# FLOW ENHANCEMENT STUDY

Siwash Creek Okanogan County, Washington

Prepared for: Colville Confederated Tribes

Project No. 110014 • September 21, 2012







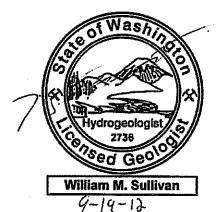
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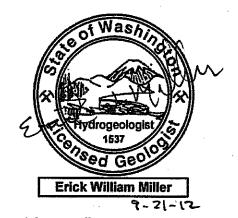
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# **Executive Summary**

Siwash Creek is a snowmelt dominated stream flowing over 15 miles to the Okanogan River. Fish habitat in the lower 1.4 miles of the Creek is currently limited by stream flows that dry up in summer months. Fish passage from the Okanogan River is likely impeded in all but the highest of flows by a diffuse channel at the mouth of the Creek (Arterburn et al., 2007). Above this, fish passage is thought to be limited to the lower 1.4 miles of the Creek, above which a series of natural falls likely restricts passage (Arterburn et al., 2007). Anecdotal accounts from local residents indicate that in previous decades, the stream flowed year-round below the falls. The objective of this study is to identify alternatives to restore/augment flows in the lower 1.4 miles of Siwash Creek to maximize survival of juvenile steelhead.

Seven stream gaging stations (Staffs A through G) were established on Siwash Creek to evaluate flow losses to groundwater seepage and irrigation diversions and establish flow augmentation targets. Gauging was performed between March and November 2011. Three gauging stations monitored flow in the lower watershed below Antoine Valley. Staff C is located at the top of the 1.4 mile fish bearing reach just below the falls, Staff B is near the middle of the reach, and Staff A is near the mouth of the Creek. Discharge from Antoine valley was monitored at Staff D, while the upper watershed was monitored by Staffs E, F, and G. Aquifers in the project area were evaluated to further understanding of groundwater/surface water interactions and to support development of flow augmentation alternatives.

Staff C was the most downstream gaging station with perennial flow for the 2011 gauging period. Stream flow dried up beginning in early July at Staffs A and B. An irrigation diversion (Schaller Right) occurs between Staffs C and D that diminishes flow between these stations during the irrigation season. Within Antoine Valley, significant losses in stream flow occur as a result of irrigation diversions and seepage to groundwater. Anecdotal information indicates continuous flow through the valley only occurred for about a 1-week period during the 2011 freshet.

Target augmentation flows were established for the mouth of Antoine Valley (Staff D) and at the falls (Staff C) based on measured seepage losses and habitat flow objectives of 0.3 and 1 cubic feet per second (cfs) at the mouth of the Creek. To meet the habitat flow of 0.3 cfs in 2011, estimated flow augmentation of 1.1 and 1.8 cfs would have been required for the non-irrigation and irrigation seasons, respectively, at Staff D. Because flow augmentation targets are based on a relatively short gaging period (8 months) during a relatively wet year (2011), an assumed safety factor of 50% was applied to the estimated augmentation flows as an allowance for uncertainty and annual climate variation. With the 50% safety factor, flow augmentation of 1.7 and 2.6 cfs are estimated to meet the 0.3 cfs habitat objective during non-irrigation and irrigation seasons, respectively (Table ES-1). On an annual basis, this quantity is equivalent to approximately 1,500 acre-feet. At the falls (Staff C), the annual augmentation quantity is reduced to about 1,400 acre-feet. These annual augmentation quantities equate to flows of 4.9 and 4.5 cfs over the 5-month irrigation season, for inputs at Staffs D and C,

respectively. Estimated augmentation flows to achieve a 1 cfs habitat flow are included in Table ES-1 below.

Table ES-1 – Flow Augmentation Quantities at Staff D to Meet Habitat Flow Objectives

Habitat Flow Objective	0.3 cfs year-round at Creek mouth	1 cfs year round at Creek mouth
Annual Augmentation Qty (acre ft)	1,491	2,251
Non-Irrigation Season Augmentation (cfs)	1.7	2.7
Irrigation Season Augmentation (cfs)	2.6	3.7

Note: Augmentation quantities computed from seepage losses and habitat flow objectives with a 50% safety factor. See Tables 2 and 3 for complete table notes.

Several alternatives were examined for enhancing stream flows to the fish passable reach below the falls at RM 1.4 including:

- retiring water rights;
- converting surface water diversion to groundwater withdrawals;
- groundwater pumping from a well; and,
- new surface water storage in the upper watershed.

Of these, the most feasible augmentation alternative was judged to be retiring irrigation rights in Antoine Valley equal to about 4.9 cfs or about 1,500 acre-feet annually. Lesser quantities would provide some habitat benefit by extending flow further downstream and/or meeting project objective during wetter years, depending on the quantity of retired water rights.

Retiring of Antoine Valley groundwater and surface water rights has uncertainty with regard to the timing of instream flow benefit to Siwash Creek. Retired surface water rights, when placed in-stream, will infiltrate within Antoine Valley except for the short period of continuous flow through the valley. The infiltrated water will accrete onto the water table and move with groundwater to a discharge point at the mouth of Antoine Valley (near Staff D). At this location, a bedrock constriction forces groundwater to the surface through a number of springs. The timing of this discharge should be evaluated using a groundwater model to confirm that discharge occurs at a time and in sufficient quantity to meet project objectives. In addition, the potential exchange of groundwater between Antoine and Siwash Creeks has not been fully characterized. The relationship of groundwater flow between these creeks should be further investigated through shallow piezometers and water level measurements to ensure that the infiltrated, flow augmentation water does not migrate to Antoine Creek.

Piping of water from the point of diversion(s) to the mouth of Antoine Valley offers the advantage of controlling the timing and quantity of discharge to the Creek. Piping would require a change in time of use of the water right from irrigation season to year round and a change in place of use.

Retiring the Schaller Right would provide some benefit to stream flows below the falls, but would not provide sufficient water to meet the habitat flow objectives. The effect of this option on habitat flows could be investigated by temporarily fallowing fields irrigated by this right.

The next most feasible alternatives rely on groundwater sources. Converting a surface water diversion (Schaller Right) to groundwater in the reach between the falls and Antoine Valley could extend 0.3 cfs habitat flow an estimated 1,400 feet further downstream with flow drying up about 2,800 feet downstream. The Schaller Right may be difficult to protect in-stream and hydrogeologic/impairment uncertainty are drawbacks for this option. Groundwater pumping from a well in the fish passable reach below the falls could extend flow an estimated 2,100 feet from a 200-gallon per minute (gpm) well with a discharge point in the lower reach. This option would require a new water right and also has hydrogeologic/impairment uncertainty.

Developing a new surface water storage facility was not determined to be feasible because the basin does not produce sufficient water to meet habitat flow objectives after downstream losses to seepage and irrigation withdrawals.

Moving forward, we recommend:

- pursuing water rights in Antoine Valley;
- characterizing the groundwater exchange between Antoine and Siwash Creek through installation of shallow monitoring wells;
- evaluating the timing and quantity of instream flow benefit from a retired water right through a groundwater model;
- Investigate fallowing fields irrigated by Schaller Right on a trial basis; and,
- adaptively managing water right acquisition and retirement through continued monitoring.

#### 1 Introduction

The Colville Confederated Tribes Anadromous Fish Division (CCT AFD) is seeking to increase stream flows in Siwash Creek, near Tonasket in Okanogan County to enhance spawning and rearing habitat for Okanogan River steelhead. A fish passage barrier assessment of Okanogan River tributaries (Arterburn, et al., 2007) identified anadromous fish habitat in Siwash Creek below River Mile (RM) 1.4; however, low to no-flow conditions exist in the lower reach for most of the year. These flow conditions present an impediment to fish passage and significantly increase juvenile steelhead mortality. Steep stream gradients at RM 1.4 likely present a natural fish passage barrier above the lower reach (Arterburn, et al., 2007).

# 1.1 Purpose and Scope

The objective of this study is to identify alternatives to increase flows in the lower reach from mid- to late-summer through spring in the lower 1.4 miles of Siwash Creek to maximize survival of juvenile steelhead. To accomplish this, Aspect Consulting, LLC (Aspect) characterized hydrologic and groundwater conditions in the basin and identified and evaluated alternatives to augment stream flows in the lower reach.

# 1.2 Flow and Water Quality Objectives

The Tribes' primary objective is to provide rearing habitat in the fish-passable lower 1.4 miles of the Creek by enhancing flows following spring freshet when this reach typically dries up. Specific objectives include:

- Establish perennial rearing habitat in some or all of the lower 1.4 miles of the Creek. The minimum flow necessary to sustain juvenile steelhead in the lower reach is assumed to be 0.3 cubic feet per second (cfs) with higher flow being desirable based on discussions with CCT AFB biologists; therefore, habitat flow objectives of 0.3 and 1 cfs were considered in the analysis. This flow should extend as far downstream as possible to maximize rearing habitat, but need not reach the river to provide rearing habitat benefit.
- Meet water quality parameters optimal for juvenile steelhead rearing, including water temperatures between 45 degrees F and 63 degrees F, dissolved oxygen between 5 milligrams per liter (mg/L) and 15 mg/L, and pH between 6.7 and 8.3 (Bell, 1991). Evaluation of copper and zinc were outside the scope of this study. Because the Creek does not appear on the State's 303(d) listing of impaired water bodies, these metals are not expected to be present in concentrations affecting targeted species at Siwash Creek.

# 2 Hydrology

This section presents an overview of the Siwash Creek basin, describes stream the gauging network established as part of the study, characterizes surface water flows and geologic conditions, and the basin hydrogeology, and presents flow augmentation targets.

# 2.1 Basin Description

The Siwash Creek watershed occupies 48-square miles east of Tonasket, Washington (Figure 1). The Creek flows west and southwest for 15 miles from the southwest slope of Mount Bonaparte to the Okanogan River in Tonasket. The South and Middle Forks of the Creek join to form the mainstem at RM 11.9. The North Fork enters the mainstem at RM 10.5. The Creek has no other major tributaries.

The Creek enters a steep, narrow canyon at about RM 8.9 and exits the canyon flowing into Antoine Valley at the apex of a broad alluvial fan at RM 5.4. The stream has been channelized on the eastern portion of the valley floor and diverted to the north downstream of Havillah Road. Except for high flows, the Creek infiltrates into the subsurface in Antoine Valley, disappearing about ¾ miles after emerging into the valley from the canyon mouth. The Creek remerges at the surface in springs located about ½-mile north of Fancher Road at RM 3.0. Antoine Creek, located to the north, runs roughly parallel to Siwash Creek passing within 2 miles of Siwash Creek at the north end of Antoine Valley.

Downstream of Fancher Road, the Creek passes through a short, narrow canyon that opens to an upper glacial terrace. The Creek incised this terrace creating a canyon that becomes deeper with distance downstream. A series of small waterfalls formed as the stream removed glacial sediments exposing underlying bedrock at RM 1.4. The Creek has incised into a lower glacial terrace at about RM 1.7, exits this canyon at about RM 0.3, and flows across the surface of the Okanogan River terrace, through the City of Tonasket (City), under US Route 97 and a rail trestle before entering the Okanogan River. The stream channel across the lower ½-mile of the glacial terrace has been channelized where it flows through the City (Entrix and Golder Associates, 2004). For the purposes of this report, the region lying upstream of Antoine Valley is referred to as the upper watershed and the region downstream from this valley is referred to as the lower watershed. The stream reach below the falls at RM 1.4 is referred to as the fish-passable reach.

The upper portion of the watershed is bounded to the north by Bonaparte Mountain and to the south by Barker Mountain. The upper portion is characterized by exposed bedrock ridges and thin glacial sediments that occupy regions between the ridges. Vegetation in the upper watershed above the confluence with North Fork is dominantly coniferous forest and land use is forestry. Land ownership is primarily United States Forest Service. The upper portion of the watershed above Antoine Valley, up to the confluence of the North Fork, is primarily grassland and shrub-steppe and land use is range with limited irrigated lands. Nearly all land downstream of the Okanogan Forest boundary is privately owned.

The lower watershed from Antoine Valley downstream to the Okanogan River is characterized by shallow soils and exposed bedrock in the uplands and thick, relatively flat, unconsolidated sediments in the lowlands. Antoine Valley and the upper glacial terrace between the falls (RM 1.4) and Fancher Road (RM 3.0) is agricultural with both regions irrigated using surface and groundwater from the Siwash Creek system. The northern portion of Antoine Valley is irrigated using surface water from Antoine Creek. Land use in the lower reach below the falls at RM 1.4 is mixed agricultural and large-parcel residential except in City limits, where land use is predominantly residential/commercial. Irrigation is limited below the falls and uses sources other than the Creek.

Average annual precipitation ranges from 12 inches in the lower watershed to 25 inches in the upper watershed on the southwest face of Mount Bonaparte. Most precipitation falls in winter months as snow. Precipitation is rare during summer months.

Surface water storage is limited predominantly to two small lakes occupying bedrock depressions on the southwest slope of Mount Bonaparte (Razor Lake and Harbor Lake). These lakes drain relatively small areas, and are located over a mile from Siwash Creek.

#### Irrigation and Water Rights

Much of the low lying areas of lower Siwash Creek basin are irrigated.

Relevant water rights were identified, compiled, and evaluated by Washington Water Trust in the Siwash Basin Water Rights Review (WWT, 2011). The document was prepared in support of the Tribes' efforts to develop flow restoration strategies. The WWT (2011) report includes numbers of irrigated acres, places of use, and instantaneous rates of withdrawal for relevant water rights in the basin. However, locations for points of diversion and withdrawal were limited in the report to data available in Ecology's Water Rights Application Tracking System (WRATS) database. Because data from Ecology's source does not contain specific locations, locations of relevant surface water diversions and groundwater points of withdrawal upstream of the falls were field verified in winter 2012 as part of this study and are shown in Figure 10. Additional information regarding the WWT report is summarized in Section 3.1.1.

Antoine Valley is irrigated using water from the Siwash Creek system. This includes surface water from the Creek and groundwater in glacial sediments recharged primarily from Siwash Creek. Examination of air photo data, conversations with locals having knowledge of the site, and information in the WWT report indicate approximately 440 acres in Antoine Valley are irrigated by wheel line sprinkler and flood irrigation methods using water from the Siwash Creek system. In the north half of Antoine Valley, center pivot sprinklers operated by Antoine Valley Ranch use water diverted from Antoine Creek. Water rights in the WWT (2011) report include the Holmdahl (surface and groundwater), Antoine Valley Ranch (AVR) (surface and groundwater), IGO Ranch (surface and groundwater) and Laurie (groundwater) rights (Figure 10).

The other area where significant irrigation occurs lies in the reach between Antoine Valley and the falls at RM 1.4. Air photo data examined by WWT (2011) indicate approximately 83 acres in this reach are irrigated using wheel lines and hand lines with water sourced from surface water diversions on Siwash Creek. These lands are irrigated by various landowners using water from the Schaller Right (surface water). Further

downstream, other water rights use groundwater to irrigate smaller areas including the Gardinier and Culver Rights.

#### 2.2 Stream Flow

### 2.2.1 Gauging

Data collected in the Siwash Creek basin from spring 2011 through December 2011 were used to characterize stream flow patterns. Prior to this study, there were no active stream flow gauges on Siwash Creek, no record of continuous flow measurements, and only scant point measurements available. Periodic point measurements collected by the Okanogan Conservation District between May 2000 and April 2003 indicate mean flows of 0.2 cfs and 1.2 cfs for the lower and upper portions of the Creek, respectively (Entrix and Golder Associates, 2004). Average annual flow is reported by others as 5 cfs (Walters, 1974). Approximately 20 measurements collected by the USGS (Station 12444400) on lower Siwash Creek between 1957 and 1977 indicate peak flows as high as 52 cfs occurring on January 9, 1959¹. Available information indicates the Creek flows perennially to the falls at RM 1.4. Flows reported by Okanogan Conservation District and Walters (1974) and anecdotal accounts by CCT AFD staff and local residents confirm stream flow dries up in the lower reach below the falls during mid-late summer and early fall.

Seven stream gaging stations were established in the Creek from near the mouth to just above the confluence of the North Fork in the upper watershed. Five gauges were installed as part of the initial scope of work and two more were added 2 months later to expand the stream gauging effort. Stream gauge locations are shown in Figure 2. A staff gauge was installed at each gauging station and transducers were installed at Staffs D and E. Descriptions and rationale for each gauge are described below:

**Staff A** – Located at the railroad trestle near the mouth of the Creek at RM 0.1. This gauge was installed on May 19, 2011 to characterize flows in the lowermost section of the Creek. Flows at this location dry up seasonally following the spring freshet, and this station permits measurement of losses to groundwater as the stream traverses the lower glacial terrace. Data are limited for this gauge since it was installed later than the others and was vandalized and had to be reinstalled. One manual flow measurement was collected at the Highway 97 bridge on April 7, 2011 prior to installing Staff gauge A. Flows at Staff A dried up in the first week of July 2011.

**Staff B** – Located on the upstream end of a corrugated metal culvert where the Creek passes beneath a private road on the Nau property at RM 0.8. This gauge was installed on May 19, 2011 to characterize flows in the lower reach of the Creek. Flows at this location also dry up seasonally following the spring freshet. The station permits measurement of stream flow losses as the Creek traverses the lower glacial terrace. Data are limited for this gauge because it was installed later than the others. Flows at this location dried up the first week of July 2011.

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<sup>&</sup>lt;sup>1</sup> There is some uncertainty regarding the location of this station. Station 12444400 is listed as "Siwash Cr Trib nr Tonasket Wash."; however ,USGS water resources web site show the drainage area is listed as 0.66 square miles and the listed station coordinates plot far south of Tonasket.

**Staff C** – Located immediately downstream of the falls on the Castelda property at RM 1.4. This gauge was installed on March 24, 2011 to measure flows downstream of the irrigated region between RM 1.4 and RM 3.0 and to establish an upstream control point to measure groundwater losses across the lower terrace. Because bedrock crops out at the surface, flows at Staff C are assumed to capture nearly all water flowing through the Siwash Creek system at this location (i.e., little or no subsurface flow). Data are limited for this gauge to times when the landowner could be contacted for access to the site.

**Staff D** – Located immediately upstream of the County bridge at the Fancher Road crossing. This gauge was installed on April 7, 2011 to measure flows draining Antoine Valley. Station D provides an upstream control point for computing flow differences between the falls and Fancher Road. The gauge was outfitted with a continuous recording datalogger to record changes in stage height and water temperature.

**Staff E** – Located on the south side of Siwash Creek Road on property owned by the Tribe, at the mouth of the canyon at RM 5.4. This gauge was installed on March 24, 2011 to characterize flows entering Antoine Valley from the upper watershed above irrigation diversions. The gauge was outfitted with a continuous recording datalogger to record changes in stage height and water temperature.

**Staff F** – Located on the upstream side of a corrugated metal culvert where the Creek passes beneath a private road on the Holmdahl property at RM 10.5. Staff F is located about 200 feet downstream of the confluence with North Fork Siwash Creek. This gauge was installed on April 7, 2011 to characterize flows to define water available for potential surface water storage in the upper watershed.

**Staff G** – Located on the main channel about 200 feet upstream of the confluence with the North Fork on the Holmdahl property. This gauge was installed on April 7, 2011 to monitor flows from the South and Middle Forks and allow computation of the flow contribution from the North Fork.

Manual flow measurements were regularly taken at staff gauges during the study to characterize flows and establish rating curves. When stage heights were observed to be the same as a previous site visit, stage was recorded and flow measurements were not collected. The number of manual flow measurements at a given station varied between 9 and 20, depending on the installation date of the station and the time flow ended (at Stations A and B).

Stage height and flow data were used to develop rating curves for each staff gauge (Appendix A). Flows were measured using a Swoffer flow velocity meter. Results of stream flow monitoring are shown in Table 1. Figure 3 shows hydrographs for Staff Gauges D and E for the period April 7, 2011 through November 2011. Missing data on the Staff Gauges D and E hydrographs represent times when the datalogger malfunctioned.

# 2.2.2 Stream Flow Hydrographs

Seasonal stream flow patterns in Siwash Creek are indicative of a snowpack dominated watershed with limited groundwater storage to sustain baseflows. Stream flow measurements (Table 1) indicate flows generally decrease with distance downstream.

The hydrograph at Staff E (Figure 3) shows peak flows during the spring freshet which occurs from approximately May 1 through the first week of July. The magnitude and duration of the 2011 freshet appear to be much greater than normal. Examination of stream flow hydrographs since 2003 for nearby Bonaparte and Tunk Creeks indicate the unusually cool spring and high snow pack of 2011 delayed the freshet by about 4 weeks, with peak flows that were two to three times higher than normal in those basins. Peak measured flow at Staff Gauges E through G occurred on May 26 with the highest flow at Staff F (21.4 cfs). Peak measured flow at Staff Gauges A through D occurred on June 9 with the highest flow at Staff D (7.96 cfs).

Beginning in about mid-July following snow melt runoff from the upper watershed, the available groundwater storage sustains flows until the first fall precipitation events. Average baseflow at Staff D is about 0.5 cfs which is about 0.5 cfs less than the average baseflow at upstream Staff E, although the difference between these stations varies (Figure 3). Baseflows are sufficient to extend flow downstream to near the falls at RM 1.4 (Staff C) where very low -flow conditions were observed in late summer. The presence of trout near Staff D (Entrix and Golder Associates, 2004) and anecdotal information provided by CCT AFD staff indicate that flow is always perennial at Staff D.

Flow in the lower reach of the Creek extended to the Okanogan River only when sufficiently high to overcome losses to groundwater and irrigation, typically during the spring freshet. Beginning in early July, flow ceased below the falls (Table 1, Stations A and B). During the fall, precipitation events generated a flashy runoff pattern attributed to shallow soils and exposed bedrock in the upper watershed. Flow extended downstream of the falls to Staff B beginning in late October, but did not reach Staff A. Anecdotal accounts from local residents indicate the stream used to flow perennially across much of the lower reach below the falls, but perhaps not all the way to the Okanogan River.

Differences in flows between gauging stations are discussed further in the groundwatersurface water section below (see Section 2.5.1).

#### Correlation with Long-term Hydrograph

Stream flow data observed through the monitoring period at Siwash Creek were correlated with Bonaparte Creek, which is the neighboring basin to the south to synthesize a long-term hydrograph for Siwash Creek. The Bonaparte Creek station is a continuous stream flow monitoring station operated by Washington State Department of Ecology with a period of record that spans from the beginning of water-year 2003 (beginning in October 2002) to the present time.

Available instantaneous flow rates at Siwash Creek obtained from the datalogger at Staff E were plotted against simultaneous, instantaneous rates at Bonaparte Creek on 15-minute increments to develop a linear correlation. The results of that analysis indicate that Siwash Creek flows at Staff E are approximately 33 percent of Bonaparte Creek with a linear regression coefficient (R<sup>2</sup>) of 0.83 which is within reasonable tolerance.

The correlation was then applied to the 10-year period of record data at Bonaparte Creek to synthesize a yearly hydrograph for Siwash Creek over the same time span. Hydrographs for the 10<sup>th</sup>, 50<sup>th</sup> and 90<sup>th</sup> percentile probability of exceedance were formulated and plotted. These results are shown in Figure 11.

Potential sources of error are inherent in the hydrograph synthesis given the relatively short monitoring period for Siwash Creek. Much of the uncertainty related to this correlation could be resolved through continued monitoring of the Siwash Creek stream flows.

Additional sources of error may exist with this methodology, including potential variance in basin characteristics based upon basin drainage area and timing of peak runoff. Bonaparte Creek is a substantially larger and higher drainage basin with significant surface water storage that is absent in the Siwash basin. The larger drainage area associated with Bonaparte Creek and presence of surface water storage may affect timing of peak flows associated with rainfall events that may lag those observed in the Siwash Creek basin.

#### **Water Quality**

Water quality measured in the Creek during this study was limited to temperature recorded by dataloggers at Staff gauges D and E. These data are shown in Figure 4. These data are incomplete for the period covered by this study due to the dataloggers malfunctioning from about mid-May through the end of July for Staff D and late September for Staff E. The record at Staff D captured the most critical period during the summer when freshet flows had receded and air temperatures were warmest. Maximum temperature for the available data was 66 degrees F at Staff D on May 10, 2011. Temperatures during the lowest measured flows in late August and early September at Staff D were less than 60 degrees F.

Water quality parameters measured by the Okanogan Conservation District (OCD) in 2000, as summarized in a report on limiting factors (Entrix and Golder Associates, 2004), are determined to be suitable for salmonid habitat with water temperature reported to be below 64 degrees F. The limiting factors report noted that some water quality parameters above Antoine Valley do not meet requirements for salmonid species but indicated this is likely not a concern for the fish-passable reach below Antoine Valley. When sufficient flows for fish habitat were present, the limiting factors report found the water quality in the fish passable reach to be good.

# 2.3 Geologic Conditions

The geologic setting of the Siwash Creek vicinity is characterized by glacially overridden bedrock uplands overlain by unconsolidated sediments in low lying areas, including the Antoine and Okanogan River Valleys. The principal geologic units from a 1:100,000 scale map compilation from Washington Department of Natural Resources are presented in Figure 5. The Okanogan River Valley bottom has an elevation of approximately 900 feet and is comprised primarily of alluvium. Continental glacial deposits form gently sloping terraces on the valley margins to elevations of approximately 1,400 feet. These terraces have been deeply incised by drainages including Siwash Creek. The glacial terraces terminate on the eastern margin of the valley where they abut bedrock uplands including Duffys Mountain to the east. Bedrock outcrops on nearly all of the ridges in the basin, including the 7,200-foot summit of Mount Bonaparte. Continental glacial sediments mantle bedrock depressions between ridges and cover much of the southwest slope of Mount Bonaparte, including the headwater drainages of Siwash Creek.

Alluvium consisting of layered silt, clay, sand, gravel and cobbles was deposited across the Okanogan River floodplain in the period following retreat of the glacial ice sheet, as the river incised underlying glacial deposits. Alluvium in the Siwash Creek bottom is primarily confined to the narrow creek floodplain near the mouth of the Creek (Figure 5). Much of the surface of Antoine Valley is covered by a broad alluvial fan extending from the mouth of the canyon at RM 5.4. Examination of air photos and topography indicate the stream channel has historically migrated across the surface of the alluvial fan depositing over 80 feet of alluvium onto the underlying glacial drift. In the upper watershed above Antoine Valley, the stream channel alternates between incised narrow canyon cut into glacial drift and wider floodplains having braided channels.

Glacial deposits consisting primarily of fine sand, silt, and layers of clay and coarse sand and gravel were deposited by the Okanogan lobe of the Cordilleran continental glacial ice sheet, approximately 10,000 to 12,000 years ago. Following glacial ice retreat, the Okanogan River incised glacial sediments occupying the entire valley, leaving behind remnant glacial terraces along the valley margins and filling a bedrock depression at Antoine Valley. Siwash Creek has incised a straight, steep-walled canyon into the glacial terrace beginning at about RM 1.7. This canyon narrows and deepens with distance downstream to a depth of approximately 150 feet. The Creek emerges from this canyon at about RM 0.3 where it traverses a lower terrace through the City of Tonasket to the confluence with the Okanogan River.

Well log data indicate the depth to the bedrock surface varies in the lower watershed. Glacial drift generally becomes thicker to the west toward the Okanogan River Valley axis. Glacial drift thickness ranges from less than 100 feet near the valley margin to greater than 360 feet toward the valley axis, although variability in this trend is indicated by Well 15D01, where bedrock was identified at a 60-foot depth. Bedrock crops out at the falls where the Creek has deeply incised glacial sediments.

In the upper watershed, bedrock forming the glacially-overridden Mount Bonaparte is primarily mapped as crystalline banded gneiss. In the lower watershed, bedrock forming Duffys Mountain to the north of the Creek is mapped as metamorphosed sedimentary and volcanic rocks and tuffs. These rocks have little or no intrinsic permeability and yield water from secondary fractures. Bedrock is mantled in places by thin glacial deposits primarily concentrated in drainage bottoms and depressions on the bedrock surface. As stated above, depth to bedrock in the lower watershed increases toward the Okanogan River valley bottom.

# 2.4 Hydrostratigraphic Units and Aquifers

A hydrostratigraphic unit is a geologic unit or collection of geologic units that exhibit similar hydraulic characteristics. Examination of well data obtained from Ecology's well database indicate two principal hydrostratigraphic units in the Siwash Creek vicinity:

- Glacial Drift Aquifer
- Bedrock Aquifer

Well logs in the vicinity of the Creek are contained in Appendix B. Well locations are presented on Figures 6 and 8 with the locational accuracy provided. Cross sections showing groundwater levels and hydrostratigraphic units from well log data are shown for the lower watershed downstream of Staff D at RM 3.0 and for Antoine Valley.

#### **Glacial Drift Aquifer**

The glacial drift aquifer represents the most important groundwater resource in the Creek vicinity. This aquifer generally consists of glacial outwash deposits comprised of sand and gravels. Locally, layers of silt and clay form aquitards at varying depths within the glacial drift aquifer. The glacial drift aquifer occurs in three distinct locations: the glacial terrace from about the falls at RM 1.4 (near Staff C) downstream to the Okanogan River, the upper portion of the glacial terrace from about the falls upstream to a point about ½-mile below Antoine Valley (Staff D), and Antoine Valley.

Glacial terrace from the falls downstream to the Okanogan River. Available well log data indicate the aquifer is relatively thick and laterally extensive. Aquifer thickness exceeds 360 feet and water-bearing units are comprised of fine- to coarse-grained sand. Well completion depths range from 64 feet at 16A04 to 358 feet at 15M01. Generally, the glacial aquifer tends to be more productive in closer proximity to the Okanogan River. Well yields are moderate to good ranging from 21 gallons per minute (gpm) at 16A04 to 200 gpm in a 12-inch well at 15A01<sup>2</sup> (Figure 6). One well, 15D01 located about 300 feet north of the Creek, is completed in bedrock present within 60 feet of the surface, suggesting the bedrock surface undulates significantly beneath the glacial terrace.

Upper glacial terrace from the falls upstream to ½-mile below Antoine Valley (approximately RM 1.4 to RM 2.2). Available well log data in this agricultural and large-parcel residential area indicate the aquifer is thin and laterally discontinuous. Few wells are actually completed in the glacial drift and most wells in this area are completed in bedrock with very low to no yield. Where present, aquifer thickness is less than 100 feet and water-bearing units are comprised of sand and gravel. Wells completed in glacial sediments are completed at depths from 60 feet at 14F01 to 94 feet at 14B03 (Figure 6). Yields for these wells are generally low to moderate ranging from 0.5 gpm to 10 gpm. One well (14D02), assumed to be completed in glacial drift at a depth of 58 feet is reported to yield 100 gpm. The glacial drift in this area is recharged by infiltration from Siwash Creek, mountain front recharge, and direct precipitation to the surrounding tributary area.

Antoine Valley. Available well log data in this irrigated agricultural area indicate the aquifer is relatively thick and laterally extensive throughout the valley. Subsurface conditions in Antoine Valley are depicted in the cross section shown on Figure 9. Aquifer thickness exceeds 160 feet based on Well 12A02. Water-bearing units are comprised of sand and gravel occurring between fine-grained layers comprised primarily of clay. The aquifer tends to be thinnest at the valley margins and thickens toward the center of the valley. Well completion depths range from 10 feet at 01P01 to 142 feet at 06P01 with

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<sup>&</sup>lt;sup>2</sup> The well yield on the log for this well is difficult to read (see Appendix B for copy of well log). The 200 gpm should be confirmed through contacting the current owner and testing, if necessary. The location of this well was adjusted from the ½, ½ section location based on hydrogeologic information on the well log and owners name. The well location should be field verified.

most wells completed at depths less than 50 feet. Well yields are typically good, but range from 1.5 gpm at 06P01 to 350 gpm at 01J01. Most well yields are greater than 50 gpm and the higher yielding wells are used for irrigation. Well yields tend to be greater in the middle of the valley. Two wells (12C01 and 12F01) and one dry well (01L01) encountered bedrock near the valley margin (Figure 8). The glacial drift in this area is recharged by Siwash Creek, mountain front recharge, direct precipitation to the surrounding tributary area, and potentially by losses from Antoine Creek (see Section 2.5.2).

Few wells are completed in the glacial drift or alluvium in the upper watershed above Antoine Valley.

#### **Bedrock Aquifer**

Crystalline bedrock forms aquifers having limited recharge and groundwater storage throughout the Siwash Creek basin. Most wells above the falls and below Antoine Valley are completed in bedrock at depths from 63 feet to 605 feet and have very limited to no yields (Figure 6). Closer to the river, Well 15D01 is completed in bedrock at a depth of 400 feet and yields 10 gpm; the highest yield for any well in bedrock below Antoine Valley.

Within Antoine Valley, one well completed in bedrock (12F01) yields 30 gpm and another well appears to have encountered bedrock (12C01). Both wells are located in the southern portion of the valley near the valley margin (Figure 8). Depth to bedrock in both wells is less than 50 feet.

Most wells in the upper watershed above Antoine Valley are located in upland areas away from the creek and are completed in bedrock with small yields typically less than 10 gpm.

# 2.5 Groundwater Flow

This section presents an evaluation of groundwater surface water interactions, groundwater recharge and discharge, and flow.

#### 2.5.1 Surface Water/Groundwater Interactions

Groundwater and surface water interactions were evaluated to quantify flow losses and gains along the Creek and to determine the quantity of project water required to overcome seepage losses and reconnect the Creek to the Okanogan River.

Stream reaches are generally described as gaining, losing, or neutral. Gaining reaches develop where surface water or groundwater input to the stream increases flows and the groundwater level is higher than the surface water level (positive hydraulic gradient). Losing reaches develop where surface water in the stream infiltrates through the streambed to recharge groundwater. In losing reaches, the surface water level is higher than groundwater level (negative hydraulic gradient). A losing condition may be naturally occurring or induced by pumping. An unsaturated zone may exist between the groundwater and surface water indicating a stream that is disconnected from the groundwater system (Winter et al., 1998). Under a detached condition, a stream loses to groundwater, however, seepage from the streambed is not controlled by depth to

groundwater. Thus, pumping from a well adjacent to a detached stream would not increase seepage losses.

The interaction of surface water and groundwater was investigated through the use of seepage runs (measuring stream flow in the upstream and downstream reach of the Creek and computing the relative difference in flow). Typical measurement error associated with a manual flow measurement using a velocity meter has been estimated at 5% (Rantz, et al., 1982); therefore, differences in flow between two stations are within the measurement error, if the difference is less than 10% of the two flow measurements. Differences between flow at upstream and downstream stations results not only from gains/losses to groundwater, but also may include surface water withdrawals and return flows.

Losses from the Creek to groundwater in the lower reach below the falls contribute to the Creek going dry for most of the year. The losing characteristic of the lower Creek reach is similar to many tributaries to the Okanogan River. These creeks experience their greatest losses to groundwater in the lower most reaches where they traverse glacial and alluvial deposits that coarsen toward the river (Sumioka and Dinicola, 2009). Such stream flow losses have been observed at Antoine and Tonasket Creeks, where low or no flow conditions occur near their confluence with the Okanogan River. Siwash Creek presents characteristics similar to these tributaries, including an upper watershed dominated by exposed bedrock and shallow soils having limited groundwater storage capacity and a lower reach that traverses coarse deposits where losses to groundwater are accelerated.

#### 2.5.1.1 Seepage Runs

Results of the surface water/groundwater characterization from seepage runs are summarized in Table 1 and discussed below.

Seepage rates were estimated between gauging stations using data from seepage runs. The difference in discharge between two adjacent stations was compared and divided by the distance between the stations to compute a seepage rate. When estimating seepage rates, efforts were made to account for the effects of irrigation withdrawals by evaluating seepage losses during irrigation and non-irrigation seasons and by estimating irrigation withdrawals within each reach.

#### Staff B to Staff A – Lower Reach from the Nau Property to the railroad trestle

Summary: Flow is intermittent along this reach with flow drying up at the end of freshet. The reach is losing when flowing and losses are attributed to seepage to groundwater. Average seepage losses of 1.03 cfs were estimated for this reach.

Seepage runs indicate this reach displays strongly losing characteristics with stream flows at both gauges rapidly diminishing to a no-flow condition at the end of the freshet (early July). Flow resumed to Staff B in the fall, after irrigation season stopped, but did not extend downstream to Staff A. Losses generally tend to increase with increased stream flow, although the greatest loss did not coincide with the peak of the freshet, but rather occurred during the early part of the freshet (peak loss of 2.20 cfs occurred on May 24 compared to loss of 0.91 during peak measured flow on June 9) (Table 1). No known surface water irrigation diversions are present in the Creek along this reach and losses are attributed to seepage to groundwater.

Several groundwater points of withdrawal are mapped in Ecology's WRATS database near the mouth of the creek in close proximity to the Okanogan River, minimizing the potential for groundwater withdrawals to impact Siwash Creek flows. The Culver right is mapped further upstream and the point of withdrawal for this right should be located to evaluate potential effects on stream flow (see Section 3.1.1).

The seepage rate between Staff B and Staff A was estimated from the average loss of 0.74 cfs along 0.72 miles between the gauges at 1.03 cfs per mile of stream length.

#### Staff C to Staff B – Lower Reach from the falls at RM 1.4 to the Nau property

Summary – This reach is predominantly losing. The lower portion of the reach is intermittent and dries up at end of freshet. Losses are attributed to seepage to groundwater. Average seepage loss of 1.17 cfs per mile is estimated for this reach.

Seepage runs indicate this reach displays predominantly losing characteristics. Four seepage runs were made, two during the freshet and two in the fall after the irrigation season. Three of four seepage runs indicated a losing condition. Peak loss of 1.85 cfs occurred during high flows on June 9, 2011, and is attributed to seepage to groundwater and bank storage. Groundwater seepage is the likely mechanism of loss during the lower fall flows. The fourth seepage run, during the freshet, was within measurement error and indicated a near neutral condition, potentially related to releases from bank storage.

No surface water irrigation diversions are present in the Creek between Staffs C and B. One groundwater point of withdrawal appears to be mapped in Ecology's WRATS database in this reach and may be associated with Well 15A01, which appears to be an irrigation well. This and several domestic wells are located within 200-300 feet of the Creek. The location of these wells in close proximity to the Creek suggest the potential for hydraulic continuity, and this potential should be evaluated for any irrigation wells.

The seepage rate between Staff C and Staff B was estimated from the average loss of 0.77 cfs along 0.66 miles between the gauges to be 1.17 cfs per mile of stream length.

#### Staff D to Staff C – Irrigated Area between Antoine Valley and the falls at RM 1.4

Summary – This reach loses during irrigation season and is slightly gaining during non-irrigation season. Losses are attributed to irrigation diversions.

Seepage runs indicate this reach displays losing characteristics during irrigation season. A total of 15 seepage runs were made between these stations. Of the 10 measurements made during irrigation season, 7 measurements indicate losses and 3 lie within measurement error. Measurements taken during non-irrigation season indicate a neutral to gaining reach, with 2 seepage runs showing a gain, one showing a loss, and 2 that lie within measurement error. The one measurement showing a measureable loss was taken on April 27 when some irrigation may have already begun. Otherwise, the contrast in losing conditions during irrigation season and gaining conditions during non-irrigation season is consistent and suggests losses are predominantly related to irrigation withdrawals. This region is irrigated using surface water diverted from Siwash Creek.

