20 (Rev 02/10) If you need this document in an alterniate format, p	lease call the Water Resources Program at 360-407-6872.	32.6341	

Note: Personally Identifying Info redacted due to privacy concerns.

Plance print, sick and returned	to the Department of Feelen
Please print, sign and return	to the Department of Ecology
Water Well Report	Current Notice of Intent No 269228
Construction/Decommission 343741	Unique Ecology Well ID Tag No.
Construction	Water Right Permit No
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name
of Intent Number	Well Street Address
PROPOSED USE: Dewestic Industrial Municipal	City EU. County KI Hitas
TYPE OF WORK: Owner's number of well (if more than one) Chew well Reconditioned Method.: Daging Bored Driven Despend Cable Metary 1 Jetted	Lat/Long (s, t, r Lat Deg Lat Min/Sec
DIMENSIONS: Diameter of well inches, drilled250.	still REQUIRED ) Long Deg Long Min/Sec
Construction Details	Tax Parcel Nc
Installed: University of the state of the st	CONSTRUCTION OR DECOMMISSION PROCEDURE
Performinents VNo Type of performer used	Formation: Describe by color, character, size of natorial and structure, and the kind and nature of the matterial in each strutum peterinted, with at least one only for each change of informationalistic at later environment. ARE ADDITIONAL SHIPT IF VIEWED a DV-
StZE of perfsin. by, in. and no. of perfsfromft. toft.	MATERIAL FROM TO
Screens: Yes K-Pac Location	topsoil pr m 03
Type Model No	CEM GLOW BLOC. MH 3 30
Diam.         Slot sizefromft. toR.           Diam.         Slot sizefromft. toR.	Cen araywch blocht 28 38
Gravel/Filter packed: Yes No Size of gravel/sand	Clay tan the 38 54
	Sandstone menor m 54 77
Surface Seal: : Erves INo Trives depth?	Clay tan m 189
Did any strata contain unusable wäter?	Clay 100 m - 91 104
Type of water? Depth of strain	Sand stone courses and
PUMP: Monufacturer's Nome	mainy color 5 104 123
Type:H.P	
WATER LEVELS: Lond-surface elevation above mean sea levelft.	
Artesian pressure Ibs per square inch Date	
Artestan water-is controlled by	
(cap, raive, etc.) WELL TESTS: Drawdown is amount water, level is lowered below static level	
Was a pump test made?  Yes No If yes, by whom?	
Yield:gal/nin. withft. drawdown afterhrs, Yield:gal/min. withft. drawdown afterhrs,	
Yield:	RECEIVED
Accorery and protection and the server party and any finite with measure of the server for a server the server. Time: Water Level Time Water Level Time Water Level	MAR 2:4 2009
	DEPARTMENT OF ECC. 251
Date of test all /min with ft. drawdown after has	
Airrest 60 gal/min. with stem set at 120 ft. for 1 hrs.	
Artesian flow g p.m. Dite	
Temperature of water Was a chemical analysis made? [] Yes [] No	Start Date 3/19/09 Completed Date 3/9/09
WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or ac Washington well construction standards. Materials used and the informati billen/Engineer/Trainee Name (Print) Dillen/Engineer/Trainee Signature Diller or mainee Litersie No	cept responsibility for construction of this well, and its compliance with all on reported above are true to my best knowledge and belief Dvillag Address City, State, Zip
If TRAINEE, Driller's Licensed No.	Registration St. WATERNW94202 3400
Driller's Signature	Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 2)

Note: Personally Identifying Info redacted due to privacy concerns.
Unique Ecology Well ID Tag No. Water Right Permit No.		
Water Right Permit No.		
B:	· · ·	
Property Owner Name Well Street Address		
City F-Bills County K	TT Z-	745
Location / 1/4-1/4/ 1/4 Seco Twing	19 WWM	circle ove
Lat/Long (s, t, r Lat Deg Lat	Min/Sec_	· • • • •
Tax Parcel No	ig Min/Sec	
CONSTRUCTION OR DECOMMISSION	PROCEDU	RE
Formation: Describe by color, character, size of material and a rature of the material in each stratum penetrated, with al least information. (LISE ADOUTIONIAL SHEFTS IP/NECES	tructure, and the	e kind and ch change of
MATERIAL.	FROM	то
ACTURE ALACTE COBBLES	0	13
Renner Pland lame	13	22
Bernen Elser	72	45
TEMPISERVICE	.45	78
Recuri classe	78	106
Ineria d Racher Chur	10to	142
Benent Chry + lonente	100	172
LIATTE &		
	*1	
	_	
DECENTED		_
SEP 0 2 2009		
DEFARITIVENT OF ECOLOGY - CENTINE RESIGNAL OFFICE		
		• •
		1
101	d Date ///	11411
	City P - BLEG County K Location // 1/4/// 1/4 SecO & Twing // Lat/Long (s, t, r Lat Deg Lat Still REQUIRED) Long Deg Lon Tax Parcel No CONSTRUCTION OR DECOMMISSION Formation: Describe by color, character, size of material and nature of the material in each stratum penetristed, with at least information. (USE ADDITIONAL SHEETS IF NECES MATERIAL. CONSTRUCTION OR DECOMMISSION MATERIAL. CONSTRUCTION OR DECOMMISSION MATERIAL. CONSTRUCTION OR DECOMMISSION RECEIVED SEPTIME CANAL SHEETS IF NECES RECTION CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY SEPTIME CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECUMENT CLARY RECEIVED DERRIMENT OF EDUDOY CONTRA INFORMATION DERRIMENT OF EDUDOY CONTRA INFORMATION OF CONTRA	City F - BLEG County KITTZ- Location // 1/4/// 1/4 SecOG Twin / 17 7 9. www. Lat/Long (s, t, r Lat Deg Lat Min/Sec Still REQUIRED) Long Deg Long Min/Sec Tax Parcel No CONSTRUCTION OR DECOMMISSION PROCEDU Pormation: Describe by color, character, size of material and structure, and the nature of the material in each structure penetriale and structure, and the nature of the material in each structure, with all least one entry. for each information. (USE ADDITIONAL SHEETS IF NECESSARY.) MATERIAL. MATERIAL. CONSTRUCTION OR DECOMMISSION PROCEDU MATERIAL. CONSTRUCTION OR DECOMMISSION PROCEDU CONSTRUCTION OR DECOMMISSION PROCEDU CONSTRUCTION OR DECOMMISSION PROCEDU CONSTRUCTION OR DECOMMISSION PROCEDU CONSTRUCTION OF DECOMPACE CONSTRUCTION OF DECOMMISSION PROCEDU DEPARTMENT OF DODOR OF DEMONICORDE DEPARTMENT OF DODOR OF DEMONICORDE DEPARTMENT OF DODOR OF DEMONICORDE

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REPORT	CURRENT (1) 163916
manual fill Original & Ist conv - Scolory 2nd conv - owner, 3rd copy - driller	Notice of Intent No.
Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No.
O Construction /52737	Water Right Permit No.
O Decommission ORIGINAL CONSTRUCTION Notice of Intent Number	Property Owner Name.
PROPOSED USE: Domestic Industrial Municipal DeWater Irrigation Test Well Other	Well Street Address
TYPE-OF WORK: Owner's number of well (if more than one)	City CU. County: KI FTT TUS
New Well Reconditioned Method: Dug Boped Driven     Deepend Cable Retary Jetted	Location 2 1/4 1/4 1/4 Sect Twn L R L or one WWM
DIMENSIONS: Diameter of well 6 inches, drilled 125 ft.	(s.t.r still REQUIRED) Long Day Law Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No.
Casing Welded _6 " Diam. from ft. to 124_ft.	CONSTRUCTION OR DECOMMISSION PROCEDURE
Installed: Liner installed Diam. fromft. toft.	Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one
Threaded Diam. fromft. 10ft.	entry for each change of information. Indicate all water encountered.
Perforations: Yes Yos	(USE ADDITIONAL SHEETS IF NECESSARY.)
Type of perforator used	MATERIAL FROM TO
SIZE of pertsin. byin. and no. of perts nomin. toin	Tot Soil 0 6
Screens: Yes Location	Multi Caler gravel b 18
TypeModel No	Hand Clay sandstone 18 40
DiamSlot Sizefromft. toft.	Tan Clay & Soudstond 40 10
Diamft. toft.	Multi coler grovel YO 105
Gravel/Filter packed: Yes KNo Size of gravel/sand	tan clay + sendstone 105 118
Materials placed fromft. toft.	Multi coler grave ( 1/2 123
Surface Scal: Myes No To what depth? 23 It	······
Did any strate contain unweshin water? DVas DNa	CO ECOLO
Turne of system? Denth of strata	A Received
Method of scaling strata off	
PUMP: Manufacturer's Name	
Type:H.P	
WATER LEVELS: Land-surface elevation above mean sea levelft.	AL REGION
Static level 15 ft. below top of well Date 6-29-09	
Artesian pressureIbs. per square inch Date	
(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?	
Yield: gal/min. with ft. drawdown after hrs.	
Yield:gal/min. withft. drawdown afterhrs.	
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	
Date of test	
Airtest 2.5 gal/min. with stem set at 120 ft. for 14 hrs.	
Artesian flow g.p.m. Date	(120) BU
We wanted with the state of the	Start Date Cor Cor Cor Compreten Date
Temperature of waterWas a chemical analysis made? LI Yes L No	nsibility for construction of this well, and its compliance with all
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respo	montal above are true to may bart becorded as and belief
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respondence with the information re	ported above are true to my dest knowledge and benet.
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respondence with the information representation of the information of the inform	Drilling Company Date Midwedge and bener.
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respo Washington well construction standards. Materials used and the information re Driller Engineer Trainee Name (Print) Mike More Field Driller/Engineer/Trainee Signature.	<ul> <li>Drilling Company Date Market Man Well Dril</li> <li>Address</li> </ul>
Temperature of waterwas a chemical analysis made? □ Yes □ No         WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respo         Washington well construction standards. Materials used and the information re         □ Driller □ Engineer □ Trainee Name (Print)	Drilling Company (D) (1 + p + M an (Ueu D))     Address     City. State, Zip
Temperature of waterwas a chemical analysis made? □ Yes □ No         WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respo         Washington well construction standards. Materials used and the information re         □ Driller □ Engineer □ Trainee Name (Print)	- Address - City, State, Zip Contractor's LUATERW0000000 7 [2]
Temperature of waterwas a chemical analysis made? □ Yes □ No         WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept respondent washington well construction standards. Materials used and the information re         Driller □ Engineer □ Trainee       Name (Print)	Drilling Company () (1 + p M an (Ueu Dri)     Address     City, State, Zip     Contractor's UATERWOODD DB 7/2/0

Note: Personally Identifying Info redacted due to privacy concerns.

Please print, sign and retu	rn to the Department of Ecolog	
	and the second s	
Water Well Report	Current	
Original - Ecology, 1st copy - owner, 2nd copy - driller	Notice of Intent No.	1164
ECOLOGY	Unique Ecology Well ID Tag No.	
Construction/Decommission	Water Right Permit No	0
Decommission ORIGINAL INSTALLATION Notice	Browerty Opmer Neme	
ch94 of Intent Number	Property Owner Name	
(67	Well Street Address	
PROPOSED USE: Debornestic Industrial Municipal	City Flensbucg County K	ittitas_
TVPR OF WORK: Once I could of more than one)	- Location NW /4-1/4 KGA /4 Sec 35 Twn	2 R/4 🐘 🛶
New well Reconditioned Method Day Bored Driven	Later to the Later of L	WWM C
Deepened Cubic Straty Jetted	Lat/Long (s, t, r Lat Deg La	at Min/Sec
DIMENSIONS: Dumeter of well inches, drilled ft.	still REQUIRED ) Long Deg L	ong Min/Sec
Depth of completed well 18.3	Tax Parcel No	
Casing Welded 16 " Diam. from +2 #. 10 138 ft		
Installed: Liner installed Diam. from ft. to ft	CONSTRUCTION OR DECOMMISSI	ON PROCEDURE
Perforations: Yes 2 No	Formation: Describe by color, character, size of material an nature of the material is each strategy and the state of the	d structure, and the kind
Type of perforator used	information indicate all water encountered. (USE ADDITIO	NAL SHEETS IF NECES
SIZE of perfsin. byin. and no. of perfsfromft. toft.	MATERIAL	FROM
Servens: Yes Store Location	Top Soil	0 3
Nanulacturer's Name	Clay of Gravel	3, 4
DiamR. toR.	Sandstone	16 1
DiamSlot sizetromR. toR.	Sanderon J Clau	64 18
Materials placed from R. to R.	Laure + Crey	77 10
Surface Seal: : The Yes No To what depth? 18 ft.	- Sugers	
Monterial used in seal Benton Ite	water	140 17
Did any strata contain unusable water?		
Type of water? Depth of strata		
Method of sealing strate off		
Type:H.P:		
WATER LEVELS: Land-surface elevation above mean sea levelft.	Ainlift	
Static level 47 th. below top of well Date 10-26-05	1-0 COM @ 180	
Artesian pressure lbs. per square inch Date	40 Gpm @ 120	
Artesian water is controlled by(cap, valve, etc.)		IS ECOLO
WELL TESTS: Drawdown is amount water level is lowered below static level		A. O. wowed
Was a pump test made? 🔲 Yes 🔛 No If yes, by whom?		S Receive
Yield: gal/min. with fl. drawdown after hrs.		DEC 1 4 200
Vield:gal/min. withft. drawdown afterhrs.		L'and
Recovery data (time taken as zero when pump turned off) (water level measured from well		122
nge av nater weitig Finne Water Level Time Water Level Time Water Level		AL REGK
Date of test		+
Bailer testgal./min. withft, drawdown afterhrs.		
Aintest and gal/min, with stem set at I. for hes.		
Temperature of water Was a chemical analysis mode?  Ves  No		
Conference of a data and a second and a second seco	Start Date 1/2-26-05 Comple	ated Data /1) -2
Date of text	Start Date 1/2-26-05 Common	

Note: Personally Identifying Info redacted due to privacy concerns.

	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	• S. S.	5.000
	CURRENT		7
WATER WELL REPORT Original & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	Notice of Intent No. 14-268	82	*
Construction/Decommission ("x" in circle) 353579	Unique Ecology Well ID Tag No.		
SCConstruction	Water Right Permit No.		
O Decommission ORIGINAL INSTALLATION Notice	Property Owner Name		
oj intent Number	Well Street Address		
PROPOSED USE: Comentic Industrial Municipal	CityEBures County 15	ETT	745
	Location NE1/4-1/4 NE1/4 Sec 28 Twn /7	R AST	P eirde
TYPE OF WORK: Owner's number of well (if more than one)		ww	oee N
Deepened Cable R Rotary Dietted	Lat/Long (s, t, r Lat Deg Lat	Min/Sec_	
DIMENSIONS: Diameter of well inches, dnilled _ 13 & ft.	Still REQUIRED) Long Deg Lo	ng Min/See	
Depth of completed well _/_5_Yft.	Tax Parcel No.		_
Casing & Welded 6 " Diam. from 72 ft. to 68 ft.	Taxi alceritto		_
Installed: Liner installed 1/2 " Diam from 12/2 h to 138 h	CONSTRUCTION OR DECOMMISSION	PROCEDU	RE
Perforations: XYes D No	Formation: Describe by color, character, size of material and	structure, and t	he kind and
Type of performor used SKTUSAW	information. (USE ADDITIONAL SHEETS IF NECES	SSARY.)	ach change or
SIZE of perfs 6 in by 9 4 in and no. of perfs 60 from 60 ft. to 1381.	MATERIAL	FROM	TO
Manufacturer's Name	DIET	0	1
Type Model No.	BROWN SAMDS TONE & COM	1	28
Diam. Slot size from ft. to ft. Diam. Slot size from ft to ft.	BROWN SAMOSTONE	28	45
Gravel/Filter packed: "Yes "S'No Size of pravel/sand	PRAUN STAR	45	86
Materials placed from ft. to ft.	LIGHT BEOUN SAND	86	105
Surface Seal: Styles DNo To what depth? 18 ft.	DK BROWN SANDSTONE +	105	119
Did any strata contain unusable water?	OP. CARY	1.4	127
Type of water? Depth of strata	- AMAL & LINA DER	111	131
Method of sealing strata off	Contropo		
PUMP: Manufacturer's Name			-
WATCH ( DUC) C. Land and a sharing sharing share seen as local			
Static level ft. below top of well Date		<u> </u>	
Artesian pressure lbs. per square inchr Date			
Artesian water is controlled by (can value etc.)	RECEIVED		
WELL TESTS: Drawdown is amount water level is lowered below static level	1.23.		
Wat a pump test made?  Yes Vo If yes, by whom?	OCT 1 2 2009		
Yield:gal /min. withft. drawdown afterhrs.		(MD/S	
Yield: gal./min. with ft. drawdown after hrs.	DEPARTMENT OF ECOLOGY - DEMINAL REMARK	UTINE	
Recovery data (time taken as zero when pump turned off) (water level measured from well			
Time Water Level Time Water Level Time Water Level			
Date of test			
Ainter lestgal./min. with R. deawdown after hes.			
Artesian flow			
Temperature of water Was a chemical analysis made? D Yes Dr No			11
	Start Date 7/30/04 Complet	ed Date 7/	30/09
WELL CONSTRUCTION CERTIFICATION: I constructed and/or acc	ept responsibility for construction of this well, an	d its complia	ance with all
Washington well construction standards. Materials used and the information	on reported above are true to my best knowledge a	nd belief.	
Driller Dengineer D Trainee Name (Print) JUS TTN. 11/4m	Scherprilling Company		
Drillen/Engineer/Trainee Signature	Address HIDDEN RIVE	RS DRIL	LING, INC
Driller or trainee License No.	City, State, Zip		
IT TO A DEED	Contractor's		-/
D TRAINEE,	Registration No H. HODER TS FOR	Date	434
D HRAINEE, Driller's Licensed No	The proceeding of the second sec	Real Comments	1 C
Driller's Licensed No	Ecology is an	Equal Opportu	nity Employer.

Note: Personally Identifying Info redacted due to privacy concerns.

Water Well Report	Current Notice of Intent No. W 163930
ECOLDEY	Unique Ecology Well ID Tag No.
Construction/Decommission	Water Right Permit No. A
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name
IS6704 of Intent Number	Well Street Address
PROPOSED USE: Domestic Industrial Municipal	City Ell. County Ki Hitas
Dewater I'mgabon I rest well Oliner	Location 24/4-1/4 Locat Sec 33 Twn 7 R 19 EWM Gerete
TYPE OF WORK: Owner's number of well (If more than one)	WWM concerned and the second s
Deepened Cuble PRotary Jetted	Lat/Long (s, t, r Lat Deg Lat Min/Sec
DIMENSIONS: Diameter of well 6_ inches, drilled 22. ft.	still REQUIRED ) Long Deg Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No.
Casing Welded 6 Diam from 43 ft. to 105 ft.	CONSTRUCTION OR DECOMMISSION PROCEDURE
Diam. from ft. to ft.	Formation: Describe by color, character, size of material and structure, and the kind and
Type of perforator used	nature of the material in each stratum penetrated, with at least one entry for each charge or information indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSAR)
SIZE of perfsin, by in, and no. of perfsfromft. toft.	MATERIAL FROM TO
Screens: Yes Yoo K-Pac Location	top soil 0 3
Type Model No	Multichler anual 12 25
Diam.         Slot size         from.         fl. to         fl.           Diam.         Slot size         from.         fl. to         fl.	ton sandstoned Clay 25 75
Gravet/Filter packed: Yes No Size of gravel/sand	Red Sandstone 75 85
Materials proceed from	Tan sand stance toley 85 103
Material used in seal Rentonite	Water
Did any strata contain unusable water?	
Type of water? Depth of strata	
PUMP: Manufacturer's Name	· · · · · · · · · · · · · · · · · · ·
Type:H.P	
WATER LEVELS: Land-surface elevation above mean sea levelft.	
Artesian pressure Ibs. per square inch Date	5 ED 00
Artesian water is controlled by(cap, value, etc.)	AT OF THE OF
WELL TESTS: Drawdown is amount water level is lowered below static level	S ^v Received
Was a pump test made? Yes No If yes, by whom?	0CT 1 4 2004
Yield:gal/min. withfl. drawdown afterhrs.	
Recirrery data (lime taken is zero when pump turned off) (water level measured from well	Al pecit
top to water level) Time Water Level Time Water Level Time Water Level	C HE OF
Date of test	
Airtest 40 gal/min. with stern set at 120 ft. for 2 hrs.	· · · · · · · · · · · · · · · · · · ·
Artesian flowg.m. Date	
Temperature of water Was a chemical analysis made? 🗌 Yes 📄 No	Start Days 9-23-042 Commission 9-24
ELL CONSTRUCTION CERTIFICATION I constructed and/or an	contrast responsibility for construction of this well, and its semalismential
Vashington well construction standards. Materials used and the informati	on reported above are true to my best knowledge and belief.
riller/Enginees/Trainee Name (Print) MILe Monerfield	Drilling Crossel 10 200 Pro 10 2011 Drd
riller/Engineer/Trainee Signature	Address _
(TRAINEE.	Contractor
riller's Licensed No.	Registration No. WHATER WDODR DB 9
Driller's Signature	Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev.

Note: Personally Identifying Info redacted due to privacy concerns.

Third Copy - Drifler's copy J01040	Water Right Permit No		
	Address		
(2) LOCATION OF WELL County KITTATAS	- SW 1/4 SW 1/4 Sec 28 T 17 N.R 1		
TAX PARCEL NO	- N		
(3) PROPOSED LISE Connection Industrial Municipal			
Irrigation Test Well Other	Formation Describe by color character, size of material and structure and the kind an		
DeWater	nature of the material in cach stratum penetrated with at least one entry for each cha of information indicate all water encountered		
(4) TYPE OF WORK Owner's number of well (If more than one)	MATERIAL FROM		
Despended Dug Bored	SOIL 0		
Decommission X Retary Jetted	SAND AND GRAVEL 15		
5) DIMENSIONS Diameter of well 6 inches	SANDSTONE AND CLAY 19		
Dolled 138 feet Depth of completed well 138 it	SAND 98 SANDSTONE AND CLAY 103		
(6) CONSTRUCTION DETAILS.	SANDSTONE AND SAND 114		
Casing installed.	SANDSTONE AND SHALE CLAY 133		
Luner installed Diam from +2 it to 116 ft.	80 GPM @ 120		
Threaded Deam from ft to ft.	22 GPM @ 60		
Perforations: Yes XNo			
Type of perforator used			
perforations in by in the ft			
perforations from the tage tage tage tage tage tage tage tag			
perforsitions from ft to ft			
Screens: Yes XNo K-Pac Location	AT WAY		
Manufacturer's Name	of anicop		
Diam Slotsize from ft to ft	the start		
Diam Slotsize from ft to ft	- mill 1 1 2005 540		
Gravel/Filter packed Yes XNo Size of gravel/sand	1		
Material placed from ft to ft	TRAL OF ST		
Surface seal: X Yes No To what depth? 25 t			
Material used in seal BENTINITE Did any strate contain unescable water?			
Type of water? Depth of strata			
Method of sealing strata off			
7) PUMP Manufacturer's Name			
Type HP			
8) WATER LEVELS. Land-surface elevation above mean sea level ft	Work Started 4/20/2001 . 19 Completed 4/20/2001		
State level 45 # below top of well Date 4/20/2001	WELL CONSTRUCTION CERTIFICATION		
Artesian pressure lbs per square inch Date	I constructed and/or accept responsibility for construction of this well, a		
Artesian water is controlled by(Cap, valve, etc)	compliance with all Washington well construction standards. Materials		
ON WENT TEETS Drawfown is annual water laws a laws when since had	- In the manufacture reprinted and the site of my best movie and		
Was a pump test made? [Yes X No If yes, by whom?	Type or Print Name TOM MCGUIRE License No 035		
Yield gal/min with ft drawdown after birs	Traince Name License No.		
Yield get/min with ft drawdown after hrs	Drilling Company, DICK, DOLILIN, MELL, DDILLING		
Company data daga takan an yang yang yang burga afti bantar bari	RUCK POULIN WELL DRILLING		
from well top to water level)	(Signer License No 035		
Time Water Level Time Water Level Time Water Level	from and provide any second		
	Address		
	Registration No RICKPWD042.J2 Date 5/15/01		
Date of test			
Barrentest gai /min with ft drawdown after has Artest 80 gai /min with stem set at 420 ft for 4 has	(USE ADDITIONAL SMEETS IF NECESSARY)		
Artesian flow g p m Date	special accommodation needs, contact the Water Resources Proor		
Temperature of sectors Wiles a charmonic analysis mode? [Wes White	(360) 407-6800 The TDD number is (360) 407-6006		

Note: Personally Identifying Info redacted due to privacy concerns.



Note: Personally Identifying Info redacted due to privacy concerns.

File Dep Sec Thr	Onginal with OF CON antment of Ecology and Copy - Owner's Copy 5 Copy - Onitier's Copy	Notice of Intent     WOU33X3     UNIQUE WELL ! D #      Water Right Parmit No
(1)	OWNER: Name Ac	idres:
(2)	LOCATION OF WELL: COUNTY KI HI TOS -	NUVO NWHASAS TIG NR DO WM
(2=)	STREET ADDRESS OF WELL_ (or nearest address)	
_	TAX PARCEL NO.	
(3)	PROPOSED USE: Z Domestic irrigation Test Wel Other DeWater	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTING Formation: Describe by color, character size of material and situcture, a the lond and nature of the material in deach stratum penetrated, with at le consisting is each character of information. Indicate all water accountants of the stratum of the stratum penetrated in the stratum penetrated.
(4)	TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL FROM TO
	Deepensd	Tapsoil agreed 0' 2'
	Decommission YC Rotary C Jetted	caliche source out of 2' 4'
(5)	Driled 145' feet. Depth of completed weit 145	Beselt crevel - seliche 4' q'
(6)	CONSTRUCTION DETAILS	comental beself q' 12
_	Cosing installed: Diam. from t2_ to	Gibbles + served a ser HH
	Curer installed Diam. from ft. to the form	Sandstance have in 124' 132
		cumulatione - punk white in 131' 19
	Perforations: Tyles (\$100	concital general 1421 19:
	Type of perforator used	
	SIZE of performancesin. by	
_		
	Screens: DYes (2 No D K-Pac Location	]
	Manufacturer's Name	-
	Diam Slot Size from R. to f	
_	DiamSlot Sizeftomft. toft	
	Grevel/Filter pecked:Yes (ANo _ Size of grave/isand	
_	Material placed from ft to ft	19. 19
	Sunface seei ¥Yes ⊂ No To what dopth? <u>23 †</u> a Material used in seai	
	Did any strate contain unusable water? Thes This	
	Method of sealing strats off	
(7)	PUMP: Manufacturer's Name	
	Туря:Н Р	-
(8)	WATER LEVELS: Land-surface elevation above mean sea level	What Share Gills 94 and Gill A
	Artesian pressure	work stand Completed
•	(Cap, valve etc.)	WELL CONSTRUCTION CERTIFICATION:
(b)	WELL TESTS: Drawdown is amount water level is lowered bolow static level	I constructed ans/or accept responsibility for construction of this well.
•	Was a pump test made?	<ul> <li>compliance with all Washington well construction standards. Material and the information reported above are true to my best knowledge and</li> </ul>
	Yiek:h drawdown afterhrs	Type or Print Name Kelly Oban Liconse No. 121
÷	Yield:gai./min_withfi drawdown afterhre Recovery data (time taken as zero when purto turned off) (water level magnimum from	(Ucensed Onlier/Engineer)
1	well top to water level)	Transe Name License No.
1	Filme Water Level Filme Water Level Time Water Level	(Signed)
•		(Econsed Uniter/Engineer)
Ì	Cate of test	Addresi
÷	Baler test dal/mm with it drawdown after hrs	UNATERW00220B9/14/
	Artesian flowg.p.m Date	(USE ADDITIONAL SHEETS IF NECESSARY)
	Temperature of water Was a chemical analysis made?  Yes C No	Ecology is an Equal Opportunity and Affirmative Action employer. For
ECY	050-1-20 (11/98)	accommodation needs, contact the Water Resources Program at (360 6600, The TDD number is (360) 407-6006.
	<u>5.</u>	

Note: Personally Identifying Info redacted due to privacy concerns.