During irrigation season, including the April 27 measurement, seepage runs show an average loss of 0.48 cfs. Gains during non-irrigation season average 0.10 cfs and are

attributed to direct precipitation to the tributary area along the 1.67 miles of this reach, mountain front recharge, and groundwater inflow from Antoine Valley occurring immediately downstream of Staff D. In the absence of irrigation diversions, this reach is likely neutral to slightly gaining.

#### Staff E to Staff D - Antoine Valley

Summary – This reach is predominantly losing. Continuous flow through Antoine Valley occurred for about 1 week during the 2011 freshet. Losses are attributed to irrigation diversions and seepage to groundwater depleted during irrigation season.

Seepage runs indicate this reach is predominantly losing. This reach traverses Antoine Valley and surface water flows diminish as water infiltrates to the subsurface. Flows re-emerge to the surface in a series of large springs upstream of Staff D. The valley floor is irrigated using water from the Siwash Creek system. Locations of surface water points of diversion and groundwater points of withdrawal are shown in Figure 10.

A total of 19 seepage runs were made along this reach. Few measurements were made prior to the onset of irrigation season, but the two available measurements indicate a neutral condition suggesting the aquifer was near fully recharged when these measurements were taken in April. Peak loss of 7.09 cfs occurred on May 26 during high freshet flows. This loss is primarily attributed to recharge of groundwater storage and irrigation withdrawals. A water balance performed along this reach presented in Section 2.5.2 indicates non-irrigation season seepage losses recharge groundwater storage which is important for meeting the irrigation demand.

Stream flow losses during the irrigation season averaged 1.69 cfs and during the non-irrigation season averaged 0.60 cfs (Table 1). The losses are attributed to a combination of seepage to groundwater and irrigation diversions. Seasonal aquifer depletion induced by groundwater withdrawals likely induces seepage loss to groundwater.

#### **Staff F to Staff E** – Upper watershed above Antoine Valley

Summary – This reach is predominantly neutral to slightly gaining. Gains are attributed predominantly to surface inflows. Minor losses are attributed to phreatophyte uptake occurring in late summer-fall.

A total of 21 seepage runs along this reach indicate the following conditions:

- During the freshet, conditions were predominantly neutral, but a large loss was
  noted during the peak flow, presumably the result of localized flooding increasing
  bank storage and/or potentially a significant flood crest that was measured at
  Staff F but had not yet reached Staff E.
- From summer through early fall, conditions are also near neutral, but a small, consistent loss was computed likely in response to water uptake by phreatophytes. Rates of loss to groundwater and/or uptake by vegetation along the 5.11 miles between Staff F and Staff E were estimated to be 0.03 cfs per mile of stream length from measurements taken August 19 through October 2).
- Late October to November, the reach is gaining, with gains attributed to inflows from ephemeral surface drainages and potentially groundwater inflow.

# <u>Staff G to Staff F</u> – Upper watershed above to the confluence with North Fork Siwash Creek

#### Summary - North Fork Siwash Creek inflow averaged 0.89 cfs.

Differences in flows between Staff G and Staff F are indicative of the surface water contributions from the North Fork. Because these gauges are located within several hundred feet of each other, surface water/groundwater interactions are likely very small compared to the volume of water input from the North Fork. Flow from the North Fork averaged 0.89 cfs and peak contribution from this tributary was 7.36 cfs on May 26, 2011.

# 2.5.2 Recharge and Discharge

#### Water Balance for Irrigation and Non-Irrigation Seasons

#### Antoine Valley

Irrigation withdrawals in Antoine Valley were estimated through an irrigation demand analysis on the irrigated land in Antoine Valley (excluding land irrigated from non-Siwash creek sources). Seepage runs between Staff E and Staff D were analyzed and compared to irrigation withdrawals to evaluate the basin water balance and potential sources of error.

The irrigation demand analysis was performed using Washington Irrigation Guide (WIG) methodology (NRCS, 1997). A representative location (Omak) and crop type (pasture/turf) were selected from Appendix A of the WIG to perform the analysis. Data from air photos, discussions with local farmers and review of WWT 2011 were used to determine the applicable areas (440 acres) which are irrigated mostly by wheel-line methods (some flood irrigation also occurs). Using this approach, irrigation demand (assumed to be equal to irrigation withdrawal) averaged 3.41 cfs through the irrigation season with peak demand of 5.76 cfs occurring in July.

A component of the irrigation withdrawals returns to the aquifer due to irrigation inefficiencies. A return flow factor of 15-percent for wheel line methods was utilized in the WIG analysis to estimate system losses through consumptive use based on Washington Department of Ecology's Guidance for Determining Irrigation Efficiency and Consumptive Use (Ecology, 2005). Applying the return flow factor indicates an average consumptive irrigation demand of 2.90 cfs.

A water balance along this reach using stream flow loss data from Table 1 was developed for comparison to irrigation withdrawals. Irrigation withdrawals between Staffs D and E occur through a combination of wells and surface diversions (Figure 10). The estimated consumptive irrigation withdrawals of 2.9 cfs is significantly greater than the average 1.7 cfs irrigation season loss measured between Staffs E and D. Non-irrigation season seepage losses averaged 0.6 cfs and partially offset the irrigation season seepage deficit, but are insufficient to account for the full irrigation withdrawal. Consumptive 2011 annual irrigation withdrawals totaled an estimated 877 acre-feet, while annual seepage losses were estimated at about 770 acre-feet. The similarity of these estimates (recharge is 87% of withdrawals) suggests irrigation demand is largely met by annual seepage losses from Siwash Creek. Additional sources of recharge including direct precipitation

and mountain front recharge likely contribute to Antoine Valley aquifers. Potential uncertainties in water use estimates and irrigation efficiency could contribute to the discrepancy.

#### **Below Antoine Valley**

A similar approach was used to estimate irrigation withdrawals in the irrigated area between Antoine Valley and the falls at RM 1.4. The Schaller water right (a surface water right) is the primary water right in this reach (Figure 10) and irrigates an estimated 83 acres (WWT, 2011) with an estimated irrigation season withdrawal of 0.68 cfs (206 acre-feet) with peak demand of 1.17 cfs occurring in July. Allowing for a 15% irrigation return flow for wheel line methods (Ecology, 2005), the average consumptive irrigation use is estimated at 0.58 cfs (175 acre-feet).

In comparison, losses from seepage run data for the irrigation season in the irrigated area between Antoine Valley and the falls at RM 1.4 average 0.48 cfs (143 acre-feet) (Table 1) is within 20% of the estimated consumptive irrigation use. The similarity of these estimates indicates that the estimated irrigation demand is largely met by direct surface water diversions. The difference is attributed to the 0.1 cfs gain along this reach (measured during the non-irrigation season).

#### Recharge, Discharge and Groundwater Flow Directions

Recharge to the glacial drift aquifer occurs via stream flow losses and direct precipitation/mountain front recharge. In the lowermost portion of the watershed near the Okanogan River (i.e., near Staff A), the glacial drift aquifer is in hydraulic continuity with the greater Okanogan Valley aquifer. Groundwater flow directions in the aquifer near the river are likely subparallel to the south flowing river. Groundwater elevation data suggest the glacial drift aquifer discharges into the Okanogan River which likely comprises a natural, regional discharge zone. Water levels in wells near the mouth of Siwash Creek including wells 09R01, 16A01 and 16A04 indicate groundwater elevations are up to 20 feet above the Creek, however, no evidence of groundwater seeps into the Creek were observed. This could be explained by error in estimating wellhead elevations from USGS mapping, water level measurement error, and/ or by the presence of a confining layer.

Further to the east, the glacial drift aquifer is recharged primarily from the east by surface water running off the western slopes, including Duffys Mountain. Other sources of recharge to the glacial drift aquifer include direct precipitation recharge on the glacial terrace, losing reaches of the Creek and potentially upwelling from the bedrock aquifer.

Groundwater elevations from wells completed in glacial drift aquifer indicate the general direction of groundwater flow is to the west, toward the Okanogan River (Figure 7). Hydraulic head in the glacial drift aquifer below the falls (Staff C to the Okanogan River) declines from well 15A01 toward the river. In the reach below the falls, two wells (15M01 and 15L01) located about a half-mile south of Staff B have groundwater levels 20 feet to 40 feet below the Creek. This suggests a gradient away from the Creek consistent with the large seepage losses in this reach.

In the glacial aquifer upstream between Staffs C and D, groundwater in glacial drift overlies and is perched on bedrock and, therefore, water level elevations are substantially higher than in wells completed in glacial drift below the falls (Figure 7).

A groundwater elevation contour map within Antoine Valley (Figure 8) was developed using a combination of existing and field measured data. In developing the map, many of the wells in Antoine Valley were field located using GPS and water levels were collected where access was available. For others, water levels from well logs were used. Wellhead elevations were estimated from USGS digital elevation model (DEM).

In addition, to the groundwater elevation data, interpretation of groundwater flow relied on measured gains/losses on Siwash Creek and anecdotal accounts of stream flow in Antoine Creek. Discussions with the landowner at Antoine Valley Ranch indicate Antoine Creek stream flows diminish with distance as the creek flows across the valley. During summer, flows typically dry up in the reach where Antoine Creek flows across the valley. Flows resume at the western (downstream) end of the valley where a series of large springs feeds water from both sides of the channel.

Flows measured by USGS (Sumioka and Dinicola, 2009) just above where Antoine Creek enters Antoine Valley display losing conditions compared to flows measured at another gauging station located less than 1 mile upstream. Although much of the decrease in flow in Antoine Creek can be attributed to the irrigation diversion for Antoine Valley Ranch (water that is applied to irrigated lands within Antoine Valley), it is likely some water infiltrates into the glacial sediments, consistent with the anecdotal accounts of the Antoine Creek drying up as it flows across Antoine Valley. The water lost from Antoine Creek appears to mostly return to the Creek in springs at the downstream valley end. Flow measurements collected by USGS in Antoine Creek near the confluence with the Okanogan River indicated a net gain of 0.1 and 0.2 cfs during June and September 2008, respectively indicating most Antoine Creek losses return to the creek and additional inputs occur that offset the irrigation losses.

Groundwater elevation contours (Figure 8), Siwash Creek gaging (Table 1), anecdotal information and USGS gauging data on Antoine Creek suggest the following groundwater flow patterns in Antoine Valley:

- Groundwater in the southern half of the valley generally moves in a southwesterly direction converging on Staff D.
- Glacial drift in Antoine Valley is recharged primarily from Siwash Creek as surface water from the creek infiltrates to the subsurface. Other important sources of recharge likely include direct precipitation to the valley floor and runoff from tributary regions surrounding the valley. Substantial irrigation withdrawals in the valley (see discussion above) likely temporarily deplete groundwater storage during the irrigation season that is recharged throughout the year from seepage losses.
- Stream flow losses from Siwash Creek occur in the upper mile and a quarter where it crosses the valley. Groundwater outflow from the valley is restricted by a narrow bedrock outlet just downstream of Staff D. Shallow groundwater in the glacial drift aquifer in Antoine Valley discharges to Siwash Creek through a series of springs upstream of Staff D. The bedrock restriction also results in groundwater flow converging on Siwash Creek in the approximately lower mile of Antoine Valley.

• The relationship of groundwater flow between Antoine Creek and Siwash Creek is uncertain. Losses from the upper portion of Antoine Creek within the valley could potentially flow southwesterly toward Siwash Creek. Antoine Creek is reportedly losing within the valley and elevation at the discharge point of the Creek into the valley is about 50 feet higher elevation than Siwash Creek. However, USGS gauging data indicates that most Antoine Creek losses return to Antoine Creek. Numerous springs were observed where Antoine Creek exits Antoine Valley. A groundwater divide must be present in the westerly part of the valley that separates the Antoine and Siwash Creek springs. The location of this divide is uncertain due to sparse well data in this area. The location of the groundwater divide and its seasonal variation is important in defining groundwater exchange between these adjacent creeks.

Bedrock underlies glacial drift at a depth of more than 360 feet in the lower watershed. Within Antoine Valley at least 160 feet of glacial drift overlies bedrock (Wells 12A02 and 12A03). Bedrock rises to ground surface on the adjoining uplands east and west of the valley and downstream of Staff D. Recharge to the bedrock aquifer is likely dominated by spring snow melt concentrated along fractures where bedrock outcrops. Lesser amounts of recharge occur from fall precipitation. Groundwater flow direction in the bedrock is likely generally toward the Okanogan River in the lower watershed where it discharges into the Okanogan River and toward local drainage bottoms in the upper watershed. Hydraulic head in the bedrock appears higher than in the glacial drift in the lower watershed, for example, Well 15D01 shows groundwater levels 70 feet higher than nearby wells competed in glacial drift. In Antoine Valley, hydraulic head in a well completed in bedrock (12F01) is the same as adjacent wells completed in glacial drift.

#### **Groundwater Exchange with Antoine Creek**

As stated above, the potential for groundwater exchanges between Siwash and Antoine Creeks is unknown. Both Creeks exhibit losing conditions along their upper reaches in Antoine Valley and gaining conditions near the downstream valley constriction where springs upwell. The existing groundwater level data is insufficient to define the potential for exchange between these basins. The nature of the groundwater level changes is likely dynamic and transient in response to irrigation withdrawals. Further definition of groundwater elevations is recommended to define the exchange including monitoring of water levels during irrigation and non-irrigation season. Definition of the relationship between Siwash and Antoine Creeks is important to understand the benefit of any flow augmentation alternative to Siwash Creek.

# 2.6 Flow Augmentation Targets

Enhancing stream flow in the fish passable reach below the falls at RM 1.4 requires identifying a source of water capable of sustaining post-freshet flows and having water quality suitable for salmonid rearing. Flows in this reach ceased with the end of the freshet in early July and resumed partway below the falls to Staff B after the end of irrigation season in 2011. The 2011 spring freshet was later and larger than normal. Flow data from other water years are not available for the fish passable reach. Therefore, the stream flow augmentation targets are presented below for 2011 conditions, and with a safety factor provided as a buffer for periods of lower flow.

Flow augmentation targets were developed for Staffs C and D (Table 2). Although flow augmentation could occur at points between these stations, they provide convenient reference for discussing target flows. Target flows are based on losses (seepage and diversions) between Staff C or D and Staff A, habitat flow requirements, and a safety factor, as discussed below.

#### Seepage and Irrigation Diversion Losses

For the non-irrigation season, losses between Staffs D and A were estimated at 1.3 cfs based on the April 7, 2011 seepage run (Table 1). During the irrigation season, losses to seepage and stream flow were estimated at 2.0 cfs based on mean and median values. The difference between the irrigation (2 cfs) and non-irrigation (1.3 cfs) season target flows largely results from the 0.58 cfs consumptive use of the Schaller Right, located downstream of Staff D.

Measured losses from Staff C to A were biased by measurements taken during the freshet and these losses were not considered representative of average conditions. For this reason, Staff C to A losses were estimated by adjusting Staff D flows as follows:

- During irrigation season: Staff D flow was decreased by 0.5 cfs to account for Schaller irrigation withdrawals between Staffs D and C. The estimated irrigation season seepage loss from Staff C to A is, therefore, 1.5 cfs (Table 2).
- During non-irrigation season: Staff D flow was increased to account for average gains of 0.1 cfs between Staffs D and C. The non-irrigation seasons estimated loss from Staff C to A is, therefore, 1.2 cfs (Table 2).

#### **Habitat Flows**

• The minimum flow to sustain rearing for targeted species is 0.3 cfs according to CCT AFD biologist opinion. The 0.3 cfs flow is not considered optimal and a higher flow of 1 cfs was also used as a target habitat flow. The target habitat flows were applied at the mouth of the Creek.

#### Safety Factor

 A 50% safety factor was added to the 2011 flow augmentation to allow for reduced instream flow during drier years and to provide a buffer for uncertainty associated with the relatively short monitoring period of this study. Monitoring could be continued to determine augmentation needs based on measured values, rather than using an assumed safety factor to estimate flow augmentation requirements during drier years.

To achieve a habitat flow of 0.3 cfs at the creek mouth in 2011 would have required Staff D flow augmentation of 1.1 cfs and 1.8 cfs for the non-irrigation and irrigation seasons, respectively (Table 2). During drier years, this flow augmentation requirement is expected to increase to 1.7 (non-irrigation season) and 2.6 cfs (irrigation season), based on an assumed safety factor of 50%. Because of the uncertainty in the safety factor, planning should allow for adaptive management to the flow augmentation alternative. The synthesized hydrograph at Staff E (Figure 11) indicates dry year flows (90<sup>th</sup> percentile exceedance) will be substantially diminished from those observed in 2011. The higher demand for flow augmentation water during dry years may be partially offset by

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reduced seepage losses if mounding develops beneath the streambed in response to year round flow along reaches which are currently dry. Total annual flow augmentation at Staff D to meet the 0.3 cfs habitat objective is about 1,500 acre-feet (Table 2).

At Staff C, flow augmentation targets inclusive of the safety factor are 1.3 and 2.6 cfs for the non-irrigation and irrigation seasons, respectively (Table 2). Total annual flow augmentation at Staff C to meet the 1 cfs habitat objective is about 1,400 acre-feet (Table 2).

Estimated flow augmentation quantities to achieve a habitat flow of 1 cfs at the creek mouth is presented in Table 3. The augmentation quantity at Staff D is estimated at 3.7 cfs for the irrigation season and 2.7 cfs for the non-irrigation season to achieve a 1 cfs habitat flow at Staff A. Total annual augmentation quantity at Staff D is estimated at about 2,300 acre-feet.

# 3 Stream Flow Augmentation Alternatives

Several alternatives were examined for enhancing flows in the fish passable reach below the falls at RM 1.4. These alternatives are discussed below and summarized in Table 4.

# 3.1 Alternative 1 - Conversion of Water Rights for Instream Flow Purposes

One or more alternatives involving conversion of an existing water right for instream flow benefit could be implemented to meet flow targets in the fish passable reach.

# 3.1.1 Water Rights Summary (from WWT report)

The Siwash Creek water rights summary report (WWT, 2011) evaluated potential water right acquisitions by prioritizing rights primarily on the basis of their validity. A summary of these water rights is shown in Table 3. While the WWT report examined the "paper" validity of these rights, it did not address potential flow benefits beyond reporting authorized instantaneous or annual quantities where this information was available. The WWT report prioritized water rights into 5 Tiers and reported instantaneous quantities for most water rights. Rights in Tiers 1 and 2 are considered to be high priority for potential acquisition based on their validity and size. Tier 1 includes the Holmdahl, Antoine Valley Ranch and IGO Ranch Rights. Tier 2 includes the Culver and Laurie Rights. Tier 3 and higher are considered to have potential issues with acquisition feasibility based validity, location or other obstacles.

Table 4 - Summary of Water Rights Evaluated in the Siwash Basin Water Rights Review (WWT, 2011)

Water Right	Туре	Qi (cfs)	Qa (AF)
Holmdahl - Tier 1	Surface Water	Not Reported	Not Reported
	Groundwater	3.89	720
Antoine Valley Ranch - Tier 1	Surface Water	Not Reported	Not Reported
	Groundwater	1.34	240
IGO Ranch - Tier 1	Surface Water	Not Reported	Not Reported
	Groundwater	0.79	200
Culver - Tier 2	Groundwater	1.11	320
Laurie - Tier 2	Groundwater	0.22	33
Gardinier - Tier 3	Groundwater	0.67	78
Schaller- Tier 3	Surface Water	Not Reported	Not Reported

#### 3.1.2 Benefit from Conversion of Water Rights to Instream Flows

Using an existing water right could benefit instream flows by either retiring the water right by placing it in trust, for example, or by converting a surface water point of diversion to a groundwater point of withdrawal. The location in the basin of a given water right will influence its effect on stream flows.

#### 1A. Retire Water Right(s) in Antoine Valley

Retiring an irrigation surface or groundwater right in Antoine Valley would benefit flows; however, the benefit would likely be diffused over the year and would not necessarily occur during the right's former irrigation season period of use. Except during the highest freshet flows, Creek flows entering Antoine Valley infiltrate to groundwater and flow to a discharge point near Staff D. The AVR, Homdahl, and IGO surface diversions are all located at the upstream end of the valley. Flow returned to the stream by retiring a water right would infiltrate and flow with groundwater before discharging into Siwash Creek near Staff D. Essentially, the full quantity of the water right would eventually daylight as stream flow, assuming no flow is lost to Antoine Creek. The surface water diversion points are about a mile from Staff D and the timing of the discharge at Staff D would likely be spread out over several months. This may have a beneficial effect by discharging the conserved water over a longer time period than the irrigation season. In addition it may lead to warmer winter flows that minimize anchor ice.

Retiring a groundwater right in Antoine Valley would be similar to retiring a surface water right because most surface water infiltrates the valley floor and experiences short travel time through the permeable aquifer media to the shallow groundwater table . Shallow monitoring well(s) would be required to further evaluate the interaction between Siwash and Antoine Creeks to confirm water would not be lost to Antoine Creek.

An annual quantity of about 1,500 acre-feet would be required for flow augmentation at Staff D and about 1,400 acre-feet would be required at Staff C (Table 2). By comparison, water rights listed in Table 3 total about 1,160 acre-feet for Antoine Valley and 1,600 acre-feet for all rights listed. It is important to note that the annual quantities shown in Table 3 and summarized in the WWT (2011) report do not include surface water rights.

There is uncertainty in the timing of discharge at Staff D from the retirement of an Antoine Valley water right as discussed above. In addition, there is uncertainty regarding flow augmentation requirements over water years varying from the 2011 monitoring period. A groundwater model could be used to evaluate the timing of flow benefits near Staff D resulting from retirement of a water right and to identify changes in magnitude of flow augmentation through multi-year climate cycles.

#### **Actions required to implement Alternative 1A include:**

- Install one or more shallow monitoring wells to evaluate the potential for groundwater flow between Antoine and Siwash Creeks.
- Engage water right holders in discussion regarding acquisition of right.
- Construct a transient groundwater model to evaluate the timing and magnitude of the retired right on stream flow augmentation.

• Additional data needs to support the model include estimating stream flow losses and irrigation diversions along Antoine Creek within Antoine Valley.

#### 1B. Retire Water Right in Antoine Valley and Pipe Water to Staff D

As an alternative to allowing a retired surface water right to infiltrate, the water could be piped from the diversion point to the approximate location of Staff D. Piping would mitigate infiltration losses and allow control over the timing of discharge. Flows would likely be increased on a one-to-one basis. To provide flow on a year round basis, this alternative would have to be coupled with a change in period of use and purpose/place of use for an existing water right. A change to the period of use, instantaneous quantity and purpose/place of use for an existing water right will require a demonstration that downstream water rights will not be impaired.

#### Actions required to implement Alternative 1B include:

- Engage water right holders in discussion regarding acquisition of right.
- Evaluate potential for easements and piping costs.

#### 1C. Retire Schaller Right

The Schaller Right is a surface water right shared among three landowners in the reach between Staff D and Staff C. This right has been identified as Tier 3 by WWT and therefore considered less feasible for acquisition. However, placing water from the Schaller Right to instream flow would have a direct, one-to-one impact on stream flows at Staff C. The WWT report does not identify a Qi for the Schaller Right, but does indicate an estimated 83 acres are irrigated using the right. An analysis assuming 83 acres are irrigated under the Schaller Right indicates average irrigation withdrawal is 0.68 cfs (0.58 cfs estimated consumptive use, see Section 2.5.2). This flow falls well short of the 2.6 cfs of supplemental water required at Staff C to create 0.3 cfs habitat flow at the creek mouth during the irrigation season. Retirement of the entire Schaller Right would have extended flow of 0.3 cfs to an estimated 1,400 feet below the falls for 2011 conditions and drying up about 2,800 feet below the falls.

#### **Actions required to implement Alternative 1C include:**

- Examine validity and quantity of right.
- Engage water right holders in discussions regarding acquisition of right.
- Consider temporary fallowing of fields irrigated by this right to observe flow benefits.

#### 1D. Retire Rights Downstream of Falls

Two groundwater rights were identified downstream of the falls by WWT (2011). The Culver and Gardinier Rights have Qi of 1.11 and 0.67 cfs, respectively. Specific locations of the points of withdrawal for these rights are unknown. Information available from Ecology's Water Resources Explorer website indicates the Culver Right may be located too far from the Creek to have significant continuity (in the southwest corner of Section 15). The Gardinier Right may have a point of withdrawal near the Creek, but is classified by WWT (2011) as Tier 3 and therefore, may have potential issues impeding its acquisition. Additional information is needed to verify whether these rights are in

hydraulic continuity with the Creek and whether acquisition and retirement of these right(s) could provide significant flow augmentation benefit.

#### Actions required to implement Alternative 1D include:

- Identify points of withdrawal for these rights.
- Assess hydraulic continuity.
- Assess feasibility of acquiring these rights.

# 3.2 Alternative 2 - Convert Surface Water Diversion to Groundwater

An alternative to acquiring a water right for retirement is to convert a surface water point of diversion to a groundwater point of withdrawal taking advantage of lag time and groundwater storage to lessen the impact on stream flows. Because surface and groundwater are in close continuity in Antoine Valley, this approach is not anticipated to benefit flows if implemented in Antoine Valley.

#### 2A – Convert Schaller Diversion to Groundwater

The reach between Staff D and Staff C presents a more feasible location for conversion from surface water to groundwater because water that is not withdrawn from the Creek provides a direct benefit to stream flow. This alternative would involve converting the point of diversion for one or more landowners using the Schaller Right. Because it is a surface water right and because of its location in the watershed (below Antoine Valley), the Schaller Right is the only water right in the Siwash Creek basin that could be converted to groundwater with a potential instream flow benefit. A well would need to be constructed that is capable of meeting the irrigation demand currently met by the surface water diversion (estimated at 0.68 cfs or about 300 gpm). Well log data used to develop a cross section of the aquifer along this reach indicate the glacial drift aquifer is thin and laterally discontinuous. Most wells are completed in bedrock and the few completed in glacial drift yield only up to 10 gpm. One well (14D02) is apparently owned by one of the Schaller Right holders (Olson) yields 100 gpm. Additional hydrogeologic study is required to better understand the groundwater conditions along this reach to examine whether a surface water diversion could be economically converted to groundwater.

As stated above, flow augmentation equal to the entire Schaller Right would have extended flow of 0.3 cfs up to 1,400 feet below the falls for 2011 conditions. Flows increasing after irrigation season and the onset of fall precipitation would extend habitat flow farther downstream.

Advantages of this approach include eliminating the need to take agricultural land out of production. Disadvantages include uncertainty whether the aquifer in the reach between Staff D and Staff C is capable of yielding water in sufficient quantities to meet irrigation demands, uncertainty with respect to the validity of the Schaller Right that is classified as Tier 3 by WWT, and the relatively small instantaneous quantity associated with the Schaller Right that will provide a limited benefit to flow downstream of the falls. Coordination likely involving more than one water right holder is also a disadvantage.

#### Actions required to implement this alternative include:

- Perform hydrogeological feasibility study. Resolving uncertainty regarding the
  groundwater resources in the reach between Staff D and Staff C will require
  additional hydrogeological study including field verification and survey of
  existing wells, water level measurements, revised cross sections based on new
  data and hydraulic testing of one or more existing wells to quantify aquifer
  properties. If results were favorable, a test well would be drilled that could be
  converted to a production well.
- Submit water right change application. A water right change application for a
  new point of withdrawal would need to be submitted to Department of Ecology
  and processed through its cost reimbursement program or through the Okanogan
  Conservancy Board. The change application process will require verification of
  the validity of the water right, a hydrogeological study establishing resource
  availability, and continuity with the creek and an impairment analysis. Much of
  this would be accomplished while performing the hydrogeological feasibility
  study.
- *Construct Production Well.* Perform well, screen and pump design. Contract with a driller to drill and develop a production well. Costs can be reduced by converting a successful test well.

# 3.3 Alternative 3 - Groundwater Sourced Flow Augmentation

Using groundwater to augment stream flow involves pumping cool groundwater to the Creek from an existing or new well. Groundwater pumped from a well would ideally be discharged into the creek below the falls at RM 1.4. Alternatives involving groundwater pumped from wells require a water right permit that is assumed to be attainable under the Hillis Rule. Under Hillis Rule, Washington Administrative Code (WAC) 173-152-050(3b), if the water right application is for a proposed water use that is nonconsumptive or with mitigation would be water budget neutral and, if approved would substantially enhance or protect the quality of the natural environment, then it qualifies for expedited processing.

# An alternative using groundwater pumped from a well to augment stream flows could be used as a stand-alone means or as a supplement to another flow augmentation alternative. This alternative could be implemented in the lower reach of the Creek below the falls where there is greater opportunity to be in hydraulic continuity with the mainstem. A new or existing well located adjacent to the creek downstream of the falls could be pumped as a stop-gap to sustain flows from the time when flows dry up until they resume to Staff B a period of approximately 120 days (early July through late October). This alternative is limited to the reach below the falls because groundwater upstream in Antoine Valley is in close hydraulic continuity with the Creek and groundwater resources are likely limited in the reach between Staff D and Staff C.

#### 3.3.1 Aquifer Yield

A pumping well should be located approximately 2,000 downstream of the falls to minimize the potential for encountering shallow bedrock. This location is near existing Well 15A01 that well log data indicates is a 12-inch well yielding 200 gpm. The well location and yield should be confirmed (see footnote 2). The well log lacks descriptions of lithology except that the material is coarse. The well is relatively shallow at 82 feet with a static water level depth reported on the log of 27 feet. As with nearly every well in the lower reach of the creek, well test information recorded at time of drilling does not include the amount of drawdown observed. Therefore, values for specific capacity cannot be determined from wells nearest the Creek. In the absence of more information, the assumed yield for a new or existing well located about 2,000 feet downstream of the falls is up to 200 gpm. Several other wells may be present near the creek and in the creek bottom.

### 3.3.2 Benefit from Groundwater Source Flow Augmentation

To use groundwater pumping as a standalone means of augmenting stream flows, a well located 2,000 feet downstream of the falls would need to yield about 2.2 cfs (990 gpm) during irrigation season and 1.1 cfs (490 gpm) during non-irrigation season to extend flow to the Okanogan River. These rates were determined by reducing Staff C flow augmentation target for seepage along the 2,000 feet reach below Staff C (1.1 cfs/mile seepage over 2,000 feet). Using the same assumptions, a well yielding 0.45 cfs (200 gpm) would extend flow about 2,100 feet downstream, nearly to Staff B during the irrigation season. Stream flow could be extended farther downstream if groundwater pumping were used in conjunction with another alternative, for example retiring a water right above the falls.

A key advantage to the groundwater pumping alternative is providing a water source in the fish passable reach. The proximity of source water to the intended discharge reach reduces losses to groundwater and the potential that flow augmentation will be consumed by irrigation demands and phreatic riparian vegetation. Other alternatives that source water from upstream locations are subject to these demands. Another advantage is that groundwater pumping could be used to supplement another flow augmentation alternative. Disadvantages include limited available hydrogeologic information for the region nearest the Creek and potential interference with existing wells. It is not clear whether the aquifer would support a pumping well with yields capable of overcoming seepage losses to provide substantial habitat benefit.

#### **Actions required to implement this Alternative include:**

- Perform hydrogeological feasibility study. Resolving uncertainty regarding the
  aquifer productivity below the falls will require additional hydrogeological study
  including:
  - Field verification and survey of existing wells,
  - Water level measurements, and

- Revised cross sections based on new data and hydraulic testing of one or more existing wells to quantify aquifer properties, predict well yields and determine whether one or more properly spaced wells would be required to meet project flow objectives.
- If results were favorable, a test well would be drilled that could be converted to a production well.
- Submit application for a new water right under Hillis Rule. This action would include a hydrogeological study establishing resource availability and evaluating continuity with the Creek/Okanogan River and an impairment analysis. Much of this would be accomplished while performing the hydrogeological feasibility study. This alternative is not expected to create a bypass reach that would require mitigation for a new water right, but a demonstration would likely have to be made to Ecology, as part of the water right permitting process.
- Construct Production Well. Perform well, screen and pump design. Contract with a driller to drill and develop a production well. Costs can be reduced by converting a successful test well.

# 3.4 Alternative 4 - Water Storage

A major objective of this study is to evaluate surface water storage as a potential flow enhancement alternative. Water storage facilities can provide benefit to the system by retaining excess stream flow volumes during times of relative abundance and subsequently release it during times of relative scarcity.

## 3.4.1 Water Available for Storage

A stream flow hydrograph was synthesized for the 10<sup>th</sup>, 50<sup>th</sup> and 90<sup>th</sup> percentile exceedances, based on correlation of Staff E with nearby gauge at Bonaparte Creek (Figure 11 - see Section 2). The graph also presents demands on flows for habitat (from CCT AFD), seepage loss, and seepage loss considering a 50 percent safety factor. Demands are shown in a "stacked", cumulative manner on the graph. Based upon the synthesized hydrographs for Siwash Creek, water produced from the basin that is in excess of demands generally coincides with the non-irrigation season (November through April). This water is available for storage. On years where flow quantities are at the 50th percent probability of exceedance, there is less than 20acre-feet of water available for storage during the non-irrigation months in excess of seepage demand with safety factor. Ignoring the safety factor increases water available for storage to 140 acre-feet. This volume is insufficient to provide flows in excess of seepage losses. In contrast, approximately 1,500 acre-feet of stored water would be required to meet the seepage losses and habitat flow. Due to the substantial shortfall in water available for storage relative to demands, it is believed that the water storage alternative is infeasible.

# 4 Evaluation of Alternatives

Alternatives were evaluated based on the probability of success, flow benefit to targeted species in the fish passable reach and relative cost. Results are summarized in Table 4.

In our opinion, the most effective alternative to meet the minimum flow objective of 0.3 cfs at the Okanogan confluence is retiring water rights in Antoine Valley equal to an irrigation season flow of about 4.9 cfs, or an annual total of approximately 1,500 acrefeet annually. This annual quantity is estimated to provide an average annual discharge of 0.3 cfs at Staff A. Existing information on water rights in Antoine Valley (WWT, 2011) indicate rights on the order of about 6.2 cfs exist but the annual quantity totals about 1,160 acre-feet (not including surface water), which is about 340 acre-feet short of the estimated flow augmentation requirement. A major advantage of this alternative is the infrastructure simplicity. Implementation of this alternative would require verifying targeted water rights, confirming the timing of discharge using a groundwater model, confirming flow will discharge to Siwash Creek and not Antoine Creek, and confirming downstream irrigation demands. This alternative requires taking irrigated land out of production.

A more costly approach is piping water right discharge to Staff D. This has the advantage of providing certainty with regard to timing and quantity of flow. The time of use for the water right would have to be converted from irrigation season to year round with an accompanying impairment analysis.

Another option for conversion of water rights to instream flow purposes is retirement of the Schaller water right. This alternative offers the advantage of direct benefit to stream flows at Staff C, but provides a limited flow quantity and the right may have issues with acquisition feasibility. Temporary fallowing of the fields irrigated by this right could be pursued on a trial basis to evaluate habitat benefits from this alternative.

The second most effective alternative is pumping from groundwater to enhance stream flows using a new or existing well located below the falls (Staff C). There is uncertainty whether the aquifer is capable of yielding sufficient water to overcome seepage losses and meet flow objectives.

A less effective but feasible alternative is converting a surface water point of diversion to a groundwater point of withdrawal in the irrigated area downstream of Antoine Valley between Staff D and Staff C. An advantage of this alternative is that it leaves irrigated lands in production. There are, however, uncertainties with respect to aquifer yield in this reach that cannot be resolved without additional hydrogeologic study of the area.

The least feasible alternative evaluated is creating new surface water storage in the upper watershed. Hydrologic analysis of the creek indicates that in most years, the creek is not capable of producing enough water for storage to meet habitat flow objectives in the fish passable reach.

Moving forward, we recommend the following:

- 1. Pursue acquisition of one or more water rights in Antoine Valley equal to 4.9 cfs. Lesser quantities including acquisition of portions of the Schaller Right will provide flow augmentation, but are not likely to provide habitat along the full 1.4 mile fish passable reach. Monitoring should continue to document timing and magnitude of flow benefit from retirement of rights.
- 2. Install shallow monitoring wells in the north half of Antoine Valley to ensure flow benefits from retired water rights will be realized in Siwash Creek and not lost to Antoine Creek.
- **3.** Develop a groundwater model to evaluate how retiring a water right will impact timing and quantity of flows.
- **4.** Adaptively manage water right acquisition and retirement through continued monitoring.
- **5.** Depending on results of the 2 and 3 above, consider conversion of the right to year round use, capped at the same annual quantity and piping of the water to a discharge point near Staff D.

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### Limitations

Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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### **Table 1- Stream Flow Measurements and Seepage Losses**

Siwash Creek Flow Enhancement Study

Okanogan County, WA

				Measurem tream	. ,	1			1	fference Bet	ream o			-/			1
Staff Gauge	Α	В	C	D	E	F	G		F-G	E-F	D-E	C-D	B-C	A-B	C-A	D-A	
/24/2011			2.04		1.96												Season
/7/2011	0.42		1.90	1.75		1.38	0.74		0.65			0.15			-1.48	-1.33	တ္ဆ
1/15/2011				1.96		1.33	0.56		0.76								as
4/20/2011			1.62	1.72	1.86	1.28	0.56		0.72	0.58	-0.14	-0.10					Ŷ.
4/27/2011			1.44	1.77	1.69	1.68	0.78		0.91	0.01	0.08	-0.34					
5/12/2011			3.60	3.69	4.60	4.39	2.86		1.53	0.21	-0.90	-0.09					
5/19/2011	1.39	2.01			5.46	5.32	4.96		0.36	0.14				-0.62			
5/24/2011	1.67	3.87	3.80	3.62	6.83	5.95	6.50		-0.55	0.88	-3.20	0.18	0.07	-2.20	-2.13	-1.95	
5/26/2011			5.54	6.23	13.32	21.39	14.03		7.36	-8.06	-7.09	-0.69					
5/27/2011	2.22				11.29	11.24	10.49		0.75	0.05							
6/9/2011	4.60	5.51	7.36	7.96	8.72	7.08	6.68		0.40	1.64	-0.76	-0.60	-1.85	-0.91	-2.76	-3.36	
6/17/2011			4.15	4.69								-0.54					
6/18/2011	2.89	3.72												-0.83			
6/21/2011	2.53	2.82												-0.29			:
5/23/2011	1.44	1.97												-0.53			9
5/28/2011	1.30	1.79												-0.49			
7/2/2011	0.97	1.57		2.10	2.76	2.98	2.50		0.48	-0.22	-0.66			-0.60		-1.13	
7/5/2011	0.00	0.15												-0.15			
7/6/2011	0.00	0.00															1
7/8/2011	0.00	0.00	0.16	0.91	2.48	2.38	1.77		0.61	0.10	-1.57	-0.75					
7/15/2011	0.00	0.00	0.07	0.62	1.98	2.04	1.27		0.77	-0.06	-1.36	-0.55					
7/22/2011	0.00	0.00	0.06	0.62	2.05	2.00	1.30		0.70	0.05	-1.43	-0.56					
7/29/2011	0.00	0.00				<del></del>	<u> </u>										
3/2/2011	0.00	0.00															
3/3/2011	0.00	0.00															
3/19/2011	0.00	0.00	0.05	0.46	0.77	0.87	0.39		0.48	-0.10	-0.31	-0.41					
3/27/2011	0.00	0.00	0.02	0.91	0.54	0.72	0.66		0.06	-0.18	0.37	-0.89					
0/2/2011	0.00	0.00		0.47	0.88	1.01	0.46		0.55	-0.13	-0.41						- 2
10/8/2011	0.00	0.00		0.53	1.25	1.21	0.45		0.76	0.04	-0.72						900000000000000000000000000000000000000
0/16/2011	0.00	0.00		0.68	1.27	1.16	0.27		0.89	0.11	-0.59						
0/21/2011	0.00	0.00															9
0/28/2011	0.00	0.24	0.91	0.80	1.15	0.92	0.34		0.58	0.23	-0.35	0.11	-0.67				
1/3/2011	0.00	0.30	0.93	0.68	<u>1.86</u>	1.04	0.36		0.68	0.82	-1.18	0.25	-0.63				9
1/11/2011	0.00	0.41		<u>0.91</u>	1.96	<u>0.87</u>	<u>0.40</u>		0.47	1.09	-1.05						8
1/27/2011	0.00	0.46		1.00	2.00	0.92	0.45		0.47	1.08	-1.00						
	•					<del></del>	All data	•	0.89	-0.08	-1.17	-0.32	-0.77	-0.74		•	
						Averages	Irrigation	Season	1.08	-0.46	-1.69	-0.48	-0.89	-0.74			
						-	Non-Irriga	ition	0.68	0.43	-0.60	0.10	-0.65	-			

- Underlined values are derived from stage height readings and rating curves.
- Bolded values lie within measurement error of 5% per station (10% total). Measurement error between Staff Gauges F and G not shown.
- Average losses/gains were computed using values within and outside error range to minimize bias associated with using only values greater than measurement error.
- -Irrigation season is defined as May 1 through September 30; except for the reach from Staff C to Staff D that likely began in late April.
- Gaining characteristics are positive, losing are negative.