-

(1) OV (2) LO (2a) ST	VNER: Name				
(2) LO (2a) ST				Add	eseri
(2a) ST	CATION OF WELL	County Kitti to	ns l		NULLANW MASSED T 16 NR. 20 WM
TA	REET ADDRESS C	FWELL: (or nearest	address)		N
(3) PR	OPOSED USE:	St Domestic	Industrial	Municipal	(10) WELL LOG OF DECOMMISSIONING PROCEDURE DESCRIPTI
_		DeWater	Test Well	☐ Other	Formation: Describe by color, character, size of material and structure, a the kind and nature of the material in each stratum penetrated, with at le
(4) TY	PE OF WORK:	Owner's number of v	well (if more than one Method:	)	MATERIAL FROM TO
		Deepened     Reconditioned	Cable	_ Bored _ Driven	Topseil of 2'
(5) DIA	ENSIONS	Diameter of weil	A Rotary	Joheo	convel an
Dril	led bel	teet. Depth of comp	leted well	f.	Eleken mult Suculiture 1.5' 14
(6) CO	INSTRUCTION DET	TAILS			sandstone take he # 14' 2
0	Weideg Liner installed	<u>6</u> :	Diam from	ft to ft to ft	Briken mould + sudding and 60' 61
Ĕ	Threaded		Diam. from	t toft.	sunditure taby to a 66 8
		man Man		- 1	Stadilore telley to BI T
Typ	normilions: an of perforator used	Jives Koliko			Sundatore and any 96 10
SIZ	E of perforations		in. by	in.	sanditore + clay pro m 103 -1
		perform	ions from	t 10t.	Brult & readding any day 152' 10
Ma	nufacturer's Name ;	Lines ALINO LIK-	Pac Locabon		
Тур			Model N	0	
Dia	msk	ot Size	from	t tot.	(3 ³ ) 0
Gr	veVFilter packed:	CY08 KNo DS	size of gravel/sand		
Ma	tenal placed from		R 10		B B
Su	rface seal:	Yes C No	To what depth?	2.37 .	
Mat	any strata contain	unusable water?	YOS SAND		CL-
Тур	e of water?	in all i	Depth of stra	ita	
	tille blees deat unde	Alorea			
(7) PU Typ	MP: Manufacturers			1P	
(8) WA	TER LEVELS, 'Lan	d-surface devation a	bove mean sea lovel	. R	
Sta	tic level	104	It below top of well	Data C//0/41	Work Started 6/9 Completed 6/10 91
Art	esian water ia contri	olied by	(Can yoke at:)		WELL CONSTRUCTION CERTIFICATION
-	I TROTE DUC		(way, mixe, diff.)	r stote level	i constructed and/or accord managementation for construction of the unst
(a) WE Wa	s a pump test made	a?⊡Yes ⊡No I	yes, by whom?	w autric lovel	compliance with all Weshington well construction standards. Materia and the information reported shree are true bast broaders.
Yie	idgal/mer	with	ft drawdown	after hrs.	Time or Providence Kell - Alard Longer to 1213
Yie	ld:gal./min	, with	ft drawdown	afterhrs.	(Loonsed Onlien/Engineer)
Rec	covery data (time tai	ken as zero when pur	mp turned off) (water	level measured from	Trainee Name License No.
Tim	Water Le	val Time	Water Level	Time Water Level	onling conductor man well prilling:
_					(Signed)License No. 72
_		-			Address
Cal	le of test	gat/min with	h drawd	iown after	continging ATERIODATE NO. (011)
Art	est Arra 60	_gal/min with	ft drawd	lown alterhrs	Magismona IC HOLACA LUZDENS MIL
Arts	nperature of water_	Was a che	g.p.m ( mical analysis made)	? =Yes = No -	(USE ADDITIONAL SHEETS IF NECESSARY)
					Ecology is an Equal Opportunity and Altimative Action employer. For

Note: Personally Identifying Info redacted due to privacy concerns.

on on this Well Report	WATER WELL REPORT Original & 1" copy - Ecology, 2" copy - swnex, 3" copy - driller         Browney, 2"         Construction/Decommission ("x" in circle)         Construction/Occommission ("x" in circle)         Construction (KD         Decommission ORIGINAL INSTALLATION Natice of Intent Number         PROPOSED USE:       Domessic         Imparise       Industrial         Database       Industrial         Database       Industrial         Database       Industrial         Database       Industrial         Database       Industrial         Outer       Industrial         Database       Industrial         Outer       Industrial         Database       Industrial         Distance       Industrial	CURRENT Notice of Intent No	3 F 31. F 31.	S () () () () () () () () () ()
nformati	SiZE of perfsin. byin. and no. of perfsfromfi. tofi.           Servens:YesNoK-Pac           Maturfacturer's Name           Type           No           Model No	Formation: Describe by color, character, size of material and nature of the material in cach stratum prostatisd, with at leas of information. (USE ADDITIONAL SHEETS IF NECESS MATERIAL CACHAGE SI Comp. A	A structure, and t st one entry for ARY.) FROM	the kind and tach change
heln	DiamSlot size         fromft. toft.           DiamSlot size         fromft. toft.           Gravet/Filter packed:         Yes         f3 No	Sandstore (graved	35	57
a and/or th	Materials placed from	Sand Size (grand Sand (grand Smidstere Sand Store (grand Sand Store (Smill grand	155 165 209 309 330	158
ity the Dat	PUNIP: Manufacturer's Name		501	36.3
oes NOT Warrar	WELL TESTS: Drawdown is amount water level is lowered below static level         Wis a pump test made?       Yes         Yield:       gal/min.with         fi. drawdown after       by whom?         Yield:       gal/min.with         fi. drawdown after       brs.         vield:       gal/min.with         fi. drawdown after       brs.         vield:       gal/min.with         fi. drawdown after       brs.         vield:       gal/min.with         fi. drawdown after       brs.         well top to water level       fine         Time       Water Level       Time         Water Level       Time       Water Level	MOZ 6 I JUNI		
Ecology d	Date of test	Start Date 4124/14Completed Da	te 4/25	2//4
The Department of	Temperature of water       Was a chemical analysis made?       Yes       Yes       Yes       No         WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responses       Constructed and/or accept responses       Constructed and/or accept responses         WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responses       Constructed above are to constructed and/or accept responses         Driller/Engineer/Trainee       Name (New )       Constructed above are to constructed in constructed above are to construct and the information reported above are to construct the construct and the information reported above are to construct to construct and the information reported above are to construct to construct and the information reported above are to construct to constr	ansibility for construction of this well, and its compliance w use to my best knowledge and belief. Drilling Company RACH ADTILT Address City, State, Zip Contractor's Registration NaMIKERACH Police ease cull the Water Resources Program at 360-407-6872. In Service. Persons with a speech disability can call 877-3	ith all Washin N.G. <u>I ( )</u> 133-6341.	gton well

Note: Personally Identifying Info redacted due to privacy concerns.

File Original and First Copy with Department of Ecology Second Copy - Owner's Copy	
Third Copy Driller's C STATE OF	WASHINGTON Water Right Permit No.
(1) OWNER: Name	item_
(2) LOCATION OF WELL: COMP Kittitas	NE 10 12 13 18 10 17
(2a) STREET ADDRESS OF WELL (or neuronal address)	
(3) PROPOSED USE: Domentic Industrial C	(10) WELL LOG of ABANDONMENT PROCEDURE DESCRIPTION
Imigation     OeWater Teet Weil      Other	Formation: Describe by color, character, size of material and structure, and show thickness of aquit
(4) TYPE OF WORK: Owner's number of well	and the kind and nature of the material in each stratum penetrated, with at least one entry for an change of information.
Abendoned Diversel	MATERIAL FROM TO
Despend Cable Driven	Cabbles generals UN 04
(5) DIMENSIONS: Diameter of well 10 × 6	Table glack wi stars Rev 10 16
Drilled 37 feet. Depth of completed well 37 h.	Sand w- glant 15 (2) 16 36
(6) CONSTRUCTION DETAILS:	Comentad general a/clay 36 37
Casing Installed: _6_* Diam. trom 72 t. to 36 t.	
Liner installed Diam. from ft. to the	
Type of perforator used	
SIZE of performations In. by In.	
perforations from ft. to ft.	
Screens: Yes I No T	
Manufacturaris Name	Dia. Jul a 11 64 FRANKER
Type Model No Diam. Siotaize Irom N to 8	CINESA STORAGE
Diam. Skot size from ft. bo ft.	
Gravel packed: Yes No Size of gravel	
Gravel placed fromft. toft.	
Surface seel: Yes No , To your depart? 18	
Did any strata contain unusable water? Yes No.	
Type of water? Depth of strata	
Method of seeiing strata off	
(7) PUMP: Manufacturer's Name	
Type:H.P	
(8) WATER LEVELS: Land-surface elevation above mean sea level t.	Work Stand 2/0/47 19. Completed 3-3-27 19
Artesian pressure fit below top of well. Date	WELL CONSTRUCTOR CERTIFICATION:
Artseian water is controlled by(Cap. valve, etc.)	I constructed and/or accept responsibility for construction of this well, and its
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	the information reported above are true to my best knowledge and belief.
Was a pump test made? Yes No H yes. by whom?	multitler Man well Orilling
THESE	and the same in the ball that the comments a comment
APPLOS ANTINE 24 alm	Addresi
Recovery data (time taken as zero when pump turned off) (water level measured from well too to water level)	(Signed) License No. 2060
Time Water Level Time Water Level Time Water Level	Contractor's
	THATERMWOULD 3/4 97.
	(USE ADDITIONAL SHEETS IF NECESSARY)
Date of test	
Alriest gal/min, with stem set at ft, for hre.	Ecology is an Equal Opportunity and Affirmative Action employer. For spe-
Antesian flowg.p.m. Date	cas accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

Note: Personally Identifying Info redacted due to privacy concerns.

Well Name	General Description	Unique Well ID/Report ID
North of		
Agriculture		
Cla18	At S base of Yakima Ridge Anticline, above influence of irrigation	ACT574
Cla23	At S base of Yakima Ridge Anticline, above influence of irrigation	AGL796
Cla15	At S base of Yakima Ridge Anticline, above influence of irrigation	BCF027
North		
Valley		
Ter70	N end of transect, below irrigation canal, amidst agriculture	BAF889
Bit50	N end of transect, just above (N) of irrigation canal	BAF928
Bit71	N end of transect, just above (N) of irrigation canal	ABL581
Bit81	N end of transect, just above (N) of irrigation canal	133375
Bit80	N end of transect, just above (N) of irrigation canal	125651
Loc40	N end of transect, below irrigation canal, amidst agriculture	BIF734
Ter59	N end of transect, just above (N) of irrigation canal	126129
Bit09	N end of transect, just above (N) of irrigation canal	AKL903
Middle		
Valley		
Bea23	~0.5mi S of East Valley High School	952392
Cay22	In middle valley, ~1.5mi E of Yakima R.	BIN443
Mie9	Middle of Moxee Valley, on a local high point, amidst agriculture	ACX982
Duf86	Middle of Moxee Valley, amidst agriculture	AGM800
Bel65	Middle of valley, E of Moxee	AHT031
Bir22	In middle of the valley, ~1 mile E of Yakima R.	ACX879
East Valley		
Des38	SE end of Moxee Valley, amidst agriculture	AHT021
WA-24	SE end of Moxee Valley, on a local high point, amidst agriculture	ALC988
Hof35	S end of Moxee Valley, on a local high point, amidst agriculture	130589
Hof34	S end of Moxee Valley, on a local high point, amidst agriculture	131432
Hof25	S end of Moxee Valley, on a local high point, amidst agriculture	ABX809
Pos12	NE end of Moxee Valley, amidst agriculture	ALE016
South		
Valley		
Gam02	S end of transect, a midst a griculture	ACL563
Gam76	S end of transect, amidst a griculture	
Gam5	S end of transect, a midst a griculture	130920
Bea85	Middle of transect, directly south of Moxee	ALF463
Bea68	S end of transect, amidst a griculture	APT908
Konnowac		
Pass		
Kon14	S end of transect, above agriculture on the west side of Konnowac	BIN994
	pass	

## APPENDIX E- MOXEE VALLEY WELL LOGS

Printer and Original & 1* copy - Ecology, 2 nd copy - aware, 3 nd copy - driller	CURRENT	
F() [V()	Notice of Intent No. W 355660	DEPT OF
Construction	Unique Ecology Well ID Tag No.	Mercel
Decommission ORIGINAL INSTALLATION	Water Right Permit No.	MPR 2.0 -
Notice of Intent Number W092368	Property Owner Name	8 2
PROPOSED USE: [a] Dementic Industrial Municipal	Wall Street Address	13
TYPE OF WORK: Owner's number of well (if more than one)	Wen Street Address	SGION OFFI
New well Reconditioned Method: Dug Bored Driven	City TAKIMA County	TAKIMA OF
[2] Deepened ☐ Cable ■ Rotary ☐ Jetted DIMENSIONS: Diameter of well 6 inches, drilled 253 ft. Depth of scoreleted well 840 ft.	Location <u>NW</u> 1/4-1/4 <u>NW</u> 1/4 Sec <u>19</u> Twn <u>13</u> (s, t, r Still REQUIRED)	_R <u>20</u> ewn ∎ C or wwwC
CONSTRUCTION DETAILS	Lat/Long Lat Deg Lat M	lin/Sec
Casing Wwelded <u>6</u> Diam. from +2 ft to <u>345</u> ft Installed: # Liner installed 5 Diam. from 525 ft to 840 ft	Long Deg Long	Min/Sec
Dian. From ft. to ft.	Tax Parcel No. (Required)	
Perforations: X Yes No	CONSTRUCTION OR DECOMMISSION PROCED	URE
Type of performance TORCH	Formation: Describe by color, character, size of material and	d structure, and the kind a
Screents Type RNo. TK-Pac Location	of information. (USE ADDITIONAL SHEETS IF NECESS.	ARY.)
Manufacturer's Name	MATERIAL	FROM TO
Type Model No	BROWN AND GRAY BASALT	587 690
Diam. Slot size from ft. to ft.	HARD BROWN SHALE	694 696
Gravel/Filter packedt Yes No Size of gravel/sond	BROWN CLAY	696 713
Materials placed fromft. toft.	BROWN SAND & BROWN CLAY & BROWN	713 735
Surface Sealt (x) Yes () No To what depth? 20 + ft.	GREEN CLAY & GREEN SANDSTONE	735 752
Did atv strata contain unusable weter?	HARD DARK GRAY SHALE	752 755
Type of water? Death of strata	GRAY BASALT	755 759
Method of sealing strata off	A WATER	759 767
PUMP: Manufacturer's Name	GRAY BASALT	767 770
Турк Н.Р	GRAY BASALT & GREEN SHALE	770 780
WATER LEVELS: Land-surface elevation above mean sea level ft.	GRAY BASALT	780 799
Statio Jovel R. below top of well Date	& WATER & SULFUR	799 802
Artenian water is controlled by	HARD GRAY BASALT	802 828
WELL TESTS: Drawdown is amount water level is lowered below static level	BROKEN GRAY BASALT & PORUS GRAY	828 834
Was a pump test made? 🗌 Yes 🕱 No If yes, by whom?	BASALT & WATER	914 970
Yield: gal/min with ft. drawdown after hrs. Yield gal/min with ft. drawdown after hrs.	& WATER (SANDY)	834 838
Yield gal./min. with ft. drawdown after hes.	GREEN SHALE	838 840
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	BEDEOD ATTOMS & SALET THE AND ON	
Time Water Level Time Water Level Time Water Level	@ 756 FT TO 777 FT	
	g torn to men	
Date of test		
Beiler Test gal./min. with ft. drawdown after hrs.		
Airtest 70 + gal dmin. with stem set at 840 ft. for 1 hrs.		
Artesian flow g p.m. Date 2-4-16	Start Data 1 26 16	2.4.16
wes a chemical analysis made? Yes 📳 No	Completed Date	6
Tempenture of water Was a alternical analysis made? [] Yes 🗷 No	Start Date 1-25-16 Completed Date	e _2-4-16
FLL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept responsibility	ty for construction of this well, and its compliance with al	Washington well
onstruction standards. Materials used and the information reported above are true	s to my best knowledge and belief.	
Driller Engineer Trainee Name (Pert) DERRICK RANK	Drilling Company OASIS DRILLING LLC	
iller/Engineer/Trainee Signature	Address	
Providence Providence No. 2721	City, State, Zip . W	A , 98903
rilleda Simanturan	- Contractor's	2015
nuer a organulte.	Registration No. OASISDL914LH	Date 2-8-16
Y 050-1-20 (Rev 4407)	Boology is an Equal O	pportunity Employer

Note: Personally Identifying Info redacted due to privacy concerns.

Conginal & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller	Unione Frankras Well ID Tao No
Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag INO.
Q Construction	Water Right Permit No.
of Intent Number	Property Owner Name
PROPOSED USE: Domestic Industrial Municipal	Well Street Address
DeWater Imgation Test Well Other	Cin Yakima County Vakima
TYPE OF WORK: Owner's number of well (if more than one)	Location SW 1/4 1/4 NW 1/4 Sec 19 To 13 P 20 EWM
New Well W Reconditioned Method: Dug Bored Driven     Decremend     Cable Response Later	Location ON INF INF INFINITION RECEIPTING TO RECO OF
DIMENSIONS: Diameter of well 6 inches. drilled ft	Lat/Long: Lat Deg Lat Min/Sec
Depth of completed well ft	REQUIRED) Long Deg Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No.
Casing ∐Welded Diam. fromft toft Installed: [7] Lucconstalled 4 2 " Diam. from 415 ft to 545 ft	CONSTRUCTION OR DECOMMISSION PROCEDURE Formation Describe by color, character, size of material and structure, and t
Threaded Diam. fromft toft	kind and nature of the material in each stratum penetrated, with at least one
Perforations: Yes X No	(USE ADDITIONAL SHEETS IF NECESSARY.)
Type of perforator used	MATERIAL FROM TO
SIZE of perfsin byin and no of perfsfromft toft	Well Was Drillėd In
Screens: [X] Yes No K-Pac Location Manufacturer's Name Western Vell Screen	1975 For Mr. Pierce
TypePVCModel No	By B&B Well Drilling
Duam. <u>4 ± Stot Size 20 from 545 ft to 585 ft</u>	
DiamSlot Sizefromft toft	
Gravel/Filter packed: Yes No Size of gravel/sand	
Surface Seal: Yes No To what depth? ft	
Materials used in seal	
Did any strata contain unusable water? Yes 🖾 No	
Type of water?Depth of strata Method of sealing strata off	Contra Cal
PUMP: Manufacturer's Name	- 10 mm 62
Type:H.P	
WATER LEVELS: Land-surface elevation above mean sea levelft	
Static level 483 ft below top of well Date 8-27-01	
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 X No. If yes by whom?	
Yieldgal/mm withft drawdown afterhrs	
Yieldgal/min_withft drawdown afterhrs.	
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	
Date of testBal/min_withft_drawdown afterhrs	
Airtestgal/min with stem set atft forhrs	
Temperature of waterWas a chemical analysis made? Yes X No	Start Date 8-27-01 Completed Date 8-27-01
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept resp Washington well construction standards. Materials used and the information of	insibility for construction of this well, and its compliance with all enouted above are true to my best knowledge and belief
Dniler Engineer Traince Name (Prost) Jerry Rank /	
Driller/Engineer/Trainee Signature	Addres
Dnller or Trainee License No. 1435	Address _
Realized Little	Contractor's ON ST
If frames licensed driller's	UASISD#072T0 9.27 01

WATER WELL REPORT		
WATER WELL REPORT		
Driginal & 1" copy - Ecology, 2" copy - owner, 3" copy - driller	CURRENT	
Construction/Decommission ("x" in circle) 439728	Notice of Intent No. W 2/2349	
Construction	Unique Ecology Well ID Tag No.	
Decommission ORIGINAL INSTALLATION	Water Right Permit No.	
Notice of Intent Number	Property Owner Name	
DeWater Inigation Test Wall Other	Well Street Address	
TYPE OF WORE: Owner's number of well (If more than one)	City YAKIMA County	VAKIMA
New will      Reconditioned Method:      Dug      Bored      Driven     Driven	Logation NE 1/4 1/4 NW 1/4 Sec 10 Tam 13	P. 20 mm /2 m
DIMENSIONS: Diameter of well 6 inclus, dollard 880 ft.	(s.t.r. Sell REOURED)	Or One
Depth of completed well SBU &	ter	, wind
Cosing Welded 6 ' Dism. from +1 1:10	Lat/Long Lat Deg Lat M	in/Sec
Installed: Liner.installed Dirn. from 0. to %	Long Deg Long	Min/Sec
Perforations Type Palking	Tax Parcel No. (Required) 201319-21402	
Type of performance used	CONSTRUCTION OR DECOMMISSION PROCEDU Formation: Describe ity oblat, character, size of material and	RE stracture, and the kind and
SIZE of parts in by in and no. of parts from 0. to 0.	native of the material in each stratum pendrased, with at least	t one entry for each charge
Screens: Yes No K-Pat Location	MATERIAL	FROM 1 TO
Type Model No.	TOPSOIL	0 2
Diam. Sictuize from R to R	BROWN CLAY & BROWN SAND	2 6
Diam. Slot size from R. to R.	BROWN SAND	6 15
Gravel/Filter packed: Yes X No Size of gravel/hand	BROWN AND GRAY BASALT BROWN AND GRAY CLAY & BROWN	67 92
Surface Seek Sil Yes [] No. To what deads? 21 B.	SANDSTONE & GRAVEL	
Material used in seal BENTONITE	BR. CLAY & BR. SAND & BR. SANDSTONE	92 328
Did any sinsta contain unusable water? 🔲 Yes 🔳 No	BR. SANDSTONE & GREEN SAND & CLAY	328 382
Type of water? Depth of strata	BR. SANDSTONE & CRUMBLY BR. CLAY	386 414
Method of sealing stuata off	MED. BROWN CLAY	414 431
PUMPi Manufacturer's Name	HARD CRUMBLY BLUE-GRAY CLAY	431 449
WATER LEVELS: Land surface elevation above mean sea level 0	BROWN-GREEN CLAY	449 457
Statis level 525 0. below top of well Date 10-21-2011	BROWN SANDSTONE & BROWN CLAY	466 493
Artesian pressure Ibn. per square inch. Data	BROWN AND GRAY PORUS BASALT &	493 512
Actanian water is controlled by (cap, velve, etc.)	HARD YELLOW CLAY	612 576
WELL TRETS: Drawdown is amount water level is lowered below static level	GRAY BASALT	512 528
Yield gal/min. with B. drawdown after hm.	BROWN AND GRAY BASALT	554 564
Yield: gal/min. with ft: downlown after hrs.	GRAY BASALT	564 668
Recovery data time taken as zero when pump turned off) (water level measured from well	MULTICOLORED GRAVEL & BROWN AND	687 698
top to water level	GRAY BASALT & BROWN SANDSTONE	
Time Water Level Time Water Level Time Water Level	& WATER	
	GRAY BASALT & BROKEN GRAY BASALT	698 73,7
	GRAY BASALT	741 756
Date of text	GRAY BASALT & HARD BLUE SHALE	756 768
Autor 1 and add rates with drawdown after here.	ACCONTRATIC COLOR OF A	
Artikin flow ram ber 10-21-2011	(CONTINUE ON PAGE 2).	L L
Temperature of water 71 Was a charginal made anade? T Yes (R) No	Start Date 10-05-2011 Completed Date	10-21-2011
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibilit	y for construction of this well, and its compliance with al	Washington well
COMPACTOR Manhards, Materials used and the information reported above are true	Deller Comment OACLE DELLING 110	<
Dellas Register (Technol Genetics	OASIS DRILLING LLA	
Driller or trainer Lionse No. 2927	Address	
IF TRAINEE: Deiller's License No:	caty, State, Zip	
Driller's Signature:	Contractor's     Registration No. OASISDL914LH	Date 19 ANT FOOLD
80% 0%1.1-00 (Bar 400)		Received
and any other set (the state)	Econogy or an Equal C	050 2 0 201
		DECTATO
		10
		Billion and
		HEGION
		Day and
		ALL REGIO

Note: Personally Identifying Info redacted due to privacy concerns.

FOLLERT Construction Colleged U207728	CURRENT	
	Notice of Intent No. W 272549	
X Construction	Unique Ecology Well ID Tag No.	
Decommission ORIGINAL INSTALLATION	Water Right Permit No.	
Notice of Intent Number	Property Owner Name	
DeWater Injustion Test Well Other	Well Street Address	
TYPE OF WORK: Owner's number of well (if more than one)	City VARIMA Countri	VARIMA
Nie well Recorditioned Method: Dig Dored Driven		n 20
DiMEASIONS: Diameter of well 0 makes, chilled 880 a.	Location <u>NE.</u> 1/4-1/4 <u>NW 1/4 Sec 19</u> 1wn 15 (s, t, r Still REQUIRED)	K _0_ WWW D C
Depth of completed well 880 ft.	Later Later Later	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Cesing Welded 6 Dian from +1 ft to 528 ft	Larviong Lat Deg Lat Ma	EntRee
tastaffed: Diser installed	Long Deg Long M	tin/Sec
Threaded Diam. From R. to R.	Tax Parcel No. (Required)	
Type of performing used	CONSTRUCTION OF DECOMMISSION PROCEDU	E deschare and the kind at
SIZE of perfs in by in and no. of parfs from 0. to 0.	rature of the material in each stratum penetrated, with at least	one miry for each charge
Screens: Yes INo CK-Pac Loistion	of minmation. (USE ADDITIONAL SHEETS IF NECESSAI	TROM 1 TO
Maradiotary's Name	GRAY BASALT & HARD BLUE SHALE &	768 855
Diam. Slot nize ferme # 10.	MED. GREEN SHALE	
Diam. Slipsize from f. to ft.	BROKEN GRAY BASALT & HARD BLUE &	855 857
Graves/Filter packed: Yos I No Size of gravel/said	GREEN SHALE & WATER &	
Materials placed from ft.	CRAV DASALT & HARD DUTE & CREEN	857 880
Surface Seal: E Yes   No To what depth? 21 8.	SHALE	180
Addenial used in seal BENTONITE		
The of water?		
Medical of sentires aff		
PUMP: Manufacturer's Name	(CONTINUED FROM PAGE 1)	
Type: H.P.		
WATER LEVELS: Land surface elevation above mean sea level #.		
Static level 525 8. below top of well. Date 10-21-2011		
Artesian pressure Ba. per aguare inch. Date		
Actorian water in controlled by (sep, valve, etc.)		
WELL TESTS: Drawdown is amount water level is lowered below static level		
Was a pump test made? Yes I Yes I No If yes, by when?		
Yield: gal./min. with 0. drawdown after hm.		
Yield: gal/min.with ft. drawdown after hrs.		
necovery care come faken as zero when pump turned off) (water level measured from well too to water level)		
Time Water Level Time Water Level Time Water Level		
Date of test		
Bailer Test gal/min. with ft. drawdown after has.		
Airtant 45 getLinia with step set at 880 ft. for 1 hrs.		
Artesian flow g.p.m. Data 10-21-2011		
Temperature of water 7] Was a chemical analysis made? Yes a No	Start Date 10-05-2011 Completed Date	10-21-2011

			4 1
WATER WELL REPORT	Notice of Intent No. 2545	97	
E ( 0 L 0 G T Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No.		
Construction 3/6953	Water Right Permit No.		
O Decommission ORIGINAL INSTALLATION Notice	Property Owner Name		
of Intent Number	Wall Street Address		
PROPOSED LISE: Comercia Indistrial Minimized	well Street Address	1 10. 3	
DeWater Irrigation Test Well Other	City 79 King County 2	er ma	
TYPE OF WORK: Owner's number of well (if more than one)	Location_SE1/4-1/4 SEC//4. Sec 2.5 Twn /3	R <u>/9</u> www.	circle
New well C Reconditioned Method: Dug Derven	Lat/Long (s'tr Lat/Deg Lat	Min/Sec	1
Cable Series		Number	0
Depth of completed well 243 ft.	Long Deg Lor	ng Min/Sec	_ <u>P_</u> _
CONSTRUCTION DETAILS	Tax Parcel No		
Casing # Welded _ 6 Diam from +2 # to 19/ #			
Threaded Diam. from ft. to ft.	CONSTRUCTION OR DECOMMISSION	PROCEDU	RE
Perforations: 🗆 Yes 🖬 No	neture of the material in each stratum penetrated, with at least	one entry for eac	ch change of
Type of perforator used	information. (USE ADDITIONAL SHEETS IF NECES	SARY.)	
Screens: Ves M-No K-Pac Location	MATERIAL	FROM	2
Manufacturer's Name	LOUICNE	0.	-3
Type Model No.	Clay	3	20
Dam Slot size from ft to dt	- <del></del>		
Gravel/Filter picked: Q Yes No Gize of gravel/sand	Sandstone	70	125
materials praced from tr.			
Surface Seal: X Yes No To what depth?	Cley & Sandstone Liguers	125	140
Did any strata contain unusable water?	Cando in a luister	190	243
Type of water?Depth of sirata	Sand Stone - Water		
Method of sealing strata off			
PUMP: Manufacturer's Name			
Static level 103 the below top of will Date 10-16-08			
Artesian pressure [bs per square inchr Date,			
Artesian water, is controlled, by			
WELL TESTS: Drawlown is animut water level is lowered below static level.			
Was a pump test,made?  Yes  No If yes, by whom?			
Yield:ff. drawdown after hrs.			· · · · · · · · · · · · · · · · · · ·
Yield gal/min with fi drawdown after fis, Yield gal/min with fi drawdown after his.			
Recovery data (time taken as zero when pump turned off) (water level measured from well			• •
Time Water Level Time Water Level Time Water Level			
	RECEIVE	<u>ر</u>	
	000 0 0000		
Date of test			
Adder.testgal/min.withfl.drawdown afterhrs	NORTHER OF BOARD AND AND A REAL	 1 0FRCE	
Antesian flow	ALCONTRACT ACCOUNTS A SOLUTION ACCOUNTS	5 31 L 10	
Temperature of water Was's chemical afialysis made?			
	Start Date 10-16-08 Complete	d Date 10.	16-08
WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or ac	cept responsibility for construction of this well, and	its complia	hee with all
Washington well construction standards. Materials used and the informati	on reported above are true to my best knowledge an	nd belief.	- 11.4
Proviller D Engineer D Trainee Name (Print) Garu Lydin _	Drilling Company Apple Valley	Dell D	o ling
Driller/Engineen/Trainée Signatule	Address		
Driller or trainee License No	City, State, Zip		
If TRAINEE, Driller's Licensed No.	Contractor's	on do	14.08
Driller's Signature	Registration No. 1911200 175 RQ	Found Orment	ty Employed
		inter officient	of employee

Note: Personally Identifying Info redacted due to privacy concerns.

With a large the approximate of app	Construction       Construction       Construction       Construction         Discontrustion       Discontrustion       Discontrustion       Discontrustion         PROPOSIDUSE:       Domentia       Inductive       Property Owner Name         Discontrustion       Discontruster of well       Order         PROPOSIDUSE:       Discontiate of them Number of well of more than one)       Order         Discont of construction       Discontruster of well of order than one)       Order         Discont of construction       Discont of construction       Construction         Discont of construction       Discont of construction       East of construction         Discont of construction       Discont of construction       East of construction         Discont of construction       East of construction       East of construction         Discont of construction       East of construction       East of construction         Discont of construction       East of construction       East of co	Construction       Decommission (x* in circle)       37 J 107         Construction       Notice of Intent No.       Wite of Intent No.         PieroSSD USE:       Denentic       Imagination         Discourse of the struction       Decommission (x* in circle)       37 J 107         PieroSSD USE:       Denentic       Imagination         Discourse of the struction       Decommission       Imagination         Discourse of the struction       Imagination       Imagination         PieroSSD USE:       Denentic       Imagination       Imagination         Discourse of the structure of well of more than onel       Imagination       Imagination         Discourse of the structure of well of more than onel       Imagination       Imagination         Construction NETALLS       County YAKIMA       County YAKIMA         Constructure of well of more than onel       Imagination       Imagination         Prof originations:       Yia       No       Addition         Type of wells       One intend of more than onel       Imagination         State prefix       Iwa (Intend of the structure	Image: Description     Description       Operation: Description     Description       Image: Description: De	Construction/Decommission ("x" in circle) 372107 Construction Decommission ORIGINAL INSTALLATION Notice of Intent Number  PROPOSED USE: Dementie Industrial Definition DeWater Integrition Text Wall Other	Notice of Intent No. W 250171 Unique Ecology Well ID Tag No. Water Right Permit No.		
Construction/Recommission (% in circle)       3/ 4/ 0 / 1         Construction       Decommission (RZ in circle)       3/ 4/ 0         Decommission (RZ in circle)       Datatial       Manage in the international internated international international internatinterna	Construction/Decommission (X' in circle)       J 4 1 0 / 1         Construction       Indice G minet Number         Property Owner Name       Second Se	Construction/Decommission (*/ in circle)       D/ 410 /         Construction       Unique Ecology Well ID Tag No.         Decommission ACGINAL INSTALLATION       Notice of Intent Number         PhoPOSID USE:       Datasetial       Manipul         Diverse       Industrial       Manipul       Manipul <td>Construction/Decommission (X' in circle)       3/ 4/ 0 / 1         Construction       Decommission (RZ INLLATION         Notice of Intent Number       Maining I         Decommission (RZ INLLATION       Water Right Permit No.         Property Owner: Numer of Intent Number       Property Owner: Numer of Intent Number         Decommission (RZ INLLATION)       Water Right Permit No.         Decommission (RZ INLATION)       Water Right Permit No.         Decommission (RZ INLATION)       Water Right Permit No.         Device of Intent Number       Property Owner: Name         Property Owner: Name       Well Street Address         Device of Intent Number       County YAKIMA         Construction Netralis       County YAKIMA         Dependent on the One intent on th</td> <td>Construction/Decommission ("x" in circle) 31 × 10 / Construction Decommission ORIGINAL INSTALLATION Notice of Intent Number PROPOSED USE: Domestic Industrial Domicipal DeWater Infiguion Test Wall Other</td> <td>Unique Ecology Well ID Tag No. Water Right Permit No.</td> <td></td> <td></td>	Construction/Decommission (X' in circle)       3/ 4/ 0 / 1         Construction       Decommission (RZ INLLATION         Notice of Intent Number       Maining I         Decommission (RZ INLLATION       Water Right Permit No.         Property Owner: Numer of Intent Number       Property Owner: Numer of Intent Number         Decommission (RZ INLLATION)       Water Right Permit No.         Decommission (RZ INLATION)       Water Right Permit No.         Decommission (RZ INLATION)       Water Right Permit No.         Device of Intent Number       Property Owner: Name         Property Owner: Name       Well Street Address         Device of Intent Number       County YAKIMA         Construction Netralis       County YAKIMA         Dependent on the One intent on th	Construction/Decommission ("x" in circle) 31 × 10 / Construction Decommission ORIGINAL INSTALLATION Notice of Intent Number PROPOSED USE: Domestic Industrial Domicipal DeWater Infiguion Test Wall Other	Unique Ecology Well ID Tag No. Water Right Permit No.		
Struction       Onique Econgy Weit D Tag NO.         Decommission ORIGINAL INSTALLATION       Water Cight Permit No.         Proposed       Denotes's number of well 0 mode of Manningal       Water Right Permit No.         Proposed       Decommission ORIGINAL INSTALLATION       Water Right Permit No.         New well       Decommission ORIGINAL INSTALLATION       Water Right Permit No.         Proposed       Decommission ORIGINAL INSTALLATION       Water Right Permit No.         New well       Decommission ORIGINAL INSTALLATION       Water Right Permit No.         Proposed       Decommission ORIGINAL INSTALLATION       Water Right Permit No.         New well       Decommission ORIGINAL INSTALLATION       Water Right Permit No.         Origonal Construction ORIGINAL INSTALLATION       Output Difference Construction ORIGINAL INSTALLATION         New well       Decommission ORIGINAL INSTALLATION       County YAKIMA         Construction ORIGINAL INSTALLATION       County YAKIMA       Locadion INE 1.14-14 SE 1/14 SE 1/	CONSTRUCTION       Onight Econogy well in Tag Yo.         Decommission ORIGINAL INSTALLATION       Water Right Permit No.         Devices       Determine in the Wall       Devices         Diversion ORIGINAL INSTALLATION       Water Right Permit No.         Diversion ORIGINAL INSTALLATION       Well Street Address         Constructions       Diversion ORIGINAL INSTALLATION       Well Street Address         Diversion ORIGINAL INSTALLATION       Diversion ORIGINAL INSTALLATION       Construction ORIGINAL INSTALLATION         Diversion ORIGINAL INSTALLATION       Diversion ORIGINAL INSTALLATION       Construction ORIGINAL INSTALLATION         Diversion ORIGINAL INSTALLATION       Diversion ORIGINAL INSTALLATION       Construction ORIGINAL INSTALLATION         Diversion ORIGINAL INSTALLATION       Diversion ORIGINAL INSTALLATION       Construction ORIGINAL INSTALLATION         Diversion ORIGINAL INSTALLATION       Diversion ORIGENCONSCONSCONSCONSCONSCONSCONSCONSCONSCON	Construction       Only out of the number       Property Owner Name         DROOM WORL Construction       Determine (Determine)       Property Owner Name         Driven       Determine (Determine)       Determine)         Driven       Determine (Determine)       Determine)         Driven       Determine)       Determine)       Determine)         Driven       Determine)       Determine)       Determine)       Determine)       Determine)	Structure         Onique Econgy Weil ID 11g No.           Decommission ORIGINAL INSTALLATION Notice of Intent Number         Water Right Permit No.           Provide         Denesite Impaire         Impaire           Determit No.         Material Impaire         Denesite Impaire         Impaire           Determit No.         Denesite Impaire	Construction Decommission ORIGINAL INSTALLATION Notice of Intent Number  PROPOSED USE: Detentic DeWater Impation Text Well Other	Water Right Permit No.		
Notice of Intent Number       Waler Kignt Permit No.         *ROPOSED USE:       Desentio       Industrial         *Rovella       Desentio       Industrial         *No well       Energytion       Field Will of the second based Method?       Desention         Desented       County       YAKUMA       County       YAKUMA         Desented       Construction Method?       Desention       Desention       Desention       Tax         Desented       6       mine, childe       442       f.       County       YAKUMA       Location NEL 1/4-1/4 SE 1/4 Sec 23       Twn 13       R       19       rew Will       County       YAKUMA       Location NEL 1/4-1/4 SE 1/4 Sec 23       Twn 13       R       19       rew Will       County YAKUMA         Desented is commended well       442       n.       n.       County YAKUMA       Location NEL 1/4-1/4 Sec 1/4 Sec 23       Twn 10       Formation NEL 1/4-1/4 Sec 1/4 Sec 23       Twn 10       Formation NEL 1/4-1/4 Sec 1/4 Sec 23       Twn 10       Formation NEL 1/4-1/4 Sec 1/4 Sec 23       Twn 10       Formation NEL 1/4-1/4 Sec 1/4 Sec 23       Twn 10       Formation NEL 1/4-1/4 Sec 1/4 Sec 23       Twn 10       Formation NEL 1/4-1/4 Sec 1/4 Sec 24       Formation NEL 1/4-1/4 Sec 1/4       Formation NEL 1/4-1/4 Sec 1/4       Formation NEL 1/4-1/4 Sec 1/4       Formation NEL 1/	Water Kight Permit No.         PhorOSED USE:       © Determine         Diverselling       Determine         Diverselling       Determine         Diverselling       Determine         Diverselling       Becanditional Method:       Diverselling         Diverselling       Becanditional Method:       Diverselling         Determine       Calling       Becanditional Method:       Diverselling         Diverselling       Water       Becanditional Method:       Diverselling         Diverselling       Becanditional Method:       Diverselling       Diverselling         Diverselling       Water       Becanditional Method:       Diverselling       Diverselling         Diverselling       Becanditional Method:       Diverselling       Diverselling <tdd< td=""><td>Water Kight Fermit No.         PHOPGSUDUSE:       Densentic       Instantial       Owner Vanne         Property Owner Name       Property Owner Name       Property Owner Name         Diverse of well of more than onel       Property Owner Name       Owner Status         Diverse of well of more than onel       City YAKIMA       County YAKIMA         Depended       Reconditioned well 442       R       City YAKIMA         Constructions Diverse of well of moles, child 443       R       City YAKIMA       Location NE 1/4-1/4 SE 1/4 Sec 23       Twm 13       R 19       prever         Constructions Diverse of well of condect well 442       R       Constructions City YAKIMA       Location NE 1/4-1/4 Sec 1/4 Sec 23       Twm 13       R 19       prever       City YAKIMA         Constructions Diverse of well of condect well 442       R       Constructions City Attempt prometer of well of moles, character, and the kin structure, well her ki</td><td>Notice of Intent Number         Water Kight Permit No.           "BOPOSED USE:         Deminitic         Ibdanisigal           "Bording Dawlass:         Deminitic         Deminitic         Deminitical           New well         Energition         City         YAKIMA         County         YAKIMA           Deepend         mode, Gibbs         Based         Drive         City         YAKIMA         County         YAKIMA           Deepend         mode, Gibbs         Based         Drive         City         YAKIMA         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 13         R 19         Peene 10 Cee           WelfStords Connets on Welf         Generation welf         Add 443         R         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 13         R 19         Peene 10 Cee           SoverstructTorN DETAILS         Deminitical         Add 7         R         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 2006           SoverstructTorN DETAILS         Deminitical         Add 7         R         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 2006           SoverstructTorN DETAILS         Deminitical         Add 7         R         Twn 2006         ConstructorN 01 SCOMMISSON MOCCOUNT           SoverstructTorN ON SCOMMISSON MOCCOUNT         SoverstructorN 01 Scommers, and the kind and mont no of</td><td>Notice of Intent Number  PROPOSED USE: Desientic Industrial Municipal DeWater Irrigation Test Well Other</td><td>Water Right Permit No.</td><td></td><td></td></tdd<>	Water Kight Fermit No.         PHOPGSUDUSE:       Densentic       Instantial       Owner Vanne         Property Owner Name       Property Owner Name       Property Owner Name         Diverse of well of more than onel       Property Owner Name       Owner Status         Diverse of well of more than onel       City YAKIMA       County YAKIMA         Depended       Reconditioned well 442       R       City YAKIMA         Constructions Diverse of well of moles, child 443       R       City YAKIMA       Location NE 1/4-1/4 SE 1/4 Sec 23       Twm 13       R 19       prever         Constructions Diverse of well of condect well 442       R       Constructions City YAKIMA       Location NE 1/4-1/4 Sec 1/4 Sec 23       Twm 13       R 19       prever       City YAKIMA         Constructions Diverse of well of condect well 442       R       Constructions City Attempt prometer of well of moles, character, and the kin structure, well her ki	Notice of Intent Number         Water Kight Permit No.           "BOPOSED USE:         Deminitic         Ibdanisigal           "Bording Dawlass:         Deminitic         Deminitic         Deminitical           New well         Energition         City         YAKIMA         County         YAKIMA           Deepend         mode, Gibbs         Based         Drive         City         YAKIMA         County         YAKIMA           Deepend         mode, Gibbs         Based         Drive         City         YAKIMA         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 13         R 19         Peene 10 Cee           WelfStords Connets on Welf         Generation welf         Add 443         R         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 13         R 19         Peene 10 Cee           SoverstructTorN DETAILS         Deminitical         Add 7         R         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 2006           SoverstructTorN DETAILS         Deminitical         Add 7         R         Location NE, 1/4-1/4 SE 1/4 Sec 23         Twn 2006           SoverstructTorN DETAILS         Deminitical         Add 7         R         Twn 2006         ConstructorN 01 SCOMMISSON MOCCOUNT           SoverstructTorN ON SCOMMISSON MOCCOUNT         SoverstructorN 01 Scommers, and the kind and mont no of	Notice of Intent Number  PROPOSED USE: Desientic Industrial Municipal DeWater Irrigation Test Well Other	Water Right Permit No.		
BigD0350 Ud8:       Desentio       Induction         DVWare       Brightion       Text Well       Odars         DVWare       Brownion       Desention       Well Street Address         VPC0 WORK Conver's number dwell of marce than one)       Desention       Construction       Construction         New well       Reconstruction       Despending       One makes, dibled       445_8       Reconstruction         Discrete       Despending       Makes dible       Add_s       Reconstruction       Construction       Reconstruction         Discrete       Discrete       Discrete       Reconstruction       Recon	PHOPOSID USE:       Downessie       Default       Default       Property Owner Name         Provense:       Dright Score 1 number of well if more than one in the number, number	PHOPD3DE USE:       Desensition:       Industrial       Property Owner Name         Property Owner Name       Test Well       County YAKIMA         Well Street Address       City YAKIMA       County YAKIMA         Despend       Object Blacks       Direct Blacks       City YAKIMA         Despend       Object Blacks       Direct Blacks       City YAKIMA       County YAKIMA         Construction of dendeded well       on makes, drilled 443: R.       County Waked       County Makes       City YAKIMA         Construction of dendeded well       on makes, drilled 443: R.       County Makes       County Makes       City YAKIMA         Construction of dendeded well of a construct well of a construct well and structures       County Makes       County Makes       City YAKIMA         Construction of a construct well of a c	Big DDB UBE         Description         Description           DWWater         Image ion         The Well         Oder           DWWater         Image ion         The Well         Oder           Well         Reconstroad         Mathematic Control         Well         Control           Note well         Reconstroad         Bitters         Version         City         YAKIMA         County         YAKIMA           Description         Construction         Construction         City         YAKIMA         County         YAKIMA           Description         Construction         Construction         Reconstruction         Construction         Reconstruction         Construction         Reconstruction         Construction	PROPOSED USE:  Derivative Industrial Mounicipal DeWater Infigation Test Well Other			
Dividence       Direct Address         Dividence       Direct Address         Despend       Beconditioned Method:       Dag.         Despend       Bored       Driven         Despend       Bored       Driven         Despend       Bored       Driven         Despend       Galo Biology       Letod         Swing       Weld Street Address         Despend       Galo Biology       Letod         Swing       Weld Street Address         Despend       Galo Biology       Letod         Swing       Despend       A. to         Threaded       * Dian. Street Biology       R. to         Sime       Stering       A. to         Stering       No       R. to         Sime       Stering       A. to       R. to         Stering       ModelNo.       Real Microbiology       Real Microbiology       Stering         Stering       ModelNo.       Realo       R. to       Real Microbiology	Well       Downey number of well of more than coll         Divery of Well Covery number of well of more than coll       City YAKIMA       County YAKIMA         Despect       County YAKIMA       County YAKIMA         Despect       County County YAKIMA       County YAKIMA         Despect       County County YAKIMA       County YAKIMA         Construction       County YAKIMA       County YAKIMA         Despect       County YAKIMA       County YAKIMA         Construction       The county YAKIMA       County YAKIMA         Construction       Construction       County YAKIMA         Static       frame       frame       frame         Static       frame       frame       frame         Construction       frame       frame       frame         Static       frame       frame       frame	DeWate       Engation       Text Well       Opter       Well Street Address         TYPE OF WORKS Connect number of well of more than one!       Deg       Deced       City YAKIMA       County YAKIMA         Depend       County       County       YAKIMA       County YAKIMA         Depend       Descention       County       YAKIMA       County YAKIMA         Construction       County       County YAKIMA       County YAKIMA         Construction       County County       County YAKIMA       County YAKIMA         Case Apportant       Construction       County YAKIMA       County YAKIMA         Castruction       Construction       Construction<	Weiler       Improve Improve Address         Weil Street Address         Weil Street Address         Weiler Addrestes	DeWater Irrigation Test Well Other	Property Owner Name		
VPC OF WORK: Converts number of well 0 more than one)       Charles Control one of the end o	TYPE OF WORLS Coverents number of well of more than one!       Depend       County YAKIMA         Depend       Oblem Binkenstrip (Mindor ) Oble Binkenstrip 2 seted       Diverse       Contion MEL 1/4-1/4 SE 1/4 Sec 23 Twn 13 R 19 rew to organized well 242 R.         Downson Depend       Oblem Binkenstrip (Mindor ) Oblem Binkenstrip (Mindor	TYPE OF WORK: Concept sumber of well (mane than one)       Based       Driven         Depend       Constructions       Recording the sum of the sum o	VHC OWDRC Denvers' number of well (0) more than one)       Dreven       Dreven <td></td> <td>Well Street Address</td> <td></td> <td></td>		Well Street Address		
Deproved	□ Deepsood       □ Accellandabia       □ Ac	□ Decynomic       □ Decynomic       □ Dag       Date       Date <td< td=""><td>Deproved       December of well       Dog       December of well       Dog       December of well       At 14 1/4 SE 1/4 Sec 23 Twn 13 R 19 rew 0 Che www Che 20 Che www Che 20 Che www Che 20 Che 20</td><td>TYPE OF WORK: Owner's number of well ()f more than one)</td><td>City YAKIMA County</td><td>YAKIMA</td><td></td></td<>	Deproved       December of well       Dog       December of well       Dog       December of well       At 14 1/4 SE 1/4 Sec 23 Twn 13 R 19 rew 0 Che www Che 20 Che www Che 20 Che www Che 20	TYPE OF WORK: Owner's number of well ()f more than one)	City YAKIMA County	YAKIMA	
DMMERSIONS: Durnester of well	DMMERSIONS: Durnets of well       6       indus, andled       442       8         CONSTRUCTION DEFAILS       Construction No Efails       Lat Min/Sec	DMMERSIONS:Diameter of vell       6       index, chiled       445       R.         CONSTRUCTION DETAILS       Construction of sender of vell       6       'Diam. from       1. to       427       n.         Construction of sender of vell       6       'Diam. from       1. to       427       n.       Lat/Long       Lat Min/Sec         Construction of the interial of the inte	INMERGINE: Diameter of vell 6       index, dailed 442       a.         Image (B) Velded 6       One: from +1       ft to -422       n.         Image (B) Velded 6       One: from +1       ft to -422       n.         Image (B) Velded 6       One: from +1       ft to -422       n.         Image (B) Velded 6       One: from -1       ft to -422       n.         Velder of the form of the form -1       ft to -422       n.       Cost Structoron On DECOMUSION PROCEDURE         Velder of the form of the form -1       ft to -4       ft to -4       ft to -4         Velder of the form of the form -1       ft to -4       ft to -4       ft to -4         Velder of the form of the form -1       ft to -4       ft to -4       ft to -4         Velder of the form of the form -1       ft to -4       ft to -4       ft to -4         Velder of the form -1       ft to -4       ft to -4       ft to -4       ft to -4         Status       ft to -4         Status       ft to -4       ft	Deepened Cable ERotary Isteed	Location NE_1/4-1/4 SE_1/4 Sec_23_Twn_13	_R <u>19</u> EW	M 🗉 Che
CONSTRUCTION DEFAULS       Construction Defaults       Construction Defaults       Construction Defaults         Construction Defaults       No       R       R         Construction Defaults       No       R       R       R         Construction Defaults       No       R       R       R         Construction Defaults       R       R       R       R       R         Construction Defaults       R       R       R       R       R       R         Construction Defaults       R	CONSTRUCTION DETAILS       Construction Details       Construction Details       Construction Details         Construction Details       6       Dime. from       f. to       422 f. t.         Instailert:       Instailert:       Dime. from       f. to       f. to         Type of performance       Type of performance       f. to       f. to       f. to         Stream:       Type of performance       f. to       f. to       f. to       f. to         Stream:       Type of performance       f. to       f. to       f. to       f. to         Dian       Stortize       from       f. to       f. to       f. to       f. to         Dian       Stortize       from       f. to       f. to       f. to       f. to         Dian       Stortize       from       f. to       f. to       f. to       f. to       f. to         Dian       Stortize       from       f. to       f.	CONSTRUCTION DETAILS       Construction Details <td< td=""><td>ONSTRUCTION DETAILS      </td><td>DimEnSIONS: Diameter of well 6 inshes, drilled 445 e.</td><td>(s, t, r Still REQUIRED)</td><td>0 W1</td><td>× wм ⊡ Onc</td></td<>	ONSTRUCTION DETAILS	DimEnSIONS: Diameter of well 6 inshes, drilled 445 e.	(s, t, r Still REQUIRED)	0 W1	× wм ⊡ Onc
Image Wedded       6       Diam. from       1       n. to       427       n.         Installed:       Line: ionullide       * Diam. from       n. to       ft         "throatBack:       Line: ionullide       * Diam. from       ft       n. to       ft         "throatBack:       Yea       Mo       ft       n. to       ft         Yea of performs used       in and no. of perfs       ftom       ft. to       ft         Tax Parcel No. (Required)       Statistic       ftom       ft. to       ft         Statistics       ftom       ft. to       ft       ft       ft         Statistics       ftom       ft. to       ft       ft       ft       ft         Statistics       ftom       ft. to       ft       ft       ft       ft       ft         Statistics       ftom       ft. to       ft       ft       ft       ft       ft         Statistics       ftom       ft. to       ft	Casing       Walded       6       * Diam. from       1. to       9.         Installert       Lines installed       * Diam. from       8. to       9.         Parforations:       Yea       Diam. from       8. to       9.         Parforations:       Productions:       B. to       9.         Parforations:       Diam. from       8. to       9.         Parforations:       Diam. from       8. to       9.         St2E of parfs:       in undino. of perfs       from       8. to       9.         Manufacturer's Name       Constructions:       (USB ADDITIONAL SUBBATS IN PROCEDDE:         Dam       Stot size       from       6. to       9.         Stot size       from       6. to       6.         Bardiance of inset BE/DTONIE       23.       0.       0.         GRAVEL & BR. CLAY       8.       32.       117         Pareface Seeki       Ya       No To what depth' 23.       0.       0.         Material set in and BE/DTONIE       BR. CLAY & BR. SAND       117       239         State seed in and BE/DTONIE       BR. CLAY & BR. SAND & SM. GRAVEL       276       3337         State seed in and suffice eleetantial streand of indenome sealerel       6.	Casing       Widded       6       Dim. from       +1       ft to 422       ft         Installed	Beiler       Biten. from       1: to       422       n.         Installing       Diam. from       n. to       n.         Installing       Diam. from       n.       n.         Installing       Diam. from       n.       n.         Installing       Diam. from       n.       n.         Installing       Matter       Diam. from       n.         Installing       Matter       Diam. from       n.         Installing       Matter       Diam. from       n.         Diam. from <td< td=""><td>CONSTRUCTION DETAILS</td><td>Lat/Long Lat Deg Lat M</td><td>in/Sec</td><td></td></td<>	CONSTRUCTION DETAILS	Lat/Long Lat Deg Lat M	in/Sec	
Instantied       Dum. from       f. to       ft.         Imposed       * Diam. from       ft. to       ft.         Profestions       Yes       No         Syne of performs used	Installed       * Diam. from       ft. to       ft.            Trace and lock       * Diam. From       ft. to       ft.            Type of perforator used       Yam       No.       ft. to       ft.            Ziz of performations       Yam       No.       ft. to       ft.       ft.            Ziz of performations       Yam       No.       ft.	Installed       Durn, from       ft. to       ft.         Threshold       Dian, from       ft. to       ft.         Profestions       Yes       No         Type of perforstor used       m. by       in. and no. of perfs       ft. to       ft.         Stream:       Yes       M. No       K-Pue       Lossion       Constraint, Constraint, size of material and structure, and the line of the material areal trans there metriced, with the least creaming for each of allowners of the material areal trans there metriced, with the least creaming for each of allowners of the material areal trans there metriced, with the least creaming for each of allowners of the material areal trans there metriced, with the least creaming for each of allowners of the material areal trans the stream performation. (USE ADDITIONAL SHEETS IP NECESSARY.)         Material placed from       ft. to       ft.         GraveEl & BR CLAY       BR. SANDSTONE       Internation stream performation. (USE ADDITIONAL SHEETS IP NECESSARY.)         Barrand placed from       ft. to       ft.       ft.         GraveEl & BR CLAY       BR. SANDSTONE       Internation. Stream performation. (USE ADDITIONAL SHEETS IP NECESSARY.)         Barrand placed from       ft. to       ft.       ft.         GraveEl & BR. CLAY & BR. SAND       SARD & GRAY EL & BR. CLAY & SM. GRAVEL & 239       2         Material used in seal.       Berton strintramashie water?       Yes	The restable           The restable <td>Casing Welded _6 Diam. from +1 ft. to 427 ft.</td> <td>Long Deg Long</td> <td>Min/Sec</td> <td></td>	Casing Welded _6 Diam. from +1 ft. to 427 ft.	Long Deg Long	Min/Sec	
Preferations:	Preferations       Tree       In         Preferations       Tree       No         Type of performance used       In       In         Streens:       Type of performance methods       In         Streens:       Type of performance methods       In         Streens:       Type of performance methods       In         Streens:       Type of matching performance       In         Streens:<	Performion       Data Prior       Data Prior <td>without I yra       Data       Part and on of perfs       Part and on on other perfs       Part and on one of perfs       Part and on one of perfs       Part and one one perfs</td> <td>Installed: Liner installed "Diam. from ft. toft.</td> <td>Tax Parcel No. (Required)</td> <td></td> <td></td>	without I yra       Data       Part and on of perfs       Part and on on other perfs       Part and on one of perfs       Part and on one of perfs       Part and one one perfs	Installed: Liner installed "Diam. from ft. toft.	Tax Parcel No. (Required)		
Type of perforence used       Formation. Describe by color dimeted with an identify the isand one error by the isand one	Type of performance       n. to       n. to<	Type of perforator used       Image: Construct of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the construction and structure, and the kin structure of the structure of the construction and structure, and the kin structure of the structure of the constructure of the kin structure of the structur	type of performer und       Permission Declaration from the permission declaratis pere	Perforations: Yes No	ran rareer No. (required)	100	
IZE of pris_ in by in and no. of peris_ firm	SIZE & Gperfs       in. by       in. and no. of perfs       from       ft. to       ft.         Streens:       Type       in. by       in. and no. of perfs       from       ft. to       ft.         Type       Model No.       in. ft. to       ft.       ft.       ft.       ft.         Diam       Stot size       from       ft. to       ft.       ft.       ft.         Diam       Stot size       from       ft. to       ft.       ft.       ft.         Binn       Stot size       from       ft. to       ft.       ft.       ft.         GraveHiller packed:       Yes       No       Size figure/Fault       ft.       ft.       ft.         GraveHiller packed:       Yes       No       Size figure/Fault       ft.       ft.       ft.         GraveHiller packed:       Yes       No       Size figure/Fault       ft.       ft.       ft.         Barstais steed form       ft. to       ft.       ft.       ft.       ft.       ft.         GraveHiller packed:       Yes       No       Size figure/Fault       ft.       ft.       ft.       ft.       ft.         Br. SanDs       Soft Size figure/Fault       ft.	SIZE of perfsin_byin_and no. of perfsfinoft. toft.       ft. toft. toft.       fn.	IZE of prifs       in by       in and no. of perfs       from       ft. to       ft.         IZE of prifs       in solution.       in and no. of perfs       ftom       ftol       ftol         View       No. of       in and no. of perfs       ftol       ftol       ftol         View       No. of       ftol       ftol       ftol       ftol       ftol         View       No. of       ftol       ft	Type of perforator used	Formation. Describe by color, character, size of material and	structure, and t	he kind and
Creents       Yes       Elino       Coation         Annufacoure's Name       MATERIAL       FROM       TO         Syste       Model No       0       8         Diam       Slot size       from       ft. to       ft         Diam       Slot size       from       ft. to       ft         GRAVEL & BR. CLAY       & BR. SANDSTONE       BR. SANDSTONE       BR. SANDSTONE         Jarrelas placed from       ft. to       ft       BR. SAND & SM. GRAVEL & 239       276         Material splaced from       ft. to       ft       BR. CLAY & BR. SAND & SM. GRAVEL & 239       276         Variation in unaphile water?       Yes       No       Soff COARSE GRAY SANDSTONE & GRAVEL & 239       276         Variation of seeding strate off	Screenin:       Yes       [K]No       [K-Pac       Location         Type       Model No.       0       8         Diam       Site size       from       ft. to       ft.         GRAVEL & BR. CLAY       8       32         Diam       Site size       from       ft. to       ft.         Gravel/#iter packed:       Yes       No       Size of gravel/and       gt.       ft.         Gravel/#iter packed:       Yes       No       Size of gravel/and       ft.       ft.         Materal used in media       BR. CLAY & BR. SAND       Size of gravel/and       ft.       ft.         Starface Seek in Yes       No       To what depth?       23       ft.       ft.         Did ary strata contain unuable water?       Yes       No       Starface feek in and       Gt.       Starface feek in and       ft.       Starface feek in and       Starface feek in and <td>Sortens:       Yee       [B]No       K-Pac       Location         Manufacture's Name      </td> <td>Treemin       Yree       [B]No       [K-Pac       Locetion         Systemation       Manufacturer's Name       0       8         Systemation       Site size       from       ft. to       ft.         Systematic       Site size       from       ft. to       ft.         Site size       from       ft. to       ft.       ft.         Site size       from       ft. to       ft.       ft.         Site size       from       ft. to       ft.       ft.         Site size       ft. to       ft.       ft.       ft.       ft.         Site size       ft. to       ft.       ft.       ft.       ft.       ft.         Site size       ft. to       ft.       ft.       ft.       ft.       ft.       ft.       ft.       ft.       ft.</td> <td>SIZE of perfsft. toft.</td> <td>nature of the material in each stratum penetrated, with at lease of information. (USE ADDITIONAL SHEETS IF NECESSA</td> <td>(Lone entry for e (RY.)</td> <td>each chunge</td>	Sortens:       Yee       [B]No       K-Pac       Location         Manufacture's Name	Treemin       Yree       [B]No       [K-Pac       Locetion         Systemation       Manufacturer's Name       0       8         Systemation       Site size       from       ft. to       ft.         Systematic       Site size       from       ft. to       ft.         Site size       from       ft. to       ft.       ft.         Site size       from       ft. to       ft.       ft.         Site size       from       ft. to       ft.       ft.         Site size       ft. to       ft.       ft.       ft.       ft.         Site size       ft. to       ft.       ft.       ft.       ft.       ft.         Site size       ft. to       ft.       ft.       ft.       ft.       ft.       ft.       ft.       ft.       ft.	SIZE of perfsft. toft.	nature of the material in each stratum penetrated, with at lease of information. (USE ADDITIONAL SHEETS IF NECESSA	(Lone entry for e (RY.)	each chunge
Sype       Model No.         Diam       Stot size       from       ft       to       ft         Stot size       from       ft       ft       ft       ft         Materals placed from       ft       ft       ft       ft       ft         Markes Seek       Yes       No       Size of gravelatione state       ft       ft         Values and the set       ft       ft       ft       ft       ft       ft         Values and the set       ft       ft       ft       ft       ft       ft       ft         Values and the set       ft	Type       Model No.       0       8         Dam.       Stot size       from       ft. to       ft.         Diam.       Stot size       from       ft. to       ft.         Gravel/Filter packed       Yes       No       Stot size       fgravel/filter       gt. to         Gravel/Filter packed       Yes       No       Stot size       fgravel/filter       gt. to       ft. t	Type       Model No.       0       0         Diam       Slot size       from       ft. to       ft.         Diam       Slot size       from       ft. to       ft.         GravelFilter packed:       Yes       No       Size of gravel/stand       BR. SANDSTONE         Materals placed from       ft. to       ft.       ft.       Starface Sealt       Starface Sealt       Yes       No       TOPSOIL       0       ft         Starface Sealt       Yes       No       To what depth?       23       ft.       BR. CLAY & BR. SAND & SM. GRAVEL & 239       2         Materal used in seal       BENTIONITE       BR. CLAY & BR. SAND & SM. GRAVEL & 239       2       2         Materal used in seal       BENTIONITE       SOFT COARSE GRAY SAND & SM. GRAVEL & 239       2         Stary strata contain unusable water?       Yes No       No       SAND & GRAY CLAY & BR. SAND       337         Method of sealing strata off	Sype	Arrens: Yes No K-Pac Lossion	MATERIAL	FROM	TO
Diam       Slot size       from       ft. to       ft.	Diam       Slot size       from       ft. to       ft.	Diam       Slot size       from       ft. to       ft.	Diam       Slot size       from       ft. to       ft.	Type Model No.	TOPSOIL	0	8
Jiam     Stot Rue     fr. to     ft       Frevel/Filter packed:     Yes     No     Size of grevel/vand       Atterial paced from     ft to     ft       BR. SANDS TONE     BR. SANDS     117       BR. CLAY & BR. SAND     1117     239       Starting packed:     Yes     No     To what depth?     23     ft.       Starting packed:     Yes     No     To what depth?     23     ft.       Starting packed:     Yes     No     To what depth?     23     ft.       Starting packed:     Yes     No     To what depth?     23     ft.       Starting packed:     Starting packed:     Starting packed:     239     276       Wateral used in seal     BENTONITE     Starting packed:     Starting packed:     276       Starting packed:     Depth of strata     Starting packed:     Starting packed:     276       Starting packed:     Depth of strata     Starting packed:     Starting packed:     276       Starting packed:     Depth of strata     Gtarting packed:     Starting packed:     276       Water:     Marker:     Marker:     Starting packed:     Starting packed:     276       Water:     Marker:     Marker:     Staring packed:     Starting packed:     2	Dam       Stot late       from       ft. to       ft         Gravel/Filter packed:       Yes       No       Stot first of gravel/Filter packed:       Yes	Diam     Stot N22*     from     ft. to     ft       GraveWFilter packed     Yee     No     Size of graveHand     Material placed from     ft       GraveWFilter packed     Yee     No     ft     Size of graveHand     Material placed from     ft       Surface Seek     Yee     No     To vehout depth?     23     ft       Material used in weal     BENTONITE     Did any strata contain unuable water?     Yee     No       Type of water?     Depth of strata     Soft COARSE GRAY SANDSTONE & GRAY     276     30       Method of sealing strata off	Jum     Stot Rue     from     ft. to     ft       investightinger packadt     Yes     No     Size of grave elivand     BR. SANDS TONE       investightinger packadt     Yes     No     ft. to     ft.       interast placed from     ft. to     ft.     ft.     ft.       interast placed from     ft. to     ft.     ft.     ft.       interast placed from     ft.     ft.     ft.     ft.	Diam. Slot size from ft. to ft.	GRAVEL & BR. CLAY	8	32
Atterals placed from	Water all placed from       Rt to       ft.       ft.       ft.         Surface Seek       No       To what deph?       2.3       ft.       ft.       ft.         Material used in seal       BENTONITE       BR. CLAY & BR. SAND       SAND & SM. GRAVEL & 239       276         Material used in seal       BENTONITE       Depth of strata       SOFT COARSE GRAY SANDSTONE & GRAY       276       337         Sanded of sealing strate off	Materials placed from       fit       fi	Image: Interest procession of the set of gravestrand       Image: I	Diam Slot size from ft. to ft	BR. SANDSTONE	32	
wateras Seak       Yea       No       To what depth?       23       ft.         Material used in seal       BENTONITE       SoFT COARSE GRAY SAND& & SM. GRAVEL.       239       276         Waterial used in seal       BENTONITE       SoFT COARSE GRAY SANDSTONE & GRAY       276       337         SoFT COARSE GRAY SANDSTONE & GRAY       276       337       362         Waterial used in seal       Depth of stata       SOFT COARSE GRAY SANDSTONE & GRAY LAY & SM. GRAVEL       BR. SAND & GRAY CLAY & SM. GRAVEL         WMP. Manufacturer's Name	Surface Seek:       B. Yes       No       To what depth?       23       0.         Material used in seal       BENTONITE       BENTONITE       BR. CLAY & BR. SAND & SM. GRAVEL & 239       276         Did ary strata contain unusable water?       Depth of strata       BR. CLAY & BR. SAND & SM. GRAVEL & 276       337         Santo & sealing strata off       Depth of strata       BR. SANDSTONE & GRAY LAY & SM. GRAVEL       BR. SANDSTONE & BR. CLAY & BR. SAND       337         Method of sealing strata off       Material used in seal       BR. SANDSTONE & BR. CLAY & BR. SAND       337       362         Method of sealing strata off       Material user in seal evel       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.	Surface Seek:       W Yes       No       To what depth?       23       ft.         Material used in seal       BENTONITE       BENTONITE       Sorf CARSE GRAY SAND& SM. GRAVEL & 239       2         Did ary strata contain usuable water?       Yes       Yes       No       Sorf CARSE GRAY SANDSTONE & GRAY       276       3         Did ary strata contain usuable water?       Depth of strata       Sorf CARSE GRAY SANDSTONE & GRAY CLAY & SM. GRAVEL       BR. SAND & GRAY CLAY & SM. GRAVEL       BR. SAND & GRAY CLAY & SM. GRAVEL       BR. SAND STONE & BR. CLAY & BR. SAND       337       3         PUMP:       Manufacturer's Name	waterse Seek       Yea       No       To what depth?       23       ft.         dateral used in sed       BENTONITE       SoFT COARSE GRAY SAND& SM. GRAVEL       239       276         Wateral used in sed       BENTONITE       SoFT COARSE GRAY SANDSTONE & GRAY       276       337         SoFT COARSE GRAY SANDSTONE & GRAY       276       337       362         water?       Depth of strata       SOFT COARSE GRAY SANDSTONE & GRAY EL       BR SAND & SM. GRAVEL         WBY: Manufacturer's Name       Martine       BR SAND & MULTICOLORED GRAVEL       362         yre       H.P.       GRAY SAND & MULTICOLORED GRAVEL       362         a support strate       ft.       BR CLAY & BR SAND       378       393         trais level       214       ft. below top of well       Date       01-12-2010         strate level       Star per square inch. Dete       GRAY SAND & GRAVEL & WATER       395       393         tartein pressure       Jse. per square inch. Dete       GRAY SAND & GRAVEL & WATER       393       395         tarte level       No       Marker level       SoFT cack well & SAND       395       403         tartein pressure       Jse. per square inch. Dete       GRAY SAND & GRAVEL       403       420         tartein pressu	Materials placed from 0 to 10	BR. CLAY & BR. SAND	117	239
Material used in seal       BENTONITE	Materal used in sed       BENTONITE	Material used in seal       BENTONITE	stateral used in seal       BENTONITE	Surface Seal: N Yes No To what depth? 23 ft.	BR. CLAY & BR. SAND & SM. GRAVEL &	239	276
Did any strata contain unuable water?       Yes       No         Supp of water?       Depth of strata       Supp of water?       Sup of water?       Supp of water? </td <td>Did ary strata contain unashle water?       Yes       Yes       No         Type of water?       Depth of strata       SAND &amp; GRAY CLAY &amp; SM. GRAVEL       The strate of the</td> <td>Did ary strata contain unuable water?       Yes       Yes       No         Type of water?       Depth of strata       SAND &amp; GRAY CLAY &amp; SM. GRAVEL       HR         PUMP: Manufacturer's Name      </td> <td>Did any strata contain unuseble water?       Yes       No         Supe of water?       Depth of strata      </td> <td>Material used in seal BENTONITE</td> <td>WATER</td> <td>-</td> <td>334</td>	Did ary strata contain unashle water?       Yes       Yes       No         Type of water?       Depth of strata       SAND & GRAY CLAY & SM. GRAVEL       The strate of the	Did ary strata contain unuable water?       Yes       Yes       No         Type of water?       Depth of strata       SAND & GRAY CLAY & SM. GRAVEL       HR         PUMP: Manufacturer's Name	Did any strata contain unuseble water?       Yes       No         Supe of water?       Depth of strata	Material used in seal BENTONITE	WATER	-	334
Type of water?       Depth of strata       BR. SANDSTONE & BR. CLAY & BR. SAND       337       362         detud of sealing strata off       BR. SANDSTONE & BR. CLAY & BR. SAND       337       362         VMP: Manufacturer's Name       BR. SANDSTONE & BR. CLAY & BR. SAND       337       362         VMP: Manufacturer's Name       BR. SANDSTONE & BR. CLAY & BR. SAND       337       362         VMP: Manufacturer's Name       BR. SANDSTONE & BR. CLAY & BR. SAND       337       362         VATER LEVELS: Land-surface elevation above mean sea level       ft.       GRAY SAND & MULTICOLORED GRAVEL       362       378         Vater level       2]4       ft. below top of well       Date       0]-12-2010       GRAY SAND & GRAVEL & WATER       393       395         Vater level       bains pressare       jse. per square inch       Date       0]-12-2010       GRAY SAND & GRAVEL & WATER       393       395         Vater level       jse. per square inch       Date       0]-12-2010       GRAY SAND & GRAVEL & WATER       403       420         Vater level       inter with       ft. drewdown after       hs.       GRAY CLAY & SM. GRAVEL       403       420         Vater level       gal /min. with       ft. drewdown after       hs.       MHITE SANDSTONE & GRAVEL       441       441	Type of water?       Depth of strata         Method of sealing strata off       IBR. SANDSTONE & BR. CLAY & BR. SAND         PUMP: Manufacturer's Name       IBR. SANDSTONE & BR. CLAY & BR. SAND         Type:       H.P.         WATER LEVELS: Land surface elevation above mean sea level       0.         Static level       214       0. below top of well Date       01-12-2010         Retend off       BR. CLAY & BR. SAND       378       393         Static level       214       0. below top of well Date       01-12-2010         Retend off       BR. CLAY & BR. SAND       378       393         Static level       Date       01-12-2010       GRAY SAND & GRAVEL & WATER       393         Neter rest       Ibs. per equare inch. Date       01-12-2010       GRAY CLAY & BR. SAND       395       403         Artesian water is controlled by       (cep, valve, etc.)       (cep, valve, etc.)       GRAY CLAY & SM. GRAVEL       403       420         CRUMBLY BR. CLAY       BR. SANDSTONE & BR. CLAY & WATER       425       441         Well TESTS: Drawdown is amount water level some of the mean set is well water level       Ibs. per equark in the drawdown after ins.       Ibs. per equark ins.       Ibs. per equark ins.       Ibs. per equark ins.       Ibs. per equark ins.       Ibs.         Field: </td <td>Type of water?       Depth of strata       BR. SANDS TONE &amp; BR. CLAY &amp; BR. SAND       337         Matted of sealing strata off       BR. SANDSTONE &amp; BR. CLAY &amp; BR. SAND       337       3         PUMP: Mandschurer's Name       BR       GRAY SAND &amp; MULTICOLORED GRAVEL       362       3         Type:       H.P.       &amp; WATER       BR. CLAY &amp; BR. SAND       378       3         Static level       214       ft. below top of well       Date       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       3         Static level       214       ft. below top of well       Date       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       3         Br. CLAY &amp; BR. SAND       376       GRAY SAND &amp; GRAVEL &amp; WATER       393       3         Waterian pressure       Jon. pr square inch. Date       (cep, valve, etc.)       GRAY SAND &amp; GRAVEL &amp; WATER       393       3         Br. CLAY &amp; BR. SAND       395       4       GRAY CLAY &amp; BR. SAND       395       4         Vela yeapp test made?       Yee (B) NO if yea, by whon?       (cep, valve, etc.)       GRAY SANDSTONE &amp; BR. CLAY &amp; WATER       420       4         WHITE SANDSTONE &amp; BR. CLAY &amp; WATER       425       4       4       4       4       4       4         Field:       <t< td=""><td>type of water?       Depth of strata       BR. SANDS TONE &amp; BR. CLAY &amp; BR. SAND       337       362         dethed of sealing strata off       BR. SANDSTONE &amp; BR. CLAY &amp; BR. SAND       337       362         VMP:       H.P.       &amp; WATER       GRAY SAND &amp; MULTICOLORED GRAVEL       362       378         Variant level       1       A. MATER LEVELS: Land surface elevation above mean sea level       A.       BR. CLAY &amp; BR. SAND       378       393         tatis level       214       A. below top of well Data       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       395         tatis level       214       A. below top of well Data       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       395         tatis level       214       ft. below top of well Data       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       395         tatis level       intermined off the well is lowered below static level       GRAY SAND &amp; GRAVEL       403       420         tatis a gauptist in med?       Yes B. No. If yes, by whon?       WHITE SANDSTONE &amp; BR. CLAY &amp; WATER       425       441         what relevel       Marker level       Time Water level measured from well       MHITE SANDSTONE &amp; GRAVEL       441       445         what relevel       Time       Water Level       M</td><td>Did any strata contain utuaeble water? Yes 🕱 No</td><td>SAND &amp; GRAY CLAY &amp; SM. GRAVEL</td><td>276</td><td>331</td></t<></td>	Type of water?       Depth of strata       BR. SANDS TONE & BR. CLAY & BR. SAND       337         Matted of sealing strata off       BR. SANDSTONE & BR. CLAY & BR. SAND       337       3         PUMP: Mandschurer's Name       BR       GRAY SAND & MULTICOLORED GRAVEL       362       3         Type:       H.P.       & WATER       BR. CLAY & BR. SAND       378       3         Static level       214       ft. below top of well       Date       01-12-2010       GRAY SAND & GRAVEL & WATER       393       3         Static level       214       ft. below top of well       Date       01-12-2010       GRAY SAND & GRAVEL & WATER       393       3         Br. CLAY & BR. SAND       376       GRAY SAND & GRAVEL & WATER       393       3         Waterian pressure       Jon. pr square inch. Date       (cep, valve, etc.)       GRAY SAND & GRAVEL & WATER       393       3         Br. CLAY & BR. SAND       395       4       GRAY CLAY & BR. SAND       395       4         Vela yeapp test made?       Yee (B) NO if yea, by whon?       (cep, valve, etc.)       GRAY SANDSTONE & BR. CLAY & WATER       420       4         WHITE SANDSTONE & BR. CLAY & WATER       425       4       4       4       4       4       4         Field: <t< td=""><td>type of water?       Depth of strata       BR. SANDS TONE &amp; BR. CLAY &amp; BR. SAND       337       362         dethed of sealing strata off       BR. SANDSTONE &amp; BR. CLAY &amp; BR. SAND       337       362         VMP:       H.P.       &amp; WATER       GRAY SAND &amp; MULTICOLORED GRAVEL       362       378         Variant level       1       A. MATER LEVELS: Land surface elevation above mean sea level       A.       BR. CLAY &amp; BR. SAND       378       393         tatis level       214       A. below top of well Data       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       395         tatis level       214       A. below top of well Data       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       395         tatis level       214       ft. below top of well Data       01-12-2010       GRAY SAND &amp; GRAVEL &amp; WATER       393       395         tatis level       intermined off the well is lowered below static level       GRAY SAND &amp; GRAVEL       403       420         tatis a gauptist in med?       Yes B. No. If yes, by whon?       WHITE SANDSTONE &amp; BR. CLAY &amp; WATER       425       441         what relevel       Marker level       Time Water level measured from well       MHITE SANDSTONE &amp; GRAVEL       441       445         what relevel       Time       Water Level       M</td><td>Did any strata contain utuaeble water? Yes 🕱 No</td><td>SAND &amp; GRAY CLAY &amp; SM. GRAVEL</td><td>276</td><td>331</td></t<>	type of water?       Depth of strata       BR. SANDS TONE & BR. CLAY & BR. SAND       337       362         dethed of sealing strata off       BR. SANDSTONE & BR. CLAY & BR. SAND       337       362         VMP:       H.P.       & WATER       GRAY SAND & MULTICOLORED GRAVEL       362       378         Variant level       1       A. MATER LEVELS: Land surface elevation above mean sea level       A.       BR. CLAY & BR. SAND       378       393         tatis level       214       A. below top of well Data       01-12-2010       GRAY SAND & GRAVEL & WATER       393       395         tatis level       214       A. below top of well Data       01-12-2010       GRAY SAND & GRAVEL & WATER       393       395         tatis level       214       ft. below top of well Data       01-12-2010       GRAY SAND & GRAVEL & WATER       393       395         tatis level       intermined off the well is lowered below static level       GRAY SAND & GRAVEL       403       420         tatis a gauptist in med?       Yes B. No. If yes, by whon?       WHITE SANDSTONE & BR. CLAY & WATER       425       441         what relevel       Marker level       Time Water level measured from well       MHITE SANDSTONE & GRAVEL       441       445         what relevel       Time       Water Level       M	Did any strata contain utuaeble water? Yes 🕱 No	SAND & GRAY CLAY & SM. GRAVEL	276	331
detbad of sealing strate off	Method of sealing state off	Method of sealing state off	detbod of sealing strate off	Type of water? Depth of strata	BR. SANDSTONE & BR. CLAY & BR. SAND	337	362
Under: Name declaration above mean sea level       B.         (pp:       H.P.         (pp:       H.P.         (pp:       B.P.         (pp:       (pp:	PUMPE     MATER LEVELS:     Land surface elevation above mean sea level     #.       Static level     214	PLMBIE MAINESCRIPT'S Name       H.P.       GRAY SAND & MULTICOLORED GRAVEL       362       3         Type:       H.P.       & WATER       362       3         WITER LEVELS: Land surface elevation above mean sea level       ft.       6       362       3         Static level       214       ft. below top of well       Date       01-12-2010       BR. CLAY & BR. SAND       378       3         Static level       214       ft. below top of well       Date       01-12-2010       GRAY SAND & GRAVEL & WATER       393       3         Materian water is controlled by       (cep; valve, etc.)       GRAY SAND & GRAVEL       403       4         WELT PESTS: Drawdown is amount water level is lowered below static level       New static level       WHITE SANDSTONE & BR. CLAY & WATER       425         Vield:       gal/min. with       ft. drawdown after       hn.       Hn.       441       441         Vield:       gal/min. with       ft. drawdown after       hn.       5       5       5         Vield:       gal/min. with       ft. drawdown after       hn.       5       5       5         Vield:       gal/min. with       ft. drawdown after       hn.       5       5       6         Vield:       gal/min. with	Under: Manufacturer's Name       Image: Manufacturer's Name       362       378         (ppe:       H.P.       MATER LEVELS: Land surface elevation above mean sea level       8.       MATER LEVELS: Land surface elevation above mean sea level       8.         Matric level       214       ft. below top of well       Date       01-12-2010       BR. CLAY & BR. SAND       378       393         Integrand measure       Jbs. per aquars inch       Date       (cep. valve, etc.)       GRAY SAND & GRAVEL & WATER       393       395         Integrand measure       Jbs. per aquars inch       Date       (cep. valve, etc.)       GRAY SAND & GRAVEL & WATER       303       403         Integrand measure       Jbs. per aquars inch       Time       Matric level       GRAY CLAY & SM. SAND       395       403         Its a pump tet made?       Yes       No.       Time where is intervent in the drewdown after intervent interv	Method of sealing strata off	& SM. GRAVEL & WATER		
WATER LEVELS: Land surface elevation above mean sea level     0.       WATER LEVELS: Land surface elevation above mean sea level     0.       Bric level     214     0. below top of well       Isite level     10.       witherian water is controlled by     (cap. valve, etc.)       FELL TESTS: Drawdown is amount water level is lowered below static level       Isid:     gal/min. with       feld:     feld:       gal/min. with     ft. drawdown after       hs.     hs.       weter level     ft. drawdown after       hs.     hs.       weter level     ft. drawdown after       ind:     gal/min. with       ft. drawdown after       hs.     hs.       weter level     ft. drawdown after       ine     Water level       ine     Water level       ine Water level     Time       water level     Time       Water level     Appr. 2-8 2011fl	WATER LEVELS: Land surface elevation above mean sea level       #.         Stric level       214	WATER LEVELS: Land surface elevation above mean sea level     n.       Stric level     214     n. below top of well Date       Stric level     214     n. below top of well Date       Stric level     214     n. below top of well Date       Stric level     214     n. below top of well Date       Materian pressure     Br. CLAY & BR. SAND     378       Stric level     Br. CLAY & BR. SAND     393       BR. CLAY & BR. SAND     395       Mett. TESTS: Drawdown is amount water level is lowered below static level     403       WetL TESTS: Drawdown is amount water level is lowered below static level     CRUMBLY BR. CLAY & BR. CLAY & WATER       Yield:     gal/min. with     ft. drawdown after       Yield:     water Level     Time       Water Level     Time     Water Level	WITER LEVELS: Land surface elevation above mean sea level     #.       Maris lawel     214     ft. below top of well     Date     01-12-2010       BR. CLAY & BR. SAND     378     393       Maris lawel     214     ft. below top of well     Date     01-12-2010       Interian pressure     Jbs. per square inch     Date     01-12-2010     BR. CLAY & BR. SAND     395     403       Interian water is controlled by     (cep, valve, etc.)     (cep, valve, etc.)     GRAY SAND & GRAVEL     403     420       Ital a gramp test made?     Yes     No.     ft. drawdown after     hn.     hn.     425       Well TE SANDSTONE & BR. CLAY & WATER     423     441     445       WHITE SANDSTONE & GRAVEL     441     445       well me Water level     ins.     ins.     ins.       ield     gal/min. with     ft. drawdown after     hn.       ime     Water level     Time     Water level     measured from well       ime     Water Level     Time     Water Level     APR 2 8 2010	PUMP: Manufacturer's Name	GRAY SAND & MULTICOLORED GRAVEL	362	378
Basic lavel     214     ft. below top of well     Date     01-12-2010       Writerian pressure     Jis, per square inch     Date     (cap., valve, etc.)       Writerian weter is controlled by     (cap., valve, etc.)       FELL TESTS:     Drawdown is amount water level is forwered below static level       a a granp test made?     Yes       gal/min. with     ft. drawdown after       hs.     hs.       ield:     gal/min. with       ft. drawdown after     hs.       ield:     gal/min. with       ft. drawdown after     hs.       ive water level     ft. drawdown after       ive water level     in.       wet revel     messured from well       water level     messured from well       water level     Time       Water Level     Time       Water Level     Time	Strain level       214       ft. below top of well       Date       01-12-2010         Artesian pressure       Brs. per equare inch       Date       (cap, valve, etc.)       393       395         Artesian water is controlled by       (cap, valve, etc.)       (GRAY SAND & GRAVEL & WATER       393       395         WELL TESTS: Drawdown is amount water level is lowered below static level       (cap, valve, etc.)       GRAY CLAY & SR. GRAVEL       403       420         Well TESTS: Drawdown is amount water level is lowered below static level       hn.       420       422         Was a pamp test made?       Yes       No       If yes, by whon?       Mit a gal/min, with       #. drawdown after       hn.         Yield:       gal/min, with       #. drawdown after       hn.       Hn.       Hn.         Yield:       gal/min, with       #. drawdown after       hn.       Hn.         Yield:       gal/min, with       #. drawdown after       hn.         Stecowery data ltime taken as zero when pump turned off) (water level       Ima       Mit revel         Date of test	Static level     214        ft. below top of well       Data:       01-12-2010         Artesian pressure       Bis. per square inch       Date	Text Evel Text	WATER LEVELS: Land-surface elevation above mean sea level R	BR. CLAY & BR. SAND	378	393
Interian pressure       Jbs. per square inch. Date       395       403         Antesian weier is controlled by       (cep. valve, etc.)       GRAY CLAY & SM. GRAVEL       403       420         FELL TESTS: Drawdown is amount water level is lowered below static level       GRAY CLAY & SM. GRAVEL       403       420         as a gung test made?       Yes (g) No. If yes, by whon?       BR. SANDSTONE & BR. CLAY & WATER       425       441         WHITE SANDSTONE & GRAVEL       441       445       445       441       445         white is lowered off (water level measured from well po water level)       ft. drawdown after hrs.       brs.       brs.       brs.       brs.         water level       Time       Water Level       Time       Water Level       Diff.       Diff.	Artesian pressure       Ba. per square inch. Date       395       403         Artesian weier is controlled by       (cap, valve, etc.)       GRAY CLAY & SR. GRAVEL       403       420         WELL TESTS: Drawdown is amount weier level is lowered below static level       BR. CLAY & SR. GRAVEL       403       420         Was a pump test made?       Yes is No. If yes, by whon?       hns.       420       423         Was a pump test made?       Yes is No. If yes, by whon?       hns.       Hns.       441       443         Yield:       gal/min. with       ft. drawdown after       hns.       Hns.       1       1         Yield:       gal/min. with       ft. drawdown after       hns.       1       1       1         Secowery data time taken as zero when pump turned off) (water level       Time       Water Level       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	Artesian preasure       Jbs. per square inch. Date       395       4         Artesian weter is controlled by       (cep; valve, etc.)       395       4         GRAY CLAY & BR. SAND       395       4         GRAY CLAY & SM. GRAVEL       403       4         WELT ESTS: Drawdown is amount weter level is lowered below static level       6       402       4         Was a pump test made?       Yes       No. If yes, by whom?       420       4         Viable       gal/min, with       ft. drawdown after       hn.       4       4         Viable       gal/min, with       ft. drawdown after       hn.       4       4       4         Viable       gal/min, with       ft. drawdown after       hn.       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5       5		Static level ft. below top of well Date 01-12-2010	GRAY SAND & GRAVEL & WATER	393	395
Annesian water is controlled by     (cep: valve, etc.)     GRAY CLAY & SM. GRAVEL     403     420       FELL TESTS: Drawdown is amount water level is lowered below static level     GRAY CLAY & SM. GRAVEL     403     420       fell TESTS: Drawdown is amount water level is lowered below static level     BR. SAIDSTONE & BR. CLAY & WATER     423     441       isbit     gal/min. with     ft. drawdown after     hn.     hn.     441     443       isbit     gal/min. with     ft. drawdown after     hn.     1     441     443       isbit     gal/min. with     ft. drawdown after     hn.     1     443       isbit     gal/min. with     ft. drawdown after     hn.     1       isbit     gal/min. with     ft. drawdown after     hn.     1       in o water level     in owned off (water level measured from well     1     1       ime     Water Level     Time     Water Level     1       ime     Water Level     Time     Appr 2:8 2011ft     1	Artesian water is controlled by     (cap, valve, etc.)     GRAVEL     403     420       WELL TESTS: Drawdown is amount water level is lowered below static level     BR. SANDSTONE & BR. CLAY & WATER     420     423       Wa a part test made?     Yes No. If yes, by whon?     Yes No. If yes, by whon?     Yes No. If yes, by whon?     420     423       Was gal/min. with     ft. drawdown after     hns.     th.     441     443       Yield:     gal/min. with     ft. drawdown after     hns.     th.       No to water level)     Filme     Water Level     Time     Water Level       Date of test	Antesian water is controlled by     (cep, valve, etc.)     GRAY CLAY & SM. GRAVEL     403     4       WELL TESTS: Drawdown is amount water level is lowered below static level     CRUMBLY BR. CLAY     420     4       Water gal/min. with     ft. drawdown after     hn.     411     4       Yield:     gal/min. with     ft. drawdown after     hn.       Water Level     Time     Water Level     ft.	where is controlled by     (cep, valve, etc.)       FELT TESTS: Drawdown is amount water level is lowered below static level     GRAY CLAY & SM. GRAVEL     403     420       FELT TESTS: Drawdown is amount water level is lowered below static level     GRAY CLAY & SM. GRAVEL     403     420       // rest gal/min.with     ft. drawdown after     hn.     hn.     423     441       // rest gal/min.with     ft. drawdown after     hn.     441     445       // rest gal/min.with     ft. drawdown after     hn.     441     445       // rest gal/min.with     ft. drawdown after     hn.     441     445       // rest gal/min.with     ft. drawdown after     hn.     441     445       // rest gal/min.with     ft. drawdown after     hn.     100     100       // rest gal/min.with     ft. drawdown after     hn.     100     100       // rest gal/min.with     ft. drawdown after     hn.     100     100       // rest gal/min.with     ft. drawdown after     hn.     100     100       // rest gal/min.with     ft. drawdown after     hn.     100     100       // rest gal/min.with     ft. drawdown after     hn.     100     100       // rest gal/min.with     ft. drawdown after     hn.     100     100       //	Artesian pressureBe. per square inch. Date	BR. CLAY & BR. SAND	395	403
VELL TESTS: Drawdown is amount water level is lowered below static level     4.00     4.00     4.00       Vai a gump test made?     Ves     No     If yes, by whon?     BR. SANDSTONE & BR. CLAY & WATER     425       Vai a gump test made?     gal /min. with     ft. drawdown after     hn.     441     445       Vaid     gal /min. with     ft. drawdown after     hn.     441     445       Vaid     gal /min. with     ft. drawdown after     hn.     441       Vaid     gal /min. with     ft. drawdown after     hn.       vaid to water level     into:     into:     441       Vaid to water level     into:     into:     441       Vaid to water level     into:     into:     441       WHITE SANDSTONE & GRAVEL     441     445       Vaid to water level     into:     into:     into:       ime     Water Level     Time     Water Level       ime     Water Level     Time     ADR 2: 8 2011ft	WELL TESTS: Drawdown is amount water level is lowered below static level     CRUBBL 1 BR. CLAY & WATER     420     427       Wa a partp test made?     Yes & No. If yes, by whon?     No. If yes, by whon?     BR. SANDSTONE & BR. CLAY & WATER     425     441       Whit:     gal/min. with     ft. drawdown after     hn.     441     445       Yield:     gal/min. with     ft. drawdown after     hn.     441     445       Yield:     gal/min. with     ft. drawdown after     hn.     441     445       WhitTE SANDSTONE & GRAVEL     441     445     441     445       Weid:     gal/min. with     ft. drawdown after     hn.     441     445       Weid:     gal/min. with     ft. drawdown after     hn.     441     445       Weid:     gal/min. with     ft. drawdown after     hn.     441     445       No to water level     Ima     ft. drawdown after     hn.     6       Date of test	WELL TESTS: Drawdown is amount water level is lowered below static level     C.R.OWELT BR. CLAY     420       Wa a pump test made?     Yes (a) No     If yes, by whom?       Wa a pump test made?     Tres (b) No     If yes, by whom?       BR. SANDSTONE & BR. CLAY & WATER     425       Vield:     gal/min. with     ft. drawdown after       hm.     tres     tres       Yield:     gal/min. with     ft. drawdown after       hm.     tres     tres       Yield:     gal/min. with     ft. drawdown after       hm.     tres     tres       Yield:     gal/min. with     ft. drawdown after       hm.     tres     tres       Yield:     gal/min. with     ft. drawdown after       top to water level     tree     tree       I'me     Water Level     tree	FELL TESTS: Drawdown is amount water level is lowered below static level     4.20     4.20     4.20       Via a gunp test made?     Yes     No     If yes, by whon?     BR. SANDSTONE & BR. CLAY & WATER     425     441       Bid:     gal/min. with     ft. drawdown after     hn.     441     445       Via d gal/min. with     ft. drawdown after     hn.     441     445       Vist gal/min. with     ft. drawdown after     hn.     441       pal/min. with     ft. drawdown after     hn.     441       white yea     ft. drawdown after     hn.     441       pal/min. with     ft. drawdown after     hn.     441       pal/min. with     ft. drawdown after     hn.     441       pal/min. with     ft. drawdown after     hn.     443       pit owter level     measured from well     pit owter level     pit owter level       me     Water Level     Time     Water Level     APR 2 8 2010	Artesian water is controlled by(cap; valve, etc.)	GRAY CLAY & SM. GRAVEL	403	420
Yea a gump test made?     Yes	We a sump test made? Yes [a] No If yes, by whon? hn. yesh:gal/min. withf. drawdown after hn. Yesh:gal/min. withf. drawdown after hn. Yesh:gal/min. withf. drawdown after hn. Recovery draft films taken as zero when pump turned off) (water level measured from well top to water level) Time Water Level Time Water Level The Water Level Time Water Level Time Water Level Date of test Builer Testgal/min. withf. drawdown after hn. Viriest 70gal/min. with seen set st ft. for hn.	We a samp test made?  Yield: gal/min. with ft. drawdown after hs. Yield: gal/min. with ft. Yield: gal/min	Yea a yamp test made? Y Yes [k] No If Yes, by whom?     Yea (k] No If Yes, by whom?     WHITE SANDSTONE & GRAVEL     441     443     Yea (k] No If Yes, by whom?     WHITE SANDSTONE & GRAVEL     441     443     Yea (k] No If Yes, by whom?     Yea (k] No If Yea, by whom?     Yea (k] Yea (k] No If Yea (k] No If Yea (k] Yea	NELL TESTS: Drawdown is amount water level is lowered below static level	BR. SANDSTONE & BR. CLAY & WATER	420	441
field:       gal/min.with       ft. drawdown after       tun.         field:       gal/min.with       ft. drawdown after       tun.         ketowery data [time taken as zero when pump turned off] (water level measured from well       p         pto water level       p         ime       Water Level       Time         Water Level       Time       APR 2/8 2/01f1	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 to to worker level)       measured from well       measured from well         Time       Water Level       Time       Water Level       measured from well         Time       Water Level       Time       Water Level       measured from well         Date of test	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 top to water level)     measured from well       Time     Water Level     Time	ield:       gal/min. with       ft. drawdown after       hn.         ield:       gal/min. with       ft. drawdown after       hn.         ield:       gal/min. with       ft. drawdown after       hn.         ecovery data [time taken as zero when pump turned off] (water level measured from well       pp         pip to water level       me       pp         ime       Water Level       Time       Water Level         water Level       Time       Mater Level       APR 2 8 2010         vise of test	Was a pump test made? Yes x No if yes, by whom? Yield: gal/min with ft. dpwdwm after hrs.	WHITE SANDSTONE & GRAVEL	441	445
Static     gat/mux with     B. drowdows after     hps.       kerovery data [time taken as zero when pump turned off] (water level measured from well pro water level)     me     RECEIVED       ime     Water Level     Time     Water Level	Text: gal.min. with ft. drawdown after hrs.  Recovery data [time taken as zero when pump turned off] (water level measured from well  Recovery data [time taken as zero when pump turned off] (water level measured from well  Pline Water Level Time Water Level  Fine Water Level Time Water Level  Pline of test Dete of test Baller Test gal.min. with ft. drawdown after hrs.  Virtest 70gal.min. with stem set at ft. for hrs	Text: gal mini. with f. drivedown after hes.  Recovery data [time taken as zero when pump turned off] (water level measured from well top to water level  RECEIVED	2012 gaurman with R. drowdown after hos.     ecovery data [time taken as zero when pump turned off] (water level measured from well     prover evel     me Water Level Time Water Level Time Water Level     APR 2 8 2010	Yield: gal/min.with ft. drawdown after hrs.			
proto water Level Time Water Level Time Water Level APR 2-8 2010	Time Water Level Time Water Level Time Water Level  Time Water Level Time Water Level  Time Water Level Time Water Level  APR 2 8 2010  Date of test  Bailer Test  Reformin with ft. drawdown after hrs.  Destanting of gal/min, with stem set at hrs.	top to water Level Time Water Level Time Water Level	po to water (evel) ime Water Level Time Water Level   RECEIVED  APR 2 8 2010  Vete of test	Yield: gal/min with fit drawdown after http://witer.invol.			
	Date of test     Baller Test     Baller Test     Baller Test       70     gal/min. with stem set at     435     ft. for     1     hrs.	Time Water Level Time Water Level	ime Water Level Time Water Level Time Water Level APR 282010	Approximation of the second s Second second sec	DECEMED		
APR 2.82010	Date of test     APR 2 8 2010       Bailer Test     gal./min. with		APR 2 8 2010	Fime Water Level Time Water Level Time Water Level	RECEIVED		
	Date of test				ADD 2 8 2010		
	Date of test		stel of test here a second sec		AFR 2.02010		
hate of text	Bailer Test gal/min. with the B. drawdown after hrs.	Date of text	TERENTIMAN DE ELO DET «CONTRAL DET AN	Date of text	DEPLATMENT OF FCOLOGY - CENTRAL REGIDINAL OFFIC	2	
	-russ //	Seller Test gal/min.with R. drawdown after hrs.	eiler Testgal/min. withR. drawdown after hrs.	Sailer Test gal/min_with ft. drawdown after hrs.			
eller Test galvnin, with ß, drawskown after hra.	Astroim flow a set Tota 01x12x2010	Verset // gauman.with seen set at 435 II. for 1 IIIS	20 million and a second state of the second se	verses _/Ugai/min. with stem set at _435ft. for _1hts		L	
siler Test gal/min. with ft. drawdown after hrs.	Impendure of water 64 Was a chemical analysis made?  Yes IN No Start Date 01-05-2010 Completed Date 01-12-2010	ADDRESS DAY STREET AT A STREET	intest 70 gal/min with stem set at 435 ft. for 1 hrs	Imperature of water 64 Was a chemical analysis marke? [1] Ves [2] No.	Start Date 01-05-2010 Completed Date	e 01-12-201	0
	Arterias flow g pm. Date 01-12-2010 Start Date 01 of 2010 Campleted Date 01-12-2010	Date of test         APR 2 8 Z010           Date of test	ailer Testgal/min. withft. drawdown afterhrs.	Day to water Level     Time     Water Level     Time     Water Level       Date of test	RECEIVED APR 2 8 2010 DENATIVENT OF SCO. DOV. CONTRAL REDOVAL OFFIC	- 01-12-201	
	Artist _/U_gal/mm. with stem set at _43517. for _1105	deller Test gal min with II. drawasown atter inn.	iller Testgal.min. withI. drawdown afterIm.	deiler Test gal/min. with B. drawdown after hrs.			
tiler Testgal/min.withft.drawdown afterhrs.	krtenian flow g.p.m. Date 01-12-2010	Attenian flow g p.m. Date 01-12-2010	intest 70 gal/min. with stem set at 435 ft. for hrs	Artesian flow g p.m. Date 01-12-2010			
itier Test gal/min. with ft. drawdown after hrs.	temperature of water 64 Was a chemical sealyna made? Yes 🗷 No Start Date 01-05-2010 Completed Date 01-12-2010		intest 70 gal/min with atem set at 435 ft. for 1 hrs traina flow g.p.m. Data 01-12-2010	emperature of water 64 Was a chemical analysis made? Yes 🕱 No	Start Date 01-05-2010 Completed Dat	e 01-12-201	0
tiler Test gal/nin with 0. drawdown after hrs.	to 1 days of the 12-2010	Airtiest 70 gal/min. with stem set at 435 ft. for hrs		Airtest 70 gal/min. with stem set at 435 ft. for 1 hrs			
itier Testgal/min. withft. drawdown afterhrs.	tetesias flow g.p.m. Date 01-12-2010	Artesian flow g.p.m. Date 01-12-2010	intest 70 gal/min with stem set at 435 ft. for 1 hrs	tranian flow g p.m. Date 01-12-2010		01.10.000	
iter Test gal/min. with ft. drawdown after hrs.	tempendure of water 64 Was a chemical analysis made? Yes 🗷 No Start Date 01-05-2010 Completed Date 01-12-2010		intest 70 gal/min. with atem set at 435 ft. for 1 hrs tranian flowg p.m. Data 01-12-2010	emperature of water 64 Was a chemical analysts made? Yes 🕱 No	Start Date 01-05-2010 Completed Dat	e 01-12-201	0