### **Aspect Consulting**

9/21/2012

### Table 2 - Estimated Flow Augmentation to Achieve 0.3 cfs Habitat Flow

Siwash Creek Flow Enhancement Study Okanogan County, WA

### Staff D to A

Season	Staff D to A loss <sup>1</sup>	Habitat Flow <sup>2</sup>	Staff D Target	2011 Minimum Measured Flow at Staff D <sup>4</sup>		with Safety	Average Annual Augmentation Qty (acre ft) <sup>7</sup>	Annual Augmentation	Irrigation Season Qi to meet Annual Qty (cfs) <sup>9</sup>
Non-Irrigation	1.3	0.3	1.6	0.5	1.1	1.7			
Irrigation	2.0	0.3	2.3	0.5	1.8	2.6	1491	2.1	4.9
					Staff C to A				
	Staff C to A	Habitat	Staff C Target	Flow at Staff	2011 Staff C Flow Augmentation (no	•	Average Annual Augmentation	Annual Augmentation	Irrigation Season Qi to meet Annual
Season	loss <sup>10</sup>	Flow <sup>2</sup>	Flow 2011 <sup>3</sup>	C <sup>11</sup>	safety factor) <sup>5</sup>	Factor <sup>6</sup>	Qty (acre ft) <sup>7</sup>	Qty (cfs) <sup>8</sup>	Qty (cfs) <sup>9</sup>
Non-Irrigation	1.2	0.3	1.5	0.6	0.9	1.3			
Irrigation	1.5	0.3	1.8	0.02	1.8	2.6	1361	1.9	4.5

### Notes:

- 1. Non-irrigation season loss for D to A based on seepage run on 4/7/11. Irrigation season value based on median of three measurements. Median is near average.
- 2. From CCT AFD.
- 3. Target is estimated flow at Staff required to create habitat at Creek mouth. Sum of losses and habitat flow.
- 4. Minimum measured value (Table 1).
- 5. Estimated flow supplement required in 2011 to meet habitat requirement.
- 6. Applies a 50% safety factor to allow for dry years and uncertainty.
- 7. Annual augmentation quantity including safety factor.
- 8. Annual augmentation quantity with safety factor presented as an average annual flow rate.
- 9. Annual augmentation quantity with safety factor presented as irrigation season flow rate for the purpose of comparing irrigation rights with annual flow augmentation target.
- 10. Non-irrigation season flow based on Staff D non-irrigation flow increased by average gain of 0.1 cfs between Staff D and C. Irrigation season flow based on Staff D irrigation flow decreased by average 0.5 cfs loss between Staff C and D.
- 11. Minimum non-irrigation flow taken from lowest Staff D measurement and increased by average non-irrigation season gain 0.1 cfs between staff D and C. Irrigation season is minimum measured value.

### **Aspect Consulting**

### Table 3 - Estimated Flow Augmentation to Achieve 1 cfs Habitat Flow

Siwash Creek Flow Enhancement Study Okanogan County, WA

### Staff D to A

	Staff D to A loss <sup>1</sup>	Habitat Flow <sup>2</sup>	Staff D Target	Flow at Staff	2011 Staff D Flow Augmentation (no safety factor) <sup>5</sup>		Average Annual Augmentation Qty (acre ft) <sup>7</sup>	Annual Augmentation	Irrigation Season Qi to meet Annual Qty (cfs) <sup>9</sup>
Non-Irrigation	1.3	1.0	2.3	0.5	1.8	2.7			
Irrigation	2.0	1.0	3.0	0.5	2.5	3.7	2251	3.1	7.5
					Staff C to A				
	Staff C to A	Habitat	Staff C Target	Flow at Staff	2011 Staff C Flow Augmentation (no		Average Annual Augmentation	Annual Augmentation	Irrigation Season Qi to meet Annual
Season	loss <sup>10</sup>	Flow <sup>2</sup>	Flow 2011 <sup>3</sup>	C <sup>11</sup>	safety factor)5	Factor <sup>6</sup>	Qty (acre ft) <sup>7</sup>	Qty (cfs) <sup>8</sup>	Qty (cfs) <sup>9</sup>
Non-Irrigation	1.2	1.0	2.2	0.6	1.6	2.4			
Irrigation	1.5	1.0	2.5	0.02	2.5	3.7	2122	2.9	7.0

### Notes:

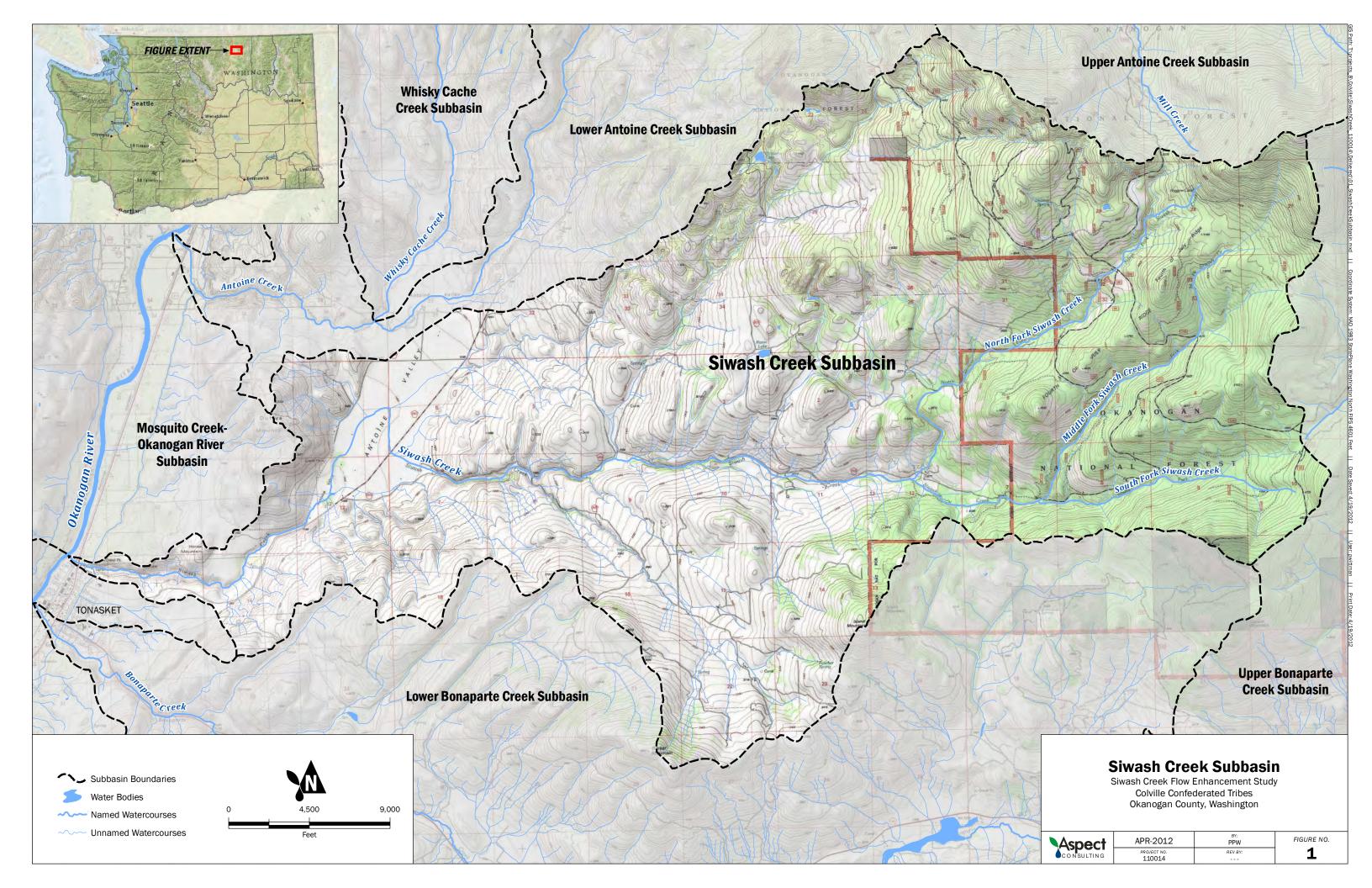
- 1. Non-irrigation season loss for D to A based on seepage run on 4/7/11. Irrigation season value based on median of three measurements. Median is near average.
- 2. From CCT AFD.
- 3. Target is estimated flow at Staff required to create habitat at Creek mouth. Sum of losses and habitat flow.
- 4. Minimum measured value (Table 1).
- 5. Estimated flow supplement required in 2011 to meet habitat requirement.
- 6. Applies a 50% safety factor to allow for dry years and uncertainty.
- 7. Annual augmentation quantity including safety factor.
- 8. Annual augmentation quantity with safety factor presented as an average annual flow rate.
- 9. Annual augmentation quantity with safety factor presented as irrigation season flow rate for the purpose of comparing irrigation rights with annual flow augmentation target.
- 10. Non-irrigation season flow based on Staff D non-irrigation flow increased by average gain of 0.1 cfs between Staff D and C. Irrigation season flow based on Staff D irrigation flow decreased by average 0.5 cfs loss between Staff C and D.
- 11. Minimum non-irrigation flow taken from lowest Staff D measurement and increased by average non-irrigation season gain 0.1 cfs between staff D and C. Irrigation season is minimum measured value.

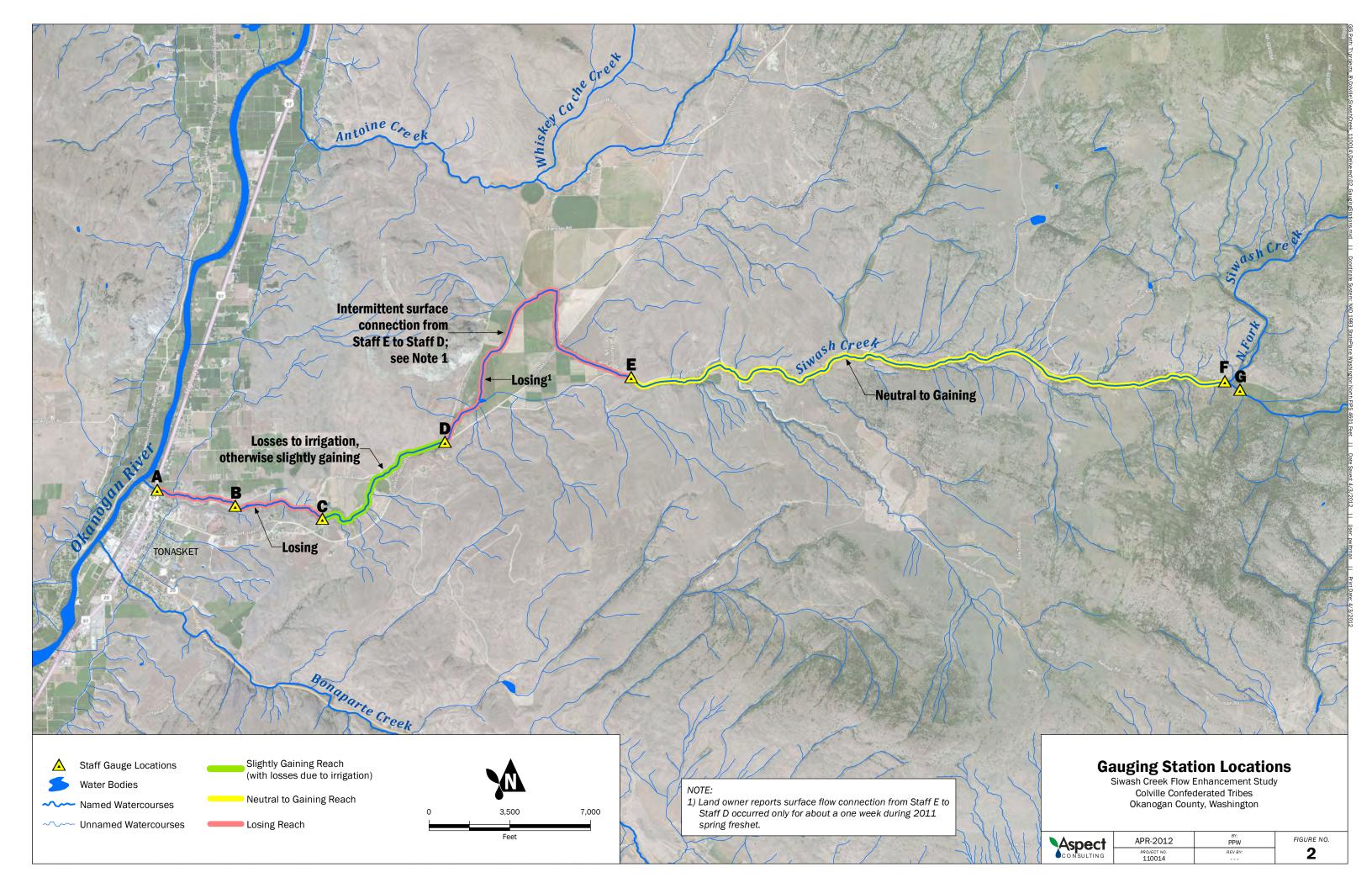
### **Aspect Consulting**

## **Table 5 - Summary of Flow Augmentation Alternatives**

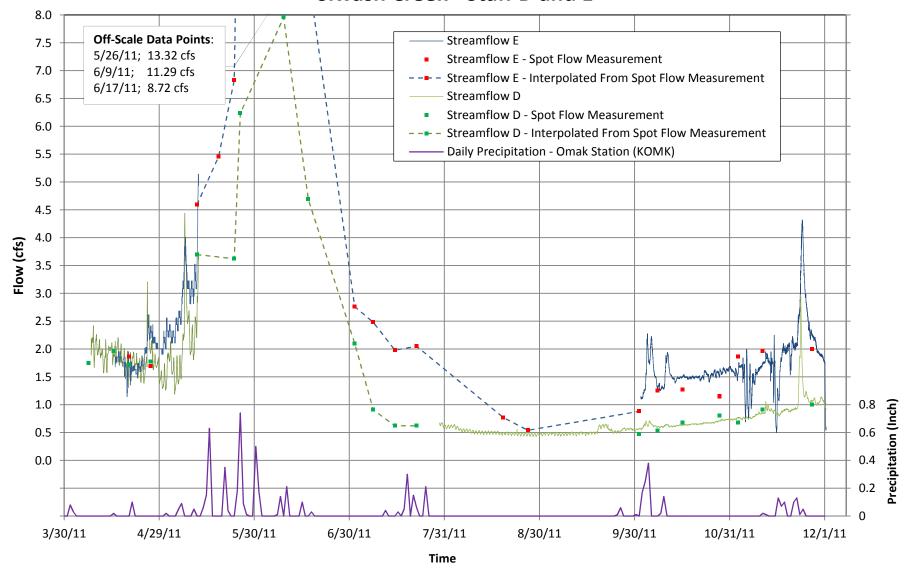
Siwash Creek Flow Enhancement Study Okanogan County, WA

	Alternative	Predicted Flow Augmentation	Advantage	Disadvantage	Uncertainty
1A	Retire Water Rights in Antoine Valley	Extend habitat flow of 0.3 cfs to the Okanogan River during wetter years and increase wetted length during drier years. AV groundwater rights total 1,160 acre-feet annually compared to Staff D target augmentation of 1,500 acre-feet.	Greatest flow potential; No construction costs; Minimal permitting costs	Requires land owner cooperation, taking land out of irrigated production	Availability of water rights to meet augmentation target; Flow requirements during drier years; Timing of groundwater discharge into Siwash Creek; Groundwater exchange between Siwash and Antoine Creeks
1B	Pipe surface water diversion or groundwater withdrawal to Staff D	Same as above	Increase flows on one-to- one basis by eliminating infiltration losses; Provide control over timing of discharge	Pipeline construction cost; Requires change to existing right in time of use (from seasonal to year-round) and place of use; Requires landowner cooperation, taking land out of irrigated production	Availability of water rights to meet augmentation target. Impairment of rights along seasonal bypass reach; Groundwater exchange between Siwash and Antoine Creeks; Flow requirements during drier years; Availability of easements for pipeline construction
1C	Retire Schaller Right	Extend habitat flow of 0.3 cfs up to 1,400 feet downstream of falls (RM 1.4) if full right converted to groundwater	Eliminate uncertainty regarding timing of flow benefit	Limited flow benefit; Requires coordination among multiple landowners, taking land out of irrigated production; Right potentially difficult protect to instream	Availability of rights
1D	Retire Culver/Gardinier Rights	Unknown	Unknown	Requires land owner cooperation, taking land out of irrigated production. Potential problem for change of use for Gardinier Right	Location of point of withdrawal; Hydraulic continuity with Siwash Creek; Availability of rights for transfer
2A	Convert Surface Water Diversion to Groundwater between RM 1.4 and RM 3.0 (Schaller Right)	Extend habitat flow of 0.3 cfs an estimated 1,400 feet downstream of falls (RM 1.4) if full right converted to groundwater	Keep land in irrigated production	Limited flow benefit; Requires coordination among multiple landowners; Transfer of right potentially difficult; Long term pumping costs	Groundwater availability limited; Hydraulic continuity of selected well site and Siwash Creek; Impairment potential; Availability of right for transfer
ЗА	Groundwater Pumping below the Falls at RM 1.4	Extend habitat flow of 0.3 cfs an estimated 700 feet from discharge for well yielding 200 gpm (0.45 cfs)	Relatively lower cost ; Water sourced near discharge location	Pumping/Operation and Maintenance Costs; Requires new water right	Groundwater availability in volumes required to meet flow objectives; Hydraulic continuity of selected well site and Siwash Creek; Impairment potential





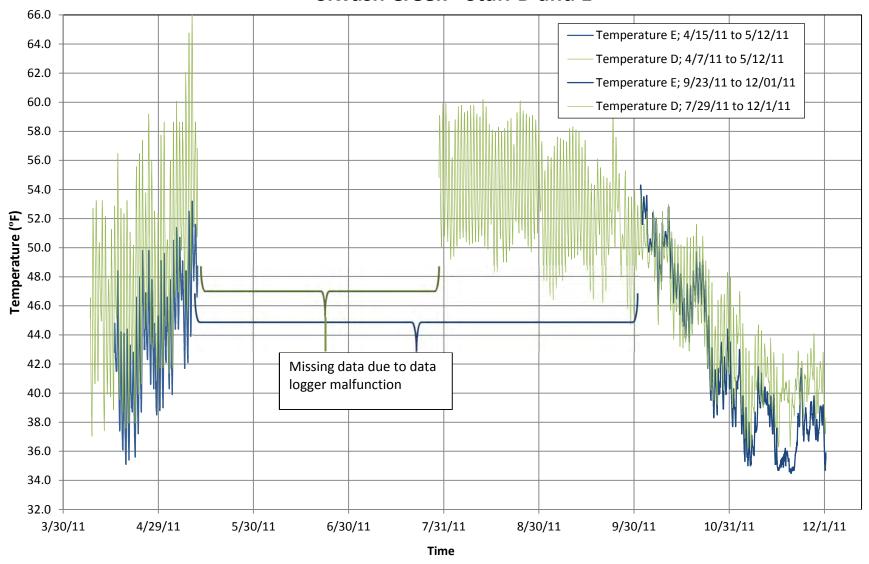
# Stream Flow Hydrograph Siwash Creek - Staff D and E



### **Aspect Consulting**

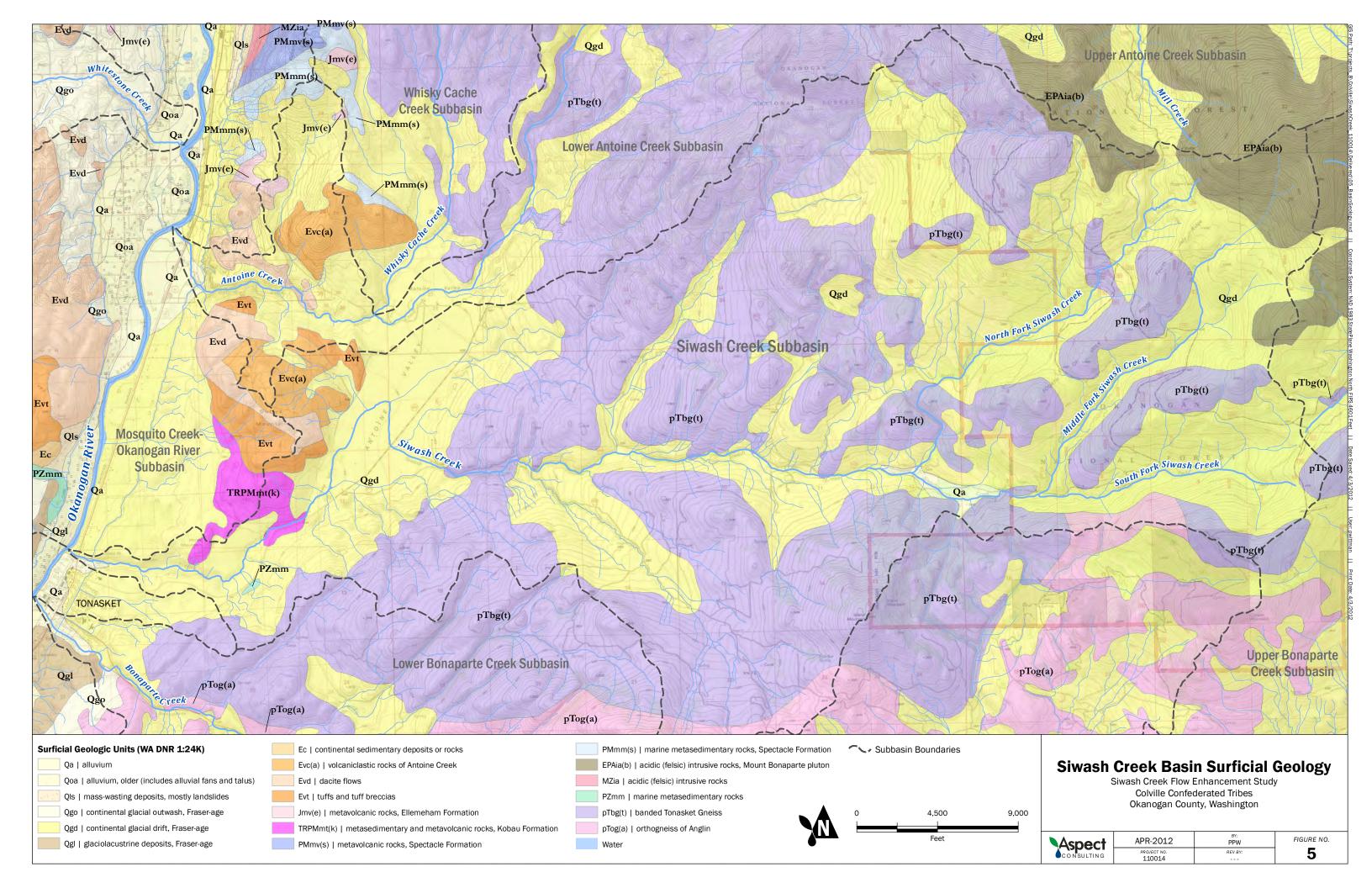
Figure 3 - Staffs D and E Hydrographs

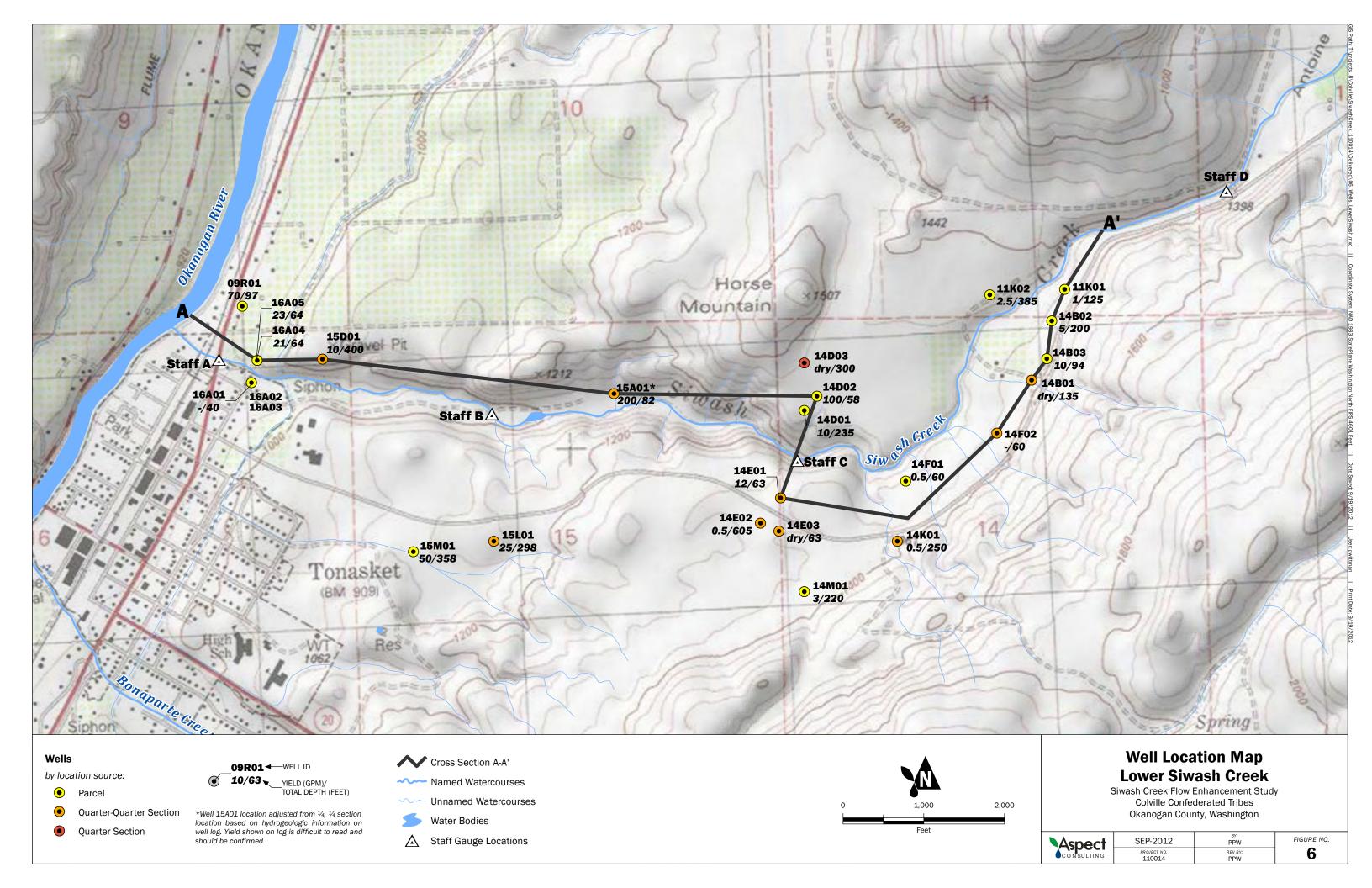
# Stream Flow Temperature Siwash Creek - Staff D and E