niviiuiis weiir Kepolt. ⊳i ⊱i alaa a itaa		SHINGTON         Water Right Permit No           .	3
יו אוויז איפוו הפוטור. פו צו מומים יו	1) OWNER: Name	• <u>SW</u> 1/4 NE 1/4 Sec 23 t 1	3 14
ni vii uliis vveli Kepo	2) LOCATION OF WELL: County Yakima (2a) STREET ADDRESS OF WELL (or restrict address) (3) PROPOSED USE:  (3) PROPOSED USE:  (3) Domestic industrial  (3) Municipal  (4) Impation Test Well  (5) Other	<u>SW 1/4 NE 1/4 Sec 23 t 1</u>	3 1.
	2a) STREET ADDRESS OF WELL (or resnel address) 3) PROPOSED USE:  C Domestic Industrial  Impation C Downers Test Well C Other		J N.R JOW
	3) PROPOSED USE: C Domestic Industrial C Municipal C Industrial C Municipal C Industrial C Other C		619
	Configuration Test Well Cother C	(10) WELL LOG or ABANDONMENT PROCEDURE DE	SCRIPTION
		Formation: Describe by color, character, size of material and structure, and r	show thickness of aquit
	4) TYPE OF WORK: Owner's number of well	change of information.	
5	Abandoned Diversities New well 2. Method: Dug Diversities Dored Diversities Diversitees Diversities Diversities Diversities Di	MATERIAL	FROM TO
	Percenditioned Cable Driven	Soil Rock and Gravel	
~ 11	5) DIMENSIONS: Diameter of well 6 inches	Sand And Clay	5 8
3.	Drilled 245 feet. Depth of completed well 245 ft.	Brown Sandstone	85 19
		Sand and Water	192 19
"	(b) CONSTRUCTION DETAILS: (PLASTIC)	Brown Sandstone	195 23
2	Weided	Sandstone and Water	238 24
=	Threaded Diam. from t. to t.		
- 1	Perforations: Yes No 🕱		
2	Type of perforator used		
2	SIZE of perforations in. byin.		
2	perforations from1. to1.		
8	perforetions from f. to f.		
3 -			<u> </u>
Š	Screens: Yes No X		<u> </u>
U U	Type Model No.		
5	DiamSict sizefromft. toft.		
Σ.	Diam. Slot sizefromft. 10ft.		
8	Gravel packed: Yes 🗌 No 💭 Size of gravel		
É.	Gravel placed fromft. toft.		
5	Surface eesi: Yes X No To what depth? 20		
2	Material used in sealBentonite_Clay		
2	Did any struct contain unusable water? Tes No		
2	Method of sealing strate of		
ß -			
2 (	(7) PUMP: Manufacturer's Name	DEC 2 7	
2	The second secon		
ກິ	(0) WATER LEVELS: care varies even the level t		
5	Arbeitan pressure R. beitow top of well Date		
ŝ	Artesian water is controlled by		
	(Cap, varve, etc.)	Work Stand 12-19-94 19. Completed 12-2	22-94 19_
2 (	(9) WELL TESTS: Drawdown is smourt water level is lowered below static level Waters a summarized marks? Mar her Mark 1 Ma	WELL CONSTRUCTOR CERTIFICATION:	
į.	Yield:hrat. withhrathrat.	I constructed and/or accept responsibility by construction	of this well, and if
Ě-		compliance with all Washington well construction standards	. Materials used an
		the information reported above are true to my best knowledg	e and been.
5	Recovery data (time taken as zero when pump turned off) (water level measured from well ten to water level)	NAME	NO.
5	Time Water Level Time Water Level Time Water Level		
- u		Address	
=		(Signed) Joens	∎No. <u>0854</u>
	Date of test	Contentado	
	Baller teet gal./min. with ft, chawdown after hrs.		0.4
	Artesian flow 0.0.m. Date	No. WAIDAWDITZQDDate Dec 25	19.54
	Temperature of water Was a chemical analysis made? Yes No	(USE ADDITIONAL SHEETS IF NECESSA	JRY)
r	ECL 050-1-20 (2/93) ** 1		