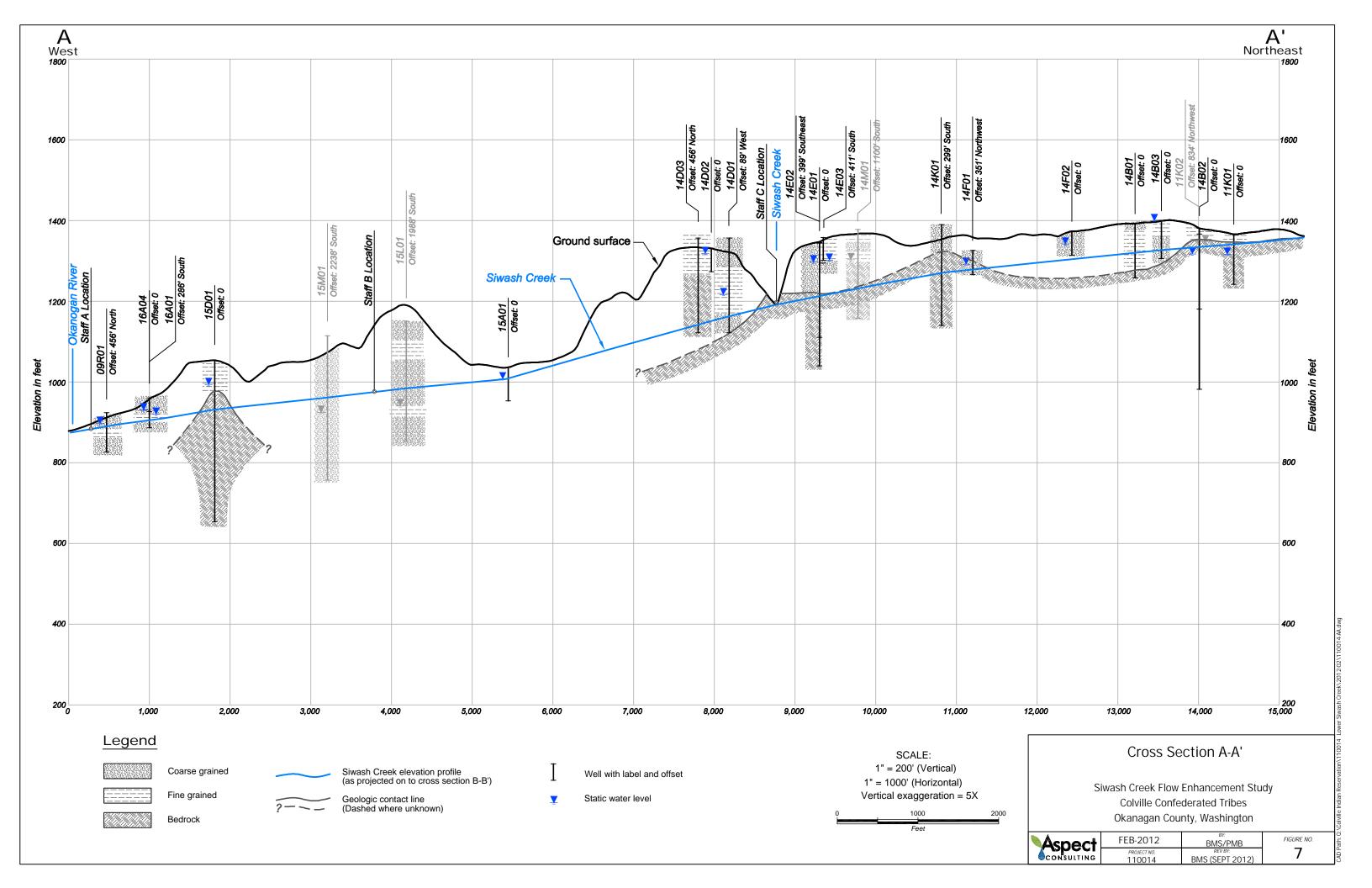


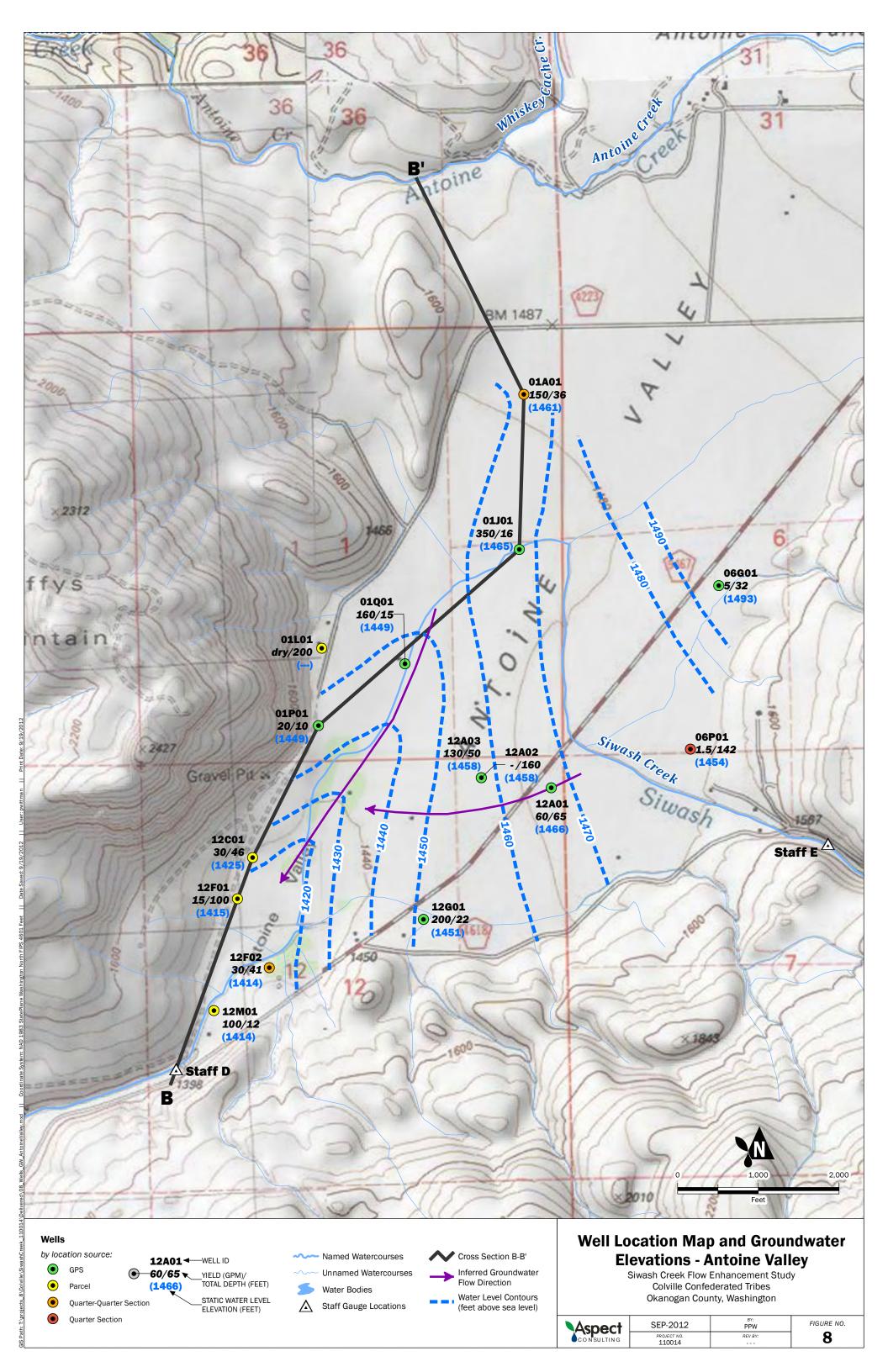
### **Aspect Consulting**

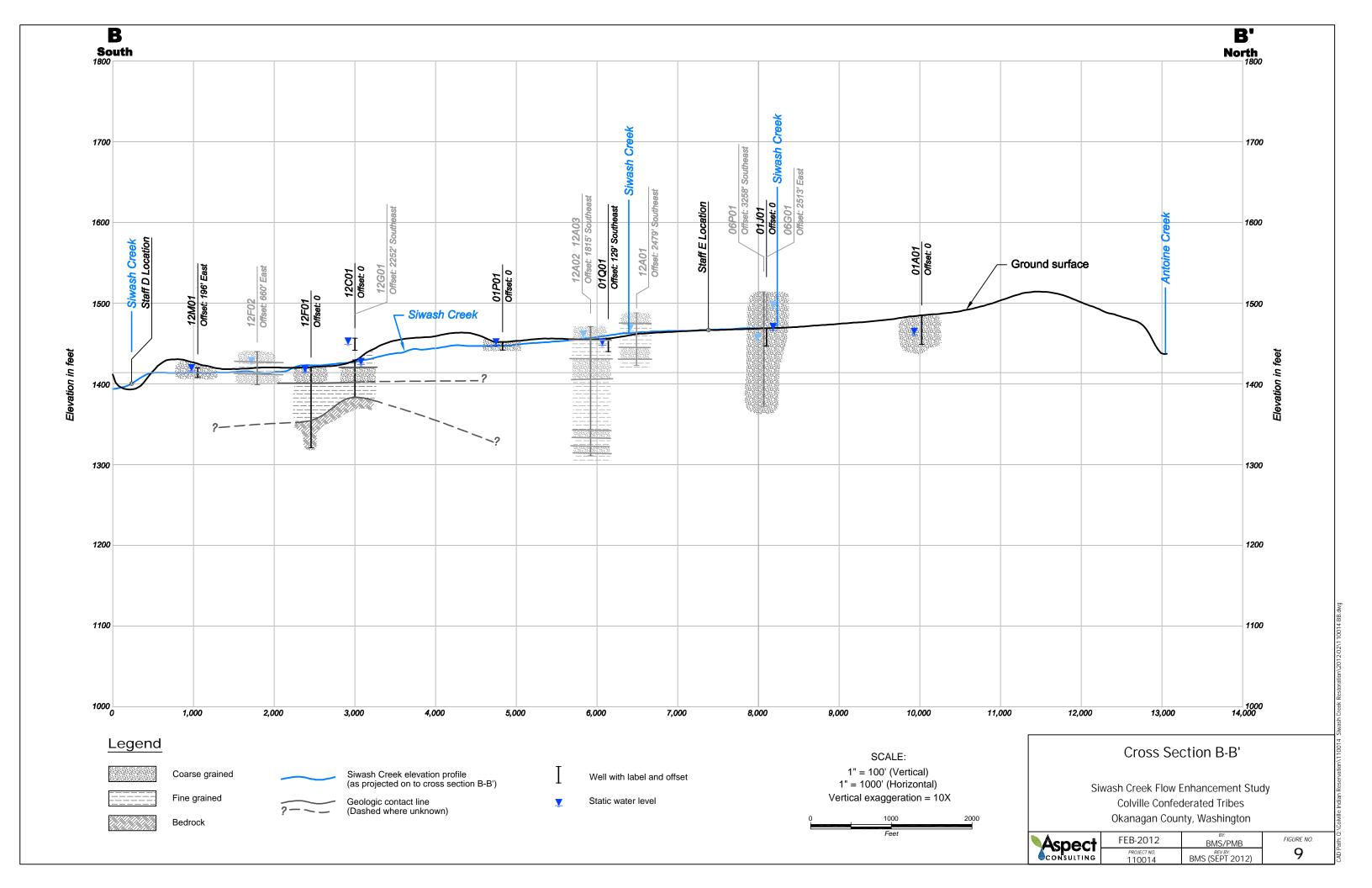
9/21/2012

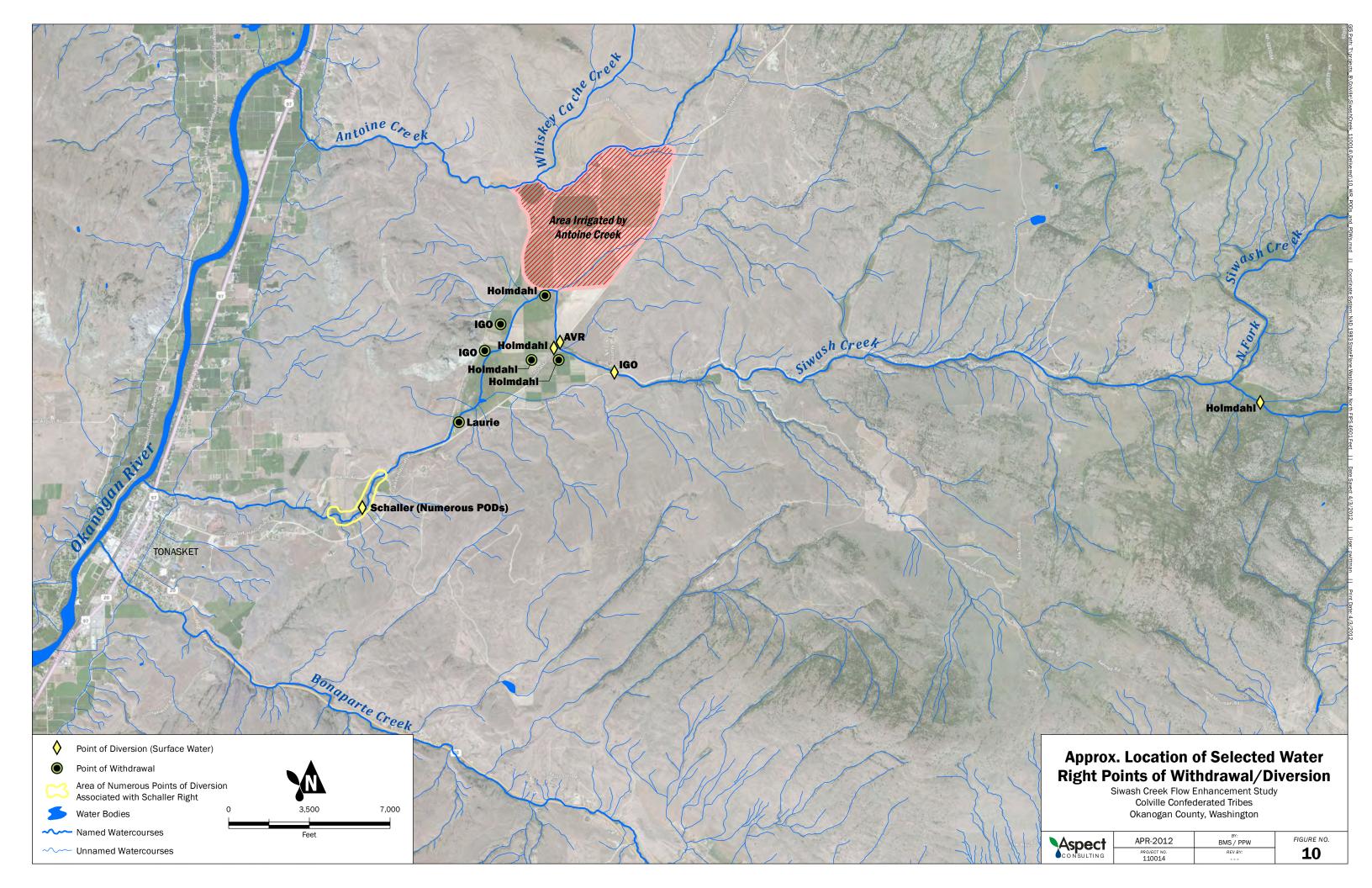












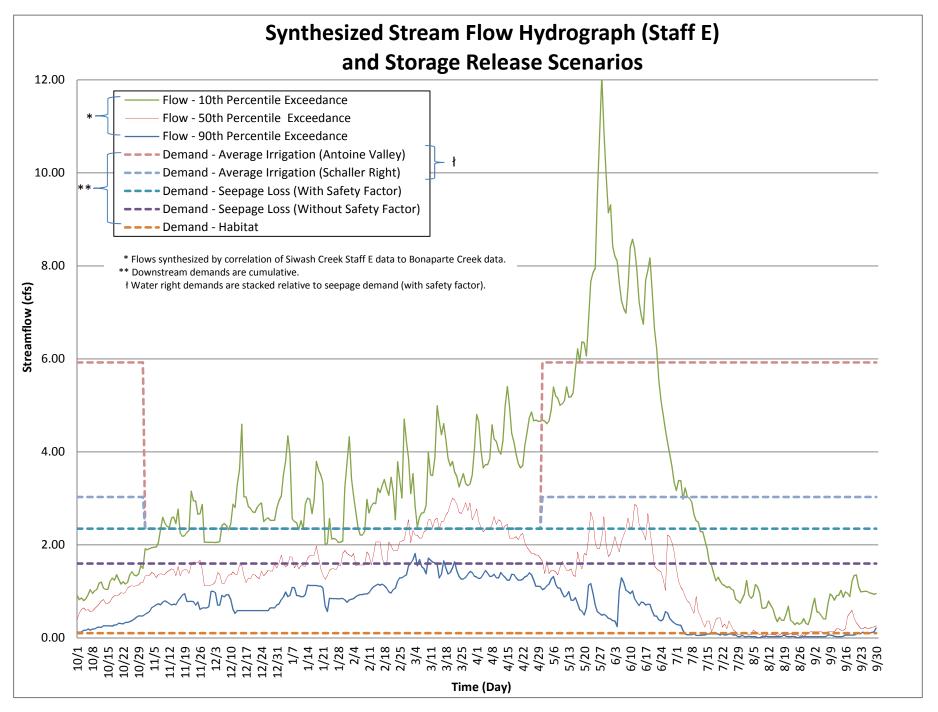
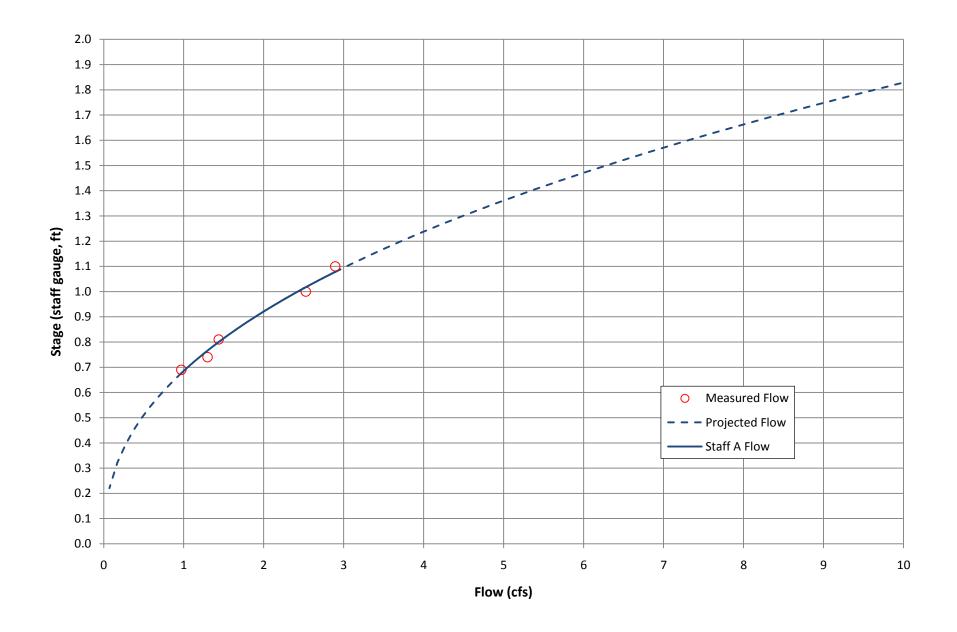


Figure 11 - Stream Flow Hydrograph

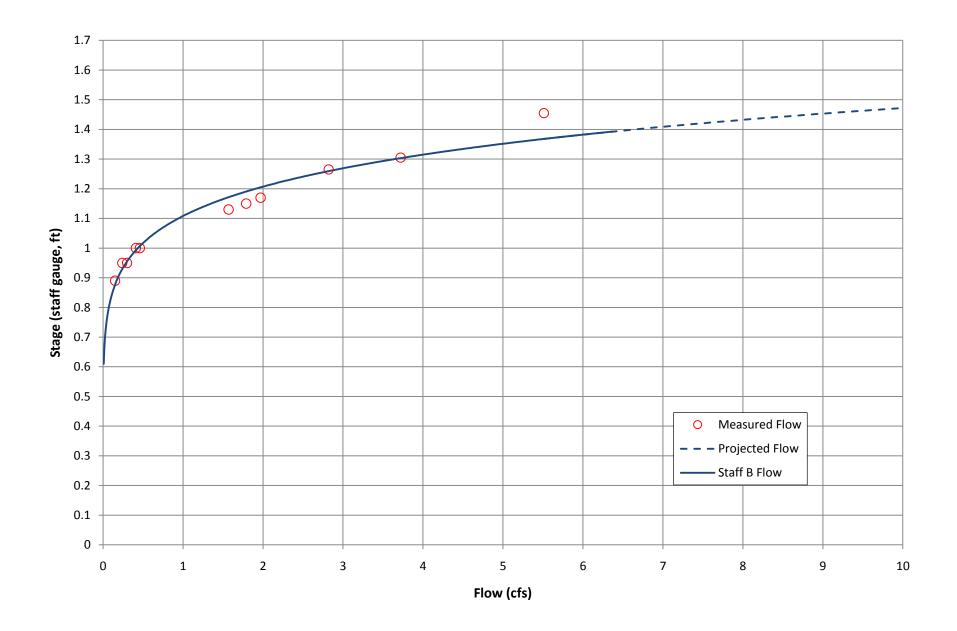
## **APPENDIX A**

**Rating Curves** 



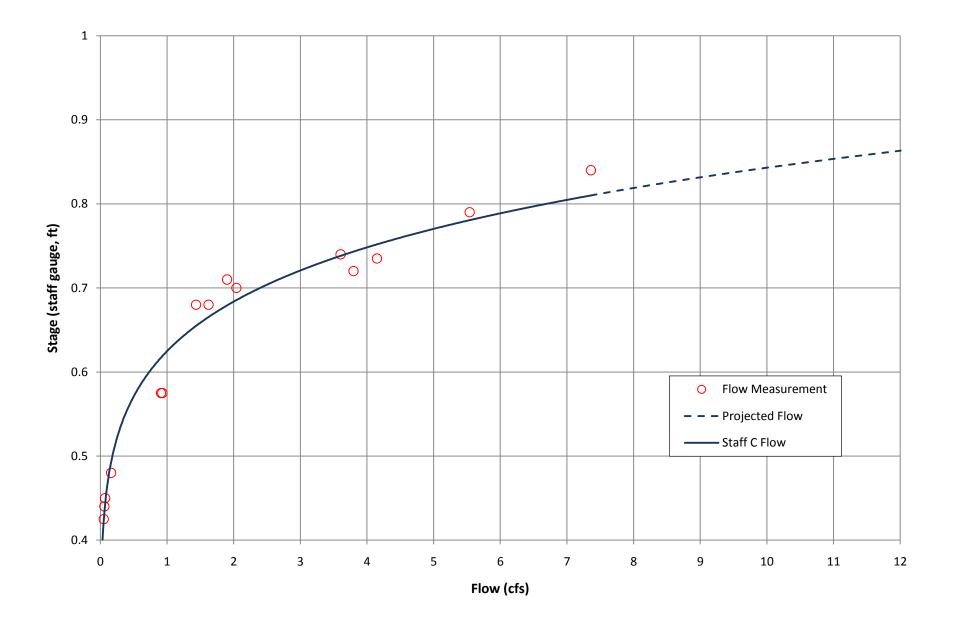
Siwash Creek Flow Enhancement Study
Okanogan County, WA

**Staff A Rating Curve** 

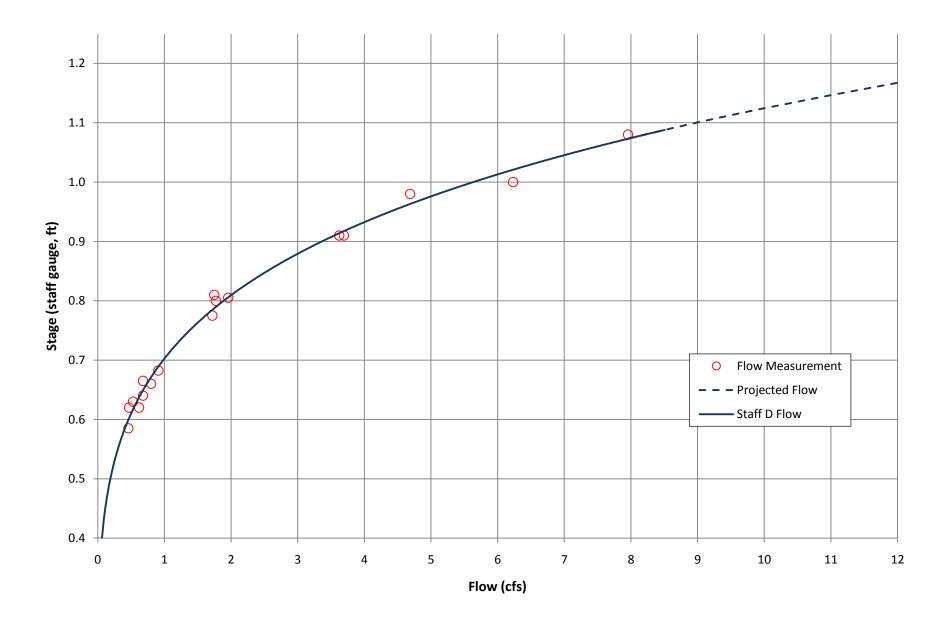


Staff B Rating Curve

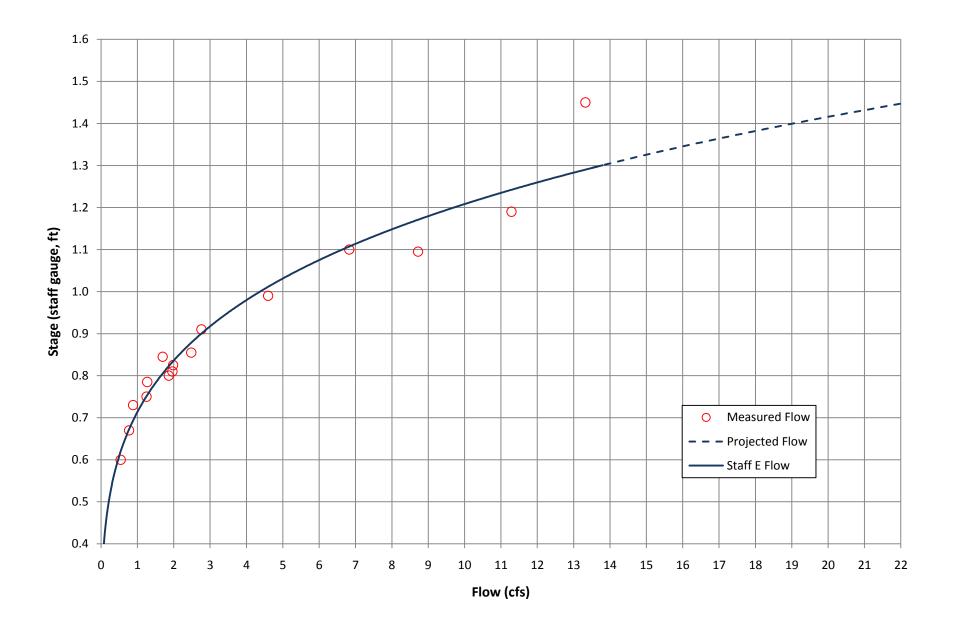
Siwash Creek Flow Enhancement Study Okanogan County, WA



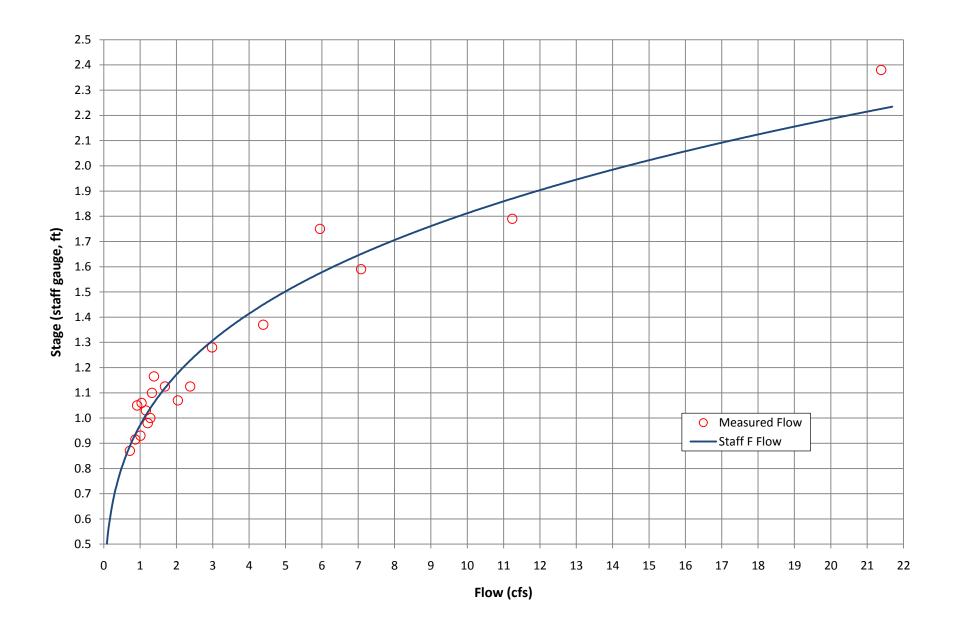
Staff C Rating Curve
Siwash Creek Flow Enhancement Study
Okanogan County, WA



Staff D Rating Curve
Siwash Creek Flow Enhancement Study
Okanogan County, WA

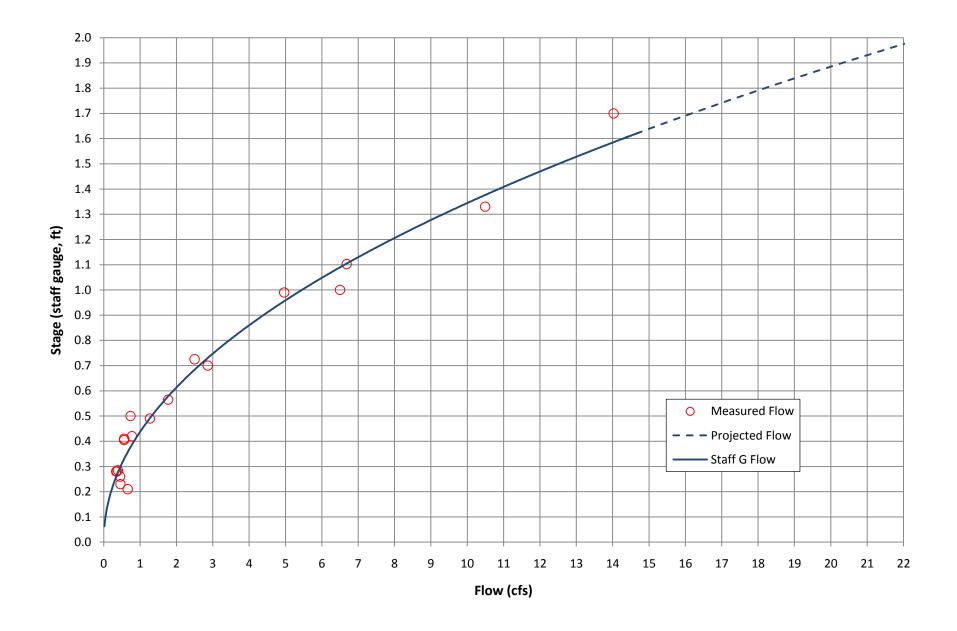


**Staff E Rating Curve** Siwash Creek Flow Enhancement Study Okanogan County, WA



## **Staff F Rating Curve**

Siwash Creek Flow Enhancement Study Okanogan County, WA



Siwash Creek Flow Enhancement Study

K:\Projects\CCT Siwash Creek-110014\Data\Analyses\Siwash Creek\_Data Plots 01312012.xlsm -Staff\_GE-rating

## **APPENDIX B**

Well Logs

### **Summary of Wells in Antoine Valley**

		<b>Ecology Well</b>	Total		Water	<b>Water Level</b>	
Well ID	Owner	ID	Depth (ft)	Yield (gpm)	Level (ft)	Source	Locational Accuracy
01A01	Fancher	-	36	150	24	well log	Qtr Qtr
01J01	Fruit	-	16	350	8.3	measured	GPS
01L01	Oberg	-	200	dry	-	well log	Parcel
01P01	Vernier	-	10	20	2.6	measured	GPS
01Q01	Vernier	-	15	160	6.15	measured	GPS
06G01	Morrison	-	32	5	17.75	measured	GPS
06P01	Morrison	-	142	1.5	60	well log	Qtr
12A01	Holmdahl	-	65	60	22	well log	GPS
12A02	Holmdahl	-	160	-	13	well log	GPS
12A03	Holmdahl	-	50	130	13	well log	GPS
12C01	Walter	-	46	30	4	well log	Parcel
12F01	Michels	ACM907	100	15	6	well log	Parcel
12F02	Schaller	ABY740	41	30	15	well log	Qtr Qtr
12G01	Fruit	-	22	200	4	well log	GPS
12M01	Nixon	-	12	100	3	well log	Parcel

### Summary of Wells in Lower Siwash Creek below Antoine Valley

		<b>Ecology Well</b>	Total		Water	<b>Water Level</b>	
Well ID	Owner	ID	Depth (ft)	Yield (gpm)	Level (ft)	Source	Locational Accuracy
09R01	Alois/Home Helpers	ALC479	97	70	26	well log	Parcel
11K01	Zachman	-	125	1	50	well log	Parcel
11K02	Olson	BCF102	385	2.5	63	well log	Parcel
14B01	Combs	-	135	dry	-	well log	Qtr Qtr
14B02	helm	BAB573	200	5	20	well log	Parcel
14B03	Hernandez	AHT586	94	10	0	well log	Parcel
14D01	Olson	APT620	235	10	140	well log	Parcel
14D02	Olson	BAT836	58	100	12	well log	Parcel
14D03	Kessler	-	300	dry	-	well log	Qtr Section
14E01	Gardinier	ACX473	62.5	12	48	well log	Qtr Qtr
14E02	Gardinier	AEQ516	605	0.5	304	well log	Qtr Qtr
14E03	Gardinior	AEQ517	63	dry	56	well log	Qtr Qtr
14F01	Combs	AGE252	60	0.5	34	well log	Parcel
14F02	Combs	ACX301	60	-	32	well log	Qtr Qtr
14K01	Eberle	-	250	0.5	-	well log	Qtr Qtr
14M01	Gardinier	ACR844	220	3	76	well log	Parcel
15A01	Schuller	-	82	20	27	well log	Qtr Qtr
15D01	Eberle	-	400	0.25	60	well log	Qtr Qtr
15L01	Bretz	AKJ688	298	25	210	well log	Qtr Qtr
15M01	Free Methodist	ALF563	358	50	190	well log	Parcel
16A01	USFS	-	40	-	31	well log	Parcel
16A02	USFS	-	40	-	30	well log	Parcel
16A03	USFS	-	40	-	29	well log	Parcel
16A04	Culver	AKO019	64	21	40	well log	Parcel
16A05	Culver	AKO018	64	23	40	well log	Parcel

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

### WATER WELL REPORT STATE OF WASHINGTON

Application No. CY-23855

Permit No. 54-23855P

(1) OWNER: Name T. HOLMONHL	Address 96 Swash Crk, Tonasket	WA 9885
LOCATION OF WELL: county Changan		
ag and distance from section or subdivision corner	A	
(3) PROPOSED USE: Domestic   Industrial   Municipal	(10) WELL LOG:	
Errigation   Test Well   Other	Formation: Describe by color, character, size of material show thickness of agulyers and the kind and nature of the	and structure, and e material in each
(4) TYPE OF WORK: Owner's number of well #3	stratum penetraled, with at least one entry for each cha	/
New well 🖸 Mathod: Dug 📋 Bored 🔲	MATERIAL	FROM TO
Deepened D Cable Driven D		
Reconditioned of Pay Diction Colary   Jetted		-,-
(5) DIMENSIONS: Diameter of well 12 inches		<del></del>
Drilled Depth of completed well		
an approximate spaled bottom		
(6) CONSTRUCTION DETAILS: Scaled bottom		
Casing installed: fl. to ft.		-"4
Threaded []" Diam, from		
Welded   Th. to		
Perforations: Yes & No []		
Type of perforator used	•	
SIZE of perforations		
R perforations from ISO 6 1 to 1.		
perforations from 151/ ft. to ft.		
Catalan		
Screens: Yes   No X		
Type Model No		
Diam, Slot size from ft, to ft.		<del></del>
Dlam. Slot size from ft. to ft.		<del></del>
Gravel packed: Yes O No O Size of gravel:	<del></del>	· _
Gravel placed from ft. to ft. to		
Surface seal: Yes   No   To what depth?ft.		
Surface Scal: Yes   No   To what depth?ft.		
Did any strata contain unusable water? Yes [ No [	makumoj represidenta	•
Type of water? Depth of strain		
Method of scaling strate off		
(7) PUMP: Manufacturer's Name		
Туре: Н.Р.	111	
(8) WATER LEVELS: Land-surface elevation		
Broad meet pre leader it wanted	[31] Mali, agrandi	
Static level		
Artesian water is controlled by (Cap, valve, etc.)		
(9) WELL TESTS: Drawdown is amount water level is lowered below static level of h	Work started AUAC 1987-Completed AUAC	1802
Was a pump test made? Yes No D If yes, by whom?		
Yield: 15 gal./min. with 155 ft. drawdown after 2 hrs.	WELL DRILLER'S STATEMENT:	
11 11 11	This well was drilled under my jurisdiction an true to the best of my knowledge and belief.	nd this report is
	in the to the best of my knowledge and belief.	1
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	NAME KONOLA ( 11=17 NID	
Time Water Level   Time Water Level   Time Water Level	(Person, firm, or corporation) (Ty	pe or print)
	Add IDD HUD N	
7.5.1	Address / V	. //
Date of test	Grand Grand C 721 11	week!
Bailer testgal_/min. withft. drawdown afterhim.	[Signed] (Well Driller)	
Artesian flowg.p.m. Date	1705	76 97
Temperature of water	License No Date Care	19.0.4

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## WATER WELL REPORT

Application No 64-23855

SIALE OF A	ABBINGION Permit No:		-2022
(1) OWNER: Name T. HOLMBAHL	Address 46 Siwash GK, Tonaske	7.WF	1,9885
(2) LOCATION OF WELL: County OKANOGAN .	NE 1 NE 1 Sec 12 T 3	7N., R.,	27£.W.M.
	with I 1100ft west from NE corne		
(3) PROPOSED USE: Domertic   Industrial   Municipal	(10) WELL LOG:		
Irrigation X Test Well   Other	Formation: Describe by color, character, size of material	and stru	cture, and
(A) TVPE OF WORK. Owner's number of well	Formation: Describe by color, character, size of material show thickness of aguifers and the kind and nature of t stratum penetrated, with at least one entry for each of	ne motern	ormation.
(4) TYPE OF WORK: Owner's number of well 3	MATERIAL	FROM	TO
Despend	TOP SOIL	0	14
Reconditioned   Rotary   Jetted	SAND & DIRT	19	15
(5) DIMENSIONS: Diameter of well 12 inches.	CAY DOTAL ATTA	15	16
Drilled 160 ft. Depth of completed well 60 ft.	CIAY & DIRT (WMATTE)	16	29
	HARDER	24	34
(6) CONSTRUCTION DETAILS:	SAND I GRAKE (NOT GOOD)	201	111
Casing installed: 12 " Diam trom 0 n to 160 n.	RSO SAN DIWINA	201	70
Threaded Diam. from ft. to ft. welded & Diam. from ft. to ft.	BROWN FINER SAND	46	57
	BRAY SILT	51	84
Perforations: Yes 🗆 No.	THE YEARD CLARS 3MOS		95
Type of perforation used	HARDER CLAY	. 95	99
perforations from	WATE CLAY	- 99	129
perforations from fi. to ft,	SOME BOOKS! GRAVE	129	131
perforations from ft. to ft.	Pocks & CLAY	131	134
Screens: Yes   No De	WATER IN CLAY SOUP	134	135
Manufacturer's Name	HARD PAN	135	138
Dism. Slot size from ft. to ft. to ft.	FREE GRAVEL WINATE	138	141
Dlam	HARD CLAY	141	148
	KRAVEL W/WAR	148	149
Gravel placed from	SAND	144	150
	SANDICIANEL SOUPY GRAVELY WATE	150	155
Surface seal: Yes No   To what depth?   B . rt.	HAO NOW TO TO	155	
Material used in seal	NE(CELLY)		
Type of water? Depth of strata			
Method of sealing strats off	100 1000		
(7) PUMP: Manufacturer's Name	:/// 1.00		<del></del>
Туре: Н.Р			
(8) WATER LEVELS: Land-surface elevation 1500 ft.	DEFENING.		
Static level 13			
Artesian pressure			
Artesian water is controlled by (Cap, valve, etc.)			
(6) WELL TECTS. Drawdown is amount water level in		1	
lowered below static level	Work started Aug 1975, Completed Au	<u>(</u>	197.5
Was a pump test made? Yes No If yes, by whom?  Yield: gal./min. with ft. drawdown after hrs.	WELL DRILLER'S STATEMENT:		
19 11 11 H	This well was drilled under my jurisdiction a	and this	report is
n n n	true to the best of my knowledge and belief.		11
Recovery data (time taken as zero when pump turned off) (water level	HUBBARD'S NULL DRI	55-M	
measured from well top to water level)  Time Woter Level   Time Water Level   Time Water Level	NAME Harry It Think have	<b>4</b>	
11-16-1-18-110-1-17 wet-proper party		Cype or p	mu J
	Address AK 257 Beverale	nest	· · · · · · · · · · · · · · · · · · ·
	}		
Bailer test gel./min. with fit drawdown after	[Signed](Well Driller)		
Arterian flow			
Temparature of water Was a chemical analysis made? Tem 🔲 Re 🖸	Liceme No.127-61 - 6647 Date ALC		, 195

### WATER WELL REPORT STATE OF WASHINGTON

Application No. 54-23855

Permit No. 54-238557

	(1) OWNER: Name T. HOLMDAH	Address 46 Slubach Crk Toras	ct.WA. apes
يَـَ	(2) LOCATION OF WELL: County Okanogan		
2	<b>7</b> .		
Repor	ring and distance from section or subdivision corner 2200+ South	Floyoffwest from NE corner o	2+ Sec 12
$\alpha$	PROPOSED USE: Domestic M Industrial   Municipal	(10) WELL LOG:	
Well	Irrigation A. Test Well   Other		and structure and
Š	Trigation Test fred   Other	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of t	he material in each
	(4) TYPE OF WORK: Owner's number of well	stratum penetrated, with at least one entry for each ch	lange of formation.
this	New well Method: Dug Dered	MATERIAL	OT MORY
<u>=</u>	Deepened C Cable M Driven C		
	Reconditioned Rotary Jetted	TOP SOIL	0 6
o		CLAY	6 17
	(5) DIMENSIONS: Diameter of well 12 h Inches.	SAND & CLAY (W/WATER)	17 21
ᅙ	Drilled 50 ft. Depth of completed well 41 ft.	CLAY & POCKS	
Œ			35 41
Information	(6) CONSTRUCTION DETAILS:	GOOD SAND & GRAVEL	
Ξ	Casing installed: "Diam. from ft. to ft.	Muck	41 50
္မ	Thresded [] "Diam. from ft. to ft.		
$\equiv$	Welded D' 12 "Diam. from Q ft. to \$1 tt.	<del>-</del>	
the	Perforations: Yes of No 🗆		
<u>.</u>	Type of perforator used		
and/or	SIZE of perforationsin. byin.		-
70	12 perforations from 34 ft. to 42 ft.		
	perforations from	, —	
	perforations from		
ata	Screens: Yes 🗆 No 😿		
a	Manufacturer's Name		
ш	Type	I INISCIBIL	77/
	Diam Slot size from ft. to		Tri lei
-	Diam, Slot size from ft, to ft.		· · · · · · · · · · · · · · · · · · ·
- ₹		1 IA\	984
$\equiv$	Gravel packed: Yes   No   Size of gravel;		204
ច	Gravel placed from	U U	•
Warranty	Surface contract of the second	DEPARTMENT GE.	
Š	Surface seal: Yes No [] To what depth?	CENTRAL NEGICA	
	Material used in seal	<del></del>	
	Type of water? Depth of strata	<del></del>	
NOT	Method of sealing strate off.		
	(m) many	[ <del>  </del>	
es	(7) PUMP: Manufacturer's Name RSPKLSY	[ <del>     -   -   -   </del>	<del></del>
유	Type: SUBMECSIBLE HP.10		
2	(8) WATER LEVELS: Land-surface elevation	<del></del>	
- 6	ADOAG INCAD ACK ICAELS IN VICTORIAL PARTY.		
Ecology	Static level 13 ft. below top of well Date  Artesian pressure lbs. per square inch Date		
ᅙ	Artesian water is controlled by.		
္ပ္ပ	(Cap, valve, etc.)		
	(9) WELL TECTS. Drawdown is amount water level is		
οť	(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Work started JUNE 1975 Completed JU	1275 ISTA
	Was a pump test made? Yes 🔀 No 🖂 If yes, by whom?		19 Granting 19.19
<u>P</u>	Yield: 130 gal./min. with 27 it. drawdown after 4 hrs.	WELL DRILLER'S STATEMENT:	
Ě	H H H	This well was drilled under my jurisdiction a	nd this report is
モ	<i>u</i>	true to the best of my knowledge and belief.	
partment	Recovery data (time taken as zero when pump turned off) (water level		
e d	measured from well top to water level)	NAME HUBBARDS WELL DRILL	NY.
ے	Time Woter Level Time Water Level Time Woter Level		ype of print)
_	***************************************	DIVERSING WARE	_
٦Ę		Address RIVERSIDE, WASH	Ÿ
ŀ		-1.11	0
	e of test	[Signed] Harry (Well) Driller)	S
	Baller test	(Well Driller)	
	Artesian flow	License No. 1-34-(043 Date June	٦٢ ، ٦٢
	Temperature of water	THE PROPERTY OF THE PROPERTY O	- فرويان19 و

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### WATER WELL REPORT STATE OF WASHINGTON

Application No. 54-23655

		GY-13855	١
Parmit	Nο.		

4	(1) OWNER: Name I. Houm DAHL	Address 46 SILLINGH CRK TONNES	LET, WA 9885
á	(2) LOCATION OF WELL: County OKANOGAN	- NEW NEW Sec 12 T 3	
ğ	ing and distance from section or subdivision corner 450 fit S		
Repo	(57 PROPOSED USE: Domestic X Industrial [ Municipal [	(10) WELL LOG:	
Well	Irrigation Test Well [] Other []	Formation: Describe by color, character, size of material show thickness of aguifers and the kind and nature of t stratum penetrated, with at least one entry for each ch	l and structure, and he material in each nange of formation.
>	(4) TYPE OF WORK: Owner's number of well (if more than one) 2  New well (if more than one) Bored []	MATERIAL	FROM TO
this	New well 🔏 Method: Dug 📋 Bored 🗍 Deepened 🗇 Cable 🗇 Drivan 🗇		
	Reconditioned   Rotary   Jetted		
on	(5) DIMENSIONS: Diameter of well inches.	- TOP SOIL	0 10
ň	(5) DIMENSIONS: Diameter of well 65 inches.  Drilled 45 It. Depth of completed well 65 rt.	DIRTY GRAVEL	10 13
뜭		HARD PAN	13 20
٦a	(6) CONSTRUCTION DETAILS:	LOOD / GRAVEL	40 46
Ē	Casing installed: ( "Diam. from 0 n. to 62 n.	SAND CRAVEL MARKE	46 59
₽,	Threaded [] "Diam. from ft. to ft.	BINDER	59 61
三亿	Welded   " Diam. from ft. to ft.	FRSE	61 62
the	rentorations: Act M No []	CLAY	62 65
r t	Type of perforation used SAW in by in.		
and/or	50 perforations from 48 ft. to 62 ft.		
b	perforations from		
त	perforations from		
ita	Screens: Yes D No X		
Data	Manufacturer's Name		
1)	Digm. Siot size from ft, to ft.		
,	Diam Slot size from ft. to ft.		
ţ.	Gravel packed: Yes   No   Size of gravel:		<del></del>
an	Gravel placed from		
Warranty	Surface reals V 18		,
S .	Surface Seal: Yes X No D To what depth? 18 n. Material used in seal.	IVE GELIME	
_	Did any strata contain unusable water? Yes 🗆 No 🔀		
NOT	Type of water? Depth of strata	1	
Z		11// 001 - 1 130:1	
ės	(7) PUMP: Manufacturer's Name BERNLEY	DEPARTMENT C:	
용	Type: SUBMERSIBLE HP 5	CE PALTE	
- 1	(8) WATER LEVELS: Land-surface elevation above mean ses level		
g	Static level 22 ft, below top of well Date		
ō	Artesian pressure ,		
Ecolo	(Cap, valve, etc.)		
	(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Work started TULY 1975. Completed TU	LY 10.75
يد	Was a pump test made? Yes No D If yes, by whom?		the same of the same
en	Yield: 60 gal./min. with 43 ft. drawdown after 2 hrs.	WELL DRILLER'S STATEMENT:	
E	F 0 0 0 0	This well was drilled under my jurisdiction a true to the best of my knowledge and belief.	and this report is
ar	Recovery data (time taken as zero when pump turned off) (water level		~
Ö	measured from well top to water level)	NAME HUBBARDIS WELL DRI	
۵	The first Debt   first Debt	}	(ype or print)
له ا		Address RIVERSIDE	
£			0
	daller test gal/min, with ft, drawdown after hrs.	[Signed] Harry M. Well Driller)	ard.
	Artesian flowgai/min, withn, Grawdown arternns.	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	Temperature of water	Licerse No. 213-62 - (64/3 Date Jul	·Y, 19.75

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy (1) OWNER: Name Charles Morrison ) LOCATION OF WELL: County Oxanogan dearing and distance from section or subdivision corner

### WATER WELL REPORT STATE OF WASHINGTON

Application No. . ... .... Permit No. ...

(1) OWNER: Name Charles Morrison	Address Tonasket Wash.	<u></u>	
LOCATION OF WELL: County Okanogan	- 100 % 5 % Sec. la T.	7.N. R.	28 W.м.,
dearing and distance from section or subdivision corner			K
(3) PROPOSED USE: Domestic 💆 Industrial 🗆 Municipal 🗀			
Irrigation [] Test Well [] Other []	Formation: Describe by color, character, size of materi show thickness of aguifers and the kind and nature of stratum penetrated, with at least one entry for each	al and stru the materi change of	icture, and ial in each formation.
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM	TO
New well pA Method: Dug [] Bored [] Deepened [] Cable [] Driven [	A decide the second has a collection		
Reconditioned [] Rotary (2) Jetted [		0_	142
(5) DIMENSIONS: Dismeter of well Lynn inches		┼	
Drilled 143		<del></del>	<del> </del> -
(6) CONSTRUCTION DETAILS:			
Casing installed: 6 Diam. from ## n. to 30 n			
Threaded [] "Diam. from ft. to ft.	1		
Welded   Dlam. from ft. to ft.			<del> </del>
Perforations: Yes D No M		<del> </del>	
Type of perforator used			
SIZE of perforations			
perforations from	,	ـــ	
perforations from ft, to ft	: [	<del> </del>	<del> </del>
Screens: Yes D No W		<del> </del>	<del></del>
Manufacturer's Name			
Type Model No			
Diam. Slot size from ft, to ft		<del> </del>	
Gravel packed: Yes [] No [6] Size of gravel:		<del> </del>	<del></del>
Gravel placed from ft. to ft.			
Surface seal: Yes of No D To what depth? 18 n			
Material used in seal Bentonite	.	<del>↓</del>	
Did any strata contain unusable water? Yes No Type of water?		<del> </del> -	
Method of sealing strata off		<del> </del>	
(7) PUMP: Manufacturer's Name			
Type:HP			
(8) WATER LEVELS: Land-surface elevation	3n. p.//		<del> </del>
Static level 60 above mean sea level the Static level Date 3-/9-72	Drave description	<del> </del> -	<del> </del>
Ariesian pressure		1	
Artesian water is controlled by (Cap, valve, etc.)			
(9) WELL TESTS: Drawdown is amount water level is lowered below static level			
Was a pump test made? Yes No I If yes, by whom?	Work started 3-12 1872 Completed	-//	18 2, 2, 5,
Yield: 1/2 gai./min. with ft. drawdown after hrs	THEFT TABLE COLORS OF A COLOR OF THE COLOR O		
n n n n n	This well was drilled under my jurisdiction	and this	report is
Recovery data (time taken as zero when pump turned off) (water leve	true to the best of my knowledge and belief.		
measured from well top to water level)	NAME allied Brelling		
Time Water Level Time Water Level Time Water Level		(Type or p	rint)
	Address D. Box 607 Dome To	bash	
<u>)                                    </u>	1 nno		
Date of test	[Signed] (Well Driller)	<del>-25</del>	
Artelian flow 9-19-79			76
Temperature of water Was a chemical analysis made? Yes 🗋 No 🖫	License No. 0382 Date 3-/	.Z	., 19.
ALEND A BURNINGS	CYMPING IN MINGROS INI	29	
(USE ADDITIONAL)	SHEETS IF NECESSARY)	, - •	

FEY 050-1-20

Dans	Original and Fir irtment of Ecolo nd Copy — Own d Copy — Driller	~	lth
~(2)	OWNER:   LOCATION	OF W	_
(3)	PROPOSEI	USE:	Domesti Irrigatio
(4)	TYPE OF	New W	en 25,
(5)	DIMENSIO	NS:	Dian Depth o
(6)	CONSTRUC Casing inst	alled:	DETAIL Dia Dia Dia
	2.5	perforator perforatio perfor perfor perfor	ations from
	Screens: Ye	ta □ No	• <b>∀</b>

### WATER WELL REPORT

STATE OF WASHINGTON

Application	No.	
Permit No.		

(1) OWNER: Name A Hances and	Address Tonacket Week
(2) LOCATION OF WELL: County Dyanogan	
aring and distance from section or subdivision corner	
(3) PROPOSED USE: Domestic B Industrial   Municipal	(10) WELL LOG:
Irrigation   Test Well   Other .	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and hature of the material in each
(A) TYPE OR WORK. Owner's number of well	show thickness of aquifers and the kind and nature of the material in each stratum pencirated, with at least one entry for each change of formation.
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL FROM TO
Deepened	Sand, Travel, Clay 1 32
Reconditioned   Botary   Jetted	
(5) DIMENSIONS: Diameter of well inches.	<del></del>
Drilledft. Depth of completed wellft.	
(6) CONSTRUCTION DETAILS: 27	
Casing installed: S. Dlam. from t. t. to t.	
Threaded D Diam. from	
Welded [] "Diam. from ft. to ft.	
Perforations: Yes No No	
Type of perforator wed	
SIZE of perforations	
25 perforations from 2/ ft. to 24 ft.	
perforations from ft. to ft.	
Screens: Yes 🗆 No 🗹	
Manufacturer's Name	
TypeModel No	
Diam. Slot size from ft. to ft.	
Gravel placed from ft. to ft.	
1.0	
Surface seal: Yes No I To what deputs the	
Did any strata contain unusable water? Yes No	
Type of water? Depth of strats	1151. 9 5 40 40
Method of sealing strata off	шт. ы , , ,
(7) PUMP: Manufacturer's Name.	C. C
Type:HP	
(8) WATER LEVELS: Land-surface elevation above mean sea level	
Static level 17 tt below top of well Date 3/20/79	
Artesian pressure	
(Cap, valve, etc.)	
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	- 2 - 2/A - 70
Was a pump test made? Yes 🖂 No 🗀 If yes, by whom?	Work started 3/10
Yield: 15 gal./min. with ft. drawdown after hra.	WELL DRILLER'S STATEMENT:
11 27 31 37 11 11 M	This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Recovery data (time taken as zero when pump turned off) (water level	C = 0: 1 1 1 1
measured from well top to water level)  Time Water Level   Time Water Level   Time Water Level	NAMEULLES Neilling & Newlopment
THE PLANT AND THE PARTY AND TH	(Person, firm, or corporation) (Type of print)
	Address Place Con - OMal, Wash
	0.0000
Date of test gal/min, with ft, drawdown after, hrs.	[Signed] (Well Driller)
Artesian flow	
Temperature of water	License No. 0382 Date 3-20 , 19.77

File Original and First Copy with Department of Ecology

## 4389/ WATER WELL REPORT

Start Card No. W059987

Third Copy—Differ's Copy Inv>	Water Right Permit No.
(1) OWNER: Name - Ivan Oberg	Address 107 Fancher Rd, Tonasker, WA 98855
LOCATION OF WELL: County Okanogan	NE SW 1 3727 ww.
, '	•
AUIUS	S Above.
(3) PROPOSED USE:  Oomaatic Industrial  Municipal	_   <u></u>
☐ DeWater Test Well ☐ Other	Formation: Describe by color, character, size of material and structure, and show thickness of aquiless and the kind and nature of the meterial in each stratum panetraled.
(4) TYPE OF WORK: Owner's number of well (I more than one)	with at least one entry for each change of information.
	MATERIAL FROM TO
Deepened 🗆 Cable 🔾 Driven	
Reconditioned C Rotary S Jetted	Rock shale
(5) DIMENSIONS: Diameter of well 6 Inch	Black shale. 15 19
200	Black shale w/white quartz stringers 19 200
	No Water.
Casing Installed: Dism, from +1 19	-II.
Welded   6 Diam. from +1 ft. to 19 Linet installed   10   10   10   10   10   10   10   1	
	-II.
Perforations: Yea No.	
Type of perforation used	
parforationa irum	
perforations from1, to1,	
perforetions from	
Screens Yes No	
Manufacturer's Name	
Type Model No	
DramBlot sizefromft. to	
DiamStot aixaft.toft.	_11.
Gravel packed. Yes No Sixe of gravel	ाँ-ों है शि है न सा हिन रें
Gravel placed fromft, to	
Surface seaf; Yes No Townst depth? 18	<del></del>
	-". [=L) <b>30 L</b> 1 1990
Malerial used in sest	
Type of water? Depth of strate	
Mained of sealing strate of	
(7) PUMP: Manulacturer's Name	
Type H.P.	<del></del>
(8) WATER LEVELS: Land auriaca elevation	
(0) WAIEN CEASES: spoke mean sea level	- fi.
Static lavel it. balow top of well Date ibs. per aquers inch Date ibs. per aquers inch Date	
Artesian water is controlled by	
(Cap. valva, atc.))	Work started 8/23/95 19 Completed 8/24/95 19
(9) WELL TESTS: Drawdown is amount water level in lowered below static in Was a pump resumede? Yes No. No. 2 19 yes, by whom?	ivol
Yield gal /min, with ft, drawdown after	WELL CONSTRUCTOR CERTIFICATION:
0 4 1	constructed and/or accept responsibility for construction of this wall
n n	" and its compliance with all Washington well construction standards " Maierials used and the information reported above are frue to my bes
Recovery data (time taken as zero when pump turned oil) (water level measured from wall top to water layer)	knowledge and batief.
Tune Water Lavel Time Water Lavel Time Water Lev	
	P. (9) BOX 436 Republic WA 99106 OR PRINT)
	Address (Ber
Oelu of toel	1895
Barler (est gal /min with h. grawdown after	hra (Signed) Wett Dritter
	hrs. Registration #PS 095 L4 8/24/95
Ariequanities gp.m Date	No Dete 18
Temperatus of water Was a chemical analysis made? Yes No No	(USE ADDITIONAL SHEETS IF NECESSARY)

1	STATE	OF	W	ASHII	<b>NGTO</b>	)K
DEP.	ARTME	NT	$\mathbf{OF}$	CON	SERV	ATION
	AND	DE	VE	LOPM	ENT	

WELL LOG		ppli.	#4431
Dale June 2 Record by Well driller	56	<del></del> -	T
Record by well driller	·		
Source driller's record			
Location State of WASHINGTON			<u>.                                    </u>
County Okanogan			
Area	**		<del></del>
SW W NEW sec 12T37 N,	R. 27 X	Diagram	of Section
Drilling CoMarvin Henne	eman		
Address Oroville, V		, , <u>-</u>	
Method of Drilling dug	Dale	· • · · · · · · · · · · · · · · · · · ·	19 56
Owner James Fruit	La -32		
Address Tonasket,	wash.		
Land surface, datumt			
LATION MATERIAL		THICKNE (feet)	ob Derru (fect)
	but paraphrase d statte level if dicated Correla casings, perfora	as necessary, reported Give te with stratu- tions, screens,	in parentheses c depths in feet graphic column, etc.)
(Transcribe driller's terminology literally if material water-bearing, so sinte and record below land-surface detum unless otherwise in if feasible. Following log of materials, list all	but paraphrase d static level if dicated Correla cosings, perfora		
(Transcribe driller's terminology literally if material water-bearing, so state and record below land-surface datum unless otherwise in if feasible. Following log of materials, list all of Clay		2	
(Transcribe driller's terminology literally if material water-bearing, so state and recombelow land-surface datum unless otherwise must feasible. Following log of materials, list all Clay  Clay  Gravel (water l		2	
(Transcribe driller's terminology literally if material water-bearing, so state and record below land-surface detum unless otherwise must feasible. Following log of materials, list all Clay  Clay  Gravel (water )  Pump test:		2	
(Transcribe driller's torninology literally if material water-bearing, so state and recombelow land-surface datum unless othowing in feasible. Following log of materials, list all Clay  Clay  Gravel (water if Pump test:  Dim. 22'x4'  SWL: 4 ft.		2	
(Transcribe driller's terminology literally if material water-bearang, so state and record below land-surface deturn unless otherwise ment fensible. Following log of materials, list all Clay  Clay  Gravel (water li  Pump test:  Dim. 22'x4'		2	
(Transcribe driller's torminology literally if material water-bearing, so state and recorded with a surface of the miles of the water forminology literally of teasible. Following log of materials, list all of the surface of the sur	pearing)	2	0 20 22 22
(Transcribe driller's terminology literally if material materials. In the state of feasible. Following log of materials, list all consider the state of the s	n.	2	0 20 2 22 rifugal
(Transcribe driller's terminology literally if material water-benerial, so state and recombelow land-surface datum unless otherwise in if fensible. Following log of materials, list all Gravel (water land) Gravel (water land) Pump test:  Dim. 22'x4' SWL: 4 ft.  DD: 16 ft.  Yield: 200 g.p.m Type & size of p	n.  pump: 2	cent	0 20 2 22 rifugal
(Transcribe driller's terminology literally if material materials. In the state of feasible. Following log of materials, list all consider the state of the s	n.	cent	0 20 2 22 rifugal
(Transcribe driller's terminology literally if material material material material material material material material material materials and recombelow land-surface datum unless otherwise in if feasible. Following log of materials, list all of Gravel (water language)  Clay  Gravel (water language)  Pump test:  Dim. 22'x4'  SWL: 4 ft.  DD: 16 ft.  Yield: 200 g.p.m  Type & size of materials and recombelling in the size of materials.	n. pump: 2 notor: 5 pha	cent	0 20 2 22 rifugal single
(Transcribe driller's terminology literally if material water-below land-surface datum unless otherwise in frencible. Following log of materials, list all classifications of the company	n. pump: 2 notor: 5 pha	cent	0 20 2 22 rifugal single
(Transcribe driller's terminology literally if material material material material material material material material material materials and recombelow land-surface datum unless otherwise in if feasible. Following log of materials, list all of Gravel (water language)  Clay  Gravel (water language)  Pump test:  Dim. 22'x4'  SWL: 4 ft.  DD: 16 ft.  Yield: 200 g.p.m  Type & size of materials and recombelling in the size of materials.	n. pump: 2 notor: 5 pha	cent	0 20 2 22 rifugal single
(Transcribe driller's terminology literally if material material material material material material material material material materials and recombelow land-surface datum unless otherwise in if feasible. Following log of materials, list all of Gravel (water language)  Clay  Gravel (water language)  Pump test:  Dim. 22'x4'  SWL: 4 ft.  DD: 16 ft.  Yield: 200 g.p.m  Type & size of materials and recombelling in the size of materials.	n. pump: 2 notor: 5 pha	cent	0 20 2 22 rifugal single
(Transcribe driller's terminology literally if material material material material material material material material material materials and recombelow land-surface datum unless otherwise in if feasible. Following log of materials, list all of Gravel (water language)  Clay  Gravel (water language)  Pump test:  Dim. 22'x4'  SWL: 4 ft.  DD: 16 ft.  Yield: 200 g.p.m  Type & size of materials and recombelling in the size of materials.	n. pump: 2 notor: 5 pha	cent	0 20 2 22 rifugal single
(Transcribe driller's terminology literally if material material material material material material material material material materials and recombelow land-surface datum unless otherwise in if feasible. Following log of materials, list all of Gravel (water language)  Clay  Gravel (water language)  Pump test:  Dim. 22'x4'  SWL: 4 ft.  DD: 16 ft.  Yield: 200 g.p.m  Type & size of materials and recombelling in the size of materials.	n. pump: 2 notor: 5 pha	cent	0 20 2 22 rifugal single

ı	STATE OF WASHINGTON
DE	ARTMENT OF CONSERVATION
	AND DEVELOPMENT

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# STATE OF WASHINGTON DEPARTMENT OF CONSERVATION AND DEVELOPMENT

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Met	hod of D	rilling.	Dug		Date	e Ma	y		. , 19	<b>.57.</b>
Owner	Jin	ı Frui	ţ.						,	- 3
Add	lress .	Ton	aske	t, Wa	sh.					7
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						-	THICKS		DEP	
COURS-		1	MATERIAL			- 1	P P costs			
(Train	scribe drille l water-bea l-surface da Following	r's termino	logy liters	enrd static	level a	frenor	ted G	y, in	cuths 1:	benes n leet
(Train	l water-ben l-surface da Following	er's termino ring, so sta tum unless log of mate	logy liters to and re- otherwise rials, list	indicated all causings.	Corre Corre perfo	f repor	ecessar ted G th stru sercen	y, in two digrass, etc	parent cythe is phic co	henes n feet lumn,
(Train	Not b	r's termino ring, so sta tum unless log of mate rater bear	logy liters to and re- otherwise rials, list	indicated all causings.	Corre Corre perfo	f repor	ecessar ted G th stru sercen	y, in ive d tigra s, etc	parent cythe :: plue co )	henes n feet lumn,
(Train	Not b Water PUMP	r's termino ring, so sta tum unless log of mate ster bear TEST:	logy liters te and re- ortherwise rinls, list  bear ing	indicated all causings.	Corre Corre perfo	f repor	ecessar ted G th stru sercen	y, in two digrass, etc	parent cythe is phic co	henes n feet lumn,
(Train	Not water bear Following  Not water  PUMP  Dim.	r's termino ring, so sta tum unless log of mate rater bear TEST:	logy liters to and res otherwise rinls, list:	indicated all causings.	Corre Corre perfo	f repor	ecessar ted G th stru sercen	y, in two digrass, etc	parent cythe is phic co	henes n feet lumn,
(Train	Not be Water Pump Dim.	r's termino ving, so sta tum unless log of mate reter bear TEST: 16'x 4 f	logy liters to and re- otherwise rials, list: bear	indicated all causings.	Corre Corre perfo	f repor	ecessar ted G th stru sercen	y, in two digrass, etc	parent cythe is phic co	henes n feet lumn,
(Train	Not water-beau Pollowing  Not water  Pump  Dim.  SWL:  DD:	r's termino ring, so sta tum unless log of mater bear TEST:  16'x 4 f	logy literate and resolves to and resolves trials, list:  bear: ing /	ing =	Corre Corre perfo	f repor	ecessar ted G th stru sercen	y, in two digrass, etc	parent cythe is phic co	henes n feet lumn,
(Train	Not by Water Dim. SWL: DD: Yield	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350	logy liters to and resolute und resolute was to there was rinks, list in the last resolute to the logical to th	enrd static indicated all casings. ing = grave	Corre Corre perfor	f reported with the state of th	ecessar ted G th stru sercen	y, in two distincts, etc.	parent epths :: phic ch	heses n feet when human,
(Train	Not by Water Dim. SWL: DD: Yield	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350	logy liters to and resolute und resolute was to there was rinks, list in the last resolute to the logical to th	enrd static indicated all casings. ing = grave	Corre Corre perfor	f reported with the state of th	ecessar ted G th stru sercen	y, in two distincts, etc.	parent epths :: phic ch	heses n feet when human,
(Train	Not water-beam lawriace da Following  Not water  Pump  Dim.  SWL:  DD:  Type	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction to the vision the vision the vision that the later ing if the later ing	ing = grave	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,
(Train	Not water-beam lawriace da Following  Not water  PUMP  Dim.  SWL:  DD:  Tield  Type  CASIN	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction in the was a substantial bear. Ing.	ing - grave .m. pump moto diam	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,
(Train	Not water-beam lawriace da Following  Not water  PUMP  Dim.  SWL:  DD:  Tield  Type  CASIN	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction in the was a substantial bear. Ing.	ing - grave .m. pump moto diam	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,
(Train	Not water-beam lawriace da Following  Not water  PUMP  Dim.  SWL:  DD:  Tield  Type  CASIN	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction in the was a substantial bear. Ing.	ing - grave .m. pump moto diam	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,
(Train	Not water-beam lawriace da Following  Not water  PUMP  Dim.  SWL:  DD:  Tield  Type  CASIN	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction in the was a substantial bear. Ing.	ing - grave .m. pump moto diam	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,
(Train	Not water-beam lawriace da Following  Not water  PUMP  Dim.  SWL:  DD:  Tield  Type  CASIN	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction in the was a substantial bear. Ing.	ing - grave .m. pump moto diam	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,
(Train	Not water-beam lawriace da Following  Not water  PUMP  Dim.  SWL:  DD:  Tield  Type  CASIN	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction in the was a substantial bear. Ing.	ing - grave .m. pump moto diam	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,
(Train	Not water-beam lawriace da Following  Not water  PUMP  Dim.  SWL:  DD:  Tield  Type  CASIN	r's termino ring, ao sta tum unless log of mater bear TEST:  16'x 4 f 8 f 1: 350 & siz	logy liters to and reconstruction and reconstruction in the was a substantial bear. Ing.	ing - grave .m. pump moto diam	Correspondent	ay	enti	y, in the digram of the state o	narentesthone of the control of the	heses n feet humn,

he Department of Ecology does NOT Warranty Landlor the Information on this Well Report.

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

# **WATER WELL REPORT**

Start Card No. [410.884] 6

STATE OF WASHINGTON	Water Right Permit No

{T'	YOWNER: HETE JAYME STOUN WALTER AND	- POBOX 1065 TONASKE	T WA	4885
(2)	LOCATION OF WELL: County O Mouse		72 N. P.	27 WM
(2a)	STREET ADDRESS OF WELL (OF POWNERS MICHTON) (OD FANCHE	R RD TONASKET WA 985	555	(
(3)	PROPOSED USE: Domestic Industrial Municipal Integration Test Well Dotter	(10) WELL LOG or ABANDONMENT PROCEDURE   Formation: Describe by color, character, earn of material and attructure, an		
	DOVIATION	and the kind and nature of the material in each stratum penetrated, with change of information.		
(4)	TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL	FROM	70
	Abandoned New well M. Method: Dug D Borad D Deepened D Cubic D Drivert C	ton red	1	1
	Reconditioned   Rotary   Jetled			
(5)	DIMENSIONS: Diameter of well inches.	Clou	0	3
	Drilled 96 feet. Depth of completed well 96 ft.	1 1	<del></del>	
(6)	CONSTRUCTION DETAILS:	had clay	<del> </del> _	14
1-7	Casing Installed: 6 Diam. from 0 1. to 46 t.	2014 16	100	20
	Welded Lines installed Lines i	Afort Notte	<del>-/4</del> -	2.3
	Threaded Diam. horoft. toft.	mud	25	35
	Perforationa: Yes  No  X.			
	Type of perforation used	must gravel	35	46
	perforations fromfl. tofl.		<del> </del>	
		- Lytth -	46	<del> </del>
	ft, toft.		-	
	Screens: Yes No 1			
	Manufacturer's Name			
	ypeModel No		-	
_	Diam. Siot size from ft. to ft.	<b>基础</b> 10 10 10 10 10 10 10 10 10 10 10 10 10	<del> </del>	
_	Gravel packed: Yes No Size of gravel	77 15 (5 13 3 17 1-	<del> </del>	<del> </del>
	Gravel placed fromft. toft.	1 9 mort	1	
-	Surface seal: Yes X No  To what depth? 8 ft.	M30 1 L 1301		
	Material used in seal			
	Did any strata contain unusable water? Yes 🗌 No 🗌			<del></del>
	Type of water? Depth of strata		+	
	Method of seeling strate off			
(7)	PUMP: Manufacturer's Name			
	Type:		<u></u>	
(8)	WATER LEVELS: Land-surface elevation above mean sea level	Work Started	<u> </u>	<u> </u>
	Static level	WELL CONSTRUCTOR CERTIFICATION:		
	Artesian water is controlled by (Cap, valve, stc.)	I constructed and/or accept responsibility for construction		
<u></u>	<del></del>	compliance with all Washington well construction standar the improved above are true to my best knowle		
(B)	WELL TESTS: Drawdown is amount water level is lowered below static level  Was a pump test made? Yes	Land the start of the	1:11.	
	Yield:gal./min. withft_drawdown afterhrs.	NAME UPBONNIEN OF CONTROL TYPE	A PANT	
	и н п	- Address P. Dr. Bo V. 12		
	H 11 P 11	(Signary)	rse No.O.	28-2
	Recovery data (time taken as zero when pump turned oil) (water level measured from well- top to water level)	(Signed) (Signed) Lice	150 140 226	U-5
T	lme Water Level Time Water Level Time Water Level	Contractor's		٠.
_		No. HU hbAUDI 201 Jano 7/20		_1997
		(USE ADDITIONAL SHEETS IF NECES	SARY)	
	Date of lest 7/19/97		<del>-</del>	
	Baller test	Ecology is an Equal Opportunity and Affirmative Action		
	Artesian flowg.p.m. Date	cial accommodation needs, contact the Water Resource	es Progran	n at (206)
	Temperature of water Was a chemical analysis made? Yes No 🗌	407-6800. The TDD number is (206) 407-6006.		

ermiț	No. 9161 No. 8485 STATE OF WASHIN DEPARTMENT OF CON- DIVISION OF WATER R	SERV	ATION	
WELL Record Source	LOG by Driklers 1987 t.l Drillers Record			
	n State of WASHINGTON unty. Okangon	-0	p /2	
Ar Ma	D			
NW Drilling	14 SW 4 sec 12 T 37N, R27. W 7 Co. Tonasket Ready-Mix,	Iņ.	Diagram of	Section
Ad	dress Tonasket, Washingto	n		
Owner	Robert M. Nixon dress Tonasket, Washington		mite T	, 19 00
Land s	urface, datum fi above 3' Date June 18, 19	68	Dims 4	8" x 1,2
CORRE- LATION	MATEGIAL		From (feet)	To (feet)
(Trailer If maker below la- if feasible	inscribe driller's terminology literally but a praphr and water-bearing, so what, and record static level ad-surface datum unless otherwise indicated. Corre Following log of materials list all cusings perfective arrangements.	ise as i il repo clate w prationi	necuseary in ortid Give d with stratigin a sarrens, etc	purentheses coths in feet phic column,
	District Colors			
	Dirt & Clay Gravel		0 4	10
	Clay		10	10'6"
	Gravel		10'6"	12'
	Gravel packed from 6 to	o <u>1</u> .	2'	
	Yield: 100 gpm with 6'	DD	after	12 hrs
	Slow final recovery June 18, 1968	_		
		Sheet	of	_ sheets

\*

	STATE OF WASHINGTO DEPARTMENT OF CONSERVA AND DEVELOPMENT	ATION	(
WELL		1A 4	064.
Date	, , , , , , , , , , , , , , , , , , , ,	·	94
	by N. M. Vernier		
Source	Driller's Record		
Locatio	m State of WASHINGTON		
	unty Okanogan		
•	ea	-  -	]
	D		
N	V.4 SE.4 secl T 37N, R 27.	Dlagram of	Section
	Co. N. M. Vernier		
Ad	dress . Tonasket, . Washington.		
	thod of Drilling Dug Date		
	N. M. Vernier		
	dress Tonasket, Washington		
	urface, datum ft above below	- •	
CORRE- LATION	Matrial	CHICKNESS (feet)	Derrii (feet)
LATION	MATERIAL  Inscribe driller's terminology literally but paraphrone as a laid water-bearing, so state and record static level if report d-surface datum unions otherwise indicated. Correlate with the following log of materials, list all casings, perforations,	(feet)	(feet)
LATION	material  nacribe driller's terminology interally but paraphrone as a al water-bearing, so state and record static level if repor d-surface datum unions otherwise indicated. Correlate wi e. Following log of materials, list all casings, perforations,	(feet)	(feet)
LATION	MATERIAL	(feet)	(feet)
LATION	material  nacribe driller's terminology interally but paraphrone as a al water-bearing, so state and record static level if repor d-surface datum unions otherwise indicated. Correlate wi e. Following log of materials, list all casings, perforations,	(feet)	(feet)
LATION	material but paraphress as a major water-bearing, so state and record state level if repord-surface datum unless otherwise indicated. Correlate with a Following log of materials, list all casings, perforations,	(feet)	(feet)
LATION	material but paraphress as mail water-bearing, so state and record state level if report districted attain unless otherwise indicated Correlate with Following log of materials, list all casings, perforations, Not known	(feet)	(feet)
LATION	material driller's terminology interally but paraphrone as mall water-bearing, so state and record state level if reported surface datum unless otherwise indicated. Correlate with e Following log of materials, list all casings, perforations, Not known  Pump Test:  Dia: 15! X 36!!	(feet)	(feet)
LATION	material but paraphrase as mall water-bearing, so state and record state level if report distract distract devel in report distract distract distract with the following log of materials, list all casings, perforations,  Not known  Pump Test:  Dia: 15' X 36''  SWL: 5'	(feet)	(feet)
LATION	material but paraphrase as mail water-bearing, so state and record state level if report distract distant unless otherwise indicated. Correlate with the following log of materials, list all casings, perforations, Not known  Pump Test:  Dia: 15' X 36''  SWL: 5'  DD: 7'	(feet)	(feet)
LATION	material driller's terminology interally but paraphrens as an all water-bearing, so state and record static level if report desurace datum unless otherwise indicated. Correlate with the Following log of materials, list all ensures, perforations,  Not known  Pump Test:  Dia: 15' X 36"  SWL: 5'  DD: 7'  Yield: 160 g.p.m.	(feet) cccessary, in ted Give e th strattgra servens, etc	(feet)
LATION	marking but plans before the minimum of the marking but plans before as a mal water-bearing, so state and record state level if reported surface default unless otherwise indicated. Correlate with the marking log of materials, list all casings, perforations, not known  Pump Test:  Dia: 15' X 36"  SWL: 5'  DD: 7'  Yield: 160 g.p.m.  Casing: 36" dia well curb	(feet)  cccessury, in ted Gave a th stratigra screens, etc	parenthoses epiths in feet phic column, c )
LATION	material driller's terminology interally but paraphrens as mall water-bearing, so state and record static level if reported surface datum unions otherwise indicated. Correlate with Following log of materials, list all casings, perforations,  Not known  Pump Test: Dia: 15' X 36"  SWL: 5' DD: 7'  Yield: 160 g.p.m.  Casing: 36" dia well curb	(feet)  cccessury, in ted Gave a th stratigra screens, etc	parenthoses epiths in feet phic column, c )
LATION	marking but plans before the minimum of the marking but plans before as a mal water-bearing, so state and record state level if reported surface default unless otherwise indicated. Correlate with the marking log of materials, list all casings, perforations, not known  Pump Test:  Dia: 15' X 36"  SWL: 5'  DD: 7'  Yield: 160 g.p.m.  Casing: 36" dia well curb	(feet)  cccessury, in ted Gave a th stratigra screens, etc	parenthoses epiths in feet phic column, c )
LATION	material driller's terminology interally but paraphrens as mall water-bearing, so state and record static level if reported surface datum unions otherwise indicated. Correlate with Following log of materials, list all casings, perforations,  Not known  Pump Test: Dia: 15' X 36"  SWL: 5' DD: 7'  Yield: 160 g.p.m.  Casing: 36" dia well curb	(feet)  cccessury, in ted Gave a th stratigra screens, etc	parenthoses epiths in feet phic column, c )
LATION	material driller's terminology interally but paraphrens as mall water-bearing, so state and record static level if reported surface datum unions otherwise indicated. Correlate with Following log of materials, list all casings, perforations,  Not known  Pump Test: Dia: 15' X 36"  SWL: 5' DD: 7'  Yield: 160 g.p.m.  Casing: 36" dia well curb	(feet)  cccessury, in ted Gave a th stratigra screens, etc	parenthoses epiths in feet phic column, c )
LATION	material driller's terminology interally but paraphrens as mall water-bearing, so state and record static level if reported surface datum unions otherwise indicated. Correlate with Following log of materials, list all casings, perforations,  Not known  Pump Test: Dia: 15' X 36"  SWL: 5' DD: 7'  Yield: 160 g.p.m.  Casing: 36" dia well curb	(feet)  cccessury, in ted Gave a th stratigra screens, etc	parenthoses epiths in feet phic column, c )
LATION	material driller's terminology interally but paraphrens as mall water-bearing, so state and record static level if reported surface datum unions otherwise indicated. Correlate with Following log of materials, list all casings, perforations,  Not known  Pump Test: Dia: 15' X 36"  SWL: 5' DD: 7'  Yield: 160 g.p.m.  Casing: 36" dia well curb	(feet)  cccessury, in ted Gave a th stratigra screens, etc	parenthoses epiths in feet phic column, c )

### STATE OF WASHINGTON DEPARTMENT OF CONSERVATION AND DEVELOPMENT

WELL	roc	No AI	pli	<u>,4063                                    </u>
	oril 17, ,19.5 .2	<u> </u>	rt.	ا لولاده
Record	by. N. M. Vernier		!	
Source	Driller's Record.			
Locatio	n State of WASHINGTON		1	
Con	unty. Okanogan			
Are	_	. –	<del>  </del>	
Ma	P			
SE	E 14 SW 14 secl T 37 N, R 27.	E T	Diagram	of Section
Drilling	coN. M. Vernier			
, Ad	dress			
	thod of Drilling Dug			7,,1952
	N. M. Vernier			•
	dress Tonasket, Washingt	ton		
Land s	urface, datum			
_			Tuickness	B DEPTH (feet)
CORRE- LATION  (True If muters	MATERIAL  necrube driller's terminology literally but parrial water-bouring, so stute and record state; but any conditions of the state	aphrase as	(feet)	
LATION	MATERIAL  necribe driller's terminology literally but purial water-bearing, so state and record state lid-surface datum unless otherwise indicated Following log of materials, list all ensurgs, j	aphrase as evel if re Correlate perforation		
LATION		aphrase as evel if re- Correlate perforation		
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LATION	nscribe driller's terminology literally but part all water-bearing, so state and record state 1 d-surface datum unless otherwise indicated 2 Following log of materials, list all ensures, 1 Coarse Gravel	aphrase a evel if re Correlate perforation	orted Give with strateg	in parentheses depths in feet raphic column, itc )
LATION	nscribe driller's terminology literally but part all water-bearing, so atute and record static lid-surface datum unless otherwise indicated a Following log of materials, list all ensurgs, part of the Coarse Gravel  Pump Test:	aphrase as evel if re- Correlate perforation	orted Give with strateg	in parentheses depths in feet raphic column, itc )
LATION	nscribe driller's terminology literally but para al water-bearing, so state and record state is desurface datum unless otherwise indicated Following log of materials, list all ensings, parameters of the Coarse Gravel  Pump Test:  Dia: 101 X 4811	aphrase a evel if re Correlate perforation	orted Give with strateg	in parentheses depths in feet raphic column, itc )
LATION	nscribe driller's terminology literally but part all water-bearing, so state and record state 1 d-surface datum unless otherwise indicated 2. Following log of materials, list all ensings, 1 Coarse Gravel  Pump Test:  Dia: 10' X 48"  SWL: 1'	aphrase a evel if re Corrolate perforation	orted Give with strateg	in parentheses depths in feet raphic column, itc )
LATION	nscribe driller's terminology literally but parally determined and record static desurface datum unless otherwise indicated Following log of materials, list all ensings, parallel Coarse Gravel  Pump Test:  Dia: 10' X 48''  SWL: 1'  DD: 6'	aphrase a evel if re Correlate perforatio	orted Give with strateg	in parentheses depths in feet raphic column, itc )
LATION	nscribe driller's terminology literally but purial water-bearing, so atute and record static lid-surface datum unless otherwise indicated rollowing log of materials, list all ensings. I Coarse Gravel  Pump Test: Dia: 10' X 48"  SWL: 1'  DD: 6'  Yield: 20 g.p.m.		p necessary, pointed Give with straight ne, seroens, e	n parentheses dopths in feet raphic column, itc )
LATION	nscribe driller's terminology literally but parall water-bearing, so state and record state? desurface datum unless otherwise indicated: Following log of materials, list all ensings, just all ensings, just all ensings. I coarse Gravel  Pump Test: Dia: 10' X 48" SWL: 1' DD: 6' Yield: 20 g.p.m. Casing 48" dia Well	l cur	pecessary, posted Great States with strates on the Country of the	n parentheses dopths in feet raphic column, etc.)
LATION	nscribe driller's terminology literally but parall water-bearing, so state and record state? desurface datum unless otherwise indicated: Following log of materials, list all ensings, just all ensings, just all ensings. I coarse Gravel  Pump Test: Dia: 10' X 48" SWL: 1' DD: 6' Yield: 20 g.p.m. Casing 48" dia Well	l cur	p necessary, pointed Give with straight ne, seroens, e	n parentheses dopths in feet raphic column, etc.)
LATION	Pump Test: Dia: 10' X 48" SWL: 1' DD: 6' Yield: 20 g.p.m. Casing 48" dia Well	l cur	precessary, posted Give with strate page 100 100 100 100 100 100 100 100 100 10	n parentheses dopths in feet raphic column, stc)
LATION	Pump Test: Dia: 10' X 48" SWL: 1' DD: 6' Yield: 20 g.p.m. Casing 48" dia Well Perforations: Regui	l cur	bing (	n parentheses dopths in feet raphic column, stc)
LATION	Pump Test: Dia: 10' X 48" SWL: 1' DD: 6' Yield: 20 g.p.m. Casing 48" dia Well Perforations: Regul	l cur	precessary, posted Great Strategrees, et al. Comments of the C	n parentheses dopths in feet raphic column, stc)  10  concret
LATION	Pump Test: Dia: 10' X 48" SWL: 1' DD: 6' Yield: 20 g.p.m. Casing 48" dia Wel Perforations: Regul Rottom Ring irain' forced wir	l cur	precessary, posted Great Strategrees, et al. Comments of the C	n parentheses dopths in feet raphic column, stc)  10  concret
LATION	Pump Test: Dia: 10' X 48" SWL: 1' DD: 6' Yield: 20 g.p.m. Casing 48" dia Wel Perforations: Regul Rottom Ring irain' forced wir	cur rom lar w	precessary, posted Great Strategrees, et al. Comments of the C	n parentheses dopths in feet raphic column, stc)  10  concret

Arteman flow g.p.m.