Note: Personally Identifying Info redacted due to privacy concerns.

Г			6157		
	File	Original and First Copy with Back of Copy		9841	
	Dep	eriment of Ecology WATER WI		2011	
	Thin	d Copy-Dniler's Copy STATE OF	WASHINGTON		R
ч.	_	OWNED: North			
ò			Address_		
e	(2)	LOCATION OF WELL: County Yaking	SE S	<u>/3.n.</u> r.	<u>19</u> w.m.
<u> </u>	(2a)	STREET ADDDRESS OF WELL (or nearest address)_	PARCEL #		
<u>e</u>	(3)	PROPOSED USE: X Domeslic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDU	RE DESC	RIPTION
S	_	DeWater Tost Well Other	Formation: Describe by color, character, size of material an thickness of souliers and the kind and nature of the material in a	d structure	, and show
Ĕ	(4)	TYPE OF WORK: Owner's number of well (If more than one)	with at least one entry for each change of information.		
Ē		Abandoned New well Z Method: Dug Bored Decrement	Sandy loam topsoil		4
2	_	Reconditioned D Rotary CX Jetted D	Hard cement gravel & cobbles	Ŭ,	7
ō	(5)	DIMENSIONS: Diameter of well6_ inches.	Boulders	7	15
ati	_	Drilled 180 feet. Depth of completed well 180 ff.	Cement gravel	15	19
E	(6)	CONSTRUCTION DETAILS:	" w/clay	37	38
ę.		Casing Installed: <u>6</u> · Diam. from <u>0</u> n. to <u>168</u> n.	Hard brn. sandstone w/brn.		
E.		Liner installed	clay	38	49
Ę	_	Perforations: Yes No X	clay	40	50
Ē.		Type of perforator used	Hard brn, sandstone w/brn, c	lav 5	0-53
ş		SIZE of perforations in. by in.	Hard brn. sandstone	53	59
ã		perforations from ft. to ft.	Soft brn. sandstone w/brn.	50	1.60
g		perforations from ft. to ft.	Coarse grev sandstone	152	156
a		Screens: Yes No X	Coarse brn. sandstoneww/blon	d	
e		Manufacturer's Name	clat	156	157
£		Jiem	Brn sendetone w/grey clay	157	158
₽		DiemStot elzefromft. toft.	Coarse grye sandstone	160	165
ar		Gravel packed: Yes No Size of gravel	Fine grey sandstone w/grey		
arı		Gravel placed fromft. toft.	Coarge gray candetone	165	107
3		Surface seet: Yee X No. To what depth? 20 M.	Brn. sandstone w/gravel	177	180
5		Did any strats contain unusable water? Yes Ho			
ž		Type of water?Depth of strate			
es	(7)	Nethod of sealing strate off			
÷	(7)	Tune Nanufacturer's Name			
≥	(8)	WATER LEVELS. Land-surface elevation	WR   2 1992		
ĕ	,	Static level 103 th below top of well Date 3-4-92			
8		Artesian pressure libs, per square inch Date			
Ш,		(Cap, valve, etc.))	Work started 3-2 19. Completed	3-4	19 92
ō	(8)	WELL, TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yas Z No Hypes, by whom? <u>BBCh</u>			
E I	_	Yield: gal./min. with ft. drawdown after hrs.	I constructed and/or accept responsibility for const	Inuction of	this well.
Ĕ	_	· · · · ·	and its compliance with all Washington well com Materials used and the information reported above	are true to	tandards.
art		Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	knowledge and bellef.		
e		Time Water Lovel Time Water Lovel Time Water Lovel	NAME Bach Well Drilling Co.		
0	_	Thile developing 35 GPM @160'	(PERSON, PIRM, OR CORPORATIOR)	(TYPE OF	R PRINT)
Pe-	2		Address _		
		Case of feet	(Signed)License h	0. 21	
		Deliver teat gel./min. with ht. drawdown after hms. Aintest gel./min. with stem set at the for	Candingstor's (WELL DIALLERD		
		Artesian flow 0.p.m. Date	BACHWDC1 37NU Dete3	-4	. 19 92
	1	Temperature of water 62 Was a chemical analysis made? Yes No 🗷	(USE ADDITIONAL SHEETS IF NECES	SARY)	
	CYOR	1-20 (10/87) -1329-		2	
-	_				

Note: Personally Identifying Info redacted due to privacy concerns.

		Geor	-
File C	Inginal and First Copy with	IL DEDODT Start Card No. 08090.	2
Depar	tment of Ecology WAIER WE		-
Third	Copy—Driller's Copy STATE OF V	Water Right Permit No	D
(1)	OWNER: North	Address	
''-			
(*)	LOCATION OF WELL: County Ya Ring		<b>7</b>
(2a)	STREET ADDDRESS OF WELL (or nearest address) Some		-
(3)	PROPOSED USE: K Domestic Industrial C Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE DESCR	IPTION
	DeWater Test Well Other	Formation: .Describe by color, character, size of material and structure, it is because of acuitars and the kind and nature of the material in such stratum of	and show
(4)	TYPE OF WORK: Owner's number of well	with at least one entry for each change of information.	
	Abandoned 🗋 New well 🛄 Method: Dug 🔲 Bored 🗋	NATERIAL PROM	10
	Deepaned A Gable Driven Deepaned Reconditioned Rotary Jetted		
(5)		Sanastone 146	178
(0)	Drilled 194-18 Het. Death of completed well 194 ft.		10.1
(6)		Sendstone + Granel 118	184
(0)	Casing installed: /a Diam from the 140_11.		
	Welded 10. Diam. trom		
	Threaded Diam. tromR. toR.	60 6PM from 184	
	Perforations: Yes No.	10 11 102	
	Type of perforator usedis byin	-40 " " 132	
	perforations from ft. to it.	20 " " 125	
	t. tot.		
_	perforations from ft. to ft.		
	Screens: Yesi No B		
	Type Model No		
	DiamR. toft.		
	DismSlot eizetromft. toft.		
	Gravel packed: Yes No EN Size of gravel		
	Surface seal: Yes No (2) To what depiny	JUN 2 4 1992	
	Did any strate contain unusable water? Yes No		
	Type of water?Depth of strate		
	Method of sealing strate off		
(7)	POMP: Manufacturer's Name		
(8)	WATER LEVELS, Land-surface elevation		
(8)	Static level 105 It. below top of well Date May 25,92		
	Artesian pressure the, per square inch Date		
_	Arteeian water is controlled by (Cap, valve, etc.))	Work started Mar 26 18 Completed Mar 25	1092
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level		
	Yield: gal./min. with ft. drawdown after hrs.	WELL CONSTRUCTOR CENTIFICATION:	this well
	1. 0 0 0 0	and its compliance with all Washington well construction at	my beat
	Recovery data (time taken as zero when pump turned off) (water level measured	knowledge and belief.	
	from well top to water level) Time Water Level Time Water Level Time Water Level	were Factored Dailling The	
		TYPE OF THE OF COPPORATION THE OF	PRINT)
_		Address -	
, -	Date of test	//2	,
	Bailer test gal, /min. with II. drawdown after hrs.	(Signed) License No	
	Airteas 60 gal /min. with alem set at 1.94 n. for 12 hrs.	Registres Tant 17600 May 29	1993
	Artesian flow g.p.m. Date	no. e and a construction of the second	
	Temperature of water Was a chemical analysis made? Yes 🗀 Not	(USE ADDITIONAL SHEETS IF NECESSARY)	<b>A</b>
		1002 10011011 0 11011 1	
	(1) (1) (2a) (3) (4) (5) (6) (9) (9) (9) (1) (2a) (4) (5) (6) (6) (7) (8) (9) (1) (1) (2) (2) (2) (3) (3) (3) (4) (4) (5) (6) (7) (7) (7) (8) (9) (7) (7) (7) (7) (7) (7) (7) (7	Begendinger       STATE OF V         STATE OF V       STATE OF V         (1) OWNER: Name	Spentament of Exclupt         STATE OF WASHINGTON           Your Royce Tables         STATE OF WASHINGTON           Your Royce Tables         New Royce Panel No.           10)         OWNER: Non-         Address           20)         STREE OF WASHINGTON         New Royce Panel No.           21)         OWNER: Non-         Address           23)         STREE OF WASHINGTON         Maintogal C           24)         STREE OF WASHINGTON         Maintogal C           25)         Streament of washington to make address of meany and exclustering the streament of washington to make address of meany and exclustering the streament of washington to make address of meany address

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REPORT	CURRENT	Received
Original & 1" copy - Ecology, 2" copy - awner, 3" copy - driller	Notice of Intent No. W361368	1
ECOLOGY Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No.	MAR Z 3 Z
Construction	Water Right Permit No.	10
Decommission ORIGINAL INSTALLATION	Property Owner Name	WRAI and
PROPOSED USE: Domestic Industrial Manicipal	Well Street Address	HEURO
DeWater Dirigation Test Well Other	City Yakima County Yakima	1
TYPE OF WORK: Owner's number of well (if more than cos) New well   Reconditioned Method : Dug   Biced   Driven   Cable Retary   Jetted Dimensional Cable Retary   Jetted Dimensions: Diameter of well index, dnilled 245 ft.	LocationSW1/4-1/4NW1/4 Sec 23Twn 13 R. (s, t, r Still REQUIRED)	19 EWM 10 Or WWM 10
Depth of completed well2 4 201. CONSTRUCTION DETAILS Casing ⊠ Welded <u>6</u> ⁻ Diam. from +3 ft. to 122 ft. Isotalled ⊠ Lister installed 4.5 ⁻ Diam. from 105 ft. to 245 ft. □ Threaded <u>1</u> Diam. From ft. to ft.	Lat/Long Lat Deg Lat Min/Se Long Deg Lone Min/ Tax Parcel No. (Required)	Sec
Perforations: 🛛 Yes 🗆 No Type of perforator used <u>SkillSAW</u> SIZE of perfs 1/4 in. by 12 in. and no. of perfs 36 from 185ft: to245ft.	CONSTRUCTION OR DECOMMISSION I Formation: Describe by color, character, size of material and nature of the material in each stratum penetrated, with at least	ROCEDURE structure, and the kind and t one entry for each change
Servens: Yes X No K-Pac Location	of information. (USE ADDITIONAL SHEETS IF NECESS/ MATERIAL	FROM TO
Manufactarer's Name	Soil	0 1
Type Model No DiamSlot sizefromft. toft.	Brown silty clay	1 10
Diam. Slot size from ft. to ft.	Brown sandstone	16 35
Gravel/Filter packed: U Yes 🔯 No Size of gravel/sand Materials placed fromft. toft.	Brown sandstone and Clay	35 96
Surface Seal: 🛛 Yes 🔲 No To what depth? <u>30</u> ft	Brown sandstone Clav & water	119 245
Material word in seal Bentonite	Contractional and a contraction of the second	110 10
Did any strata contain unusable water?  Yes  No Death of strata		
Method of sealing strata off		
PUMP: Manufacturer's Name		
Type: H.P. H.P.		
Static level 121 ft. below top of well Date		
Artenian 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?		
Yield Jal Amin, with ft, drawdown after Jes. Yield Jal Amin, with ft, drawdown after Jes. Yield lat Amin, with ft, drawdown after Jes.		
Recovery data (time taken as zero when pump turned off) (water level measured from		
Time Water Level Time Water Level Time Water Level		
= $=$ $=$ $=$ $=$ $=$ $=$ $=$ $=$ $=$		
Date of test		
Airtest 45 sal/min with stem set at 244 ft for 1 brs.		
Artesian flow gp.m. Date	Start Date 1/24/15 Completed Date	te <u>1/25/15</u>
and a constant carrier and an and a constant and a		at all Weaks and the
w LLC CONSTRUCTION CERTIFICATION: 1 constructed and/or accept resp construction standards. Materials used and the information reported above are t	Inter to my best knowledge and belief. Drilling Commany Water Wells Drilling, II Address	
Deiller or trainee License No.	City, State, Zip	
Driller's Signature:	Registration NoWATERWD112QB Date	
ECV 050-1-20 (Rev 02/10) If you need this document in an alternate formed a	lease call the Water Resources Program at 360-407-6872	
Persons with hearing loss can call 711 for Washington Re	lay Service. Persons with a speech disability can call 877-8.	33-6341.

		Dec Perso	2
	File	Driginal and First Copy with	Start Card No. 204574
	Depa	Itment of Ecology WATER WE	LL REPORT
	Seco	nd CopyOwner's Copy STATE OF 1 CopyDriller's Copy	WASHINGTON Water Bight Permit No.
	(1)	OWNER: Name	Address
ē	-	LOCATION OF WELL COME YAKIMA	NWNN, 2 2,13 , 19
e B	(2a)	STREET ADDDRESS OF WELL (or nearest address)	
Ë	(2)		
<u>s</u>	(3)	DeWater Test Well Other	Formation: Describe by color, character, size of material and structure, and show
s S	(4)	TYPE OF WORK: Owner's number of well	thickness of aquifers and the kind and nature of the material insect stratum penetrated, with at least one entry for each change of information.
Ē	,	Abandoned New weil Method: Dug Bored	MATERIAL PROM TO
Ē		Deepened X Cable Driven Deepened Reconditioned Rotary X Jetted	Sandefore Brown n 161 182
Ĕ	(5)		Simother Chan 102 -0
ŝ	(0)	Drilled test, Depth of completed well 268	
na	(6)	CONSTRUCTION DETAILS:	
١Ę.		Casing installed: * Diam. from 11.10 ft.	
Ĕ		Welded' Diam. from - /2t. to 268t.	
ø	_	Threaded Diam. from ft. to ft.	
÷.		Type of perforator used	
è		SIZE of perforations 6" Lange in by function in	
2		perforations from ft. to ft.	
aa		perforations fromft. toft.	
ati		Screens: Yee No	
2		Menufacturer's Name	
Ë.		Diam	
≥		DiamSlot eizefromft. toft.	
an		Gravel packed: Yes No Size of gravel	
ar		Gravel placed fromft. toft.	SEP I I ISOS ED
Ϊ		Surface seal: Yes No To what depth?f.	Constant of Found
片		Did any strate contain unusable water? Yes 💭 No 🔀	TOTAL TECION OFFICE
ž		Type of water? Depth of strate	
es	(7)	PUMP: Manufacturaria Nama	
<del>8</del>	,	Type:H.P	
≥	(8)	WATER LEVELS: Land-surface elevation	
ĕ		Static level ft. below top of well. Date	
8		Arresten preseure IDs. per square inchi Date Arresten water is controlled by Rester are W	
Ĩ,	(9)	WELL TESTS: Drawdgyn is amount water level is lowared below statin level	Work started 6/22/93 , 19. Completed 6/22/93 , 19
5	(1)	Was a pump lest mede? Yes No Hyes, by whom?	WELL CONSTRUCTOR CERTIFICATION:
en		Yield: gal./min.with It. drawdown after hrs.	I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards
ξ	_	· · · · · ·	Materials used and the information reported above are true to my best knowledge and belief.
ar		recovery data (time taxes as zero when pump turned off) (water level measured from well top to water level) Taxe Water level These Water Level Time Water Level	1.110 will be write
ě		AProx 16 + 12 com	NAME WILL WILLYS WELLS
e			Addres
Ē		Date of take	1205
		Beiler test gal./min. with ft. drawdown after hrs.	(Signed)License No. 1555
		Airleet gal./min. with slem set at ft. for, hre.	Registration // W io RA M Data 91/10/43
		Artesian flow 9.p.m. Dete	
			(USE ADDITIONAL SHEETS IF NECESSARY)
	ECY OB	-1-20 (10/87) -1228- () -444988 18	•

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REPORT	CURRENT Notice of Intent No
ECOLOGY Original & Ist copy Ecology 2nd copy owner 3rd copy driller	Unique Ecology Well ID Tag No
Construction/Decommission ( $x = m circle$ )	Water Paalst Dermst No
Decommission ORIGINAL CONSTRUCTION Notice	water Kight Fernat 190
	Property Owner Name.
DeWater Impation Test Well Dother	Well Street Address
	City Yaking County Yaking
Shew Well Reconditioned Method Day Bored Dower	Location SE 1/4 1/4 ME1/4 Sec 23 Twn 13 R 19 EWM circle
Deepened Cable Depend	Lat/Lone WWM
DIMENSIONS Diameter of well ( inches drilled 360 ft	(s,t,r still REQUIRED) Long Deg Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No
Casing Stweided L. Diam from +3, ft to 177 ft	CONSTRUCTION OR DECOMMISSION PROCEDURE
Installed Liner installed 4/2 PVC Diam from 148 ft to 348ft	Formation Describe by color character size of material and structure and the
Threaded Diam fromft toft	kind and nature of the material in each stratum penetrated with at least one entry for each change of information. Indicate all water encountered
Perforations Zives No Charles In	(USE ADDITIONAL SHEETS IF NECESSARY )
Type of perforator used 5K 11 SQW	MATERIAL FROM TO
SIZE of perfs <u>1/6</u> in by <u>6</u> in and no of perfs <u>70</u> from <u>305</u> ft to <u>348</u> ft	TOP SOIL 0 2
Screens Yes SNo K Pac Location	Grave) 2 4
Type Model No	Sand 4 13
DiamSlot Sizefromft_toft	Gravel 13 18
DiamSlot Sizefromft toft	Sandstone - Hard 18 185
Gravel/Filter packed Yes Size of gravel/sand	Clay + Sandstone 185 350
Materials placed fromft toft	Layers
Surface Seal Stres No To what depth?	Sand 350 3.60
Materials used in seal <u>500 100, TC</u>	
Type of water? Depth of strata	
Method of sealing strata off	OF TOFECON
PUMP Manufacturer s Name	Piecewed
Туре Н Р	AUG 1 2 mm
WATER LEVELS Land surface elevation above mean sea level ft	8 4003
Artesian pressure lbs per square inch Date	
Artesian water is controlled by	TEGION
(cap valve etc.)	
WELL TESTS Drawdown is amount water level is lowered below static level Was a nump test made? Ves No. If use hu whom?	
Yieldgal /min withft drawdown afterhrs	
Yieldgal /min withft drawdown afterhrs	
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	
Date of test	
Bailer test gal /min withft drawdown afterhrs	
Artestan flowg p m Date	8-11-03 8-12-23
Temperature of waterWas a chemical analysis made? Yes No	Start Date 0 11 - Completed Date 0 16-00
WELL CONSTRUCTION CERTIFICATION   constructed and/or accept respo Washington well construction standards. Materials used and the information re-	nsibility for construction of this well and its compliance with all ported above are true to my best knowledge and belief
Diler DEngineer DTrainee Name (Print) Gary Ludin	Drilling Compar Anala Valle - Well Drilling
Driller/Engineer/Trainee Signature	Address
Driller or Trainee License No /025	- City State Zin
If traumas beaused dulle='s	Contractors lolar maker G 12-22
Signature and License no	Registration No game voice b-12-03
<u></u>	<ul> <li>Ecology is an Equal Opportunity Employer ECY 050 1 20 (Rev 4/01)</li> </ul>

Note: Personally Identifying Info redacted due to privacy concerns.