Temperature of water

WATER WELL REPORT

Start Card No. M074339 Unique Well I.D. # ACM907

Date 03/13/97

STATE OF WASHINGTON Water Right Permit No. ONNER: Name MICHELE, KENNETE Address PO BOX 45 TOHASKET, MA 98855-(2) LOCATION OF WELL: County OKANOGAN · ME 1/4 NW 1/4 Sec 12 T 37 N., R 278 HM (2a) STREET ADDRESS OF WELL (or nearest address) FANCHER RD.. (3) PROPOSED USE: DOMESTIC (10) WELL LOG (4) TYPE OF WORK: Owner's Number of well | Formation: Describe by color, character, size of marerial (If more than one) and structure, and show thickness of aquifers and the kind Method: ROTARY HEN MELL and nature of the material in each stratum penetrated, with ------- at least one entry for each change in formation. Diameter of well 5 inches (5) DIMENSIONS: Depth of completed well 100 ft. MATERIAL | FROM | TO Drilled 100 ft. 1 0 1 2 (6) CONSTRUCTION DETAILS: SAND GRAVEL 1 2 1 15 \* Dia. from +1 ft. to 58 Casing installed: 6 ft. | CLAY GRAVEL MELDED " Dia. from 40 ft. to 100 ft. LINESTONE GREEN MEDIUM 4 53 68 " Dia. from ft. | LIMESTONE GRAY W/WATER ít. Lo 68 1 70 70 \_\_\_\_\_\_ ----- LIMESTONE GRAY MEDIUM 100 Perforations: NO 100 Type of perforator used SIZE of perforations in. by in. perforations from ft. to ft, ft. to ft. perforations from perforations from ft. to ft. Screens: NO Manufacturer's Name Model No. Type alot size from ft. to Diam. fr. Diam. slot size from ft. to Gravel packed: NO Size of gravel Gravel placed from ft. to ft. ------Surface seal: YES To what depth? 19 ft. Material used in seal ARMICHITE Dld any strata contain unusable water? YES DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE Type of water? BURFACE WATER Depth of strate 10-15 ft. Method of sealing strata off CASING (7) PUMP: Manufacturer's Name Type NONE H.P. Land-surface elevation (B) WATER LEVELS: above mean sea level ... Static level ft. below top of wall Date 02/21/97 lbs. per square inch Date Artesian Pressure Artesian water controlled by CAP Work started 02/21/97 Completed 02/21/97 (9) WELL TESTS: Drawdown is amount water level is lowered below | WELL CONSTRUCTOR CERTIFICATION: static level. I constructed and/or accept responsibility for con-Was a pump test made? NO If yes. by whom? struction of this well, and its compliance with all ft. drawdown after Yield: gal./min with hrs. 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 Tlme Water Level | NAME FOGLE FURP & SUPPLY, INC. [Person, firm, or corporation] (Type or print) ADDRESS 316 W 5TH Date of test / / (SIGNED) Mike Aran / Jm License No. 1451 ft. drawdown after Bailer test gal/mlm. hrs. Air test 15 gal/min. w/ stem set at 98 ft. for .5

Date

Contractor's

Was a chemical analysis made? NO | Registration No. FOGLEPEO9514

Dep Sec	Original and First Copy with striment of Ecology ond Copy — Owner's Copy 787879 STATE	
_(1).	OWNER: Num Todd Schaller	^
, 21	LOCATION OF WELL: County Okanogan	_
٠, ٠	STREET ADDRESS OF WELL (or nearest activess)	
(3)	PROPOSED USE: DX Domestic Industrial D Municipal D Infigration Test Wall D Other D	
(4)	TYPE OF WORK: Owner's number of well	
	Abandoned   New well X Method: Dug   Bored   Despend   Cable   Drivent Reconditioned   Rotary   Jeted	3
(5)		
	Drilled 40   19et. Depth of completed well 40	<u> </u>
(6)	Casing Installed: 6 Diam. from +1 ft. to 36  Welded Diam. from ti. to Liner Installed Diam. from ft. to Threaded Diam. from ft. to	<u> </u>
_	Perforations: Yes X No Type of perforations In. by perforations from In. by	
	perforations fromft. toft. toft. to	
_ )	Screens: Yes No No Manufacturer's Name  Type Telescoping Model No.  Diam 5 Stot size 30 from 35 ft. to 40  Diam. Stot size from 1t. to	n
_	Gravel packed: Yes No S Size of gravel	n
	Surface seal: Yes No To what depth? 18  Material used in seal Bentonite  Did any strata contain unusable water? Yes No X  Type of water? Depth of strain  Mathod of sealing strata off	_
(7)	PUMP: Mamulacturer's Name	_
(8)	WATER LEVELS: Land-auritable elevation above mean see level  Static level 15 th below top of well Data Artesian pressure to be per square inch Date  Artesian water as controlled by (Cap, valve, etc.)	t
(9)	WELL TESTS: Drawdown is emount water level is lowered below static level	
	Was a pump test made? Yee No flyes, by whom?	_hm.
_	F1 15 11	
-	Recovery data (time taken as zero when pump birmed off) (water level measured from the water fewel)	n well
	top to water level)  Time Water Level Time Water Level Time Water L	leve

Oal,/min with

Temperature of water

ECY 050-1-20 (9/93) \* \* 1

gel /min, with stem set at

it. drawdown ster

No 🔲

Dale

· Was α chemical enalysis made? Yes 🔲

I DEDADT	Start Card No	o₩_	050235	5
L REPORT	UNIQUE WELL			
ASHINGTON Water Right Permit A				
		0044		-
Rt 1 Box 214. Orovi	TIE, Ma 4	0044		
- SE 1/4 N	V 1/4 Sec 12	T3	7_N.R_	27_wu.
(10) WELL LOG or ABANDONN				
Formation: Describe by color, character, size and the kind and nature of the material in exchange of information.	or unseren and extra	ed with	I pers pue s	intry for each
MATERIAL	· .		FROM	ТО
_Top_Soil			_0	_3
Sand, Gravel			3	_16
Wet Brown Clay, Some			16.	29
_Sand, Gravel, Water			29	41
- <u> </u>				
		·		
8 2 8		١!		
1 (2) policies of manifestation		<u> </u>		
1,3:	<del>-</del>	1		
	resorting	1,		
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5 TARTHERT O				
CENTRAL PEGA	12527	-		
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	_			
Work Staned11-28-95.	19 Completed	11-3	0-95	10
Work Staned11-28-95.		11-3	0-95	19
WELL CONSTRUCTOR CERTIF	CATION:			
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responsitions with all Washington w	ICATION: ionsibility for con left construction is	struction Landards	of this wo	ll, and its
WELL CONSTRUCTOR CERTIF	ICATION: ionsibility for con left construction is	struction Landards	of this wo	ll, and its
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responspilance with all Washington with information reported above are	ICATION: consibility for con- self construction of true to my bost in	struction landarda inowledg	of this we Materials and balls	ll, and its
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responsitions with all Washington w	ICATION: consibility for con- self construction of true to my bost in	struction Landards	of this we Materials and balls	ll, and its
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responspilance with all Washington with information reported above are	ICATION: consibility for con- self construction of true to my bost in	struction landards landwiedg	of this we Materials and balls	ll, and its
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responsitance with all Washington with information reported above are  NAME Okanogan Driving  Address Rt 2 Box 395	CATION: constbility for con- eff construction of true to my bost in	struction landardz (nowledg (1775 CR	of this we Materials and belie PRINT)	il, and its used and i
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responsible with all Washington with information reported above are  NAME  Okanogan Reservice.	CATION: constbility for con- eff construction of true to my bost in	struction landardz (nowledg (1775 CR	of this wo Materials e and belie	il, and its used and
WELL CONSTRUCTOR CERTIFICATION I constructed and/or accept responsibilities with all Washington with information reported above are NAME Okanogan Private Address Rt 2 Box 395  (Signed) Rt 2 Box 395	CATION: constbility for con- eff construction of true to my bost in	struction landardz (nowledg (1775 CR	of this we Materials and belie PRINT)	il, and its used and
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responsion with all Washington with information reported above are  NAME Okanogan Exercises  Address Rt 2 Box 395  (Signed) Live Medicing the Contractor's Registration	CATION: consibility for con- eff construction of true to my bost is construction. Chanogan	struction landardz inowiedg (TYPE 08 Wal Doens	of this we Materials and belie PRINT)	II, and its used end I .
WELL CONSTRUCTOR CERTIFICATION OF CONSTRUCTOR CERTIFICATION OF CONTROL OF CON	CATION: constbility for con- eff construction of true to my bost in	struction landardz inowiedg (TYPE 08 Wal Doens	of this we Materials and belie PRINT)	il, and its used and i
WELL CONSTRUCTOR CERTIF  I constructed and/or accept responsion with all Washington with information reported above are  NAME Okanogan Exercises  Address Rt 2 Box 395  (Signed) Live Medicing the Contractor's Registration	CATION: consibility for construction of true to my bost in the tomy bost in the true tom	struction landardz inowiedg inyre on Wal Licens	of this wo Majorials e and belie PRINT) 98840 e No 144	II, and its used end I .

407-6600 The TDD number is (206) 407-6006.

Water Well Report Original - Ecology, 1st copy - owner, 2nd copy - driller	Current Notice of Intent No. 2326 /	4	
E C O L O C Y	Unique Ecology Well ID Tag No. 4	. •	179
Construction/Decommission Construction 258590	Water Right Permit No.		<i></i>
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name	10031	1 Hom
of Intent Number	Well Street Address Hwy 97	, ,	1401
PROPOSED USE: Domestic Industrial Municipal DeWater Irrigation Test Well Other	City Tonasko County C	Kano	
TYPE OF WORK: Owner's number of well (if more than one)	- Location <u>SA</u> /4-1/4 <b>.S</b> A/4 Sec <b>9</b> Twn <b>37</b>	FA7 EWM	erreic
New well Reconditioned Method: Dug Bored Driven Deepened Cable Rotary Detted	Lat/Long (s, t, r Lat Deg Lat	Min/Sec _	и Ш <sup>опс</sup>
DIMENSIONS: Diameter of well inches, drilledft.  Depth of completed wellft.	still REQUIRED ) Long Deg Lo	ng Min/Sec	:
CONSTRUCTION DETAILS	Tax Parcel No. <u>3727090</u> 0	'29 <u> </u>	
Casing Installed:         Welded         6         " Diam. from 12         ft. to 97         ft. to 97	CONSTRUCTION OR DECOMMISSION	ON PROCED	URE
Perforations: Yes No Type of perforator used	Formation: Describe by color, character, size of material and nature of the material in each stratum penetrated, with at least information indicate all water encountered. (USE ADDITION	one entry for ea	ach change of
SIZE of perfsin, byin, and no, of perfsfromft, toft.	MATERIAL	FROM	TO TO
Screens: No N.KPac Location 9/	TOP SOIT	0	6
Type   Model No.   Diam.   Slot size   30   from   97   ft. to   97   ft.	Silty SAND	6	24
Diam.         Slot size         from         ft. to         ft.           Gravel/Filter packed:         Yes         No         Size of gravel/sand	SAND Cherry	24	41
Surface Seal: : No To what depth? ft.	Clay -	41	45
Material used in seal Senting III Sea No  Did any strata contain unusable water? Yes No	1/100 / 1000 / 1.104	11 0000	11.00
Did any strata contain unusable water? Yes No Type of water? Depth of strata	CITT Gran WAR	7.5	4
Method of sealing strata off	Fine sport	48	72
PUMP:         Manufacturer's Name           Type:         H.P.	Comell	72	75
WATER LEVELS: Land-surface elevation above mean sea levelft.	- (34 104 )	76	
Static level 26 ft. below top of well Date 3-16-7	Kinc SAnd	75	83
Artesian pressure lbs. per square inch Date  Artesian water is controlled by	Corse SANd	C/2	88
(cap, valve, etc.)	Corse Sittle	85_	7
WELL TESTS: Drawdown is amount water level is lowered below static level	Gravel	88	97
Was a pump test made? Yes So If yes, by whom?  Yield: gal/min, with ft, drawdown after hrs.			
Yield:gal./min. w(thft, drawdown afterhrs.			
Yield: gal/inin. with ft. drawdown after hrs.  Recovery data (time taken as zero when pump turned off) (water level measured from well			ļ
top to water level)	TOT OF ECO	ļ <u>-</u>	
Time Water Level Time Water Level Time Water Level	Mer	<del>  -</del>	<del>                                     </del>
	APR 1 6 mg	1	<del>   </del>
Date of test 3-/6-07	(2007		
Bailer testgal./min. withft. drawdown afterhrs.			
Airlest 7.0 gal./min. with stem set at 95 ft. for 4 hrs.	ALDION ALL		
Artesian flow g.p.m Date	14,74,55		ļ <u>.</u>
Temperature of water Was a chemical analysis made?	Start Date 3 -/3-07 Complet	ted Date 3	-16-07
WELL CONSTRUCTION CERTIFICATION: 1 constructed and/or ac Washington well construction standards. Materials used and the informat	ccept responsibility for construction of this well, an	d its complia	ance with all
<b>B</b> 11 em	Drilling Company Moonen		44
Driller/Engineer/Traince Signature South Province	Address PoBox 3652		
Driller or trainee License No	City, State, Zip Ohran U	17 98	188
If TRAINEE.	Contractor's	) _	11 "
Dritter's Licensed No.	THEREST UND	_ Date	10-0
Driller's Signature	Ecology is an Equal Opportunity Employer.	ECY 05	0-1-20 (Rev 2/03)

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WATER WELL REPORT	CURRENT Notice of Intent No	
Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller	Unique Ecology Well ID Tag No	R405
Construction/Decommission ("x" in circle) 346137	Water Right Permit No.	
O Decommission ORIGINAL CONSTRUCTION Notice		
of Intent Number	Property Owner Name AMANOE	P MALH
PROPOSED USE: Domestic Industrial Municipal	Well Street Address 3 TEMB	1 ROAD
DeWater Irrigation Test Well Other	City TONASKET County:	
TYPE OF WORK: Owner's number of well (if more than one)	Location SE 1/4 1/4 SE 1/4 Sec 09	
New Well Reconditioned Method: Dug Bored Driven  Cable Rotary Jetted		Or WWM
DIMENSIONS: Diameter of well inches, drilled ft.	Lat/Long: Lat Deg	Lat Min/Sec
Depth of completed well	REQUIRED) Long Deg	Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No. 372709002	79
Casing Mwelded 6 Diam from +2 ft to 93/20	CONSTRUCTION OR DECOMMISSION	
Installed: Liner installed Diam. fromft. toft	Formation: Describe by color, character, size of makind and nature of the material in each stratum per	aterial and structure, and the
Threaded Total ft. to ft	entry for each change of information. Indicate all v	vater encountered.
Perforations: Yes No	(USE ADDITIONAL SHEETS IF NECESSARY.)	<del></del>
Type of perforator used	MATERIAL	
Screens: Yes No K-Pac Location 93	SAND, BRN, FINE	0 26
Manufacturer's Name MONOFLEX	SAND, BEN, FINE, DAMP	26 38
TypeSTAINLESSModel No	Clay, SILT, CRY, WET	38 58
Diam. 6 Slot Size 12 from 93 ft. to 98 ft.	SILT, SAND, GRAVELS	.58
DiamSlot Sizefromft. toft.	WINTER	98
Gravel/Filter packed: Yes No Size of gravel/sand		· · · · · · · · · · · · · · · · · · ·
Materials placed fromft. toft.		
Surface Seal: Yes No To what depth? 18 ft		
Materials used in seal BENTONTE AND LO" LASING  Did any strata contain unusable water?   Yes No		· · · · · · · · · · · · · · · · · · ·
Type of water?Depth of strata		
Method of sealing strata off		
PUMP: Manufacturer's Name		
Type:H.P		· · ·
WATER LEVELS: Land-surface elevation above mean sea levelft.		
Static level 34 ft. below top of well Date 7-7-09	<b>P P P</b>	
Artesian pressurelbs. per square inch Date  Artesian water is controlled by	RECEIV	ED
(cap,valve, etc.)	"" 20	,
WELL TESTS: Drawdown is amount water level is lowered below static level.	JUL 40 200	9
Was a pump test made? Yes No If yes, by whom?  Yield:gal/min. withft. drawdown afterhrs.	DEPARTMENT OF ECOLOGY - CENTRAL REC	
Yield: gal/min. with ft. drawdown after hrs.	Canal VI VI	ONAL OFFICE
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 gal/min. with stem set at ft. for hrs.		· ·
Artesian flow	Start Date 7-6-09 Completed Da	ne 7-7-09
		<u> </u>
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility with the construction standards. Materials used and the information responsibility of the construction of the	enomed above are true to my best knowledge at	nd belief.
Driller Engineer Trainee Name (Print) JON RICARD		
Driller/Engineer/Trainee Signature Sancoucl	<ul> <li>Ricard Drilling Inc.</li> <li>9 Pleasant View Dr.</li> </ul>	
	Republic, WA 99166	
Driller or Trainee License No. 2391	Contractor # RICARDI920C	D
If trainee, licensed driller's	_ Date <u>7-2-2009</u>	_
Signature and License no.	Ecology is an Equal Opportunity Employer.	ECY 050-1-20 (Rev 4/01)

# WATER WELL REPORT STATE OF WASHINGTON

Application	No.
ppacation	-102

Permit N	0	 <i>[</i>

(1) OWNER: Name Arnold Kessler	Address HAVI / Ah Rt. Tonache	AWN
(2) LOCATION OF WELL: County OKANOGAN	- NN, NN, Sec 14 237	276.
Bearing and distance from section or subdivision corner		 
(3) PROPOSED USE: Domestic Industrial   Municipal	(10) WELL LOG:	
(3) PROPOSED USE: Domestic M Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐		
Ingador   Test were   Oner	Formation: Describe by color, character, size of material and show thickness of aquifers and the kind and nature of the n stratum penetrated, with at least one entry for each chang	naterial in each
(4) TYPE OF WORK: Owner's number of well (if more than one)		OM TO
New well Method: Dug  Bored		0 5
Deepened		3 89
01/		9 300
(5) DIMENSIONS: Diameter of well inches.		1
Drilled 300 ft. Depth of completed well 390 ft	DRY	
(6) CONSTRUCTION DETAILS:		
Casing installed: 8 "Diam. from +/ ft. to 87 ft.		
Threaded Diam. from the to to the the		
Welded Diam. from ft. to ft.		
Parlametica a A		
Perforations: Yes No   Torch		
SIZE of perforations on in. by in.		<del></del> -
Derforations from 85 ft. to 87 ft.		<del></del>
perforations from ft. to ft.	D 5 0	<del></del>
perforations from	1 KERETYEN	
Screens: Yes No No		<del></del>
Manufacturer's Name	NOV	
Type Model No	NOV 10 1877	
Diam. Slot size from ft. to ft.	D573070	
`\	Comment of the state of the sta	
F Gravel packed: Yes No Size of gravel:	- 11-1-1-1 - 1-1-1 OE	
Gravel placed fromft. toft.		
Surface seal: Yes No To what depth? It.		
Material used in scal PhDD/ing Clay	]	
Did any strata contain unusable water? Yes No	1- PECELVED	—- <del>-</del>
Type of water? Depth of strata Method of sealing strata off	REOLIVED	
	NOV 1 4 1977	
(7) PUMP: Manufacturer's Name.	THE PROPERTY OF FOOLOGY	
Type: HP	DEPARTMENT OF ECOLOGY	<del></del>
(8) WATER LEVELS: Land-surface elevation above mean sea level		
Static level NONE ft. below top of well Date.		
Artesian pressurelbs. per square inch Date		
Artesian water is controlled by (Cap, valve, etc.)		
lowered below static level	Work started 11-2, 19.77 Completed 11-	- 4 19 77
Was a pump test made? Yes ☐ No ☐ If yes, by whom?	WELL DRILLER'S STATEMENT:	
" " " " "		
	This well was drilled under my jurisdiction and the true to the best of my knowledge and belief.	inis report is
Recovery data (time taken as zero when pump turned off) (water level	1 2 2 10	,
measured from well top to water level)  Time Water Level   Time Water Level   Time Water Level	INCOME.	. Inc.
The Part Devel	(Person, firm, or corporation) (Type	or print)
	Address Box 1499 CDA, LAA.	
	- N.O.	
Date of test	[Signed] These O. Jewis	
Sailer test gal/min. with ft. drawdown after hrs.	(Well Driller)	
Artesian flow	License No 718 Date 1/-4	19 77
The state of the s		

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

Application I	No.
---------------	-----

Third Copy — Driller's Cepy STATE OF	WASHINGTON Permit No	
(1) OWNER: Name (Isthua Zachman	Address Box 183 Tonasket Un.	98855
(2) LOCATION OF WELL: County Okanagon	SW, SE 1 Sec 11 T.3	7 N. 127 BUM
ng and distance from section or subdivision corner		<del></del>
(3) PROPOSED USE: Domestic X Industrial   Municipal	(10) WELL LOG:	
Irrigation   Test Well   Other	Formation: Describe by color, character, size of muteria show thickness of aquifers and the kind and nature of	l and structure, and the material in each
(4) TYPE OF WORK: Owner's number of well (if more than one)	stratum penetrated, with at least one entry for each c	hange of formation
New well 🤦 Method: Dug 🗌 Bored 🗎	Sand	FROM TO
Deepened Cable Driven Reconditioned Rotary 10 Jetted C	Decomposed Granite	10 18
(E) DIMENSIONS.	Broken Gray Granite	18 50
Drilled / 25 ft. Depth of completed well /25 ft.	Soft Gray Granite	50 125
(6) CONSTRUCTION DETAILS:		
Casing installed: 6 "Diam from + 1 ft to 20 ft		<del></del>
Threaded		
Perforations: Yes   No 😭		
Type of perforator used		<del></del>
perforations from ft. to ft.	I — RECEIVED —	
perforations from ft. to ft. to ft.		
Screens: Yes D No &	——————————————————————————————————————	
Manufacturer's Name Model No	- negative to a ESOLOGY	
Diam. Slot size from ft. to ft.	CENTRAL RESIDENCE OF FICE	
Diam. Slot size from it. to ft.		
Gravel placed from ft. to ft.	4	
Surface seal: Yes No To what depth? ft.	· · · · · · · · · · · · · · · · · · ·	10
Material used in seal Asen Tomale	Oen V	<i>U</i>
Did any strata contain unusable water? Yes No.	- Abrilland	<del>``\/)</del> —
Method of sealing strata off	Morthern Of Walls	<del>}                                    </del>
(7) PUMP: Manufacturer's Name	District Rose	
Type: H.P.	Office Position of the Contract of the Contrac	
(8) WATER LEVELS: Land-surface elevation above mean sea level	<u> </u>	<del>-</del>
Static level 50 ft. below top of well Date 6-5-78		
Artesian pressure		
(Cap, valve, etc.)		
(9) WELL TESTS: Drawdown is amount water level is lowered below static level	Work started. G. G. 1978 Completed. G	6 .78
Was a pump test made? Yes D No 💢 If yes, by whom?		, 1
Yield: gal./min. with ft. drawdown after hrs.	WELL DRILLER'S STATEMENT:	_3 47-: :-
0 0 0	This well was drilled under my jurisdiction a true to the best of my knowledge and belief.	na this report is
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	Dava Poilling To	<i>C</i> ,
Time Water Level Time Water Level Time Water Level	NAME (Person, firm, or corporation) (T	'ype or print)
	Address PO Box 659 Hayden Late	Idaho
7	$\cap$ $\circ$ $\bullet$	
Jate of test	[Signed] Jan Buchanan	
Bailer testgal/min. withft. drawdown afterhrs.  Artesian flowg.p.m. Date	gag (Well Driller)	6 28
Temperature of water . Was a chemical analysis made? Yes . No. 10	License No	, 19/0

The Department of Ecology does NOT Warranty the Data and/or the Intormation on this view report.

# WATER WELL REPORT

STATE OF WASHINGTON

Alight after the

Permit No.

1) OWNER: Name	
LOCATION OF WELL: County of the transfer of the Section of the Sec	N. R. A./W.N
earing and distance from section or subdivision content of any context and 30 feet out of the	<u> </u>
3) PROPOSED USE: Domestic [] Industrial [] Municipal [] [10) WELL LOG:	
Irrigation [] Test Well [] Other [] Formation: Describe by color, the solvent new show thickness of aguiters and the local in location	of the multiplier as
4) TYPE OF WORK: Owner's number of well	h bongs of formatter
MATERIAL  New well [] Method, Dug [] Bored []	FROM TO
Deepened	
Reconditioned [ Rotary   1 Jetted [	
5) DIMENSIONS: Diameter of well 12 inches.	
Drilled 50 at Depth of coupleted well 50 h	-   '
6) CONSTRUCTION DETAILS:	
Casing installed: Limit Dlam from Sulla n to _ 20 ft.	
Threaded D	
Weller of the state of the stat	A . I . A
Perforations: Yes [] No []	
Type of perforator used	-
SIZE of perforations	
perforations from ft. to ft.	
perforations from ft. to ft.	
Screens: yes   No	
Manufacturer's Name	
Type Model No.	
Dlam Slot size from ft to ft.	1000
Diam. Slot size from 11. to 12.	
Gravel packed: Yes No Size of gravel	
Gravel placed from ft. to ft.	1 3 1 1 1
Surface seal: Yes [] No [] To what depth?	
Wetseld legal to coal	
• Did any strata contain unusable water? Yes [] No []	
Type of water?	
1 4 1 4	
7) PUMP: Manufacturer's Name Achieston Type UF 0 100	
B) WATER LEVELS: Land-surface elevation above mean sea level.	
atic level ft. below top of well Date	
Artesian water is controlled by	
(Cap, valve, etc.)	
9) WELL TESTS: Drawdown is amount water level is	
iowered below static level  Work started 19	19
eld gal./min with tt drawdown after hrs. WELL DRILLER'S STATEMENT:	
This well was drilled under my jurisdiction	on and this report
" true to the best of my knowledge and belie	
ecovery 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   WARTER But AND The BUT AN	(Type or print) ?
	1.
Address	. N
Date of lest [Signed]	
The state of the s	
rtesian flow gal /min with ft. drawdown after hts.  rtesian flow g.p.m. Date  emperature of water Was a chemical analysis made? Yes D No D License No Date.	
Date	19
emperature of water	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
emperature of water	

	- D	e Da	d copy owner s copy	CLL REPORT Application No.	
	(	1)	OWNER: Name DAN DAIGLE	Address 30E WINESOP , TONASKET, L	ili
5,	4	V	LOCATION OF WELL: County O KANOGAN		Z' (
<u>,</u>		ŗ	ing and distance from section or subdivision corner		3
_	(:	3)	PROPOSED USE: Domestic 🕱 Industrial 🗀 Municipal 🗆	(10) WELL LOG:	Ī.,
Į	_		Irrigation   Test Well   Other	Formation: Describe by color, character, size of material and structure, an show thickness of aguifers and the kind and nature of the material in eac.	h
>	(	4)	TYPE OF WORK: Owner's number of well 2	stratum penetrated, with at least one entry for each change of formation  MATERIAL FROM TO	t. =
Ë			New well 😿 Method: Dug 🗆 Bored 🖸	750501 0 Z	-
_			Deepened	Brave, SAND, Coasse to 1, ve 2, 14	_
E 0	(	 5)	DIMENSIONS: Diameter of well 8 inches.	Geanite boulder 14 18	
<u> </u>	•		DIMENSIONS: Diameter of well 289 inches. Drilled 289 ft. Depth of completed well 289 ft.	Sano line SIII Blay 26 154	
Intormation	(	 3)	CONSTRUCTION DETAILS:	Shale Gravel, Clay, Beay 154	
Ĕ	•	•	Casing installed: 8 "Diam from 1 n. to 198 n.	Shalo Gay Frac water 193 199	;-
Ĕ			Threaded	Shale Gear Liem 199 256	-
<u>_</u>				Shale, Green, MAKO 256 279	_
the			Perforations: Yes No Diffich	Shale, Beay, Jum, Sec 1 279 289	-
ō			SIZE of perforations		-
and/or			3.2 perforations from 794 ft. to 78 ft.		_
ฮ			perforations from	l <del></del>	-
Data			Screens: Yes D No Z		_
			Manufacturer's Name	[ <del></del>	
the			Diam. Slot size from ft. to ft.		-
	_	į	Diam. Slot size from ft, to ft.	DECEIVED	_
ani			Gravel placed from ft. to ft.	1,20	-
Warranty			Surface seal: Yes No D To what depth? 20 n.	\ <del>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</del>	
ž			Material used in seal CONTONITY	1 (- 500. 7 )	-
$\vdash$			Did any strata contain unusable water? Yes No Type of water?		_
ž			Method of sealing strata off.		-
oes	(	7)	PUMP: Manufacturer's Name		_
မွ	_	_	Туре: Н.Р		-
	•	•	WATER LEVELS: Land-surface elevation above mean sea level		_
cology			c level 70 tt. below top of well Date 2/14/80		-
8			Artesian water is controlled by (Cap, valve, etc.)		-
Ų.	- (9	 3)	WELL TESTS: Drawdown is amount water level is		_1
t of		•	a pump test made? Yes \( \text{No } \text{X} \) If yes, by whom?	Work started 2-11- 1980 Completed 2-14- 1980	
e	<u>Y</u> i	eld .,	: gal./min. with ft. drawdown after hrs.	WELL DRILLER'S STATEMENT:	
rtment	_	.,	n "	This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.	5
par	Re	eco r	very data (time taken as zero when pump turned off) (water level neasured from well top to water level)	All'al De'll' in & Doubles A-	-
Ö			me Water Level Time Water Level Time Water Level	(Person, firm, or corporation) (Type or print)	ے شاہد
Q)				Address P. Q. Box 607, Ornat, War 988	41
드	•	<b>)</b>		DO OUT ON	•
2	ج ع	ite	Pate of test gal/min. with ft. drawdown after hrs.	[Signed] (Well Driver)	
	٨١	rte	slan flow	License No. 0973 Date 2-16 198	2
	-1		A water-water and a channel method planet year 100 H		

ECY 050 1 20 (9/93) f

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File Original and First Copy with Department of Ecology

JUL 0 2 2003 WATER WELL REPORT

Start Card No <u>W149773</u>
UNIQUE WELL I D \* <u>A9mo 22</u>

	Ind Copy — Owner's Copy DEPARTMENT OF ECOLOGY STATE OF W	ASHINGTON Water Right Permit No		
(1)	OWNER Name Davill 7 refinan Addr	- Orace a		
(2)	LOCATION OF WELL County O paragrams ta	482 PT 101 6W 1/4 SW 1/4 SOC 10 T3	7_n ₽	27 wm
(2a)	STREET ADDRESS OF WELL (or nearest address)			
(3)	PROPOSED USE Domestic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE D		
<u></u>	□ 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 change of information	at least one	entry for each
(4)	(If more than one)	MATERIAL	FROM	то
	Abandoned	lop soil	Ø.	1
(5)	DIMENSIONS Diameter of well inches	Sand & rock	7	3
	Drilled 89 feet Depth of completed well 89 ft	and of class	3	10
(6)	CONSTRUCTION DETAILS		/_	2 0
	Casing installed Diam from ft to ft Welded Diam from ft to ft	Clay	10	20
	Welded         ■         Diam fromft toft         ft           Liner installed         □         Diam fromft toft         ft           Threaded         □         Diam fromft toft         ft	mud + clay	20	48
	Perforations Yes No P	# / 1		100
	Type of perforator used	Wall & gravel & Clay	48	30
	perforations from ft toft	must Cand	50	60
	perforations fromft toft perforations fromft toft	1 11 1		0 /
		Good gravel June	60	81
	Screens Yes X No. 1 Manufacturer s Name Aguston	and movel	81	89
	Type State Use at the Model No	70.0	<u> </u>	
	Diam         5th         Slot size         from         84         ft         to         94         ft           Diam         Slot size         from         ft         to         ft			_
	Gravel packed Yes No Size of gravel	_		
	Gravel placed fromft toft			
	Surface seal Yes - No - To what depth?ft	TE 3	+	-
	Material used in seal  Did any strata contain unusable water? Yes No	60 000		
	Type of water? Depth of strata	S E D O E		
	Method of sealing strata off	1 2 3 ml m 2 2		
<u>(7)</u>	PUMP Manufacturer's Name	B 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	+	_
(7)	TypeHP		<b>—</b>	
(8)	WATER LEVELS  Land surface elevation above mean sea level  ft	Work Started 15/20 19 Completed 5/25	-103	19
	Static level ft_ below top of well Date	WELL CONSTRUCTOR CERTIFICATION	_	
	Artesian pressure   bs per square inch   Date    Artesian water is controlled by (Cap valve etc.)	I constructed and/or accept responsibility for construction		
(9)		compliance with all Washington well construction standard the information reported above are true to my best knowled		
(•,	Was a pump test made? Yes No If yes by whom?	NAME X MOTANO Well diell	las	
	Yieldgal /min_withft_drawdown afterhrs	(PERSON FIRM OR CORPORATION) (TYPE OF	R PRINT	
		Address T. O. D. D. T. C.		
_	Recovery data (time taken as zero when pump turned off) (water level measured from well	(Signed) (Great DRILLER) Licen	ise No 🙋 (	882
1	top to water level) Firne Water Level Time Water Level Time Water Level	Contractor s		
		No HubbAw P120NA Date 6/10		1003
		(USE ADDITIONAL SHEETS IF NECESS	SARY)	
	Date of test  Bailer test		_	
	Airtestgal /min_with stem set atft forhrs	Ecology is an Equal Opportunity and Affirmative Action		
	Artesian flow g p m Date Temperature of water Was a chemical analysis made? Yes No	cial accommodation needs contact the Water Resource 407 6600 The TDD number is (206) 407 6006	ss riogra	III al (∠06)

The Department of Ecology does NOT Warranty the Data and/or the Information on tnis well Report.

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

# **WATER WELL REPORT**

STATE OF WASHINGTON

Start Card No. <u>W070402</u> UNIQUE WELL I.D. # <u>ACX 473</u> Water Right Permit No.

(°,	OWNER: Name Dave Galianer Mass	10. Bay 643 Torusket WA 98855
(2)	LOCATION OF WELL: County Okanogen	. 5W 14 NW 1450 14 T. 37 N. R. 27 WM
( <b>2a</b> )	STREET ADDRESS OF WELL (or nearost actress)	
(3)	PROPOSED USE:	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
	Irrigation   DeWater   Test Well   Other	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.
(4)	(If more than one)	MATERIAL FROM TO
	Abandoned New well R Method: Dug Bored CDeepened Cable Driven	Top soil 0 2
	Reconditioned	souls loam 2 16
(5)		speaksand, 16 40
	Drilled 62.5 feet. Depth of completed well 61.	dame sounds clay 40 45
(6)	CONSTRUCTION DETAILS:	silky sound + grafuel 45 50
ν-,	Casing installed: 8 Diam. from $\pm 2$ ft. to $\frac{6}{1}$ ft.	50 55 61
	Welded P. Diern, from N. to ft.	
	Threaded . Diam. from ft. to ft.	51/1/2 grand 61 (2.3
	Perforations: Yes No 🔀	
	Type of perforator used	
	SIZE of perforationsin. byInin. toft. toft.	
	perforations from ft. to ft.	
	Screens: Yee No 🗷	<del> </del>
	Manufacturer's Name	
~	pe Model No	10) <u>5 6 8 0 8 6 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u>
`-	-Diam Slot sizeft. toft.	
	Diam. Slot size from ft. to ft.	APR 1 3 1000
	Gravel packed: Yes  No  Size of gravel	Ψ Ψ
	Gravel placed fromtt. toft.	DESCRIMENT OF FROIGRY
	Surface seal: Yes 🗵 No 🗆 To what degth?	DEPARTMENT OF ECULOGY CENTRAL REGION OFFICE
	Marter Used in Sec.	
	Did any strata contain unusable water? Yee No.	
	Method of sealing strate off	
<del>-</del>	PUMP: Manufachirer's Name	
(1)	Type: H.P.	
(8)	WATER LEVELS: Land-surface elevation	Work Started 4-/0 19. Completed 4-/0 19.98
•••	Static level 48 above mean sea level 1 to below top of well. Date 4-/6-28	
	Artesian pressure lbs. per square inch Date	WELL CONSTRUCTOR CERTIFICATION:
	Artesian water is controlled by(Cap, valve, etc.)	I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and
(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 If yes, by whom?	NAME MVM Qualt Drilling
	Yield:gal./min. withft. drawdown after hrs.	(RERSON, FIRM, OR CORPOBATION) (TYPE OR PRINTY
	W 11 H	Address 2290& Kirrer view Kd, Chilan WA
	н н н	(Signed) MV Mille License No. 1437
_	Recovery data (time taken as zero when pump turned oil) (water level measured from well top to water level)	(WELL DRULER)
	Time Water Level Time Water Level Time Water Level	Contractor's
_ :		No MYMOUSLO33mm Date 4- 18
		(USE ADDITIONAL SHEETS IF NECESSARY)
	Date of test	
	Baller test gal./min with tt. drawdown after hrs.  Airtest /2 gal./min. with stem set at 60 h. for 2,5 hrs.	Ecology is an Equal Opportunity and Affirmative Action employer. For spe-
	Artesian flow g.p.m. Date	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.

and/or the

Data

STATE OF WASHINGTON Water Right Permit No. 1) OWNER: Name GARDINIER, DAVID & JENNY Address PO BOX 643 TONASKET, WA 98855-- NW 1/4 SW 1/4 Sec 14 T 37 N., R 27 WM (2) LOCATION OF WELL: County OKANOGAN (2a) STREET ADDRESS OF WELL (or nearest address) HAVILLAH HWY, (4) TYPE OF WORK: Owner's Number of well (4) TYPE OF WORK: Owner's Number of well
(If more than one) 1
NEW WELL Method: ROTARY and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with (5) DIMENSIONS: Diameter of well 6 inches DIMENSIONS: Diameter of well 6 inches ------Drilled 220 ft. Depth of completed well 90.5 ft. MATERIAL FROM | TO ANDERSON OF A PROPERTY OF A PR 0 21 (6) CONSTRUCTION DETAILS: HARDPAN CLAY BROWN 35 " Dia. from +2 ft. to 90.5 ft. | CLAY SAND FINE
" Dia. from ft. to ft. | SAND GRAVEL BOULDERS
" Dia. from ft. to ft. | CEMENTED GRAVEL HARD 35 37 Casing installed: 6 WELDED CEMENTED GRAVEL CLAY | 80 50 SHALE MEDIUM HARD 80 84 Perforations: NO SIZE of perforations in. by in. | SHALE DECOMPOSED SOPT perforations from ft. to ft. | SHALE GRAY SOFT perforations from ft. to ft. | SHALE MEDIUM SOFT perforations from ft. to ft. | 84 CRMENTED GRAVEL CLAY Type of perforator used 97 107 107 165 165 | 220 1 220 Screens: NO Manufacturer's Name Model No.

slot size from ft. to ft.
slot size from ft. to ft. Type Diam. DIAM. Slot size from ft. to ft. Note - There is approx 3 GPM but ween 84 '+ 107' Gravel packed: NO Size of gravel
Gravel placed from ft. to ft. Cannot drill deepe due to To what depth? 19 ft. Surface seal: YES cosing reached refusal Material used in seal BENTONITE Did any strata contain unusable water? NO Hole is caving in under casing due to soft 10 13 13 15 17 Type of water? Depth of strata ft. Method of sealing strata off CASING (7) PUMP: Manufacturer's Name Formation Type NONE (8) WATER LEVELS: Land-surface elevation above mean sea level ... ft. 7 1998 Static level 76 ft. below top of well Date 03/19/98 |
Artesian Pressure lbs. per square inch Date Completed 03/19/98 Artesian water controlled by CAP Work started 03/11/98 RACIANDA ZUNIDA CON CIATIDA EN CIATIDA EN CONTRO DE CONT (9) WELL TESTS: Drawdown is amount water level is lowered below | WELL CONSTRUCTOR CERTIFICATION: static level.
Was a pump test made? NO If yes, by whom? I constructed and/or accept responsibility for construction of this well, and its compliance with all gal /min with ft. drawdown after hrs. | 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 FOGLE PUMP & SUPPLY, INC. (Person, firm, or corporation) (Type or print) ADDRESS 316 W. 5TH COLVILLE, WA hrs. | [SIGNED] for Ricard | License No. 2341 Date of test / / Date of test //
Bailer test gal/min. ft. drawdown after hrs. | SIGNED Recard | License No. 2341
Air test 3 gal/min. w/ stem set at 95 ft. for .5 hrs. |
Artesian flow g.p.m. Date | Contractor's
Temperature of water Was a chemical analysis made? NO | Registration No. FOGLEPS095L4 Date 04/02/98

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

File Original with Department of Ecology Second Copy - Owner's Copy Third Copy - Oriller's Copy

## **WATER WELL REPORT**

STATE OF WASHINGTON

Notice of Intent 40/098/0	<u></u>
UNIQUE WELL I.D. # AE	5/6

Water Right Permit No.