		τ.	431/	22000	í.	
	File Depa Seco Third	Crigital and First Copy with Internet of Ecology Ind Copy—Onlifer's Copy Copy—Dniller's Copy	ELL REPORT Start Card No WASHINGTON Water Right Permit No	33792	٨	1
t	(i)	OWNER: Name	Address			
Repo	(2) (2a)	LOCATION OF WELL: County Yakima Parcel	# 1500_36_T_	13 N. R.	19 wm	
is Well	(3)	PROPOSED USE:  Demostic Irrigation DeWater Test Well Municipal Other	(10) WELL LOG or ABANDONMENT PROCEDU Formation: Describe by color, character, size of material as thickness of aquifers and the kied and nature of the material in et	RE DESC	RIPTION	
	(4)	TYPE OF WORK: Owner's number of well (if more than one)	with at least one entry for each change of information.	EROM	TO	
S		Abandoned Deepened Method: Dug Bored Deepened De	Clay Loam	0	12	
Ĕ		Reconditioned 🗌 Rotary 🕱 Jetted 🗍	Cemented Gravel	12	30	
5	(5)	DIMENSIONS: Diameter of well 6 inches	Brn. sandy clay	30	39	
12		Dritted 140 feet Depth of completed well 140 ft	Cemented gravel w/brn. sandy	-		
Ē			clay	39	50	
5	(6)	CONSTRUCTION DETAILS:	Med. brn. sandstone	50	58	
¥		Casing installed: 0 * Diam. from 0 ft. to 100 ft.	Cemented gravel w/brn. sandy			
느		Liner installed	clay	58	70	
2		Threaded Diam. tromft. toft.	Cemented gravel w/green			
P		Perforations: Yes No X	sandy clay	70	77	
5		Type of perforator used	Green sandy clay	- 77	81	
Ð		SIZE of perforations in. by in.	Hard green sandstone	81	110	WD
5		perforations from ft. to ft.	Med. green sandstone	110	135	WD
an l		perforations from ft. to ft.	Green sandstone w/green	4.05	140	
st	-	perforations irom n. to n.	sandy clay	135	140	
õ		Screens: Tes LI NoLA	The second se			
e e	1	Tune Madel No		1.00	110000	
5		Diam Siotaize from 11.10 ft.				
≥∽		DiamSlot sizefromtt. toft.				
Ē	_	Gravel packed: Yes No X enancie	The second			
22		Group placed from B to B				
al la	-	20				
~		Surface seal: Yes X No To what depth? 20 h.				
		Material used in seal		1		
¥		Did any strate contain unusable water? Yes No 조		1		
S		Type of water?Depth of strata	DEFA-DITENT OF ECCL AGY			
8		DI IMP.	GEN IN IL REGIUN OFFICE			
8	(1)	PUMP: Manufacturer's Name				
2	_	Type:H.P				
l S	(8)	WATER LEVELS: Land surface elevation tt.				
ō		Static level 10 n. below top of well. Date 12-17-90		-		
.Ö		Artesian pressure Ibs. per square inch. Date			-	
14	_	(Cap, valve, etc.))	West strates 12=12 to combined	12-1	7 90	
2	(9)	WELL TESTS: Drawdown is amount water level is lowered below static level	Work sharted		4., 10.2.2	
E		Was a pump test made? YesL&I No L If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION:			
8	_	Tield: get./min. with ft. drawdown after ftrs.	I constructed and/or accept responsibility for cons	truction of	this well,	
두			Materials used and the information reported above	are true b	o my best	
e la	-	Recovery data (time taken as zero when pump turned off) (water level measured	knowledge and belief.			
8		from west top to water level) Time Water Level Time Water Level Time Water Level	Booh Wall Drilling Co			
õ	_		PERSON FIRM OR CORPORATION	CTYPE O	R PRINT)	
e	_	35 GPM @140' 25 GPM @100'				
운	-	30 GPM @120'20 GPM @ 80'	Address -			
	7	Date of test	(Ginned)	14	36	
		Bailer test gal./min. with ft. drawdown after hrs.	Costracto	1.1.4	- u	
		Airtest gal. /min. with stem set at ft. for hrs.	Registration of activity	10		
		Artesian flow g.p.m. Date	No. BACHWIDG1 37NU Date 1-	17	., 19.91	
		Temperature of water $60$ Was a chemical analysis made? Yes No X	(USE ADDITIONAL SHEETS IF NECES	SARY)		
E	CY 050	-1-20 (10/87) -1329				
_						

Note: Personally Identifying Info redacted due to privacy concerns.

(1) OWNER: Name		Address			later of the second sec
(2) LOCATION OF WELL: County Y (2a) STREET ADDRESS OF WELL TAX PARCEL NO.	kima or nearest address)		. NE_1/4 _SE_ 1/4 Sec _3	34 T. 13 N.R 19	E_ W.1
(3) PROPOSED USE: Domestic Imigation	Industrial Municipal Test Well Other	(10) WELL L Formation: Descr nature of the mat of information. In	OG or DECOMMISSIONING PR tob by color, character, size of material and erial in each stratum penetrated, with at lea dicate all water encountered.	OCEDURE DESCRI d structure, and the kind an ist one entry for each chan	IPTION: d ge
(4) TYPE OF WORK: Owner's number	of well (If more than one) Method:		MATERIAL	FROM	то
Deepened	Dug Bored	Soil Gravel & Sa	nd	0	51
	n X Rotary Jetted	Sandstone	& Clay	51	76
(5) DIMENSIONS: Diameter of well	6 incl	es. Green Shale Sandstone	e Clay Green	76	84
Drilled 113 feet. Depth of comp	Neted well113	Sandstone	& Shale Clay Layers	94	11;
(6) CONSTRUCTION DETAILS: Casing Installed:			· · · · · · · · · · · · · · · · · · ·		
X Welded6 " Diam. from X Liner installed 4_1/2 " Diam. from Threaded " Diam. from	m <u>+2</u> ft. to <u>88</u> m <u>73</u> ft. to <u>113</u> m ft. to	n Dop	artment of Ecology		
Perforations: XYes No	and a second		1:0V 08 2017		
Type of perforator used Saw	in hy e	in			
35 perforations from	93 ft. to 113	ft. Wels	r Recources Program		
perforations from	ft. to	ft.			
Manufacturer's Name	Location	_			
Type	Model No.	-			
Diam. Slot size from	ft. to	n. ft.			
Gravel/Filter packed: Yes XNo	Size of gravel/sand	_			
Material placed from	ft. to	n			
Surface seal: XYes No Material used in seal. Bostopito Hole	To what depth? 25	n			
Did any strata contain unusable water?	Yes XNo				
Type of water? Method of sealing strata off	Depth of strata		······································		
(7) PUMP: Manufacturer's Name	нр				
(9) WATED I EVELO, Landaurface ale	vation			. 1 1	-
(b) WATER LEVELS. above mean sea	level	n. Work Star	ted 2/1/2017 , 19. Comple	ted 2/2/2017	, 19
Static level 4 ft. b Artesian pressure lbs. Artesian water is controlled by	elow top of well Date 2/2/201 per square inch Date (Cap, valve, etc)	WELL CO I construct complianc and the int	NSTRUCTION CERTIFICAT ted and/or accept responsibility for cor e with all Washington well constructio formation reported above are true to n	TON: instruction of this well, a in standards. Materials my best knowledge and	nd its used belief.
(9) WELL TESTS: Drawdown is amount we Was a pump test made? Ves XINo. 1	ater level is lowered below static level wes, by whom?	el Type or Print	Name TOM MCGUIRE	License No. 035	7
Yield: 60 gal./min. with 100	ft. drawdown after h	5. Trainee Nami	(Licensed Driter/Engineer)	License No.	
Yield: 40 gal/min. with 60 Yield: 30 gal/min. with 60	ft. drawdown after h ft. drawdown after h	s. Drilling Comp	ANY RICK POLILIN WELL DR	RILLING INC	Second Constitution
Recovery data (time taken as zero when pu from well top to water level)	mp turned off) (water level measur	d (Signed)		License No. 035	7
Time Water Level Time Water	Level Time Water Level		(Licensed Oriller/Engineer)	)	
		- Address Contractor's		_	
Date at in-1		Registration M	No. RICKPWD944PW	Date 2/2/2017	, 19
Bailer test gal./min. with	ft. drawdown after h	s.	(USE ADDITIONAL SHEETS I	F NECESSARY)	
Aintest gal./min. with stee	n set at ft. for h	s. Ecology is a	in Equal Opportunity and Affirmation	tive Action employer	. For
Temperature of water Was a che	mical analyses made? Yes X	No (360) 407-6	ommodation needs, contact the V 600. The TDD number is (360) 4	vater Resources Pro 107-6006.	gram a

Note: Personally Identifying Info redacted due to privacy concerns.

Record Copy — Owner's Copy Third Copy — Owner's Copy Third Copy — Driller's Copy	WATE	R WE			
(1) OWNER: Name		Add			
2 LOCATION OF WELL: Care Yakit	18		NW 14 NW 14 cm 31 r	13	20
(2) STREET ADDRESS OF WELL IN STREET				n.n	<u>n</u> "
					<u>v</u>
(3) PROPOSED USE: L Domesic Impation	Industrial C Munk		(10) WELL LOG or ABANDONMENT PROCEDURE D	EBCRIPTX	
DeWeter		<u> </u>	and the kind and nature of the material in each stratum penetrated, with change of information	at least one a	ntry for eac
(4) TYPE OF WORK: Owner's number of weat (If more than one)			MATERIAL	FROM	TD
Abandoned D New well D N	Cable [ ]	Bored 🗆	Br. Sandstone & Br. Clay	220	243
Reconditioned	Rotary 🖬 🔹	Jelled 🗆	Blue Sandstone & Blue Clay	243	257
(5) DIMENSIONS: Diameter of wel	6	inches.	& Blue Gravel		
Drilled 70 test. Depth of completes	1 wei 290		Blue Clay	257	280
(6) CONSTRUCTION DETAILS:			Dark Gray Sand & Dark Gray	280	290
Casing installed; 41 Diam. tro	m 170 mm 2	290	Sandstone & Water		
Welded Diam. tro	mft.to				
Threaded D Diam. Inc	t.to	t		1	
Perforations: Yes 🔀 No 🗔					
Type of performion used <u>Skill St</u>	aw				
SIZE of performations	. n. by	<u> </u>			
perforations from	1.10				
perforations from	1.10			+ +	
Screens: Yes X No					
Manufacturar's Name					
Тура	Model No				
Diam. Slot also from	ft to	n			
Diam. Skot sizefrom	ft 10	^	0 1998		
Caravel packed: Yes 📋 No 🖾 Ski	a of gravel				
	~~				
Surface seal: Yes   No (X) To with the seal in seal	hat depth?	t			
Did any strata contain unusable water? Yes	3 %0				
Type of water?	Depth of strate				
Method of sealing strata off					
(7) PLMP: Handatanta Hand					
Туре:	H.P.		·		
(8) WATER LEVELS: Land surface elevation			Work Started 3-23-98 19 Correlated 3-24	4-98	, 19
Static level 120	elow top of well Date _ 3	-24-98			
Artesian pressure bs.	per equare inch Date		WELL CONSTRUCTOR CERTIFICATION:		
Artesian water is controlled by	(Cep. visive, etc.)		i constructed and/or accept responsibility for construction compliance with all Washington well construction standard	n of this we	il, and its used and
(9) WELL TESTS: Drawdown is amount water	level is lowered below stati	ic level	the information reported above are true to my best knowled	ge and belief	1.
Wee a pump test made? Yee 🗌 No 💢	If yes, by whom?		NAME		
Yield:gel./min. with	I. drawdown after	ha.	NEG.	R PRINT)	
		•	Address		
Recovery data time taken as zero when ourse h-	med of) (weier invelo	med inter-	(Signed) icen	No. 14	35
top to water level) Time Water Level Time Water	Level True	Water   and			
			Contractor's Begintration		
			No. 0ASISD*072J9 Date 3-26-98	8	, 19
Data ad loss			(USE ADDITIONAL SHEETS IF NECESS	ARY)	
Date of sect Baller test call /min. with	1. drawdown after	her		-	
Airlest 100 gal/min, with stem set at	290 n. lor	1 m.	Ecology is an Equal Opportunity and Affirmative Action	employer.	For spe-
Artesian flow gp./	n. Deem <u>3-24-9</u>	8	cial accommodation needs, contact the Water Resource	es Program	at (206)

Note: Personally Identifying Info redacted due to privacy concerns.

			and a Street of	1
	File	Original and First Copy with WATED WE		201
Ľ	Seco	and Copy—Owner's Copy	TAG_	
	Third	Copy-Driller's Copy	Water Right Permit No. 64+270	728P
	(1)	OWNER: Name	Address	
2		Departice Depart	.1	
ġ.	(2)	LOCATION OF WELL: County VIA MAL. THE ACCO	5] « «« <b>/±i</b> • • /.3 » »	/7E
۳.	(2a)	STREET ADDDRESS OF WELL (or nearest address)		
5	(3)	PROPOSED USE: Domestic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE DES	CRIPTION
Ž		DeWater Test Well Other	Formation: Describe by color, character, size of material and structur	e, and show
<u>s</u>	(4)	TYPE OF WORK: Owner's number of well (If more than one)	with at least one entry for each change of information.	n penetrated,
£		Abandoned 🗆 New well 🔀 Method: Dug 🖵 Bored 💷	MATERIAL FROM	TO
5		Deepened Cable 🔂 Driven Cable 🔂 Driven	all Arrabione, O	5
Ĕ	(5)	DIMENSIONS: Diameter of well	hardoan and Chur.	20
음	(0)	Drilled feet Death of completed well ft	# 20	105
a	(6)	CONSTRUCTION DETAILS	V	
ιĘ.	(0)	Casing installed: Plactic pier way 18" and 40"		·
읕		Welded Diam. from		
는 .		Threaded* Diam. fromft. toft.		· · ·
ŝ		Perforations: Yes No 🔀		
Ē		Type of perforator used		
l≌.		SiZE of perforations in. by in.		
Ĕ		perforations from ft. to ft.		
ñ		perforations from ft. to ft.		
at		Screens: Yes No X	·* ······	
		Manufacturer's Name		
Ē		Diam		· · · · ·
5		DiamStot sizefromft. toft.		
Ē		Gravel packed: Yes No X Size of gravel		
Ë		Gravel placed from	DEPT OF	
Š		Surface seal: Yes No To what depth? 40 ft . It.	Received a	
F.		Material used in seal	E W I S	
9		Did any strata contain unusable water? Yes Nev2	and I	:
5		Method of sealing strate off	7	
l Ö	(7)	PUMP: Manufacturer's Name gracusad	CGION OFFIC	
ŏ		Type: Subersible H.P		
3	(8)	WATER LEVELS: Land-surface elevation above mean sea level		
IS.		Static level ft. below top of well. Date		
ŏ		Artesian water is controlled by		744.
μ.	(9)	WELL TESTS: Drawdown is amount water lavel is Inwared holow static lavel	Work started, 19. Completed_alleg,	-4,003
2	(0)	Was a pump test made? Yes No I I yes, by whom?	WELL CONSTRUCTOR CERTIFICATION:	
e l		Yield: <u>50</u> gel./min. with <u>ft. drawdown after</u> hrs.	I constructed and/or accept responsibility for construction o	f this well,
18		surporting 30 gas after 5 mm,	and its compliance with all Washington well construction Materials used and the information reported above are true t	standards. to my best
ar		Recovery data (time taken as zero when pump turned off) (water level messured from well top to water level)	knowledge and belief.	
8		Time WaterLevel Time WaterLevel Time WaterLevel	NAME EMIL J. DORAIS	• .
			(TYPE (	(R PRINT)
Ĕ.		9444 1 -2402	Address	
		Date of test grieg of BEUS	(Signed) se No.	
		Bailer test gal./min. with ft. drawdown after hrs.	Contractor's	
		Artesian flow gat, rmn, with atom act at ft. for hrs.	No Date FEAT 29	. p.07
		Temperature of water Was a chemical analysis made? Yes No	(USE ADDITIONAL SHEETS IN NECESSARY)	45
. 6	CY 050-	120 (10/107) 1220 Bacteria & E Coli	lose appricant oncero in neocoanity	0
		repled - OK,		_
_				

Note: Personally Identifying Info redacted due to privacy concerns.

Performance of the construction of the constru	WATER WELL REPORT STATE OF WASHINGTON	Permit No	E	2
(1) OWNER: Name	Address			
) LOCATION OF WELL: County Y	akima	SW & NW & Sec. 2 T.	12N. R. 1	9w.м.
uring and distance from section or subdivision or	orner Parcel #	Lot #3		
(3) PROPOSED USE: Domestic YY Indu	strial   Municipal   (10) WELL LO	G:		
Irrigation  Test	Well Other D Formation: Describe	by color, character, size of materia	I and structu	re, and
(A) TYPE OF WORK. Owner's number of	t well	with at least one entry for each c	hange of for	mation.
(4) IIIE OF WORK: (if more than one) New well (I Method:	Due D Bered D	MATERIAL	FROM	TO
Deepened 🖸	Cable Driven C .Sandy Loan		0 2	8
Reconditioned [	Rotary Jetted   Gravel	volav	43 4	2
(5) DIMENSIONS: Diameter of we	6 inches Gravel	y cray	45 5	9
Drilled	d well	vel	59 6	ó .
(6) CONSTRUCTION DETAILS:				
Casing installed: 6 Diam. from	0 n to 60 n			
Threaded 🗆				
Welded 🕱	ft. to ft.			
Perforations: Yes 🗆 No 🗱				
Type of perforator used				
SIZE of perforations	t, to			
perforations from	ft. to			
perforations from				
Screens: Yes D No CX				
Manufacturer's Name				
Diam. Slot size	t. to			
Diam Siot size from				
Gravel packed: yes D No Th Size of	f gravel:			
Gravel placed from	to			
Surface seal: yes at No C To what	depth1			
Material used in scal Bentonite				
Did any strate contain unusable water	r? Yes D No CE		<u>+</u>  -	
Method of sealing strate off		12000000		
(7) PUMP: Manufacture in		Jall VISIN		
Type:	нр			
(9) WATER I EVELC. Land-surface ales	vation	191986		
(o) WAILER LEVELS: above mean sea	tevel			
Artesian pressure	ch Date DEPARTIN	NY OF SCOLOGY		
Artesian water is controlled by	Cap. valve, etc.)	HEGION CONCE		
(a) WEIT DECTE. Drawlow is anot	ant water level to			
(5) WELL IESIS: lowered below stat	Be level Bach Work started 8	-2 19 86 Completed	8-2	1086
Yield: gal./min. with ft. drawdo	we after hrs. WELL DRILLE	R'S STATEMENT:		
	" This well was	drilled under my jurisdiction	and this re	port is
	true to the best o	f my knowledge and belief.		
Recovery data (time taken as zero when pump to measured from well top to water level)	urned off) (water level	Well Drilling Com	nemir	
Time Water Level Time Water Level	Time Water Level NABLE DELCH	ermon. firm. or corporation)	Type or prin	¢)
	Address			
]				
Date of test 8-2-86	[Signed]			
Arterian flow	down after		v	
Temperature of water	nis made? Yes D No Z License No 142	7 Date≜ugu:	st. 2,	1980
	1			
FOX 010 1 10	(USE ADDITIONAL SHEETS IF NECESSAR)	0		•
NUCL INSIGNAL				-

Note: Personally Identifying Info redacted due to privacy concerns.

	Seco	ond Copy — Owner's Copy 6151 C STATEOF W	ASHINGTON Water Right Permit No.	
	(1)	WNER: NameAdd	ida	
;	12)	LOCATION OF WELL	NE NE	
	(20)	STREET ADDRESS OF WELL (granned attent)	La contraction of the second s	5"
	(20)			<u>+</u>
	(3)	Industrial Municipal	Formation: Describe by color, character, size of material and structure, and show thickness or	l aquik
	(4)	TYPE OF WORK - Owner's number of well	and the kind and nature of the material in each stratum penetrated, with at least one entry change of information.	for ea
	(4)	Abandanat I New well SO Methods Dea D Barret C 2	MATERIAL FROM	то
		Despend Cable Driven	on. 0	2.
	(6)		AND, GRAVEL, ROCK, BL CLAY, WATER 10, +	0
	(9)	Driled feet. Depth of completed well 10 ft.		
	(6)			
	(0)	Casing installed: 0		
		Welded Diam. from tt. to tt.		
		Threaded* Diam. fromft. toft.		
		Perforations: Yes No Sk		
		SIZE of perforations in. by in.		~
,	•	perforations from ft. to ft.		
		perforations fromfl. toft.		
	-	Manufacturar's Name	DEPARTMENT OF ECOLOGY	
		pe Model No	CENTRAL REGION OF THE	
		Diam Slot size from ft. to ft.	· · · · · · · · · · · · · · · · · · ·	
	_	Gravel packed: Yes No N Size of cravel		
		Gravel placed fromh.		
	_	Surface seel: Yes No		
		Material used in sool		
1		Did any strata contain unusable water? Yes L No L. Type of water? Depth of strata		
		Method of sealing strate off		
	7			
	(7)	Туре:Н.Р		
	(8)	WATER LEVELS: Land-surface elevation above mean asa level n	Work Started 19. Completed	. 19
		Static level ft, below top of well Date	WELL CONSTRUCTOR CERTIFICATION:	
		Artesian water is controlled by (Artesian water is controlled by)	I constructed and/or accept responsibility for construction of this well, a	and it
	(2)	(Cap, valve, etc.)	compliance with all Washington well construction standards. Materials use the information reported above are true to my best knowledge and belief.	əd an
•	(a)	WELL IESTS: Drawdown s amount water level is lowered below static level Was a pump test made? Yes	NAME 77	
		Yield:gal.rmin, withtt. drawdown after hrs.	- (PERSON, FIRM, OR CORPORATION). (TYPE OR PILINT)	
		11 H 11 H	Address	
		Becovery data, filme takes as zero when pump turned offit (water level measured from wait)	(Signed) License No.	
		top to water level) Time Water Level Time Water Level Time Weter Level	(meac unscall)	
1	1		Registration	9
1			No Date of 7 frome	۶Ľ
	_	Date of test	(USE ADDITIONAL SHEETS IF NECESSARY)	
		Bailer test gal./min. with h, drawdown after hrs.	Ecology is an Equal Opportunity and Affirmative Action employer. Fo	or sp∈
		Artesian flow gat, /min. with stem set at fl. for hrs.	cial accommodation needs, contact the Water Resources Program at	(206
		Temperature of water Was a chemical analysis made? Yes 🔲 No 📉	407-6600. The TDD number is (206) 407-6006.	

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File Original and First Copy with	Start Card No. 01 022 7=
Department of Ecology WATER WE Second Copy—Owned's Copy STATE OF V	
Third Copy—Driver & Copy	Water Right Permit No.
OWNER: Name_Wesley Hird	Address624 S. 17th Ave., Yakima, Wa
(2) LOCATION OF WELL: County Yakima	NE NW & Sec 15 T 12 N. R 20 WM
(2a) STREET ADDDRESS OF WELL (or nearest address) Desmanaia	Ida Rd. & Hiebert Dr. Moxee. Wa.
(3) PROPOSED USE: X Domestic Industrial Municipal	(10) WELL LOG oF 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 aquiters 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 X Method: Dug Bored	MATERIAL FROM TO
Deepened Cable Driven Beconditioned Beconditioned	Top soil 0 12
	Sand 12 18 Br sandstore i clav 18 3858
Dillad 150 feet Depth of completed well 150 ff	Dark gray clay and sand 58 107
	Gravel &dark grav clav 107 113
Casing installed: 6 torus turn +1 and 130	Derk gray clay & sand 113 128
Welded	Dark gray sandstone 128 140
Liner installed Threaded Diam, from the top top top the top	
Perforations: Yes Nox	
Type of perforator used	
SIZE of perforations in. by in.	
perforations fromft. toft.	
Screens: Yes No X	
Menufacturer's Name	
Diam Riotaira kam Riotaira di	
DiamStot sizetromfl. tofl.	
Gravel pecked: Yes No Size of gravel	
Gravel placed from ft. toft.	
Surface seal: Yes No To what depth? 18	
Material used in sealBentonite	
Did any strata contain unusable water? Yes Nok	
Type of water? Depth of strate	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
(7) PUMP: Handamarka Nama	
	101 MAR - 3 1089
(8) WATER LEVELS: Land surface elevation	
Static level 12 ft. below top of well Date 10/19/88	DEPARTMENT OF ECOLOGY
Arteeian pressure Ibe, per aquere inch Date	LEISTING RECOVERED
Arrestan water is controlled by (Cap, valve, etc.))	Work started 10/18/88 19 Completed 10/198-98 19
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Total and the second seco
Yield: gal./min. with ft. drewdown after hra.	WELL CONSTRUCTOR CERTIFICATION:
	and its compliance with all Washington well construction standards
Recovery data (time taken as zero when pump turned off) (water level measured	knowledge and belief.
from well top to water level) Time Water Level Time Water Level Time Water Lovel	NAME_Water_Wells_Drilling
	Address 5503 Ahtanum Rd, Yak Da, Wa.
Date of tost	(Signed)
Bailer test gel./min. with ft. drawdown after hra.	Contractor's (Wet DILLER)
Airtest OU gal./min. with stem set at 1.20 ft. for 1 hrs.	Registration No. WATERW*131.N8 Date 10/21/88 19.88
Temperature of water Was a chemical analysis mode? Yes	
	(USE ADDITIONAL SHEETS IF NECESSARY)

(1) OWNER: Name	Address		
(2) LOCATION OF WELL: County YAKIMA	- NW 1/4 SE 1/4 Sec 10 T. 1	2 N.R 2	01
(2a) STREET ADDRESS OF WELL (or nearest address)			11
TAX PARCEL NO.	-		К.
(3) PROPOSED USE: X Domestic Industrial Municipal	(10) WELL LOG or DECOMMISSIONING PROCEDUR	E DESCRI	PTIO
Imigation Test Well Other	Formation: Describe by color, character, size of material and structure, a pathere of the material in each stratum penetrated, with at least one entry.	ind the kind and for each chang	d 90
DeWater	of information. Indicate all water encountered.		
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM	TO
Deepened Dug Bored	SOIL	0	
Reconditioned Cable Driven	CLAY TAN	11	
Decommission Arotary Jeneo	CLAY GREEN	32	
(5) DIMENSIONS: Diameter of well 6 incres.	GRAVEL	68	
	SANDY CLAY GREEN	125	-1
(6) CONSTRUCTION DETAILS:	SANDSTONE & SAND GREEN	157	-1
X Welded 6 " Diam. from +4 ft. to 217 ft.	SANDSTONE & CLAY	163	1
Liner installed "Diam. from ft. to ft.	GRAVEL	178	1
	SAND	187	2
Perforations: Yes XNo	GRAVEL & SAND	200	-
SIZE of perforations in by in	40 GPM @ 200		-
perforations from ft. to ft.	25 GPM @ 180		-
perforations from ft. to ft.			-
perforations from t. to t.			
Screens: Yes X No K-Pac Location			
Manufacturer's Name	105		
Diam Sint size from ft. to ft.	OFFIC OF EGO		
Diam. Slot size from ft. to ft.	increived 62		
Gravel/Filter nacked: Yes X No Size of gravel/sand	007 27		
Material placed from ft. to ft.	2005		
Surface seal: XYes No To what depth? 25 ft.	B. S.		
Material used in seal BENTONITE	AFGION OFF		
Did any strata contain unusable water? Yes X No			
Type of water? Depth of strata			
(7) PUMP: Manufacturer's Name H.P.			
(b) WATER LEVELS: Canoscillate deviation above mean sea level ft.	Work Started 10/14/2005 . 19. Completed 10/1	7/2005	, 19
Static level 132 ft. below top of well Date 10/17/2005	WELL CONSTRUCTION CERTIFICATION:		
Artesian pressure lbs. per square inch Date	I constructed and/or accept responsibility for construction	of this well, an	nd its
(Cap, valve, etc)	compliance with all Washington well construction standard and the information reported above are true to my best kn	a. Materials owiedge and i	used belief.
(0) WELL TESTS- Drawdown is amount water level is lowered before static level		to blo no	
Was a pump test made? Yes XNo If yes, by whom?	(Licensed Drifler/Engineer)	0357	(
Yield: gal./min. with ft. drawdown after hrs.	Trainee Name Licen	se No.	
Tiero: gal/min.with ft. drawdown after hrs. Yield: gal/min.with ft. drawdown after hrs.	Driling Company DICK DOLL IN WELL DOLL ING	INC	
Descuse data New takes as see take			
from well top to water level)	(Signed) Licen	se No. 0357	7
Time Water Level Time Water Level Time Water Level	(Licehsed Unitertingmoer)		
	Address 1301 LANCASTER RD_SELAH, WA	98942	
	Registration No. RICKPWD042.12 Date 10/	18/2005	, 19
Date of test			
Bailer test gal./min. with ft. drawdown after hrs.	(USE ADDITIONAL SHEETS IF NECES	SSARY)	
Airtest 40 gal/min. with stem set at 200 ft. for 1 hrs.	Ecology is an Equal Opportunity and Affirmative Action	n employer.	For
Temperature of water Was a chamical analyses made?	special accommodation needs, contact the Water Res (360) 407-6600. The TDO pumber is (360) 407-6006.	sources Pro	gram
remperature or water water water water analysis maker. Thes (Xino			

Note: Personally Identifying Info redacted due to privacy concerns.