(1)	OWNER: Name David Gardhier Addr	
(2)	LOCATION OF WELL: County Okano year	54 1/4 N/1) 1/4 Sec 14 T 33 NR 23 WM
(2a)	STREET ADDRESS OF WELL: (or nearest aedress)	17 000 7 1111
(20)	TAX PARCEL NO.:	
	TAX FARGEL NO	<u> </u>
(3)	PROPOSED USE:	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION 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
(4)	TYPE OF WORK: Owner's number of well (if more than one)	one entry for each change of information. Indicate all water encountered.
	Y New Well Method: ☐ Deepened ☐ Dug ☐ Bored	MATERIAL FROM TO
	☐ Reconditioned ☐ Cable ☐ Driven	signedy lam tysa. 1 0 4
	☐ Decommission 💢 Rotary ☐ Jetted	Sandy 5: 24 16
(5)	DIMENSIONS: Diameter of well inches	chan /sond 1/6 40
` '	Drilled 605 feet. Depth of completed well 605 ft.	Stade 6/04 145
<del></del>		E. W. co. // Second 45 51
(6)	CONSTRUCTION DETAILS Casing Installed:	300 d & 5 miles 51 55
	Welded  Diam. from   → 2 ft. to //.5 ft.  Diam. from from ft. to ft.  Diam. from ft. to ft.	Sitt Sand Laravel 35 G/
	☐ Liner installed* Diam. fromft. toft.	3.77, 565,7 7-9, 2019 33 60
	☐ Threaded " Diam. fromtt. tott.	Silt Grandom, gravel 61 66
		c/ay deep is The moder 66 115
	Perforations:   Yes  No	gdant,
		med solt granito 11/5 202
	Type of perforator used	Loke 1/2 (2) 309
	• • • • • • • • • • • • • • • • • • • •	med area & 309 4/8
	perforations fromft. toft.	From 10 (W) 4/8 400
_		and to hand a reporte 420 605
	Screens:	with interent Host Lians
	Manufacturer's Name	Will Manufact - Marjaris
	TypeModel No	(1)20
	DiamSlot Sizefromfi. toft.	
	DiemStot Sizefromft. toft.	1 6 3 91
	Gravel/Filter packed: □ Yes □ No □ Size of gravel/sand	
	Material placed from tt. to tt.	
	-~	
	Surface seal: Yes ☐ No To what depth? ft.  Material used in seal	95
	Material used in seal	
	Did any strata contain unusable water?	
	Method of sealing strata off	Well needs to be fined to such be stall
	<b>,</b>	& Borns
(7)	PUMP: Manufacturer's Name	
	Type:H.P	
(8)	WATER LEVELS: Land-surface elevation above mean sea level Static level	Work Started 7-23 99 Completed 7-28 99
	(Cap, valve, etc.)	WELL CONSTRUCTION CERTIFICATION:
		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  Was a pump test made? ☐ Yes ☑No If yes, by whom?	compliance with all Washington well construction standards. Materials used
	Yield:gal./min. withft, drawdown afterhrs.	and the information reported above are true to my best knowledge and bolief.
	Yield:gal./min. withft. drawdown afterhrs.	Type or Print Name Marshall Miller License No. 1437
	Yleld:gal./min. withhrs.	(Licensed Driller/Engineer)
	Recovery data (time taken as zero when pump turned off) (water level measured from	
	well top to water level)	Trainee NameLicense NoLicense No
	Time Water Level Time Water Level Time Water Level	Drilling-Gompany 1427
	——————————————————————————————————————	(Signed) / Mla License No. 1437
		(Licensed Driller/Engineer)
	Date of test	Address 22905 Riverview Rd., Chelan, WA 98816
	Bailer testgal./min. withhr., drawdown after hrs.	Contractor's MVMQUDLO33MM Page 8-2 99
	Airtest agal./min. with for it. drawdown after hrs.	Registration No. PAPP QUDITOS SPIPI Date 0 2.
	Artesian flowg.p.m. Date	(USE ADDITIONAL SHEETS IF NECESSARY)
	Temperature of water Was a chemical analysis made? □ Yes □ No	TOOL ADDITIONAL GIBERO III MICOEGOARITY

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.

File Original with Department of Ecology	
Second Copy - Owner's Copy Third Copy - Driller's Copy	

### **WATER WELL REPORT** STATE OF WASHINGTON

Notice of Intent	W	80	9	6	43	
UNIQUE WELL		A	E	Q	/آل	2

Third	Copy - Driller's Copy	Water Right Permit No
(1)		iress 70, Box 643 TorreshtWA 9885
(2)	LOCATION OF WELL: County 6 kon 05 6 5  STREET ADDRESS OF WELL: (or nearest address)	: ω 1/4 Nω 1/4 Sec /4 T 32 N.R. 22 WM
(28)	TAX PARCEL NO.:	<del></del>
(3)	PROPOSED USE: 'Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐ DeWater	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION 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
(4)	TYPE OF WORK: Owner's number of well (if more than one) New Well Method:	one entry for each change of information, indicate all water encountered.  . MATERIAL / FROM TO
	☐ Deepened ☐ Dug ☐ Bored	MATERIAL FROM TO
	☐ Reconditioned ☐ Cable ☐ Driven ☐ Decommission ☐ Retary ☐ Jetted	Sand 8:11 3 16
(5)	DIMENSIONS: Diameter of well inches	
ν-,	Drilled 63 feet. Depth of completed well 6/ ft.	son by class 41 45
(6)	CONSTRUCTION DETAILS	sith sand & grave 45 54
	Casing Installed:         Ø         " Diam. from 1. to 6. ft.         It.	- laft wit gravel 37 6/
	Perforations:  Type of perforations  SIZE of perforations  Type of	1 1
	Screens:         □ Yes         Mo □ K-Pac Location           Manufacturer's Name	Service Company
	Gravel/Filter packed:  Yes No Size of gravel/sand  Material placed from ft. to ft.  Surface seal:  Yes No Towkst deptt/? ft.	
	Surface seal: MYes I No To what deptit?	
(7)	PUMP: Manufacturer's Name	<b>1</b>
	Type:H.P	
(8)	WATER LEVELS: Land-surface elevation above mean sea fevel Static levelft. below top of well Artesian pressurelbs. per square inch Artesian water is controlled by	Work Started 2-22, Completed 2-22, 99
	(Cap, valve, etc.)	WELL CONSTRUCTION CERTIFICATION:
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level  Was a pump test made?	Type or Print Name (Licensed Driller/Engineer)  Trainee Name License No. 1437  (Licensed Driller/Engineer)  Trainee Name License No. License No. 1437  (Signed) MVM Quality Drilling, IIC  (Signed) Licensed Driller/Engineer)  Address 22905 Riverview Rd., Chelan, WA 98816  Contractor's Registration No. MVMQUDLO33MM Date 8-2 59
	Artesian flow	(USE ADDITIONAL SHEETS IF NECESSARY)  Ecology is an Equal Opportunity and Affirmative Action employer. For special
ECY	050-1-20 (11/98)	accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (360) 407-6006.

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ັດ	, mru	Cobs	DF	mers	Copy

# WATER WELL REPORT STATE OF WASHINGTON

Application	No.	
Permit No.	G	4-26.264

<u>a :::</u>			}
9 <sub>(1)</sub>	OWNER: Name DICK Schaller	Address 235 Havilla is ta	Tonask
	LOCATION OF WELL: County DRANGCAN		
(2) تىر	LOCATION OF WELL: County CARACTER AND COUNTY	- N 1/4 N 1/4 Sec 1/2 T.3/	N., R.4./W.M.
3ear	ring and distance from section or subdivision corner		
ਕੂੰੂਂ	DRODOCED LICE. Description of Industrial C. Municipal C.	(10) WELL LOG:	
Ø(3)	PROPOSED USE: Domestic X Industrial   Municipal	<del>`</del> '	
Y	Irrigation Test Well Other	Formation: Describe by color, character, size of material a show thickness of aquifers and the kind and nature of the	and structure, and e material in each
# <u>~ </u>	TUDE OF WORK. Owner's number of well	stratum penetrated, with at least one entry for each cha	nge of formation.
<b>y</b> (4)	(if more than one)	MATERIAL	FROM TO
>	New well Method: Dug Bored	Coarse	
<u>S</u>	Deepened Cable Driven D		
요_	Reconditioned		
_ _′5)	DIMENSIONS: Diameter of well inches.  Drilled ft Depth of completed well ft.		1
໐ິ′	Drilled ft Depth of completed well ft.		
<u> </u>	Diffied		·
Շ′6Ն	CONSTRUCTION DETAILS:		
┰``	Casing installed: 12" Diam from C ft to 82 ft.		
ũ			
Ξ	Threaded Diam, fromft. toft.		1
0	Welded Diam. from ft. to ft.		
Intorma	Perforations: Yes   No 💢		
_	Type of perforator used		
the	SIZE of perforations		
	perforations from ft. to ft.		
<u></u>	perforations from ft. to ft.		
≚	perforations from ft. to ft.		
and/or			
ਕ	Screens: Yes   No	<u> </u>	
ū	Manufacturer's Name		
ä	Type Model No	,	
Data	Diam, Slot size from ft. to ft.		
υ	Diam Slot size from ft. to ft.	1	1
the	Gravel packed: Yes D No X Size of gravel:		
_	Gravel placed fromft. toft.	STO - 4 MON	1
Ę,		M-77 - 1 (SMS)	
ਛ	Surface seal: Yes No D To what depth? 20' ft.		
Ë	Material used in seal Bentonite	StoPART.	
Warranty	Did any strata contain unusable water? Yes 🖂 No 🗀	CENTRA	
>	Type of water? Depth of strata		
_	Method of sealing strata off	,	
0	DYINGD.		i
$\mathbf{Z}^{(i)}$	PUMP: Manufacturer's Name		
<u>دي</u>	Type: H.P		
<b>0</b> (8)	WATER LEVELS: Land-surface elevation above mean sea level		
<del>.</del>	77	,	
	tic levelft. below top of well Date		
<b>ರಾ</b>	Artesian water is controlled by		
<u> </u>	(Cap, valve, etc.)		
ᅙᇒ	WELL TESTS. Drawdown is amount water level is		<del></del>
III` ´	lowered below static level	Work started	19
_	s a pump test made? Yes 💆 No 🗌 If yes, by whom?	WELL DRILLER'S STATEMENT:	
O Lie	ld: gal./min. with ft. drawdown after hrs.	,	
;≝		This well was drilled under my jurisdiction ar	nd this report is
≕ent ≕	<u>"</u> " "	true to the best of my knowledge and belief.	
E 3ec	overy data (time taken as zero when pump turned off) (water level measured from well top to water level)		0
₽	measured from well top to water level   ime Water Level   Time Water Level   Time Water Level	NAME 10 NOEO FRUT	LC
G .	51150 17 MOOT A 51150 17 MOOT	(Person, firm, or corporation) (Ty	ype or print)
<u>o</u>		Address 32123 N Hwy	47
് ‴			
ته		11/11/11/11	•
_	Date of test	[Signed] (Well Driller)	
Bai	ler test 2 2 gol min, with ft. drawdown after hrs.	(wen Driller)	
Ari	nperature of water	License No. 1226 Date 4	1981
rer			-40
		wo drillers Monarity + Silv	erilloria
	(USE ADDITIONAL S	HEETS IF NECESSARY) (began)	stetial)

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

# WATER WELL RE

STATE OF WASHINGTON

	PORT Weter Right	Start	Card No	A	
• -	BOX	696	TON	15/16	7,14
				-70	

(7)	OWNER: Name 5, COMBS	Address BOX 696 TONASTE	TUA
<i>[</i> 2)	LOCATION OF WELL: County OKANOGAN		27
12e)	STREET ADDDRESS OF WELL (or nearest address)		<i>23_(</i> ₩.
(3)	PROPOSED USE: One of the line	(10) WELL LOG or ABANDONMENT PROCEDURE DES	CRIPTION
	DeWater Test Well Other	Formation: Describe by color, character, size of material and structure thickness of equifers and the kind and nature of the material in each stratum.	
(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	RPU SOIL MO GRAVEL O	10
	Deepened ☐ Cable ☑ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐	BRUSOIL AND GRAVEL O	70
(5)	DIMPNOIONO.	HEAVY GRAVEL AND BROWN CORY 10	35
(5)	Drilled 135 feet. Depth of completed well 135 ft.	BOME MOISTURE	
		BLUE CUTY 35	70
(6)			<u> </u>
	Casing installed: Diam. from ft. to the Welded Diam. from trop #1. to 1/5 #1	ITEANY GRAVELWAYSILT 70	72
	Liner Installed	BULL CUT AND GRAVEL 72	1005
	Threaded Li Diam. from th. to th.	BUE CUTY AND GRAVEL 72	100
	Type of perforator used		<del>  -</del>
	SIZE of perforations in. by in.	MORE GRAVEL CLAY GESTING 105	1/3
	perforations from tt. to ft.	- 4 7 7	
	perforations from ft. to ft.	SOME SILTY SEPPADE	
	perforations fromft. toft.	AT ABOUT 114 TO 115	
	Screens: Yes No X	15 00 1 1 5 1 1 m	1.30-
	Manufacturer's Name	BEDROCK 115	/33
1	Type Model No		<del> </del>
7	DiamSlot sizefromft. toft.		
	Gravel packed: Yes No. Size of gravel		
	Grevel placed from ft. to ft.	- 1 E G E I V E MI	
	Surface seal: Yes No To whet depth? 18		<del> </del> _
	Material used in seal BENTONITE		<del>                                     </del>
	Did any strata contain unuaable water? Yes No		
	Type of water?Depth of strata		
	Method of sealing strata off	DEFARISEM OF ECOLOGY CENTINAL REGION OF FICE	
(7)	PUMP: Manufacturer's Name	OLIVITITE VICTORIA	
_	Туре:		
(8)	WATER LEVELS: Land-surface elevation above mean sea level ft.	Program Report of the State Collection of the Co	
	Static level ft. below top of well Date Artesian pressure lbs. per square inch Dete	Law II II Back II I I I I I I I I I I I I I I I I I	
	Artesian water is controlled by		
<del></del>	(Cep, valve, etc.))	Work started 2-6 - 1878 ampleted 2/2	8/090
(8)	WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes No Kings, by whom?	WELL CONCEDUCTOR OFFICE	
	Yield: gal./min. with ft. drawdown after hrs.	WELL CONSTRUCTOR CERTIFICATION:   constructed and/or accept responsibility for construction or	( this wall
_	0 0 0	and its compliance with all Washington well construction	standerda.
	Recovery data (time taken as zero when pump turned off) (water level measured	Materials used and the information reported above are true t knowledge and belief.	o my Desi
	from well top to water level) Time Water Level Time Water Level	118 1244	
		NAME ALPING DAILUIG	R PRINT)
=		DT 1 DAY 15-1 DA	11/
_		Address / / / / / / / / / / / / / / / / / /	-19
)	Date of test	(Signed) License No. O	804
	Bailer teat gal./min. with ft. drawdown after hrs.	Contractor's (WELL DRILLER)	
	Airtest gal /min. with stem set at ft. for hrs.	Registration No. 441//3/64 Date 3 -/6-	1990
	Arraeian flow g.p.m. Date Temperature of water Was a chemical analysis made? Yes No.	13/40	
	reinperature of water was a chemical analysis made? Yes No.	(LISE ADDITIONAL SHEETS IF NECESSARY)	

File Original with Department of Ecology Second Copy - Owner's Copy Third Copy - Driller's Copy

# **WATER WELL REPORT**

STATE OF WASHINGTON

Notice of Intent W-03620\*7
UNIQUE WELL I.D. # ACX 301

Water	Right	Permit	No.
-------	-------	--------	-----

(1)		less Tonaket wash 58855
(2) (2a)	LOCATION OF WELL: County OKANOSAN STREET ADDRESS OF WELL: (or nearest address)	
	TAX PARCEL NO.:	/ Y \ \
(3)	PROPOSED USE:    Domestic	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION 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
(4)	TYPE OF WORK: Owner's number of well (if more than one)	one entry for each change of information. Indicate all water encountered.
	New Well Method:     ☐ Despenso ☐ Dug ☐ Bored	MATERIAL FROM TO
	☐ Reconditioned ☐ Cable ☐ Driven ☐ Decommission ☐ Rotary ☐ Jetted	SANCE BROWN SOFT O 13'
(5)	DIMENSIONS:     Diameter of well     8     inches       Drilled     60     teet. Depth of completed well     60     ft.	
(6)	CONSTRUCTION DETAILS	Smile of Gravel (Littler Br.) 52 60'
(*/	Casing Installed:	
	Welded Diam. fromft.	
	Union installed Diam. from ft. to ft. Threaded Diam. from ft. to	
_	Threadeu Siani. If Oils	
	Perforations: Yes No	
	Type of perforator used	
	SIZE of perforationsin. byin.	
	perforations fromft. toft.	
	Screens: Ves No K-Pac Location	1
	Manufacturer's NameTOLNSON	3
	Type SANIZSS Model No.	
	Diam. 7" Slot Size OD from 55 tt. to W tt.	
	Diam. Slot Size from tt. to ft.	
	Grave/Fliter packed: Tyes ⊌No ☐ Size of grave/sand	
	Material placed fromft. toft.	
	Surface seal: Yes No To, what depth? 18 ft.	<u> </u>
	Surface seal: Ves No To what depth? ft.  Material used in seal ft.	
	Did any strata contain unusable water? Yes it No	<del> </del>
	Type of water?Depth of strata	
	Method of sealing strata off	
(7)	PUMP: Manufacturer's Name	]
(,,		
	Туре:	
(8)	WATER LEVELS: Land-surface elevation above mean sea level	12 25 000 2 00 01
	Static level	Work Started 12-30-95 Completed 2-9-86
	Artesian pressurelbs. per square inch	
	(Cap, valve, etc.)	WELL CONSTRUCTION CERTIFICATION:
(0)	WELL TESTS: Drawdown is amount water level is lowered below static level	I constructed and/or accept responsibility for construction of this well, and its
(9)	Was a pump test made? Tyes INO If yes, by whom?	compliance with all Washington well construction standards. Materials used
	Yield:gal./min. withtt. drawdown afterhrs.	and the information reported above are true to my best knowledge and belief.
	Yield:gal./min. with ft. drawdown after hrs.	$\mathbf{I}$
	Yield:gai./min. withht. drawdown afterhrs.	
	Recovery data (time taken as zero when pump turned off) (water level measured from	Trainer Marie
	well top to water level)	Trainee NameLicense No
	Time Water Level Time Water Level Time Water Level	
		(Signed) License No. 223
		(Jacensed Driller/Engineer)
	Data of treat	Address 6 Hitpur For Viaville 1849
	Date of testgal./min. withft. drawdown afterhrs.	Contractor's
	Bailer testgal/min. withft, drawdown afterhrs.  Arrtestgal/min. withft. drawdown afterhrs.	Registration No. MCAL PMO Oxfate 2 456
	Artesian flowg.p.m. Date	•
	Temperature of water Was a chemical analysis made?	(USE ADDITIONAL SHEETS IF NECESSARY)
	Tree & chothing analysis made:	Ecology is an Equal Opportunity and Affirmative Action employer. For special
ECY	050-1-20 (11/98)	accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (360) 407-6006.

)

### WATER WELL REPORT

Start Card No. W081889 Unique Well I.D. # ACR828 Water Right Permit No.

### STATE OF WASHINGTON

OWNER: Name EHRHARD, ERVEN Address PO BOX 1287 TONASKET, WA 98855-- SE 1/4 NW 1/4 Sec 14 T 37 N., R 27E WM (2) LOCATION OF WELL: County OKANOGAN (2a) STREET ADDRESS OF WELL (or nearest address) 157 HAVILLA RD, TONASKET (3) PROPOSED USE: DOMESTIC (3) PROPOSED USE: DOMESTIC (10) WELL LOG PRESENTATION OF THE PROPERTY O (4) TYPE OF WORK: Owner's Number of well | Formation: Describe by color, character, size of material (If more than one) 1 | and structure, and show thickness of aquifers and the kind Method: ROTARY NEW WELL and nature of the material in each stratum penetrated, with FROM | TO SAND GRAVEL | 2 (6) CONSTRUCTION DETAILS: 1 25 " Dia. from +2 ft. to 73 ft. | CEMENTED GRAVEL

" Dia. from ft. to ft. | SAND GRAVEL MOIST

" Dia. from ft. to ft. | BROWN HARDPAN CLAY Casing installed: 6 25 | 35 35 WELDED 47 47 1 58 BROWN SAND W/WATER 58 | 78 Perforations: NO Type of perforator used in. by

ft. to ft.

ft. to ft.

ft. to ft. SIZE of perforations perforations from perforations from perforations from Screens: YES Manufacturer's Name
Type SLOTTED Model No. STAINLESS Diam. 5 slot size .016 from 73 ft. to 78 ft.
Diam. slot size from ft. to ft. -----Gravel packed: NO Size of gravel
Gravel placed from ft. to ft. Surface seal: YES To what depth? 19 ft. Material used in seal BENTONITE Did any strata contain unusable water? NO Type of water? Depth of strata Method of sealing strata off CASING (7) PUMP: Manufacturer's Name Type NONE H.P. Land-surface elevation above mean sea level ... Static level 42 ft. below top of well Date 10/17/97 Artesian Pressure lbs. per square inch Date Artesian water controlled by CAP Completed 10/17/97 Work started 10/15/97 (9) WELL TESTS: Drawdown is amount water level is lowered below | WELL CONSTRUCTOR CERTIFICATION:  $\label{eq:static_level} \mbox{ static level.}$  Was a pump test made? NO  $\mbox{ If yes, by whom?}$ I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used ft. drawdown after Yield: gal./min with hrs. 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 FOGLE PUMP & SUPPLY, INC. (Person, firm, or corporation) (Type or print) ADDRESS 316 W. 5TH COLVILLE, WA Date of test / / hrs. [SIGNED] Am Rucard Ma License No. 2341 Bailer test gal/min. ft. drawdown after Air test 20 gal/min. w/ stem set at 75 ft. for 1.5 hrs. |

Artesian flow g.p.m. Date | Contractor's

Temperature of water | Was a chemical analysis made? NO | Registration No. FOGLEPS095L4 | Date 10/28/97

STATE OF WASHINGTON

Application No.

Permit :	No.	 		 
			_	

(1) OWNER: Name Isl Chulc	Address 71 EBERLERD . TOWASKET, W	A. 9885
(2) LOCATION OF WELL: County Colono point ing and distance from section or subdivision corner	UW 14 UW 14 Sec 15 T 37 N	, R. <i>37E</i> w
(3) PROPOSED USE: Domestic of Industrial  Municipal	(10) WELL LOG:	
Irrigation   Test Well   Other		structure, a
(4) TVPE OF WORK. Owner's number of well	Formation: Describe by color, character, size of material and show thickness of aquifers and the kind and nature of the stratum penetrated, with at least one entry for each change	aterial in ea of formation
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL FR	ом то
Deepened Cable CDriven C	JOESON 1	) 2
Reconditioned   Rotary   Jetted	Chy SAND, GRAVEL	2 39
(5) DIMENSIONS: Diameter of well inches.	Shale, Chy, Seep 3	7 40
Drilled 120 ft. Depth of completed well 120 ft.	Shale Soft Glass	$g_{1}$
(6) CONSTRUCTION DETAILS:	Share Gard BROW 11	0 12
Casing installed: 6 "Diam from +1 n to 39 n		
Threaded [ Diam, from		
Welded T. Diam. from ft. to ft.		_
Perforations: Yes X No D		<del></del>
Type of perforator used TORCH		<del>-  </del>
SIZE of perforationsin. byin.		<del>-   -</del> -
perforations from		-
perforations from		
Sergence	·	
Screens: Yes No M	l ————————————————————————————————————	
Type Model No		<del></del>
Diam. Slot size from ft. to ft. Diam. Slot size from ft. to ft.	· · · · · · · · · · · · · · · · · · ·	
· \		
Gravel packed: Yes No Size of gravel:		
Gravel placed from ft.		
Surface seal: Yes No   To what depth?		
Material used in seal IOENTONITE  Did any strata contain unusable water? Yes No M		<del></del>
Type of water? Depth of strata		
Method of sealing strata off	community of more appropriate and the second of	
(7) PUMP: Manufacturer's Name	12/15/40 E 1/Att's 12	
Туре: Н.Р	(C) 115 and taken a second	
(8) WATER LEVELS: Land-surface elevation	8 (8)	
static level ft. below top of well Date	100 100	<del></del>
rtesian pressure	75 F 1-10 F	
Artesian water is controlled by (Cap. valve, etc.)		
9) WELL TESTS: Drawdown is amount water level is	7.00	<u>,                                     </u>
Vas a pump test made? Yes No li It yes, by whom?	Work started 9-23 19 60 Completed 9-24	<u> 19.</u> 2
field: gal./min. with ft. drawdown after hrs.	WELL DRILLER'S STATEMENT:	
n n - n	This well was drilled under my jurisdiction and t	his report
" " " " " " " " " " " " " " " " " " "	true to the best of my knowledge and belief.	
decovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	NAME Allier Deille in Edition	-n+ 1
Time Water Level Time Water Level Time Water Level	(Person, firm, or corporation) (Type	or print)
	Address P.D. BOX 611, TOINS KOT,	uns
4	6.00 000 301	
) te of_test	[Signed] Challand Wufut	
test Sc CP gal/min with ft. drawdown after hrs.	(Well Driller)	
5-P-111, D-810	License No. C993 Date 726	_

State of Washington

Date Printed: 14-Mar-2007

0

Notice of Intent No.: Log No.

CURRENT

W250523

Construction / Decommission: Original 25860

PROPOSED USE: DOMESTIC

Unique Ecology Well I.D. No. Water Right Permit Number:

APB232

Construction

Construction Notice

OWNER:

HUBER, GLENN

OWNER ADD PO BOX 147

TONASKET, WA 98855

Well Add 31578 HWY 97 NORTH

City: Tonasket, WA 98855 SE 1/4

County: Okanogan

R 27E

Location:

SE 1/4 Sec 9

T 37

EW K

Lat/Long:

Lat Deg

Lat Min/Sec

(s, t, r still REQUIRED)

Long Deg

Long Min/Se

Tax Parcel No.: 2737090136

### CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure. Show thickness of aguifiers and the kind and nature of the material in each stratum penetrated. Show at least one entry for each change in formation

Material	From	To
LOAM BLACK	. 0	, з
GRAVEL	. 3	, 4
ŞAND BROWN	4	25
CLAY BROWN	25	28
GRAVEL W/WATER	28	60

Notes:



Work starte 03/12/2007

Complete

03/12/2007

### WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

✓ Driller

Engineer

Trainee

Name: AUDIE MCCURDY

Signature:

License No.: 2690

if trainee, Licensed driller is:

Licensed Driller Signature

**Drilling Company:** 

NAME: FOGLE PUMP & SUPPLY, INC.

Shop: REPUBLIC

ADDRESS: PO Box 456

Republic, WA 99166

Phone:

E-Mail: foglewest@rcabletv.com

5097750498

WEB Site: www.foglepump.com

Toll Free: 8008453500

FAX: Contractor's

Registration No.: FOGLEPS095L4 Date Log Created: 03/14/200

TYPE OF WORK: Owners's Weil Number: (If more than one well) 1					
NEW WEL	L Me	thod: ROT	ARY		
PINENCIONS	Diameter of we	.II: E	inches		
DIMENSIONS Drilled 60			inches apleted well 57	ft.	
-		<u> </u>			
CONSTRUCTION	I DETAILS:	Ca	sing installed	WELDED	
Liner installed:			6 " Dia from	+2 ft. to	<b>57</b> ft.
" Dia from	ft. to	ft.	" Dia from	ft. to	ft.
Dia nom	16. 10	· ·	" Dia from	ft. to	ft.
Perforations:	No	Used In:			
Type of perforato					
SIZE of perforation		in. þ	in.		
Perfora	- · · · · · · · · · · · · · · · · · · ·		ft. to	ft.	
Perfora			ft. to	ft.	
Репога	ation from		ft. to	ft.	
Screens: No	K-Pac Locati	on			
Manufacture's Na	ame				
Type:		Model N	<b>N</b> o		
Diam.	slot siz <del>e</del>	from	ft. to	戢.	
Diam.	slot size	from	ft. to	ft.	
Gravel/Filter page	cked: No	Size of Gr	avel		
Material placed fi	го	ft. to	ft.		
Surface seal:	Yes To wha	t depth 57	ft.		
Seal method:			sed in seal BE	NTONITE	
Did any strata co	ntain unusable	water No	<b>&gt;</b>		
Type of water		Dep	oth of strata		
Method of sealing	g strata off				
PUMP: I	Manufacture's	name			
Type:		H.P.		0	
WATER LEVELS	S Land-surfac	e elevation at	oove mean sea le	vel:	0 ft.
Static level 25	ft. beld	w top of we	ell Date 03/12	/2007	
Artesian Pressur		er square i			
Artesian water co	ontrolled by				
WELL TESTS:	Drawdown is am	ount water lev	el is lowered belo	w static level	
Was a pump test		If yes, by		ow static leves.	
Yield		, .	drawdown afte		
	gal/min with gal/min with		drawdown afte	F -	
	gal/min with		drawdown afte		
Recovery data (time	,	-		•	om well
top to water level		, , , , , , , , , , , , , , , , , , , ,			
Time: Water Lo	evel Time:	Water Leve	l Time: V	later Level	
,	-	:			
		•			
Data of toots					
Date of test: Bailer test	aal/min	ft de	awdown after	hrs.	
	gal/min : min w/ stem			hours	
Artesian flow	gpm	Date	11.101	nours	
Temperature of w	4.		emiçal analysis	made No	
.					

√ S	TATE	OF W	ASHIN	<b>IGTÓ</b> K
DEPA				SERVATION
	AND	DEVE	LOPM	ENT Annli

ELL LOG		1961	No	°Ce	pp1	1379	7 <u>-</u> 4	-
ecord by wel	l drill er's re	er		· ·			•	
ocation State of	kanogan					16	;	
Area Lot Map Lot- 4 .4 rulling Co	seclor3 us Thom	7. N., R as	27. ;	WX.		nagram o	f Secti	on
Address Box	1410	umak,	was	sn.			 , 1	<sub>9.</sub> 60
wner Grea Address and surface, date	t North St. P	ern R aul, ft abo		way 1.	Co	)• . 	 	 · · ·
Corre-	Mater	RTAL				HICKNESS (feet)		PTH eet) -
	'e termineleau l							
				rnse el if rrela forat	as nec reporte te with nons, s			-
Top so	11 & bo			rnse el if i rrela: forat	as nec reporte te with nons, s	14	<u>.</u>	14
Top so Sand -	il & bo water			rrase el if i rrela: forat	as necreporte with mons, s	14 18		14 32
Top so Sand - Silt &	il & bo water clay			rase el if i rrela: forat	as necreporte with mons, s	14		14 32 40
Sand - Silt & Silt &	il & bo water clay water	ulder	'S	rrase el if i rrela- forat	as necreporte with aons, s	14 18	-	14 32 40 45
Top so Sand - Silt & Silt & Silt &	il & bo water clay water some g	ulder	S		as necreporte with aons, s	14 18 8 5		14 32 40 45 47
Top so Sand - Silt & Silt & Silt &	il & bo water clay water	ulder	S		as necreports	14 18		14 32 40 45
Top so Sand - Silt & Silt & Silt & Clay, Brayel PUMP T	il & bo water clay water some g fine si	ulder	S		as necreports	14 18 8 5		14 32 40 45 47 92
Top so Sand - Silt & Silt & Silt & Clay, Brayel PUMP T Dim. 9	il & bo water clay water some g fine si EST: 8'x8"	ulder	S		as necreporti	14 18 8 5		14 32 40 45 47 92
Top so Sand - Silt & Silt & Silt & Clay, Brayel PUMP T Dim. 9	il & bo water clay water some g fine si	ulder	S		as necreportition with the same of the sam	14 18 8 5		14 32 40 45 47 92
Top so Sand - Silt & Silt & Clay, Brayel PUMP T Dim. 9 SWL: DD:	il & bo water clay water some g fine si EST: 8'x8" 25 ft. 53 ft.	ravel	S		as necreporte with thors, s	14 18 8 5		14 32 40 45 47 92
Top so Sand - Silt & Silt & Silt & Clay, Brayel PUMP T Dim. 9 SWL: DD: Yield:	il & bo water clay water some g fine si EST: 8'x8" 25 ft. 53 ft. 130 g.	ravel	S		as necretorite with	14 18 8 5		14 32 40 45 47 92
Top so Sand - Silt & Silt & Silt & Clay, Bravel PUMP T Dim. 9 SWL: DD: Yield: Water	il & bo water clay water some g fine si EST: 8'x8" 25 ft. 130 g. Temp. 5	ravel	wat	ər	33-4	14 18 8 5 2 45 6		14 32 40 45 47 92 98
Top so Sand - Silt & Silt & Silt & Clay, Bravel PUMP T Dim. 9 SWL: DD: Yield: Water	il & bo water clay water some g fine si EST: 8'x8" 25 ft. 130 g. Temp. 5	ravel	wat	ər	33-4	14 18 8 5 2 45 6		14 32 40 45 47 92 98
Top so Sand - Silt & Silt & Silt & Clay, Bravel PUMP T Dim. 9 SWL: DD: Yield: Water	11 & bo water clay water some g fine si EST: 8'x8" 25 ft. 53 ft. 130 g. Temp. 5 size o	ravel	wat	ər	33-4	14 18 8 5 2 45 6		14 32 40 45 47 92 98
Top so Sand - Silt & Silt & Silt & Clay, Bravel PUMP T Dim. 9 SWL: DD: Yield: Water Type & Type &	il & bo water clay water some g fine si EST: 8'x8" 25 ft. 130 g. Temp. 5 size o size o :	ravel	wate	Sub	omer i h	14 18 8 5 45 6		14 32 40 45 47 92 98
Top so Sand - Silt & Silt & Silt & Clay, Brayel PUMP T Dim. 9 SWL: DD: Yield: Water Type & CASING	il & bo water clay water some g fine si EST: 8'x8" 25 ft. 130 g. Temp. 5 size o size o :	p.m.	wate	Sub	omer i h	14 18 8 5 45 6		14 32 40 45 47 92 98

B- ON	MATERIAL		THICKNESS (feet)	DEFTH (feet)
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	30			
Total	of/perforation	s fr	om 94	to
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Log No. Date Printed: 08-Aug-2008 State of Washington Construction / Decommission: Original 317267 Construction Notice Construction PROPOSED USE: DOMESTIC

TYPE OF WORK: Owners's Well Number: (If more than one well) **NEW WELL** Method: ROTARY **DIMENSIONS** Diameter of well: 6 inches ft. Drilled 200 Depth of completed well 200 Casing installed WELDED **CONSTRUCTION DETAILS:** 6 " Dia from +2 ft. to 18 ft. Liner installed: PVC " Dia from ft. to ft. 4 " Dia from 10 ft. to 200 ft. " Dia from ft. to ft. Yes Perforations: Used In: LINER Type of perforator used SKILL SAW SIZE of perforations 1/8 ft. to 200 ft. Perforation from 160 ft. Perforation from ft. to ft. Perforation ft to from Screens: No K-Pac Location Manufacture's Name Model No Type: Diam. slot size from ft. to ft. from ft. to ft. Diam slot size Gravel/Filter packed: Size of Gravel Material placed fro ft to ft. ft. Surface seal: To what depth 18 Seal method: Material used in seal BENTONITE Did any strata contain unusable water No Depth of strata Type of water Method of sealing strata off PUMP: Manufacture's name Type: H.P. Λ Land-surface elevation above mean sea level: WATER LEVELS 0 ft. below top of well Date 07/28/2008 Static level 20 lbs per square inch Date Artesian Pressure Artesian water controlled by WELL TESTS: Drawdown is amount water level is lowered below static level. Was a pump test made No If ves, by whom Yield ft drawdown after gal/min with Yield gal/min with ft drawdown after gal/min with Recovery data (time taken as zero when pump turned off)(water level measured from well top to water level Water Level Water Level Time: Time: Time:

Date of test: Bailer test gal/min ft drawdown after hrs. Air test 5 gal/min w/ stem set at 199 ft. for 1 hours Artesian flow gpm Date Was a chemical analysis made No Temperature of water

CURRENT

W237463 Notice of Intent No.: Unique Ecology Well I.D. No **BAB573** 

Water Right Permit Number:

HELM, GREG & CHARLENE OWNER: OWNER ADD 46C GAYES POINT ROAD

OROVILLE, WA 98844

Well Add 241A HAVILLAH ROAD

City: Tonasket, WA 98855 County: Okanogan Location: NW 1/4 NE 1/4 Sec 14 T 37 R 27E EW

Lat/Long: Lat Deg Lat Min/Sec (s, t, r still Long Deg Long Min/Se REQUIRED)

Tax Parcel No.: 8869500020

### CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation. Describe by color, character, size of material and structure. Show thickness of aquifiers and the kind and nature of the material in each stratum penetrated. Show at least one entry for each change in formation.

Material	From	То
LOAM BROWN	0	2
BOULDERS COBBLES	2	7
COBBLES SAND	7	12
CLAY GREY	12	14
GRANITE GREY HARD	14	92
SHALE BLACK SOFT	92	93
SHALE BLACK MED	93	97
SHALE BLACK SOFT WET	97	134
GRANITE GREY MED	134	141
SHALE BLACK SOFT WET	141	183
GRANITE GREY MED	186	200

# RECEIVED

Notes:		OCT, 1-3-7008
`		DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE
Work starte	07/24/2008	Complete 07/28/2008

### WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

✓ Driller	Engineer	Trainee
Name: Al	JDIĘ MCCURDY	' License

No.: **2690** Signature: If trainee, Licensed driller is License No.

### **Drilling Company:**

NAME: FOGLE PUMP & SUPPLY, INC. Shop: REPUBLIC

ADDRESS: PO Box 456

Licensed Driller Signature

Republic, WA 99166

Phone: 5097752878 Toll Free: 8008453500

E-Mail: leslie@foglepump.com

5097750498 WEB Site: www.foglepump.com FAX:

Contractor's

Registration No.: FOGLEPS095L4 Date Log Created: 08/04/200 File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

# WATER WELL REPORT

Application No.

 $\mathcal{M}$ 

STATE OF WASHINGTON Permit No. ...