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Bit Different and Price Control Copy with	bo			
Bind Code         Details of the code         Details of the code         Address           Bind Code         DOWNES: Venue         SAM         SAM         Model         SAM         Model         SAM	Department of Ecology Second Copy — Owner's Copy	WATER WE	LL REPORT	lication No.
Autom         Autom           00 OWNEE: Name	Third Copy - Driller's Copy	STATE OF W	ASHINGTON Pen	mit No.
Index attorn of wells:       County Taking       Start County Taking       Start County Taking         Index attorn of memory       Farmer and manager and taken the county of the start	S L (1) OWNER: Name		Address	
Image: Section and the section of t	E O LOCATION OF WELL: County	akima	SA " NE so I	Q.T. D.N. RZOWM
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		corner		
OPA       (4) TYPE OF WORK: Drewn's number of well         New well       C. Mendel: Date       Determined         New well       C. Mendel: Date       Determined         New well       C. Mendel: Date       Determined         Optimized       Calle       Determined         Optimized       Determined       Research 20 (2000)         Optimized       Determined       Research 20 (2000)         Optimized       Determined       Determined         Optimized       Difference       Determined         Optimized       Difference       Difference         Optimized       Difference       Difference       <	S ROPOSED USE: Domentic X Ind	ustrial 🗋 Municipal 🗌 nt Well 🗇 Other 🗐	(10) WELL LOG: Formation: Describe by color, character, size o	i material and structure, and
KATERIAL       Robust of the second	D>	of weil	show thickness of aquifers and the kind and a stratum penetroted, with at least one entry fo	ature of the material in each or each change of formation.
Descreted       Casis 0       Drive at 10       Different analy clay       14       56         (3) DIMENSIONS:       Discreter of vell       6       none       Brown analy clay       14       56         Detited       1700 m       Data transform analy clay       14       56       52       58         Detited       1700 m       None       1000 m       6       none       Brown analy clay       14       56         Detited       1700 m       None       1000 m       6       none       Reserver analy clay       14       56         Casing installed:       0       Data transform and none       none       none       Reserver analy clay       1000 million       1000 million <td< td=""><th>EE New well Ct Method</th><td>; Dug 🗍 Bared 🗍</td><td>MATERIAL</td><td>FROM TO</td></td<>	EE New well Ct Method	; Dug 🗍 Bared 🗍	MATERIAL	FROM TO
Light of the light	Dec Deepened	Cable C Driven 💇 Rotary 🕄 Jetted D	Hardpan	5 14
Bit Die Berles       170 m. Days of consistent wirt 170 m.         Bit Die Deriver Generative wirt 170 m.       Bit Die Berles         Graden Lander Graden wirt 170 m.       Bit Die Berles         Graden Lander Graden wirt 170 m.       Bit Die Berles         Graden Lander Graden Lander 170 m.       Bit Die Berles         Graden Lander 1700 m.       Dies from 1 n. by         Weite graden       Dies from 1 n. by         Weite graden       Dies from 1 n. by         Bit Die Berles       No 2         Bit Die Berles       Bit Die Berles         Bit Die Berles </td <th></th> <td>6</td> <td>Brown sandy clay</td> <td>14 36</td>		6	Brown sandy clay	14 36
(b) CONSTRUCTION DETAILS:         Casing installed:         0         n. to 160 n.           Casing installed:         Dama. Rom.         0. n. to 160 n.         fineen. sandy.olay         54.88           Creasing installed:         Dama. Rom.         n. to n.         n.         fineen. sandy.olay         88.105           Green.         Sandouk         Sald.         Dama. Rom.         n. to n.         n.         fineen. sandy.olay         105.114         114.           Perforations:         V=0         No g         The standouk         10.57         fineen. sandy.olay         146.157           Suff of perforations area         In. by n.         n.         n.         n.         n.           Suff of perforations from n.         n. to n.         n.         n.         n.         n.           Meanterizery Name         Meanterizery Name         Meanterizery Name         n.         n.         n.           Suff of perforations from n.         n.         n.         n.         n.         n.         n.           Suff of perforations from n.         n.         n.         n.         n.         n.         n.           Suff of perforations from n.         n.         n.         n.         n.         n.         n.	2 Drilled 170 ft. Depth of complet	ed well 170 m	Green sandrock	48 54
Casing installed: 6 - Duen tom 0 - a to 160 a Thread 1 Dean from a to to to Thread 2 Dean from a to to to Thread 2 Dean from a to to to The of performations used Street operformations used The of performations used Street operformations used The of performations used Street operformations used Thread Dean from a to to to the to to performations used Street operformations used Thread Dean from a to to to the top to the street and the top to the top to the street and the street of the top to Street seal weak in set to the top to top to the degitor 140 Thread Street and the street of the street of the street and the street of the st	E (6) CONSTRUCTION DETAILS:		Green sandy clat	54 82
Weided G       Dism. from       f. to	Casing installed: Diam. from .	0 п. ю 160 п	Green sandrock Green sumbo clav	88 105
State       Perforstions: vmc       No E         Proper of perforstions: vmc       in. by       in.         Size of perforstions: vmc       n. is       n.         perforstions: vmc       n.       is         perforstions: vmc       n.       n.         perforstions: vmc       n.       n.         Matureturver Name       n.       n.         Diam       Stot tis       from m.         Greeen: sandrock:       114 146         Diam       Stot tis       from m.         Greeen: sandrock:       1152         Off perforstions: vmc       n.         Greeen: sandrock:       1152         Matureturve: Name       n.         Type of value: form       n.         State in pressort:       n.       from m.	C au Welded C	ft. to ft. ft. to ft.	Green sandy clay	105 114
Type of performance from       In. by       In.       In. <tdin.< td="">       In.       In.       &lt;</tdin.<>	SE Perforations: You Const		Green sandrock	114 146
SUZE of performations from       R. to       R.         mainterview form       R. to       R.         Screens:       Ymainterview form       R. to         Stat stas       from       R. to         Data       Stat stas       from         Gravel packed:       Ymainterview form       R. to         Suffice seall seat       Bottonite       R. to         Stat stas       Bottonite       R. to         Gravel packed:       Ymainterview form       No gt         Stat stas       Bottonite       R. to         Stat stas       Bottonite       R. to         Gravel packed:       Ymainterview form       R. to         Stat stas       Bottonite       R. to         Stat stas       Bottonite       R. to <t< td=""><th>Co Type of performant used</th><td></td><td>Green sandrock</td><td>157 170</td></t<>	Co Type of performant used		Green sandrock	157 170
11 Bit performations from	92 SIZE of perforations	n. by ft. to ft.		
Screens: Yes D No II Menufacturer's Name. Type. Diam. Side size from ft b ft Diam. Side size ft b ft Sufface seals' yeig No II ft No II ft b ft No II ft b ft b ft b ft No II ft b ft b ft b ft b ft b ft No II ft b	Dia perforations from	ft. to ft.		
Machinerumer's Name       Machinerumer's Name         Diam       Stot size       from       ft. to       ft         Diam       Stot size       from       ft. to       ft         Gravel packed: yee []       No El Size of gravel:       ft       ft         Gravel packed: yee []       No El Size of gravel:       ft       ft         Gravel packed: yee []       No El Size of gravel:       ft       ft         Gravel packed: yee []       No El Size of gravel:       ft       ft         Gravel packed: yee []       No El Size of gravel:       ft       ft         Gravel packed: yee []       No El Size of gravel:       ft       ft         Sufface seal: Yee []       No El Size of gravel:       ft       ft         Type of water:       Depth of strate.       ft       ft         Type of water:       Band-sufface strate contain unuable water:       ft       ft         Type of water:       Band-sufface strate contain unuable water:       ft       ft         Type of water:       Band-sufface strate contain unuable water:       ft       ft         Static level       Static level       Band strate off       ft       ft         Static level       Static level       Static level       ft </td <th>Screens: Ym C No F</th> <td></td> <td></td> <td>· · ·</td>	Screens: Ym C No F			· · ·
Suff of state       Tope       Model No       ft. b       ft. b       ft. b         Diam       Stot tas       from       ft. b       ft.         Gravel packed:       Yee ()       No ()       Stot of state ()       ft.         Gravel packed:       Yee ()       No ()       Stot of state ()       ft.         Gravel packed:       Yee ()       No ()       Stot of state ()       ft.         Gravel packed:       Yee ()       No ()       Stot of state ()       ft.         Sufface stal:       Yee ()       No ()       To shall depth ()       ft.         Sufface stal:       Yee ()       No ()       To shall depth ()       ft.         Method of stelling strate off       Diph of strate.       HP       ft.         (i)       WMTEL LEVELS:       Lond-sufface strate.       HP         Static level       B4       Relow to p of wall Det 1/8/87       HP         (i)       WELL TESTS:       Drawwown is a mouth weter level is       Method of state.         (i)       Weat spump test made? Yee ()       No ()       He, by whem?.       Devint ()         (i)       Weat spump test made? Yee ()       The work own after here.       Here         (i)       Did of the ()       No (	CO Manufacturer's Name			
Diam.       Stot also       Drom       R. to       R.         Gravel packed: yes 0       No B       Size of gravel:       R.         Gravel packed: yes 0       No D       To eval depth 1       R.         Surface scal: yes 0       No D       To eval depth 1       R.         Material used in scal:       Bentonite       R.       No         Did any strate contain unusuble vester?       Top of vester?       Depth of strate.         Method of realing strate off.       Depth of strate.       R.P.         (i)       WATER LEVELS:       Land-surface elevation store in base into 2000       Image: 1/8/287         (ii)       WATER LEVELS:       Land-surface elevation store in base into 2000       Image: 1/8/287         (iii)       Watt is controlled by index into 2000       Image: 1/8/287         (iii)       Well L TESTS:       Image: store on the index into 2000         (iii)       Well C IT Top in the interest is controlled by index index into 2000       Image: store on the into 2000         (iii)       Weil:       gal/min. with       A revolvem after       hr.         (iii)       Weil:       gal/min. with       A revolvem after       hr.         (iii)       Weil:       gal/min. with       f. drawdown after       hr.	Diam. Slot size from	10del No		
OF       Gravel plackd: Yes C       No B       Size of gravel:         Gravel plackd: Yes C       No B       R to       R         Gravel plackd: Yes C       No C       R       R         Startisto estal: Yes C       No C       To what depth?       160.       R         Material used in sual.       Bent Onlite       No K       No K         Did any strate contain unuable water?       Name       Depth of strate.       No K         Method of scaling strate of       Method of scaling strate of       No K         (1) PUMP: Manufacturer's Name       HP       No K         (3) WATER LEVELS:       Land-surface devision       Bene per square devision         Static level       B4.       R bolew top of well Dets.       1/8/DF         (3) WELL TESTS:       Drewdown is storb level       Drewdown static level         Wate a pump test mader Yes (X No C ) If Yes, Ny whorn?. Devirinite well water level       North statis level       North statis level         Weid:       gal/min. with       ft. drawdown static level       No       Wark statistic from or comportation         Water Level       Time Wester Level       Time Water Level       Time Water Level       No         Matteriation for       Static tevel       Static tevel       Time Water Level       N	Diam. Slot also from			
Sutface seal: Yes IZ No To what depth? 160 R Material used in seal. Bentionite. Did any strate contain unuable watery Yes No K Type of water? (7) PUMP: Manufacturer's Name Type: (8) WATER LEVELS: Landwarfact sizestion (9) WELL TESTS: Landwarfact sizestion (10) WELL TESTS: Drawdown is an out to be best of my knowledge and belief. (10) WELL TESTS: Drawdown is anount, water level is based to be best of my knowledge and belief. (10) WELL TESTS: Drawdown is anount, water level is manufact from well top to water the by Water Level Time Water Level (11) Weth taken as ano when pump turned off) (water level (12) Well: Test State they is an out off the base state is well (13) WELL TESTS: Drawdown is anount, water is well is manufact from well top to water they is the set is been to find the taken as ano when pump turned off) (water level (12) Well: gal/min. with f. drawdown after brow (14) Drilling Company NAME Bach Well Drilling Company (Parson. from. or corporation) (Type or print) Address. (Signed]. Mark at factor of the base of t	Cravel packed: Yes C No E Size	of gravel:		
Material used in axal. B phtbonit E.         Did any strate contain numbels water: Yes         No R         Type or water.         (1) PUMP: Manufacturer's Name         Type:         (3) WATER LEVELS: Lood-surface elevetion         Static level         84 rt below top of will Date.         (3) WATER LEVELS: above mean sea levet.         (4) Water level         (5) WALL TESTS: Drawdown is amount water level is immered below static brevel.         (6) WELL TESTS: Drawdown is amount water level is immered below static brevel.         (7) PUMP: gal/min. with         (9) WELL TESTS: Drawdown is amount water level is immered below static brevel.         (9) WELL TESTS: Drawdown is amount water level is mader top of the top of t	Surface seal: yes of No.C. To the	t denths 160 m		
Did any strate contain unamble width Tres       No K         Type or water:       Depth of strate         (7) PUMP: Manufacturer's Name       Image: Static level         (8) WATER LEVELS:       Land-surface elevation         Static level       B4       ft below top of well Date         (9) WEIL TESTS:       Drewdown is amount weter level         (9) WEIL TESTS:       Drewdown is amount weter lavel is inverted below static level         (9) WEIL TESTS:       Drewdown is amount weter lavel is inverted below static level         (9) WEIL TESTS:       Drewdown is amount weter lavel is inverted below static level         (9) WEIL TESTS:       Drewdown is amount weter lavel is inverted below static level         (9) WEIL TESTS:       Drewdown after         (10) Time       Recovery data (time taken as zero when pump turned off) (water lavel         (11) Time       Recovery data (time taken as zero when pump turned off) (water lavel         (11) Time       Time         (12) Time       Time         (14) Time       Tim	Material used in seal Bentoni	te		
Method of realing strate off         (7) PUMP: Manufacturer's Name         Type:         (8) WATER LEVELS: Land-surface stevenion         (8) WATER LEVELS: Land-surface stevenion         (9) WELL TESTS: Drewdown is amount weter level is         (9) WELL TESTS: Drewdown is amount weter level is         (9) WELL TESTS: Drewdown is amount weter level is         (9) WELL TESTS: Drewdown is amount weter level is         (9) WELL TESTS: Drewdown is amount weter level is         (9) Well real/min. with ft. drewdown after have         (9) Well real/min. with ft. drewdown after have         (10) The Mater Level Test         (11) Test mater is controlled by         (12) Test mater is above when pump turned off) (water level         (11) The Mater Level Test         (12) Test mater is above when pump turned off) (water level         (12) Test mater is above when pump turned off) (water level         (12) The Mater Level Time Water Level         (12) Time Water Level Time Water Level         (12) Time Water Level Ti	SO Did any strata contain unuable was	of strata		
OF       (1) PUMP: Manufacturer's Name         Type:       Type:         Type:       Band-surface elevation         (3) WATEE LEVELS:       Land-surface elevation         Static level       84         Artesian vester is controlled by       (Cap, valve, etc.)         (3) WELL TESTS:       Drewdown is amount water level is is inverted below risks: level         (4) Weid:       gal/min. with         (5) Weid:       gal/min. with         (6) Weid:       gal/min. with         (7) PUMP:       If yee, by whemt. Devinnety         (9) WELL TESTS:       Drewdown after         (10) Weid:       gal/min. with         (11) Cap.       Becovery data (time taken as zero whem pump turned off) (water level         (11) Cap.       Time         (12) Cap.       Time <tr< td=""><th>O 0 0 Method of sealing strate off</th><td></td><td>- DEGENVISIO</td><td>└<b>──</b>┤─ ┥─</td></tr<>	O 0 0 Method of sealing strate off		- DEGENVISIO	└ <b>──</b> ┤─ ┥─
Water Levels:       Land-surface elevation         Static level       84       ft balow top of well Date.       1/8/87         Artesian pressure       Bat. per square inch Date.       1/8/87         Artesian water is controlled by       (Cap. valve. etc.)         (9) WELL TESTS:       Drawdown is arcount water level is is inswered below static level.         Wate a pump test mader Yes (X No ) If yes, by whom?. Devinney       Image: Cap. valve. etc.)         Werk statted.       1/2       1887         Wate:       gal/min. with       ft drawdown after       hrs.         Time       Water Level       Time       Water Level       1/2         Date of toorn       1/8/87       Time       Time       Nater Level         Temperature of water       Time       Time       Nater Level       Nater Level         Temperature of water       Wate a chemical analysis mader Yis (No Review)       Name       1/236       Date         Date of toorn       1/8/87       Time water Level       Name       1/436       Date       1/2       19.87         Were station forw       gal/min. with       Time       Time       Name       1/436       Date       1/2       1/2         Date of toorn       1/8/87       Time       Time water levely	O O (7) PUMP: Manufacturer's Name	H.P		
O       Static level       84       attention are store well Date.       1/8/87         Artenian pressure       Ibs. per square inch Date.       Ibs. per square inch Date.       Ibs. per square inch Date.         Artenian pressure       Ibs. per square inch Date.       (Cap. valve. etc.)       Ibs. per square inch Date.         (a)       WELL TESTS:       Drewdown is amount weter level is inwared below static level       Image: started 1/2       1/8,87         (a)       Was a pump test mader Yes (X No I X ve. by whom? DeVinney       No I Arewdown after       hrs.         (a)       gal/min. with       ft. drawdown after       hrs.         (b)       Time Water Level       Time Water Level       Time Water Level       Time Water Level         (b)       Time Water Level       Time Water Level       Time Water Level       Time Water Level         (b)       Date of tegr.       1/8/87       hrs.       hrs.         (c)       Ibs.       Ibs.       <	(8) WATER LEVELS: Land - surface of	evation		
Artesian pressure	C Static level	well Date 1/8/87		
Image: Second	C O Artesian pressure	inch Date	CENTRAL REGION OFFICE	
Wark started 1/_ 2	C (a) WET I TICCTC. Drawdown is an	ount water level is		47-0 07
O       Yield:       rail/min. with       ft. drawdown after       hrs.         O       Time       rail       rail/min. with       ft. drawdown after       hrs.         O       Time       Water Level       Time       Water Level       Time       Water Level         O       14/0       12.0       Time       Water Level       Time       Water Level       NAME       Bach       Well Drilling Company         O       12.0       Time       Water Level       Time       Water Level       NAME       Bach       Well Drilling Company         O       12.0       Time       Water Level       Time       Water Level       Name       Game         O       12.0       Time       Standard Level       Time       Water Level       Name       Bach       Well       Drilling       Company         O       12.0       ft. drawdown after       hrs.       Issue       Name       Standard       Standard <t< td=""><th>C Was a pump test made? Yes X No I If yes, by</th><td>whomt Devinney</td><td>Work started 1/ 7 19 87. Comp</td><td>lated 1/ 8 19 87</td></t<>	C Was a pump test made? Yes X No I If yes, by	whomt Devinney	Work started 1/ 7 19 87. Comp	lated 1/ 8 19 87
The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdiction and this report is     The well was drilled under my jurisdictis     The well was dr	OE Yield: gal/min. with ft. draw	down after hrs.	WELL DRILLER'S STATEMENT	Mating and this second is
Company 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 Time Water Level Signed]. Date of ten 1/8/87 IPacifier test. 30 gal/min. with 90 ft. drawdown after 1 hrs. Artesian flow gal/min. with 90 ft. drawdown after 1 hrs. Artesian flow Water Water Water Company (Signed]. Independent of water water 1 hrs. Artesian flow Water Water Water Company (Signed). Independent of water water 1 hrs. Artesian flow Water Water Water Company (Signed). Independent of water 1 hrs. Artesian flow Water Water Water Company (Signed). Independent of water 1 hrs. Artesian flow Water Water Water Company (Signed). Independent of water 1 hrs. Independent of water 1 hrs. Indepen	e tr	•	true to the best of my knowledge and	belief.
Time Water Level Time Water Level Time Water Level (Person. firm. or corporation) (Type or print) Date of tent 1/8/87 IPadier test 30 gal/min. with 90 At drawdown after 1 hrs. Artesian flow g.p.m. Date Temperature of water Wate a chemical analysis mader Yis 0 No C	G. Recovery data (time taken as zero when pump d) measured from well top to water level).	turned off) (water level	NAME Bach Well Drilling	Company
E.       )".       G. 12-0'       Address.         Date of terr.       1/8/87       [Signed]         IBather test.       30 gal /min. with 30 ft. drawdown after.       1 hrs.         Artestan flow.       2.0 m. Date       1 hrs.         Temperature of water.       Was a chemical analysis mader Yas D No CK       1436       Date.         19.87	D Time Water Level Time Water Level	Time Water Lepel	(Person, firm, or corporatio	n) (Type or print) .
Date of ver. 1/8/87 . [Signed] Artesian flow	E. )' O 120'		Address	
I Barlier test 30 gal /min. with 30 ft. drawdown after 1 hrs. Artesian flow g.p.m. Date 1,	Date of ter 1/8/87		(Simei)	
Temperature of water	IRadier test 30 gal/min. with 90 st. dra	wdown after 1 hrs.		
	Temperature of water	lysis made? Yes 🛛 No 🖾	Liomas No. 1436 Date	1, 19 87
(UBE ADOPTIONAL OCENTS IF NECESSARY)		(UBE ADOPTIONAL P	HETE IP NECESSARY)	· ·
«// MG-1.70	ewa ueb 1:30	the month of the		<b>A</b>

Note: Personally Identifying Info redacted due to privacy concerns.

Department of Ecology       Second Copy—Owner's Copy       STATE OF WASHINGTON       Unique Well I.D. #
(1)       OWNER: Name
(1)       OWNER: Name
(a)       LOCATION OF WELL: County       Yakima         (2a)       STREET ADDDRESS OF WELL (or nearest address)         (3)       PROPOSED USE:       Domestic Infugation       Industrial       Municipat       (10)       WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION         (4)       TYPE OF WORK: Owner's number of well (if more than one)       Industrial       Other       Formation: Describe by color, character, size of material and attructure, and show thickness of aguilers and the kind and nature of the material in each stratum penetrated, with at least one entry for each charge of information.         (4)       TYPE OF WORK: Owner's number of well (if more than one)       Method: Dup       Bored       MATERIAL       FROM       To
(2)       CONTROL OF WELL. Colling       Industrial       Municipat       Industrial       Municipat       (10)       WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION         (3)       PROPOSED USE:       Domestic Inflation       Industrial       Municipat       (10)       WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION         (4)       TYPE OF WORK:       Owner number of well (If more than one)       Industrial       Other       Formation:       Describe by color, character, size of material and attructure, and structure, and show thickness of aguliers 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:       Bored       Matterial       FROM       TO
(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION     (10) WELL (10) WELL (10) WELL     (10) WELL (10) WELL     (10) WELL (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL     (10) WELL
(3) PROPOSED USE: A Domessic Industrial Municipat     (10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION     DeWater     Test Well     Other     Test Well     Test Well     Other     Test Well     Other     Test Well     Other     Test Well     Test Well     Test Well     Test Well     Test Well     Test Well     Test
G       Other       Formation: Describe by color, character, size of material and structure, and show the find and adjust of the material and structure, and show the sind and adjust of the material in each stratum penetrated, with at least one entry for each change of information.         G       (4) TYPE OF WORK: Owner's number of well (if more than one)       Mathod: Duo       Borad       MatTeniaL       Faces       To
(4) TYPE OF WORK: Owner's humber of well     with at least one entry for each change of information.       (2) Abandoned D New well     Mathod: Dup D Bored D
Abandoned New well Atthod: Dug Bored
E Despend C Cable D Drives D TopSoil 0 3
Reconditioned & Rolary Jetted Overburden 3 20
(5) DIMENSIONS: Diameter of well 6" inches Sandstone, Gravel 20 80
Drilled 195 feet. Depth of completed well 195 ft. Sandstone, water 80 110
(a) CONSTRUCTION DETAILS: Sand, Sandstone, water 110 130
Caming Installed: 6 : Stratter +1 at 185 - Sand, Sandstone, Quartz 130 145
weided 2 42 Dam ton 155 n to 175 s Sand, water 145 165
C Inerinsteled D
Perforations: Yes No X
Type of perforation used
SIZE of perforations in. by in.
perforations fromt.
perforations fromR toR Note: This was an existing well,
G Manufacture Name A and Vark deepend.
Type PC Model No.
V Diam_ 43" Stot size_ 25_ from 175 rt. to 195_ n
DiamStot attefromH. toN.
O Gravel packed: Yee No Jd Size of gravel
Z Gravel placed from R R.
07 09 Surface seal: Yee 30 No To what depth? 18
B Material used in seal Bentmite Clay
> Did any strate contain unusable water? Yes NoV
Depth of atrata
C The memory of sealing strate of
U (8) WATER LEVELS: above mean see level ft.
C Grand www 51 7, below top of well Date 7.93
E Artesian water is controlled by
(9) WELL TESTS: Drawting is smart value land being white land being with stand 5-10-93 , 19. Completed 5-17-93 , 19
Q. Was a pump test mede? Yes No X II yes, by whom?
Yield:gal./mis.with It drawdown after hrs. Is constructed and/or accent technology
and its compliance with all Washington well construction stateda.
Recovery data (time taken as zero when pump tarned off) (water level measured knowledge and being and bein
The Water Level Time Water Level Time Water Level
NAME (PERSON, FIRM, OR 1     (TYPE OR PRINT)
ų ·····
(Signed) License No. 1159
Balter test gal./min. with fi, drawdown after hrs. Contractor's
Antesias light man, when even at 195 it. for hrs. Registration NoWATERWD1120B Date 5/18/93
Temperature of water Wes a chemical analysis made? Yes No .se
(USE ADDITIONAL SHEETS IF NECESSARY)
En low inter chieft -1954 Configurate

Note: Personally Identifying Info redacted due to privacy concerns.

ell Report.	File Depa Seco Third	Original and First Copy with artiment of Ecology ond Copy — Owner's Copy d Copy — Driller's Copy	Start Cerd No. <u>W484</u> LL REPORT UNIQUE WELL LD (ASHINGTON Water Right Permit No	457	
ž,	ίΩ,	OWNER: NameAdd	200		
s		LOCATION OF WELL: Carty Yakima	. NE 14 NW 145 10 T 12	2	20
Ξ	(20)				-71
E.	(20)	STREET REPORTS OF MEEL (STREETS SCHOOL)			
2	(3)	PROPOSED USE: Domestic Industrial D Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE D	ESCRIPTI	ON
ē		DeWater Test Well Other	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 charace of information.	show thicknes t least one e	as of aquiters ntry for each
at	(4)	(if more than one)	MATERIAL	FROM	TO
E		Abandoned D New well D Method: Dug D Bored D Decrement	Overburden	0	21
ō		Reconditioned  Retary  D Jetted	Overhurden & Water	21	23
	(5)	DIMENSIONS: Diameter of well 6 inches.	Worburden	23	25
Ð	,	Drilled 316 feet. Depth of completed well 316 h.	Sandstone & Clay	25	31
ŝ		n	Boulders	31	34
5	(6)	CONSTRUCTION DETAILS:	Sandstope, Clay & Water	34	46
2		Casing installed: 6 Diam. from +1 t. to 316 h.	Blue Sandstone	46	65
2		Uner installed Diam. tront. tot.	Blue Sand & Water	65	79
σ		Invesced 🗆 Plan. from ft. to ft.	Blue Sand & Blue Clay	79	135
9		Perforations: Yes I No 💢	Blue Sand, Blue Clay & Pyrite	135	144
2		Type of perforator used	Blue Sand, Gravel, Pyrite, Water	144	156
		SIZE of perforations in. by in.	& Sulfer		
Ĕ		perforations from t. to t.	Blue Sand & Water	156	169
2		perforations from R. toR.	Blue Sand, Blue Clay, Gravel &	169	175
₽.		perforations from ft. toft.	Water		
σ		Screens: Yes No 💢	Blue Clay & Blue Sand	175	198
		Manufacturer's Name	Blue Sand	198	236
2	-	Type Model No	Blue Sandstone, Evrite, Blue Sand,	236	292
>(		DiamSlot sizefromft. toft.	Water & Sulfer		
5`	_	Diam,Sict sizefromft. 10ft.	Blue Sand, Gravel, Water & Sulfer	292_	298
ž		Gravel packed: Yes No 🗶 Size of gravel	Blue Sandstone, Blue Sand, Brown	298	316
0		Gravel placed from ft. to ft.	Sandstone, White_Quartz, Water		
ě	_	Surface seal: Yes V No To what depth? 1.9 ft.	& A Little Subfer on R 5 2 2 2	·	
ő		Material used in sealBentonite_Clay	1171 15 09 15 U U U	1. j	
≥		Did any strata contain unusable water? Yes 🗌 No 💭		1	
5		Type of water? Depth of strata	<b></b>	!: 1'	
5		Method of sealing strate of			
2	7		DE 26-24 CT OF 42 YE OF		
=	(7)	Type: H.P.	5 50 10 10 10 10 10 10 10 10 10 10 10 10 10	j.	
0	(8)	WATER LEVELS. Land-surface elevation	Wind Startant 0/7/05 19 Corrolated 0/13/	/95	19
ment	(-)	Attesian pressure fbs.per square inch Cate	WELL CONSTRUCTOR CERTIFICATION:		
2		Artesian water is controlled by(Cap, valve, etc.)	I constructed and/or accept responsibility for construction compliance with all Washington well construction standards	of this well Materials	E, and its used and
ŏ.	(9)	WELL TESTS: Drawdown is amount water level is lowered below static level	the information reported above are true to my best knowledg	e and belief	
ĸ		Was a pump test made? Yes 🗋 No 🔯 If yes, by whom?			
1)		Yield:ft. drawdown after hrs.		PRINT)	
É		9 N N N	Address		
-		n n a	]		
		Recovery data (time taken as zero when pump turned of) (water level measured from well too is writer level)	(Signan Licens	e No. 14)	2
	т	Time Water Level Time Water Level Time Water Level	Contractors		
	_		Registration of 14 /05		
			No. 0ASISD*07239 Date 9/14/95		, 19
			(USE ADDITIONAL SHEETS IF NECESS)	ARY)	
		Date of test		-	
		Airtest 100 gel/min, with stem set at 316 ft. for 1 hrs.	Ecology is an Equal Opportunity and Affirmative Action	employer.	For spe-
		Artesian Now g.p.m. Date9/13/95	cial accommodation needs, contact the Water Resources	s Program	at (206)
		Temperature of water <u>68</u> ° Was a chemical analysis made? Yes No 🕅	407-5600. The TDD number is (205) 407-5005.		
	ECY-	050-1-20 (993) ** /	1		•

Note: Personally Identifying Info redacted due to privacy concerns.

WATER WELL REPORT	CURRENT Notice of Intent No	20	
Coloci	Unique Ecology Well ID Tag No.		
Construction/Decommission ("x" in circle)	Water Right Permit No.		
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name	C	
012311 of Intent Number	Wall Street Address		
CAND	City MOXEE County Y		
DeWater Inigation Test Well Other	Leasting NEL/4 1/4 NW1/4 Sec 03 Turn 12 1	20 EWM	
TYPE OF WORK: Owner's number of well (if more than one)		ог w₩м	ane 🗌
New well Reconditioned Method: Dug Bored Drives     Decemed Decemed Determined Determined	Lat/Long (s, t, r Lat Deg Lat ]	Min/Sec	
DIMENSIONS: Diameter of well 6 inches, drilled 425 ft.	Still REQUIRED) Long Deg Lon	g Min/Sec	
Depth of completed well 425ft.	Tax Parcel No. 201203 - 21400		
Construction Details			_
Installed: Z Liter installed 4.1/2 " Disen. from 216 ft. to 425 ft. Threaded Dism. from ft. to ft.	CONSTRUCTION OR DECOMMISSION	PROCEDUR	E
Perforationa: Z Yes No	Formation: Describe by color, character, size of material and s nature of the material in each stratum penetrated, with at least of	me entry for each	h change of
Type of performing used SAW CUT	information. (USE ADDITIONAL SHEETS IF NECES	ERON	70
Size or perfs 3/10 in by 3 in and no or perfs 40 mm 40.5 in to 42.5 in Serveral Vis 271No K-Pac Location	TOPSOIL	0	6
Manufacturer's Name	SMALL GRAVEL & BR. CLAY & BR. SAND	6	15
Type Model No.	BR. CLAY & BR. SAND	15	35
Dian. Slot size from ft. to ft.	BR. CLAY & BR. SAND & GRAVEL	35	45
GraveUPilter packed: Yes 2 No Size of graveUsand	SANDSTONE & BR. CLAY	78	137
Surface Surf. 17 Var. 18 To asket death? 23	BR. SANDSTONE & SMALL GRAVEL	137	153
Material used in seal BENTONITE	& BR. CLAY		
Did any strate contain unusable water?	BLUEGRAY CLAY & BLUEGRAY SAND	153	160
Type of water? Depth of strata	PORUS GRAY BASALT & BUIE CLAY	225	233
PUMP: Manufacturer's Name	GRAY BASALT	233	248
Туре:Н.Р	BR. BASALT & HARD BLUE SHALE	248	251
WATER LEVELS: Land-ourface elevation above mean sea levelft.	GRAY BASALT & HARD BLUE SHALE	251	270
Static level	GRAY BASALT	330	330
Artesian pressure and, per separe men Date	GRAY & BR. BASALT	333	348
(cap, valve, etc.)	GRAY BASALT	348	361
WELL TESTS: Drawdown is amount water level is lowered below statio level Wate a nume test made? Yes V No If yes, by whom?	GRAY BASALT & BLACK BASALT SEAMS	361	365
Yield:gal/min.withfl.daswdown afterhrs.	& WAIER	365	393
Yield:gal/min_withft, drawdown afterars. Yield:gal/min_withft, drawdown afterhes.	GRAY BASALT & HARD BLUE SHALE	393	396
Recovery data (time taken at zero when pump turned off) (water level measured from well	GRAY & BR. BASALT	396	398
any so water serves Time Water Level Time Water Level Time Water Level	GRAY BASALT & HARD BLUE SHALE	398	425
	Beceived Ci		
Bailer test gal/min. with fl. drawdown after hrs.	NOV 0 8 2006		
Aintest 37 gol/min. with stern set at 425 fl. for 1 brs.	154		
Artesien flow g.p.m. Date 08-24-06	A PERSON A		
Temperature of water <u>68</u> Was a chemical analysis made? [] Yes [J] No	Start Date 08-16-06 Complet	ted Date08	-24-06
WELL CONSTRUCTION CERTIFICATION:   constructed and/or ac Washington well construction standards. Materials used and the informat Doller © Engineer [] Trainee Signiture	coept responsibility for construction of this well, an     ion reported above are true to my best knowledge a     Drilling CompanyOASIS_DRILLING_LLC     Address City, State, Zip Contractor's     Registration NoOASISD*07219 Ecology	d its complia ind belief.  	-24-06 octunity En
Temperature of water 68       Was a chemical analysis mode? □ Yes [Z] No         WELL CONSTRUCTION CERTIFICATION: I constructed and/or ac         Washington well construction standards. Materials used and the informati         Doller □ Eggisser □ Trainee Name (T	Start Date 08-16-06 Complete Coopt responsibility for construction of this well, an ion reported above are true to my best knowledge a Drilling Company OASIS DRILLING LLC Addres City, Stare, Zip Contractor's Registration No. OASISD*072J9 Ecology CT warranty the Data and/or Informatio	d its complia and belief. 	-24-06 ortunit

Note: Personally Identifying Info redacted due to privacy concerns.
ort.			Start Card No. W087614
ll Rep	File Dep Seco Thin	Ardinal and First Copy with aritment of Ecology and Copy — Owner's Copy 515% d Copy — Driller's Copy STATE OF W	ASHINGTON Water Right Permit No.
<u>s</u>	1	OWNER: NameAdd	ress
s	(E)	LOCATION OF WELL: Carry Yakima	. NE 14 SE 1484 11 T 12 N.B. 19 WW
Ē	(2a)	STREET ADDRESS OF WELL (or nearest address)	
١ <u>ج</u>	(3)	PROPOSED USE: X) Domestic Instantial Cl. Municipal Cl.	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
Ĕ	(0)	infigation	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers
음	(4)	TYPE OF WORK - Owner's number of well	and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.
a	(4)	Abardsond D New well VD Method: Day D Board D	MATERIAL FROM TO
١Ę.		Deepened C Cable C Driven	Topsoil 0 8
읕			Br. Sand & Gravel 8 40
는	(5)	DIMENSIONS: Diameter of well 0 inches.	Br. Clay & Br. Sand & Water   60   65
Ĕ	_		Br. Clay & Br. Sand 65 80
Ē	(6)	CONSTRUCTION DETAILS:	Br. Sandstone & Water 80 105
ş		Casing installed: 0 Dam. from +1 ft. to / U ft. Welded 20 41 Diam. from 50 is to 110 ft.	Hd. Br. Clay 105 110
Ĕ		Liner installed blam. from ft. to ft.	
8	_	Backweiteren Vor 🕅 H. 🗍	
ä		Type of perforator used Skill Saw	·····
		SIZE of perforations 3/16 in. by 5 in.	
e		80 perforations from 90 tt. to 110 tt.	
₹.		perforations fromft. toft.	
£	_	percraoons from #, to	
ā		Screens: Yes   No  X	
a l	ź	Type Model No.	
ŝ.		Diam. Slot size from ft. to ft.	······································
E		Diam. Slot size from ft. to ft.	· · · · · · · · · · · · · · · · · · ·
9	_	Gravel packed: Yes No K Size of gravel	
s		Gravel placed fromft. toft.	
8	_	Surface seal: Yes 💭 No 🗌 To what depth?23h.	
ŏ		Material used in seal	
l S	·	Did any strata contain unusable water? Yes [_] No [[]	DESUDTIVENT OF POST OF
ĕ		Method of sealing strate of	CENTRAL REGION OFFICE
8			
ш	(7)	PUMP: Manufacturer's Name	
2			West Strate 1 9 97 to Summer 1-9-97 to
Ħ	(8)	above mean see level.	work started
8		Atesian pressure 6s. per square inch Date	WELL CONSTRUCTOR CERTIFICATION:
١Ð		Artosian water is controlled by(Cap. valve, etc.)	I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and
pa	(9)	WELL TESTS: Drawfown is execute within level is inwared being static level	the information reported above are true to my best knowledge and belief.
ē	(*)	Was a pump test made? Yes No K If yes, by whom?	NAME
		Yield:fl. drawdown after fre.	PEOR PRINT)
Ĕ	_	н н н н	Address
	_	n H N N	(Signed) License No. 1435
		Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	
Ľ,		Time Water Level Time Water Level Time Water Level	Contractor's
	1		No. OASISD*072J9 Date 1-9-97 19
Ľ			(USE ADDITIONAL SHEETS IF NECESSARY)
		Date of test	
		Baild rest	Ecology is an Equal Opportunity and Affirmative Action employer. For spe-
		Artesian flow gp.m. Date 1-9-97	cial accommodation needs, contact the Water Resources Program at (206)
		Temperature of water 66 Was a chemical analysis made? Yes No 🖾	407-0000. The LOD humber is (206) 407-6006.
	ECT	Y 050-1-20 (9433) * * 1	

Note: Personally Identifying Info redacted due to privacy concerns.

نې			8911
ā	File Depa	Original and First Copy with WATER WE	LL REPORT Start Card No. 204388
Re	Seco	Ind Copy—Owner's Copy STATE OF	WASHINGTON Water Bisht Parent No.
e l	(1)	OWNER: Name	
3	ã	Parcel	
is		LOCATION OF WELL: County_IAKIMA	" W. N. W. Sec. / () T. / 2.N., R/ 7 W.M.
Ē	(28)	STREET ADDRESS OF WELL (or nearest address)	
ō	(3)	PROPOSED USE: W Domestic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
٦ ق		TYDE OF WORK, Owner's number of well	Formation: Describe by color, character, size of material and structure, and show thickness of equifers and the kind and nature of the material in each stratum penetrated, with at least one antiry for each charde of information.
lat	(4)	Abardoned D. New well 52 Method: Dun D. Bored D.	MATERIAL FROM TO
Ę		Despend Cable Driven Reconditioned Reconditioned Cable	Topsoil 0 4
Ĕ	(5)	DIMENSIONS: Diameter of well 6 inches	Cement gravel 14 35
ø		Drilled 60 feet. Depth of completed well 60 ft.	Coarse gravel 35 41
÷.	(6)	CONSTRUCTION DETAILS:	Coarge gravel 41 57
õ		Casing installed:6 * Diam. from01. to60n.	
P		Weided X. Diam. fromft. toft.	
aa	_	Perforations: Yes No 🖾	
at		Type of perforator used	
		SIZE of perforatione in. by in.	
Ë.		perforations fromft. toft.	
₹.		tt.tott.tott.	
an		Screens: Yes Note: Not	
arı	_	Type Model No	
3		DiamSlot sizefromR. tot.	
5	-	Gravel packed: Yes No Sol elessor en al	
z		Gravel placed from R. to R.	
šë	_	Surface seal: Yes A No To what depth? 20 tt.	
Ď		Material used in seal Bentonite	
Бğ		Type of water?Depth of skrate	
ŏ	_	Method of seeling strate off	
ш	(7)	PUMP: Manufacturer's Name	
ď	(8)	WATER LEVELS: Land-surface elevation	JUN - NIG
, T	(0)	Static level ft, below top of well Date ft.	
Ĕ		Artesian pressure ibs. per square inch Date Artesian water is controlled by	
art	(9)	(Cap, valve, arc.)) WE11 TESTS: Drawdows is amount water laugi is inworat helms static laugi	Work started 5-11 , 19. Completed 5-11-7, 79. 93
e	(3)	Was a pump test made? Yes No Hyes, by whom? Bach	WELL CONSTRUCTOR CERTIFICATION:
8	-60	Yield: gel/min.with ft.drawdown after hre.	I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards.
Ĕ	-50	) gpm w/stem set at 40 ft.	Materials used and the information reported above are true to my best knowledge and belief.
Ľ –		hecovery data (mer taken as zero when pump turned on) (when rever measured from well top to water level) Time Water Level Time Water Level Time Water Level	Det Mall Detiling Company
		·	NAME Bach Well Dritting Company (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
	_		Address _
		Date of test	
		Bailer test gal./min. with ft. drawdown after hra.	(Signed) License NoUcense NoUcens
		Airtest gel./min. with stem set at ft. for hrs.	Registration No. BACHWDC1 37NU Date May 12 1993
		Temperature of water 58_ Was a chemical analysis made? Yes No 💭	
	ECY 05	0-1-20 (10/87) -1329	
			_

Note: Personally Identifying Info redacted due to privacy concerns.

(1) OWNER: Name	Address	
(2) LOCATION OF WELL: County VALUNA	- NE 1/4 MAY 1/4 Sec. 40 T 40 N 5	10
(2a) STREET ADDRESS OF WELL (or nearest address)	NP 34 NY 14000 12 1 12 10	12
TAX PARCEL NO.	<u></u>	(
(3) PROPOSED USE: X Domestic Industrial Municipal	(10) WELL LOG or DECOMMISSIONING PROCEDURE DES	CRIPTIC
Itrigation Test Well Other	Formation: Describe by color, character, size of material and structure, and the kill only of the material is each stroken constraint, with at least one only for each	nd and
DeWater	<ul> <li>of information. Indicate all water encountered.</li> </ul>	oungo
(4) ITPE OF WORK: Owner's humber of well (if more than one)	MATERIAL FROM	TO
Deepened Dug Bored	LOOM	6
Decommission X Rotary Jetted	CLAY & GRAVEL 3	3
(5) DIMENSIONS: Diameter of well 6 inches.	CLAY 5	7
Drilled 94 feet. Depth of completed well 94 ft.	CLAY 9	2
(6) CONSTRUCTION DETAILS:		
Casing Installed:	60 GPM @ 80	
Liner installed Diam. from ft. to ft.	25 GPM @ 60	+
Threaded * Diam. from ft. to ft.		
Perforations: Yes XNo		
SIZE of perforations in the in-		
perforations from ft. to ft.		
perforations from ft. to ft.		
perforations from ft. to ft.		
Screens: Yes X No K-Pac Location		
Manufacturer's Name	GET OF FROM	
Diam. Slot size from ft. to ft.	Beceived 62	
Diam. Slot size from ft. to ft.	FEB 1.6 mm	
Gravel/Filter packed: Yes XNo Size of gravel/sand		1-
Material placed from ft. to ft.	the state	-
Surface seal: XYes No To what depth? 25 ft.	REGION	
Material used in seal BENTONITE		-
Type of water? Depth of strata		-
Method of sealing strata off		
(7) PUMP: Manufacturer's Name	]	
Type: H.P		
(8) WATER LEVELS: Land-surface elevation	Work Started 2/10/2005 . 19. Completed 2/10/2005	. 19
Static level 20 8 below top of well Date 3/40/3006	2/10/2003	
Artesian pressure Ibs. per square inch Date	WELL CONSTRUCTION CERTIFICATION:	li and ita
Artesian water is controlled by	compliance with all Washington well construction standards. Mate	ials used
(Cap, valve, etc)	and the information reported above are true to my best knowledge	and belief
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Type or Print Name RICK POULIN License No. 9	42
Yeas a pump test made rTesTes, by whom ? Yield: gal/min, with ft. drawdown after hrs.	(Licensed Driller/Engineer)	
Yield: gal./min. with ft. drawdown after hrs.	Trainee Name License No	
Yield: gal/min. with ft. drawdown after hrs.	Driling Company BICK POLITIN WELL DRILLING	
Recovery data (time taken as zero when pump turned off) (water level measured from well too to water level)	(Signed) Lipporte No. 6	42
Time Water Level Time Water Level Time Water Level	(Liternsed DriverEngineer)	92
	Address	
	Contractors	
Date of test	Registration No. RICKPWD042J2 Date 2/10/2005	, 19
Bailer test gal./min. with ft. drawdown after hrs.	(USE ADDITIONAL SHEETS IF NECESSARY)	
Aintest 40 gal./min. with stem set at 80 ft. for 1 hrs.	Ecology is an Equal Opportunity and Affirmative Action emplo	yer. For
Artesian flow g.p.m. Date	special accommodation needs, contact the Water Resources	Program
remperature of water Was a chemical analyses made? [] Yes [X]No	(360) 407-6600. The TDD number is (360) 407-6006.	

Note: Personally Identifying Info redacted due to privacy concerns.

Second Copy - Owner's Copy Third Copy - Driller's Copy // 5/085 STATE OF W/	ASHINGTON Water Right Permit No.	.#_	
(1) OWNER: Name	Address		
(2) LOCATION OF WELL: County YAKIMA	- NW 1/4 SE 1/4 Sec 20 T.	14 N.R	19
(2a) STREET ADDRESS OF WELL (or nearest address)			
TAX PARCEL NO.	_		K
(3) PROPOSED USE: X Domestic Industrial Municipal	(10) WELL LOG or DECOMMISSIONING PROCEDU Formation: Describe by color, character, size of material and shucture	RE DESCR and the kind a	RIPTN and
DeWater	nature of the material in each stratum penetrated, with at least one ent of information. Indicate all water encountered.	ry for each cha	nge
(4) TYPE OF WORK: Owner's number of well (If more than one) X New Well Method:	MATERIAL	FROM	Т
Deepened Dug Bored	SOIL HARD RAN	0	
Decommission X Rotary Jetted	CLAY	5	
(5) DIMENSIONS: Diameter of well 6 inches.	GRAVEL & SAND	8	
Drilled 182 feet. Depth of completed well 182 ft.	BASALT	25	
(6) CONSTRUCTION DETAILS:	SANDSTONE BASALT BLACK BROWN SOFT BROKEN	132	
X Welded6 " Diam. from+2_1/2_ fl. to38_ ft.	SHALE CLAY RED & WHITE	142	
XLiner installed 4_1/2 Utam. from22 ft. to182 ft.	CLAY BROWN	148	
Perforations: XYes No	SHALE CLAY GREEN	172	
Type of perforator used SKILLSAW	60 CPM @ 140		
SIZE or perforations 1/8 in. by 6 in. 50 perforations from 142 ft. to 182 ft.	6 GPM @ 120		
perforations from fL to ft.			
ft. toft.			
Screens: Yes X No K-Pac Location	101	OF ECON	
Type Model No.	SP Hi	cerved	
Diam. Slot size from ft. to ft.	FER .	8	1.
Cream Contractor International Contractor International	-	0 2005	1
Material placed from fL to fL		- A	<u>(</u>
Surface seal: XYes No To what depth? 38 ft.		BION	
Material used in seal BENTONITE			
Did any strata contain unusable water? [_]Yes [X]No Type of water? Depth of strata			
Method of sealing strata off			
(7) PUMP: Manufacturer's Name			
(8) WATER LEVELS: Land-surface elevation above mean sea levelft.	Work Started 1/10/2005 , 19. Completed 1/1	/2005	, 19
Static level 30 ft. below top of well Date 1/11/2005	WELL CONSTRUCTION CERTIFICATION:		
Artesian water is controlled by	I constructed and/or accept responsibility for construction compliance with all Washington well construction standar	of this well, a ds. Materials	and its s used
(Cap, valve, etc)	and the information reported above are true to my best kr	lowledge and	belief
(9) WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes XiNo If yes, by whom?	Type or Print Name TOM MCGUIRE Licen	se No. 035	7
Yield: gal./min. with ft. drawdown after hrs.	(Licensed Driller/Engineer)	te No	
Yield: gal./min. with ft. drawdown after hrs. Yield: gal./min. with ft. drawdown after hrs.		·····	
Recovery data (time taken as zero when rumo humad off) funder lawal measured	RILL POUL IN WELL DRILLING		
from well top to water level)	(Signed Licer	ise No. 035	7
Time Water Level Time Water Level Time Water Level	Address		
	Contractors	11.00	
Date of test	Registration No. RICKPWD042J2 Date 1/1	2/05	_, 19
Bailer test gal/min. with ft. drawdown after hrs.	(USE ADDITIONAL SHEETS IF NECE	SSARY)	
Airtest 60 gal./min. with stem set at 140 ft. for 1 hrs. Artesian flow 0.p.m. Date	Ecology is an Equal Opportunity and Affirmative Action	n employe	. For
Temperature of water Was a chemical analyses made? [Yes XNo	(360) 407-6600. The TDD number is (360) 407-6006	sources Ph	ografi

Note: Personally Identifying Info redacted due to privacy concerns.

(1) OWNER: Name	Address	
(2) LOCATION OF WELL: County YAKIMA	- NE 1/4 NW 1/4 Sec 11 T. 12 N	.R 19 W.M
(2a) STREET ADDRESS OF WELL (or nearest address)		
TAX PARCEL NO.	C	
(3) PROPOSED USE: X Domestic: Industrial Municipal	(10) WELL LOG or DECOMMISSIONING PROCEDURE D	SCRIPTION:
Del/Vater	Formation: Describe by color, character, size of material and structure, and the rature of the material in each stratum penetrated, with at least one entry for ea	kind and ch change
(4) TYPE OF WORK- Owner's number of well (if more than one)	of information. Indicate all water encountered.	
X New Well Method:	MATERIAL FRO	M TO
Reconditioned Cable Driven	SANDY SOIL	8 12
Decommission X Rotary Jetted	LOOM	12 17
(5) DIMENSIONS: Diameter of well 6 inches.		17 <u>37</u> 37 <u>41</u>
Drilled 122 feet. Depth of completed well 122 ft.	CLAY	41 79
(6) CONSTRUCTION DETAILS:	SANDSTONE & SAND	79 92
Casing Installed: IXIWeided 6 " Diam. from +3 1/2 ft. to 116 ft:	CLAY	92 95
Einer installed Diam. from ft. to ft.	SAND	109 112
IL to ft.	SANDSTONE	112 118
Perforations: Yes X No	GRAVEL	121 122
SIZE of perforations in. by in.		122
perforations fromft. toft.	50 GPM @ 116	
perforations from ft. 10 ft.	20 GPM @ 60	
penorations; nom; ft. 10 ft.		
Screens; Yes XNo K-Pac Location		· · ·
Type Model No.		
Diam. Slot size from ft. to ft.		
Diam. Slot size from ftto ft	Ren of a	
Gravel/Filter packed: Yes XNo Size of gravel/sand	/ Hecelved .	
Material placed from. R. to R.	Mara	
Surface seal: XYes No To what depth? 25 ft.	2008	
Did any strata contain unusable water? Yes XINo		/
Type of water? Depth of strata	REGION SECTION	
Method of sealing strata off		
(7) PUMP: Manufacturer's Name		
тура: Н.Р		
(8) WATER LEVELS: Land-surface elevation above mean sea level n.	Work Started 5/2/2008 . 19. Completed 5/2/2008	
Static level. 25 ft. below top of well Date 5/2/2008	WELL CONSTRUCTION CERTIFICATION	·
Artesian pressure Ibs. per square inch Date	I constructed and/or accept responsibility for construction of this	well, and its
(Cap. valve, etc)	compliance with all Washington well construction standards. M and the information reported above are true to my best knowled	perand belief.
(9) WELL TESTS Drawdown is amount water level is lowered below static level		0007
Was a pump test made? Yes XNo #yes, by whom?	(Licensed Driller/Engineer)	0301
Yield: gal./min. with ft. drawdown after hrs. Yield: gal./min. with ft. drawdown after hrs.	Trainee Name License No	
Yield: gal/min. with fl. drawdown after hrs.	Drilling ( ILLING INC	
Recovery data (time taken as zero when pump turned off) (water level measured	(	.'
from well top to water level)	(Signed) License No	0357
Time Water Level Time Water Level Time Water Level	Address -	
	Contractor's	10.0
	Registration No. RICKPWD944PW Date 5/2/200	8
Date of test	(USE ADDITIONAL SHEETS IF NECESSAR	200
Airtest 50 gal/min. with stem set at 116 ft. for 4 hrs.	Ecology is an Equal Opportunity and Affirmative Action em	plover. For
Artesian flow 9.p.m. Date	special accommodation needs, contact the Water Resource	es Program at
. Temperature of water Was a chemical analyses made? Yes XNo	(360) 407-6600. The TDD number is (360) 407-6006.	
		,

Note: Personally Identifying Info redacted due to privacy concerns.

	CURRENT	RECI	CIVI
ECELOST Cognal&1" opy-Ecology, 2 opy-owner, 3 copy-onner ECELOST	Notice of Intent No. W 355593	FFR	1 3 201
Construction/Decommission ('x" in circle)	Linione Scolore: Well ID Tar No.		
Construction	Wide Dick Derek Ve	Dept o	f Ecolo
Notice of Intent Number	Water Right Permit No.	Central He	egional
PROPOSED USE: R Demestie Diskstriel Manicipal	Property Owner Name		
DeWater Imgation Test Well Other	Well Street Address		
TYPE OF WORK: Owner's number of well (If more than one)	City MOXEE County	YAKIMA	
New with Reconstraced Method : Days Bornet Drawen     Stepsed     Cable Brandy Peted     Dimensions: Dismeter of well     Cable Andread	Location <u>NE_1/4-1/4 SE_1/4</u> Sec <u>24</u> Twn <u>12</u> (s. t. r Still REQUIRED)	_R <u>19</u> ew	
CONSTRUCTION DETAILS	Lat/Long Lat Deg Lat M	lin/Sec	
Casing Welded 6 * Diam. from +1 R to 184 R.	Long Dee	Min/Sec	
Installed: [R Liner installed 5 * Diam. from -5 10 to 372 0.	Tax Darrad No. (Remined)		
Perforations: E Yes No	reaction of the second	194	
Type of perforator used TORCH	Fornation: Describe by color, character, size of material an	d structure, and t	he kirst and
SIZE of perfs 1/4 in by 5 in and no. of perfs 30 from 330 ft to 351 ft.	sature of the material in each strature penetrated, with at les of information. (UNE ADDITIONAL SHEETS OF NECTORS,	ut one entry for e ARY.)	web stangs
Screens: Yes No K-Pec Loestins	MATERIAL	FROM	TO
Type Model No	GREEN GRAVEL	381	399
Dian. Slot size from 0. to 0.	BROWN AND GRAY BASALT	399	408
Diam. Slot size from fl. to fl.	CLAV & GREEN SAND & WATER	405	421
Generativities packed: Yes N No Size of gravelyand	MEDIUM GRAY BASALT	427	452
Surface Sealt [9] Ym [7] No To what depth? 18 ft.	MED. GRAY BASALT & HARD BLUE SHALE	452	465
Material used in seal CUT NEW SEAL - BENTONITE	BROWN BASALT & HARD BLUE SHALE	465	478
Did any strate contain unusable water? 🗌 Yee 💽 No	GREEN SHALE	4/8	460
Type of water? Depth of state	HARD GRAY BASALT	483	528
Method of sealing strata off	GRAY BASALT & HARD GREEN SHALE	528	548
PUMP: Menufacture's Name	GRAY BASALT & HARD BLUE SHALE	548	553
WATERLEVELS Land, sufface elevation showe mean teal level ft.	GRAY BASALT	553	613
Static level 360 ft. below top of well Data 11-13-18	GRAY BASALT & HARD BLUE SHALE	613	631
Artesian pressure Ibs. per square inch. Date	MED. GRAY BASALT & HARD GREEN CLAY	631	649
Artesian water is controlled by (cap, valve, etc.)	MEDIUM GRAY BASALT & HARD BLUE-	649	0.39
WELL TESTS: Drawdown is amount water level is lowered below static level	MED. GRAY BASALT WITH BLACK SEAMS	659	664
Was a pump test made? [] Yes [8] No If yes, by whom?	& BLUE-GREEN SHALE & WATER		
Yield gol/min. with ft. drawdown after hrs.	GRAY BASALT & HARD BLUE SHALE	664	685
Table get into with B. downlown after too. Recovery data (time taken as zero when pump turned off) (water level measured from well	SINCH STEEL LINER WOLLD NOT	-	
top to water level)	ADV ANCE PAST 372 FEET.	-	
Time Water Level Time Water Level Time Water Level			
	PUMPING 15 G.P.M WITH TOOLING IN THE HOLE INSIDE 5 INCH STEEL LINER & 680 FT.		
		-	-
Date of Set			
Bailer Test gal./min. with R. drawdown effer les.		-	
Annue 30 gal mar with mini ter a 685 at the 4 100		1	-
Terresentare of water 69 Was a description made?  Yes Who	Start Date 10-31-18 Completed Da	te 11-13-18	
Temperature of water 09 Was a diseasial enabysis made? Yes (R) No	ility for construction of this well, and its compliance with	all Washington	well
construction standards. Materials used and the information reported above are to	ue to my best knowledge and belief.		
Driller Engineer Trainee Na F	Deilling Company OASIS DRILLING LLC		
Driller Engineer Traince Signatury	Address		
Driller or trainee License No. 2767	City, State, Zip		
IF TRAINEE: Driller's License No:	- Contractor's		
Driller's Signature:	Registration No. OASISDL914LH	Date 11-15	-18
CY 0561-20 (Rev 407)	Boology is an Bqual	Opportunity Ifm	ployer

Note: Personally Identifying Info redacted due to privacy concerns.