OWNER: Name H.E. McMillan	Address Tonasket, WA		
LOCATION OF WELL: County Okanoga	nNW NW NA SW NA Sec 13 T. 3	37 <sub>N., R.</sub> 2	7 ww
Bearing and distance from section or subdivision corner			
(3) PROPOSED USE: Domestic X Industrial   Municipal	(10) WELL LOG:		
frrigation   Test Well   Other	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of t	and struc	ture, and
(4) TYPE OF WORK: Owner's number of well (if more than one)	stratum penetrated, with at least one entry for each ch	FROM	TO
New well   Method: Dug   Bored	Top Soil	0	-10-
Deepened		3	<del></del>
Reconditioned Rotary Detted	Broken Shale		16
(5) DIMENSIONS: Diameter of well 6 inches	Soft Gray Shale	16	35
Drilled 500 nt. Depth of completed well 500 nt.	Medium Hard Shale	35	_72
	Broken Shale	72	
(6) CONSTRUCTION DETAILS:	Medium Hard Shale	_77	_85
Casing installed: 6 Diam from +2 n to 250 n.	Broken Shale	_85	_105_
Threaded Diam, from ft. to ft.	Medium Hard Shale, Clay	105	_158
Welded 💢	Broken Shale, Clay	158	_180
Portorations - V	Broken Shale Trace of Water	180	_190 _
Perforations: yes (X) No Pair	Broken Shale	190_	215
Type of perforator used ATT SIZE of perforations 1 in by 1/4 in.	Quartzite, Trace of Water	215	345
75 perforations from 160 tt. to 300 ft.	Shale	245	405
perforations from ft. to ft.	Quartzite	_405	_472
perforations from ft. to ft.	Black Shale	472	490_
Servence V	Brown Shale	490	_500
Screens: Yes No 1			
Manufacturer's Name			
Diam. Slot size from ft. to ft.			
Diam. Slot size from tt. to tt.	l		
CI I V	l		
Gravel packed: Yes O No No Size of gravel:	l <u> </u>	. <u>.                                   </u>	
Gravel placed from ft. to ft.	[		
Surface seal: Yes X No D To what depth? 18 n.  Material used in seal Bentonite			
Material used in seal DUILLUILLUIDILLUIDIA DID Any strata contain unusable water? Yes No D			
Type of water? Depth of strata	- FOR CHANGES		
Method of sealing strata off	I WEGISTARSIN		
(7) PUMP: Manufacturer's Name			
Type:	CID 0 1000		
(8) WATER I EVELS. Land-surface elevation	3EP   8 1980	+	
above mean sea level			
Static level 103 ft. below top of well Date	DEPARTMENT OF ECOLOGY		
Artesian pressurelbs. per square inch Date	CENTRAL REGION OFFICE		
(Cap, valve, etc.)			
(9) WELL TESTS: Drawdown is amount water level is			
lowered below static level	Work started 9/1 186 Completed	<u>9/4</u>	1986 <u></u>
Was a pump test made? Yes □ No □ If yes, by whom?	WELL DRILLER'S STATEMENT:		
Yield: 1/2 gal./min. with ft. drawdown after hrs.			
11 11 11 11 11	This well was drilled under my jurisdiction a true to the best of my knowledge and belief.	nd this r	eport is
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	CCT WELL DRILLING		
Time Water Level   Time Water Level   Time Water Level	NAME	ype or pri	nt)
<b>)</b>	BOX 150, NESPELEM, WA 99		,
	Address	· · · · · · · · · · · · · · · · · · ·	
	1 all BOTH		
Date of test ,	[Signed] Joseph + Jones	•	
Bailer test gal./min. withft. drawdown afterhrs.	(Well Driller)		
Artesian flow	License No. #0564 Date 9/12	2	1986

The Department of Ecology does NOT Warranty the Data and/or tne Information on this well nepole:

WATER WELL REPORT	Notice of Intent No W177043	
ECOLOGY	Unique Ecology Well ID Tag No AKJ 688	
Construction/Decommission (x in circle)  Construction 150498		
O Decommission ORIGINAL CONSTRUCTION Notice	Water Right Permit No	
of Intent Number	Property Owner Name Jim BreTZ /	Υ
PROPOSED USE Domestic Industrial Municipal	Well Street Address 12 Starton loop	_,
DeWater Imgation Test Well Other		
TYPE OF WORK Owner's number of well (if more than one)	City Towasket County Okanoge Location NUTA 1/4 SE1/4 Sec 15 Twn 37 RZ	EWN
New Well Reconditioned Method Dug Bored Driven	Location	or
☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted	Lat/Long	ww.
DIMINSIONS Diameter of well 20 inches drilled 278 ft  Depth of completed well 278 ft	(strstill REQUIRED) Long Deg Long Min/Sec _	
CONSTRUCTION DETAILS	Tax Parcel No	
Casing Welded <u>Le</u> Diam from + Z ft to 295 ft		E.
Installed Liner installed Diam from ft tofi	Formation Describe by color character size of material and structur	e and
Threaded Diam fromft toft	kind and nature of the material in each stratum penetrated with at lead entry for each change of information. Indicate all water encountered	ist one
Perforations 🔲 Yes 🔀 No	(USE ADDITIONAL SHEETS IF NECESSARY )	
Type of perforator used	MATERIAL TROM	то
SIZE of performing by in and no of performing fit to fit	SAND, FINE, BRNO- 6	48
Screens X Yes No K Pac Location 293  Manufacturer's Name Cook	CLAY, SILT, BRN -3 48	22
Type STAINLESS Model No		210
Diam 6 Slot Size # 18 from 293 ft 10 298 ft		225
Diam Slot Size from ft to ft		296
Gravel/Filter packed Yes 📈 No 🗌 Size of gravel/sand	SAND, FINE, CORY, CHAND 320	-1 <i></i>
Materials placed fromft_toft  Surface Seal Yes No To what depth?ftft	WIWATER	<i>298</i>
Surface Seal MYes No To what depth?		
Did any strata contain unusable water \[ \] Y(s) \[ \] No		
Type of water?Depth of strata	DECEMBER	
Method of sealing strata off	RECEIVED	
PUMP Manufacturer's Name	JUN 0 9 2004	
Туре Н Р	4	
WATER LEVELS Land surface elevation above mean sea level  Static level 2/0 ft below top of well Date 5-28-04  Artesian pressure lbs per square inch Date	DEPARTMENT OF ECULOGY WELL DRILLING LINET	
Artesian pressurelbs_pcr square inch Date	1410	
Artesian water is controlled by	( 12, 15)	
(cap valve etc )	- C 40 Mey ES	
WELL TESTS Drawdown is amount water level is lowered below static level Was a pump test made? Yes No If yes by whom?		
Yieldgal/min withft drawdown afterhrs		
Yieldgal /min_withft_drawdown afterhrs	CEION OFFICE	
Yieldgal/min_withft_drawdown afterhrs		
Program data (time taken as a sign han nump trend off), are level program trong		
well top to water level)		
well top to water level)		
vell top to water level)		
Time Water Level Time Water Level Time Water Level  Date of bott		
Date of test		-
Date of test		
Date of test  Bailer test  Airtest  Artesian lov  g p m Date  Water Level  Time Water Level	Surt Date 5-27-04 Completed Date 5-28-	04
Date of test Bailer test Airtest Airtest Artesian To v Temperature of water Water CFION CER HIFICATION  Time Water Level Time	Donardility for construction of this well, and its compliance with	
Date of test	I compliance with specific and its compliance with eported above are true to my best kinds above above the manufacturers.	
Date of test  Bailer test  Airtest  Artesian To y  Temperature of water  Water Level  Water Level  Time Water Level  To Artesian To y  g p m Date  Temperature of water Was a chemical in alysis made? Yes No  WELL CONSTRUCTION CERTIFICATION I constructed and/or accept resp  Washington well construction standards Materials used and the information in  Diritler Engineer Trainer Name (Frint) Tow RICARD	Drilling Company	all
Date of test  Bailer test  Arrestan Tov  Temperature of water  Water CFION CER HFICATION  Don't Constructed and/or accept resp  Washington well construction standards Materials used and the information is  Don't Engineer Trainee Sugnature  Description of water  Don't Engineer Trainee Sugnature  Description Time Water Level  Time Water	Drillin_ Company P.O. Box 155  Address Malo Washington 9	all
Date of test  Bailer test  Al/min with  I drawdown after his  Artesian To v	Drillin_ Company P.O. Box 155  Address — Address — (500) 779-4022	all
Date of test  Bailer test  Arrestan To g p m Date  Temperature of water  Water Level  Time Water Level	Drillin_ Company P.O. Box 155  Address Malo Washington 9  City State Zip (2011)	all 9150

Water Well Report	Current 4.22 0/	.17	
Original - Ecology, 1st copy - owner, 2nd copy - driller	Notice of Intent No. W2326	1105 - 51 =	2//
Construction/Decommission	Unique Ecology Well ID Tag No. ALC		
Construction 258588	Water Right Permit No. Property Owner Name <b>Take</b> De	<u>~</u>	
Decommission ORIGINAL INSTALLATION Notice of Intent Number	Property Owner Name (Jahn De	150x	?
	Well Street Address		
PROPOSED USE:  Domestic  Industrial  Municipal  DeWater  Irrigation  Test Well  Other	City Tonasket County O	Kuros	50gn
TYPE OF WORK: Owner's number of well (if more than one)	Well Street Address  City Tonasket County D  Location SE/4-1/4 SE1/4 Sec 9 Twn37	Rメフ EWM	nirele
New well Reconditioned Method: Dug Bored Driven Cable Rotary Jetted	Lat/Long (s, t, r Lat Deg Lat	ww <sub>M</sub> _ t Min/Sec	t L one
DIMENSIONS: Diameter of well	still REQUIRED ) Long Deg Lo	ng Min/Sec	;
CONSTRUCTION DETAILS	Tax Parcel No. 372709000	5	
Casing Welded Diam. from 12 ft. to 60ft. Installed: Liner installed Diam. fromft. toft.	CONSTRUCTION OR DECOMMISSION	ON PROCEDI	URE
Threaded "Diam. from ft. to ft.	Formation: Describe by color, character, size of material and	structure, and th	ne kind and
Type of perforator used	nature of the material in each stratum penetrated, with at least information indicate all water encountered. (USE ADDITION		
SIZE of perfsin. by in. and no. of perfsfrom ft. toft.	MATERIAL	FROM	J0
Screens: Pyes No EK-Pac Location 59  Manufacturer's Name 59	70P Sa./	0	6
Type Slot size from ft, to ft.	Court Court	6	28
Diam.         Slot size         from         ft. to         ft.           Diam.         Slot size         from         ft. to         ft.	SANS GRAN	<del>                                     </del>	~~
Gravel/Filter packed: Yes No Size of gravel/sand  Materials placed from ft. to ft.	Clax SANd	28	39
Surface Seal: : Yes No To what depth? 9.	SAND Corse & Grad	37	65
Material used in seal Benthia CS  Did any strata contain unusable water? Yes No		-	
Did any strata contain unusable water?  Type of water?  Depth of strata		107	he a
Method of sealing strata off		VERA	11/20
PUMP: Manufacturer's Name		APP	elved (S)
WATER LEVELS: Land-surface elevation above mean sea levelft.		3	8 2007
Static levelft. below top of well Date		3	
Artesian pressure [bs. per square inch_Date		Tay April	MORRE
Artesian water is controlled by		1.200	1100
WELL TESTS: Drawdown is amount water level is lowered below static level		<del>                                     </del>	
Was a pump test made? A Yes No If yes, by whom?  Yield: / 6 gal/min. with / 6 ft. drawdown after / hrs.			
Yield:gal./min. withft. drawdown afterhrs.			
Yield:gal/min. withft. drawdown afterhrs.  Recovery data (time taken as zero when pump turned off) (water level measured from well		<del> </del>	
top to water level)		<del> </del> -	<del>-</del>
Time Water Level Time Water Level Time Water Level			
Date of test		<del> </del>	
Bailer testgal/min. withft. drawdown afterhrs.		-	
Airtestft, forhrs.  Artesian flow		1	
Temperature of water Was a chemical analysis made? Yes No			
	Start Date 3-12-67 Comple	ted Date 3	13-07
WELL CONSTRUCTION CERTIFICATION: I constructed and/or at Washington well construction standards. Materials used and the information	cept responsibility for construction of this well, an ion reported above are true to my best knowledge a	d its complia	
Driller/Engineer/Trainee Name (Print)		11/11/11	
Driller/Engineer/Trainee Signature	Address Podey 3652		
Driller or trainee License No	City, State, Zip	988	
If TRAINEE. Driller's Licensed No.	Programmed ADXOTODY		13-07
Driller's Signature	Ecology is an Equal Opportunity Employer.	ECY 050	0-1-20 (Rev 2/03)

	1		
Water Well Report Original - Ecology, 1st copy - owner, 2nd copy - driller	Current Notice of Intent No. 2220	394	
ECOLOGY	Unique Ecology Well ID Tag No. AL	ν.	
Construction/Decommission Construction 295581	Water Right Permit No.		
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name <u>Jo4n</u> De		
of Intent Number	_		
·	Well Street Address	971	
PROPOSED USE: Proposition Industrial Municipal DeWater Irrigation Test Well Other	City Fongstet County 6	P 27 EWM	DS 2-1
TYPE OF WORK: Owner's number of well (if more than one)  New well  Reconditioned Method: Dug Bored Driven	Lat/Long (s, t, r Lat Deg Lat		onc
DIMENSIONS: Diameter of well inches, drilled ft.	still REQUIRED ) Long Deg Lo		R
Depth of completed wellft.	Tax Parcel No. 372709000	- ,	
Casing DeWelded b " Diam from +2 ft to 54 ft.	7 / / / / / / / / / / / / / / / / / / /		
Installed:         ☐ Liner installed'         " Diam, from	CONSTRUCTION OR DECOMMISSION	ON PROCEDI	JRE.
Perforations: Yes No	Formation: Describe by color, character, size of material and nature of the material in each stratum penetrated, with at leas		
Type of perforator used	information indicate all water encountered. (USE ADDITION	•	_
SIZE of perfsin, by in, and no. of perfsfnomfl. tofl.	MATERIAL	FROM	то
Screens: Yes Jo D K-Pac Location  Manufacturer's Name Janson	TOP Sril	0	4_
	(0.1-1)	14	2 1/2
Type	SAND - Com	7	8
Gravel/Filter packed: Yes No Size of gravel/sand	Chay	28	19
Surface Seal: : No To what depth? 19 ft.	3 And	75	49
Material used in seal Benting 2 5 C		~/_/	1
Did any strata contain unusable water?	Corand -Sand	42	59
Type of water? Depth of strata		•	/
Method of sealing strata off			
PUMP: Manufacturer's Name Type: H.P.			
WATER LEVELS: Land-surface elevation above mean sea levelft.	- CXT UF	# \( \( \)	
Static level _36ft. below top of well Date 4-3-08	/S' Rece	ved >	
Artesian pressurelbs. per square inch Date			
Artesian water is controlled by	APR 1 .	2008 . /	
(cap, valve, etc.)	\a	25/	
WELL TESTS: Drawdown is amount water level is lowered below static level  Was a pump test made? ☐ Yes       No   If yes, by whom?	MPAL S	CIONO	
Yield:gal/min. withfl. diawdown-afterhrs.	TCR	tuo	
Yield:gal./min. withft, drawdown afterhrs.			
Yield:gal/min. withfl. 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	_	+	-
			_
Date of test			_
Bailer testgal/min, withft. drawdown afterhrs.			
Airtest J S gal/min, with stem-set at S 8 ft for 4 hrs.			
Artesian flowg.p.m Date			
Temperature of water Was a chemical analysis made?			
	Start Date 4-2-89 Complete	ted Date	-3-09
WELL CONSTRUCTION CERTIFICATION: I constructed and/or ac Washington well construction standards. Materials used and the information	ccept responsibility for construction of this well, an	d its complia	nce with all
Driller/Engineer/Trainee Name (Print) Bill Mooman		Drillin	75
Driller/Engineer/Trainee Signature Bulk Moolman	Address Po Dox 3652		
Driller or trainee License'No	City, State, Zip Omgs W	7 98	84
If TRAINEE, Driller's Licensed No.	Magnification of D*O/DD	Data 14-	3-08
Driller's Signature	Ecology is an Equal Opportunity Employer.	-	-1-20 (Rev 2/0)
		FC 1 030	-1-20 (NEV 4/U.

Water Well Report Original - Ecology, 1st copy - owner, 2nd copy - driller	Current Notice of Intent No. 2203	391	
ECOLOGY	Unique Ecology Well ID Tag No	10 4	90
Construction/Decommission		•	•
© Construction 295335 ☐ Decommission ORIGINAL INSTALLATION Notice	Water Right Permit No.  Property Owner Name <u>Tehn</u> D	) .	
of Intent Number			
	Well Street Address Huy 9	<u>' 7</u>	
PROPOSED USE:	City Tonasket County &	Kunc	549
	Location 5 E 1/4-1/45 E 1/4 Sec 7 Twn	7 R 27 EWM	circle
TYPE OF WORK: Owner's number of well (if more than one)    Sometimes	Lat/Long (s, t, r Lat Deg I		
DIMENSIONS: Diameter of well inches, drilled ft.  Depth of completed well ft.	still REQUIRED ) Long Deg I	ong Min/Sec	:
CONSTRUCTION DETAILS	Tax Parcel No. 37 27 99 00	506	
Casing Installed:         Welded         b         " Diam. from #2 ft. to 5.7 ft.         ft. to 5.7 ft.         ft. to ft.           Installed:         Threaded         " Diam. from ft. to ft.         ft. to ft.	CONSTRUCTION OR DECOMMISS	ION PROCED	URE
Perforations: Yes No Type of perforator used	Formation: Describe by color, character, size of material a nature of the material in each stratum penetrated, with at le information indicate all water encountered. (USE ADDITI	ast one entry for ea	ach change of
SIZE of perfsin. by in. and no. of perfsfromft. toft.	MATERIAL	FROM	то
Screens: No K-Pac Location 52	TOPO 50.1	0	4
Manufacturer's Name Thom Son Model No.		Heim	8
Type         Tel/Scol         Model No.           Diam.         6         Slot size         40         from         \$3         ft, to         \$5         ft.           Diam.         Slot size         from         ft. to         ft.         ft.	SAND Growt	7 .	1
Gravel/Filter packed: Yes SeNo Size of gravel/sand	Clay SANd	27	38
Surface Seal:: D Yes No To what depth?ft.  Material used in-seal	SAhd Grad	38	44
Did any strata contain unusable-water?	Grave SAnd	44.	5-5
Type of water? Depth of strata	3,007 31515	77	00
Method of sealing strata off			
PUMP: Manufacturer's Name	,	.,,,	
PUMP: Manufacturer's Name		Served	
WATER LEVELS: Land-surface elevation above mean sea levelft.		2 Herz	
Static level 3.8ft. below top of well Date 3-26-06  Artesian pressure lbs. per square inch Date		ADD 0 7 20	00
Artesian pressure	1	APR 0 7 20	W 😜
(cap. valve, etc:)		Co.	78/
WELL TESTS: Drawdown is amount water level is lowered below static level	•	WAL REG	
Was a pump test made? Yes No If yes, by whom?			
Yield: gal/min. with ft. drawdown after hrs 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	<u>.</u>		
Date of test 3-26-08			
Date of testft. drawdown afterhrs.	-		
Airtest gal /min with fite m set at ft. for 4 hrs.	_		
Artesian flowgai /min with stem set atn. Tornrs.			
Temperature of water Was a chemical analysis made?  \[ \text{Yes } \sqrt{\sq}\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sq}}}}}}}}}}}}\eginterimt{\sqrt{\sqrt{\sq}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}			
	Start Date 3-26-08 Comp	leted Date	-26-08
VELL CONSTRUCTION CERTIFICATION: I constructed and/or a Vashington well construction standards. Materials used and the informat	ccept responsibility for construction of this well,	and its complia and belief.	ince with al
Driller/Engineer/Trainee Name (Print) Bill morem que			ک'
Driller/Engineer/Trainee Signature Bun mour	Address PoBox 3652		
Oriller or trainee License No	City, State, Zip OMAR WI	79884	11.
If TRAINEE, Driller's Licensed No.	Contractor's INNATO XO 70DD	Dute <b>_3</b> -:	26-08
Driller's Signature	Ecology is an Equal Opportunity Employer.		)-1-20 (Rev 2/0

Water Well Report Original - Ecology, 1st copy - owner, 2nd copy - driller	Current Notice of Intent No. 22039	2
Construction/Decommission Construction 295334	Unique Ecology Well ID Tag No. ALC Water Right Permit No.	
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name John Denn	150n -
of Intent Number	Well Street Address Huy 97	R
PROPOSED USE: Domestic Industrial Municipal DeWater Irrigation Test Well Other	City Torkeck of County DKa	
TYPE OF WORK: Owner's number of well (if more than;one)  New well Reconditioned Method: Dug Bored Driven Cable Rotary Jetted	Location Lat/Long (s, t, r Lat Deg Lat Min/S	WWM L one
DIMENSIONS: Diameter of well inches, drilled ft.	still REQUIRED ) Long Deg Long Min	
Depth of completed wellft.	Tax Parcel No. 37 27 09 0006	· -
Casing	CONSTRUCTION OR DECOMMISSION PROC	CEDURE
Perforations: Yes State No Type of perforator used	Formation: Describe by color, character, size of material and structure, nature of the material in each stratum penetrated, with at least one entry information indicate all water encountered (USE ADDITIONAL SHEE	for each change of
SIZE of perfsin. byin. and no. of perfsfromft. toft.	MATERIAL. FRO	
Screens: No K-Pac Location 53	TOP SOIT 6	
Type         T C/S COP         Model No.           Diam.         © Slot-size         Y o from         ft. to         9 ft.           Diam.         Slot size         from         ft. to         ft.	SAND Grave 5	27
Gravel/Filter packed: Yes No Size of gravel/sand ft. to ft.	Clisty 2	7 39
Surface Seal: : Yes No Towhat depth? 20 ft.	SANL Grat 39	7 45
Material used in seal	Gravel - 59nd 4.	5 59
Method of sealing/strata off		
PUMP: Manufacturer's Name // H.P. H.P.	TET UI	
WATER LEVELS: Land-surface elevation above mean sea levelft.	/ Mec	eived`.
Static level 3.7 ft. below top of well Date 3-28-88	APP	
Artesian pressure lbs. per square inch Date	1,0,	2000
Artesian water is controlled by(cap, valve, etc.)		
WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test-made? ☐ Yes ☐ No If yes, by whom?	CAL PE	GIONOTE
Yield:gal./min. withft. drawdown afterhrs.		
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 iest 3-28-08		
Bailer testgal./min, withft. drawdown afterhrs.	-	
Airtest 33 gal/min. with stem set at 57 ft. for 4 hrs.  Artesian flówg.p.m. Date		
Temperature of water Was a chemical analysis made?	7.24.04	3 - 2 "
WELL CONSTRUCTION CERTIFICATION: I constructed and/or action well construction standards. Materials used and the informat	ecept responsibility for construction of this well, and its continuous reported above are true to my best knowledge and belie	$\frac{3-28-68}{28-68}$ inpliance with all figure 11.
Driller/Engineer/Trainee Name (Print)	Drilling Company MODMAC DV Address POBOX 3652	
Driller/Engineer/Trainee Signature 31/120 h	Address PUSON SES WAS City, State, Zip Olympic Was 9	8841
If TRAINEE.	Something to Do	2-78-808
Driller's Licensed No	Date	Y 050-1-20 (Rev 2/03)
<u> </u>		

WATER WELL REPORT	CURRENT Notice of Intent No. W 176 265
Criginal & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller	Unique Ecology Well ID Tag No. AGE 252
Construction/Decommission ("x" in circle)  (8 45 8 3	
Construction (845 8-3) O Decommission ORIGINAL CONSTRUCTION Notice	Water Right Permit No.
of Intent Number	Property Owner Name KENNETh Combs
PROPOSED USE: ☑ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other	Well Street Address 181 HAVILA Rd.
	City TONAS KET County: OKBKO 92 V Location 5 E 1/4- 1/4 NW /4 Sec 1 Twn 32 R 22 EWM circle
TYPE OF WORK: Owner's number of well (if more than one)	Location 5 E 1/4 1/4 New 1/4 Sec 17 Twn, 32 R 22 EWM circle
Deepened Cable Rotary Jetted	L. ~
DIMENSIONS: Diameter of well 5 inches, drilled 58 ft.	(s,t,r still
Depth of completed well ft.	REQUIRED) Long Deg Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No.
Casing Melded Diam. from ft. to	CONSTRUCTION OR DECOMMISSION PROCEDURE Formation: Describe by color, character, size of material and structure, and the
☐ Threaded ☐ 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_ toft	top 30i L 0 3
Screens: Yes No K-Pac Location 54 FT.	Large Gravel 3 30
Manufacturer's Name Johns 5 0/V Type Stain Lets Model No.	bolder 30 34
Diam. 4 Slot Size 20 from 60 ft. to 55 ft.	Gravel SAND W/B 34 60
Diam. Slot Size from ft. to ft.	
Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand	FISE
Materials placed fromft. toft.	O <sup>-1</sup> 골
Surface Seal: ☑ Yes ☐ No To what depth?ft	rog · <del>V</del>
Materials used in seal 24 hole plug	C'in
Did any strata contain unusable water? Yes No	RECEIVED BC
Type of water?Depth of strata  Method of sealing strata off	NOV 0 9 7005
PUMP: Manufacturer's Name Grund Fos  Type: Subs pump H.P. 4	100 0 3 2000 mg
Type: Sub. pump H.P. 3	Department of Ecology
WATER LEVELS: Land-surface elevation above mean sea level 1900 ft.	Goparano.
Static level 34 ft. below top of well Date /0/11/05  Artesian pressure lbs. per square inch Date	
Artesian water is controlled by	
(cap,valve, etc.)	
WELL TESTS: Drawdown is amount water level is lowered below static level.	
Was a pump test made? ☐ Yes ☑ No If yes, by whom?	
Yield:gal/min. withft. drawdown afterhrs.	EECOLOGY
Yield:gal./min. withft. drawdown afterhrs.  Recovery data (time taken as zero when pump turned off)(water level measured from	The servent
well top to water level)	2 7
Time Water Level Time Water Level Time Water Level	- m 1
Date of test	THAL REGIO
Bailer test gal/min. with ft. drawdown after hrs.	
Airtestgal/min. with stem set atft. forhrs.  Artesian flowg.p.m. Date	4/2/25
Temperature of water 56 Was a chemical analysis made? Yes X No	Start Date 8/23/05 Completed Date 10/16/05
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept resp	onsibility for construction of this well, and its compliance with all
Washington well construction standards. Materials used and the information r	eported above are true to my best knowledge and belief.
11/	Brilling Company Downer well Specific
Driller/Engineer/Trainee Signature	Address $po 80 \times 468$
Driller or Trainee License No. 229	City, State, Zip Towasker WA. 988
If trainee, licensed driller's	City, State, Zip Towasket WB, 988 Contractor's Aquamws958kB Date Date
Signature and License no.	Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 4/01)
	ECY 050-1-20 (Rev 4/01)

File Original and First Copy with Department of Euology Second Copy—Owner's Copy Third Copy—Orlller's Copy

:50-1-20 (10/87) -1329- (0 cm 2 cm 18

# **WATER WELL REPORT**

Inv > 924516

STATE OF WASHINGTON

Start Card No. (1)	38289
UNIQUE WELL I.D.	ABJ 695

Water Right Permit No. ...

	(1)	OWNER: Name Monte Smith	POB 984 Tonasket, WA 988	55	
<u></u>	(2,	OCATION OF WELL: CountyOkanogan	NW SE Sec 16 T	37	27
ğ		A			W.M.
Ż	_	TWY/IN	Nelson Road Tonasker.	F DE001	
Mel.	(3)	PROPOSED USE:	(10) WELL LOG or ABANDONMENT PROCEDUR  Formation: Describe by color, character, size of material and		
_	(4)	TYPE OF WORK- Owner's number of well	thickness of aquifers and the kind and nature of the material in ea with at least one entry for each change of information.	ch stratum p	enetrated,
<u>"</u>	(-/		MATERIAL	FROM	то
		Abandoned New well 💆 Method: Dug 🗆 Bored 🗆 Deepened 🗆 Cable 🖸 Driven 🗀	A 1		
5	_	Reconditioned  Rotary  Jetted	Sandy topsoil-brown Boulders, cobbles, sand, silt-brown	- 0	<del>4</del>
	(5)	DIMENSIONS: Diameter of wellinches.	Sand-fine-brown, pea gravel	19	34
<u>o</u>		Orlited 100 feet. Depth of completed well 98 ft.	Gravel	34	41
Information	(E)	CONSTRUCTION DETAILS:	Silt, sand-fine-brown, pea gravel Sand-gray	41 75	75 85
Ξ	(0)		Gravel; pea gravel, sand-gray	85	<del>100</del> -
ō		Casing installed:			
텉		Welded			_
		Perforations: Yes No		_	
the		Type of perforator used		_	_
		SIZE of perforetions in. by in.			
<u>ട</u>		periorations fromft. toft.			
잍		perforations from ft. to ft.			
a		perforations from ft. to ft.			
Data and/or		Screens: Yes No			
ä		Menufacturer's Name			
		Type Model No			
Ž		emStot alzeft. toft.			
>	<b>.</b>	Slot sizefromft. toft.			
Į		Gravel packed: Yea No Size of gravel			
NOT Warranty the	:	Gravel placed fromft. toft.			
Ē		Surface seal: Yee No To what depth? 20 It.			
S	•	Meterial used in sealBentonite	रिक्ष प्राथिति ।		
F	•	Did any atreta contein unueable water? Yea No No	)	-	
$\geq$	,	Type of water?Depth of strets	_ <u></u>		
7	. —	Method of sealing strate off	11 14 AV - 9 17	<u>.</u>	
à		PUMP: Manufacturer's Name			
ť	ś _	Туре:	And the second s	<b>  </b>	
>	3)	WATER LEVELS: Land-surface elevation above mean see levelft.	-	· -	
6	"	Static level 48 ft. below top of well Date 4/6/94			
7	5	Arteaian pressure ibe, per equare inch Date			
FOOLOGY	ر د	Artesian water is controlled by (Cop, valve, etc.))	West and ad 4/5/94 19 Completed 4/6/	94	
ų	,))	WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 7/5/7 19. Completed 7/5/		
		Was a pump test made? Yes No. No. If yee, by whom?	WELL CONSTRUCTOR CERTIFICATION:		
3		Yield:gal./min. with ft. drawdown after hra.	I constructed and/or accept responsibility for cons	struction of	this well,
ì	≝ -		and its compliance with all Washington well con Materials used and the information reported above	are true f	o my best
į	= =	Recovery data (time taken as zero when pump turned off) (weter level measured	knowledge and belief.		
9	S C	Irom wall top to water level) Time WaterLevel Time WaterLevel Time WaterLevel	NAME Fogle Pump & Drilling V	Vest	
3	Departiment		P.O. BOX 456 Republic WA	99786	A PRINT)
	_		·	,, 200	
-	<u>=</u> -	Burning -	Address (By)		
ŀ	_	Date of reat	(Signed) But Salara De Sucense	No	2164
		Bailer test — gal./min. with — ft. drawdown after — 1.0 hre.	Contractor's (WELL ORILLES)		
		Airtest gal./min. with stem set at ft. for hrs.	Registration #PS 095 L4 4/6/94 No Date		19
		Artealan flow g.p.m. Date	DEIG		_,
		Tamperature of water Was a chemical analysis made? Yes No Z	(USE ADDITIONAL SHEETS IF NECES	SSARY)	<b>#</b> 3

ECY 050 1-20 (10.87) 1329-

**-€3-** 3

Dep:	and Conv.—Owen's Conv	Start Card No. 080051  WASHINGTON Water Right Permit No.
(1)	OWNER: Name Pete Weitz	Address 287 Hy. 20 East. Tonasket, Wa
(20)		
(3)	PROPOSED USE:	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION  Formation: Describe by color, character, size of material and etructure, and show
(4)	TYPE OF WORK: Owner's number of well	thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.
	Abandoned New well Method: Dug Bored Driven Reconditioned Reconditioned July Rotary Lated Driven Driven Reconditioned Reconditio	Existing Well 0 75
(5)	DIMENSIONS: Diameter of well 6 inches.	Sand, Gravel, Water 75 98
	Drilled 23 feet. Depth of completed well 98 ft.	
(6)	CONSTRUCTION DETAILS:	
	Casing installed: 6 Diam. from +2 ft. to 93 ft.  Welded X Diam. from ft. to ft. to ft.	
	Threaded h. toft.	
	Perforations: Yes No 🔀	
	Type of perforator used	<del></del>
	SIZE of perforationsinininininininin.	
	perforations from t. to t. t. to t. t. to t. t. to t.	
		2 2 2 1 W 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Screens: Yes X No	1 6 6 5 P V B
	Manufacturer's Name Houstons	
æ	Type Telescoping ModelNo	Lav 2 G
<u>}</u>	Diam.         5 !!         Slot size         30 from         93 ft. to         98 ft.           Diam.         Slot size         from         ft. to         ft.	pani PV
•	Gravel packed: Yes No C Size of gravel	:
	Gravel placed from	
	Surface seal: Yee No To whet depth?ft.	
	Did any strete contain unusable water? Yes No	
	Type of water?Depth of strata	
_	Method of sealing strate off	
(7)	PUMP: Menufacturer's Name	
	Type:H.P	
(8)	WATER LEVELS: Land-surface elevation above mean sea level ft.	
	Static level 50 ft. below top of well Date	
	Artesian pressure  bs. per aquare inch    Artesian water is controlled by	
	(Cap, 1874, 81c.))	Work started 5-21-91 , 19. Completed 5-22 , 19.91
(8)	WELL TESTS: Drawdown is amount water level is lowered below static level Wes a pump test made? Yes No. If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION:
	Yield: 25± gal./min. withft. drawdown afterhrs.	I constructed and/or accept responsibility for construction of this well,
_	" Est Air "Lift " "	and its complience with all Washington well construction standards.  Materials used and the information reported above are true to my best
	Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	knowledge and belief.
	Time Water Level Time Water Level Time Water Level	NAME Okanogan Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
	——————————————————————————————————————	Address RT 2. Box 395. Okanogan, Wa
<b>*</b>	Date of test	-/11/
_)		(Signed) July Rull License No. 1448
	Bailer testgal./min, withht, drawdown afterhrs.  Airtestgal./min, with stem set atht forhrs.	Contractors Registration
	Artesian flow g.p.m. Date	No. OKANODD119LT Date May 24
	Temperature of water Was a chemical analysis made? Yes No No	(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and Firet Copy with Dapartment of Ecology Second Copy—Owner's Copy Third Copy—Driller's Copy

#### **WATER WELL REPORT**

Start Card No. 22458	_

STATE OF WASHINGTON

UNIQUE	WELL	LD.	<b>#</b>

:	_		202 EMV 20 E Monaci	In the Till	3 000E
5	(1)	OWNER: Name Mr. Pete Weitz	Address 287 HWY. 20 E. Tonas	Ket, W.	A.9663
2	1	LOCATION OF WELL: county Okanogan	SW " NW " 14 35	7 ** 5	7
ע ע	-	_	<u>SW %_NM_</u> % Sec_14 137	N., H.2	
	(28)	STREET ADDDRESS OF WELL (or nearest address)			
= ^A	(3)	PROPOSED USE: Domestic Industrial Municipal Industrial Municipal Industrial	(10) WELL LOG or ABANDONMENT PROCEDUR	RE DESC	RIPTION
		☐ DeWater Test Well ☐ Other ☐	Formation: Describe by color, character, size of material and		
	/A\	TYPE OF WORK: Owner's number of well	thickness of equifers and the kind and nature of the material in ea with at least one entry for each change of information.	ich stratum	penetrated,
	(4)		MATERIAL	FROM	TO
Ĕ		Abandoned New well XX Method: Dug Bored Depend Cable Driven	Top Soil	0	3
0		Reconditioned 🗆 Rotary 🛱 Jetted 🗅	Sand, Gravel	3	15
ō	(5)	DIMENSIONS: Diameter of well 6 inches.	Sand, Gravel, Cobbles	15	23
<b>3</b> [	•	Drilled 340 feet. Depth of completed well 340 ft.	Gray Sticky Clay	23	78
the Information	<u></u>		Silts, Sand, Gravel, Water	78	86
5	(6)	CONSTRUCTION DETAILS:	Silts, Sand, WAter	86	94
Ĕ		Casing installed: 6 Diam. from +2 ft. to 170 ft.	Sand, Gravel, Water	94	124
=		Welded	Brown Clay	124	155
Ę			Sand, Water	155	$\frac{164}{168}$
		Perforations: Yes No.XX	Silts, Fine Sand, Water	164 168	100
ō		Type of perforetor used	Decomposed Shale, Trace of Water	100	170
ਰੂ		SIZE of perforations in. by in.	Med. Hard Shale-Blue	170	174
ਕ			Decomposed, Weathered Shale	174	179
Data and/or		perforations from ft. to ft.	Med. Hard Black Shale	179	241
न्	_	Screens: Yes No X	Decomposed Black Shale,	241	
		Manufacturer's Name	Trace of Water		246
ž		Type Model No	Med. Hard Black Shale	246	305
<b>,</b> t	ſ	Diamft. toft.	Decomposed Black Shale, Water	305	311
Ĕ.	•	Diam,ft. toft.	Med. Hard Black Shale	311	340
Warranty the	•	Gravel packed: Yes No XX Size of gravel			
Ĭ		Gravel placed from ft. to ft.			
ž		Surface seal: Yell No To what depth? 18 1.			
_		Meterial used in saal Bentonite	[1] [1] [1] [1] [1] [1] [1] [1] [1] [1]		
9		Old any strata contain unusable water? Yes No X		·	
Z		Type of water?Depth of strata	MAY = 4 :		
es		Method of sealing strata off			
ğ	(7)	PUMP: Manufacturer's Name		$\overline{}$	
		Type:H.P			
Ecology	(8)	WATED 1 EVEL C. Land-surface elevation			
0	(0)	Static level 5.2 ft. below top of well Date ft.			
္ပင္ပ		Artesian pressure  bs. per square inch Date			
		Artesian water is controlled by(Cap, valve, etc.))		2/2/	
ಠ	<u></u>	WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 4/26/94 19. Completed 4/3	0/94_	<u>_ , 19</u>
		Was a pump test made? Yes No If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION:		
ē		Yield:5 gal./min. with ft. drawdown after hrs.	I constructed and/or accept responsibility for const	ruction of	this well
Ε		n n n	and its compliance with all Washington well cons	struction 8	tandards.
Ĭ		Est. Air Lift	Materials used and the information reported above a knowledge and belief.	are true to	my best
Department		Recovery data (time taken as zero when pump turned off) (water level measured from wall top to water level)			
ڄ		Time Water Level Time Water Level Time Water Level	NAME Okanogan Drilling		
			(PERSON, FIRM, OR CORPORATION)	(TYPE OR	
The	_		Address Rt. 2, Box 395 Okanogan,	WA.98	840
	٠,	Date of test	1.01111	1.4	40
		Bailer test gal./min, with ft. drawdown after hrs.	(Signed) License N	1014	<del>40</del>
		Airtest 5 gal./min, with stem set at 340 ft. for 2 hrs.	Contractors  Registration		
		Artesian flow g.p.m. Date	No. OKANODD119LT Date 5/1/94		_, 19
		Temperature of water Was a chemical analysis made? Yes No	USE ADDITIONAL SHEETS IF NECESS	SARYI	45
			, (OUL ADDITIONAL DIFFEID II NEOLOG	/	

(USE ADDITIONAL SHEETS IF NECESSARY)



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

ECY 050-1 20 (10 87) -1329-

- (E) »

#### WATER WELL REPORT

Start Card No. 080020

STATE OF WASHINGTON

	<b></b> ,

iniro	Сору — Бинег в Сору	Water Right Permit No.	
7	OWNER: Name Philip Brown	Address P.O. Box 493. Tonaske	t, Wa 98855
(2a)	LOCATION OF WELL: County Okanogan  STREET ADDDRESS OF WELL (or nearest address)		, Z
(3)	PROPOSED USE: ☑ Domestic Industrial ☐ Municipal ☐ Irrigation ☐ DeWater Test Well ☐ Other ☐	(10) WELL LOG or ABANDONME Formation: Describe by color, character, a	7 -
(4)	TYPE OF WORK: Owner's number of well	thickness of aquifers and the kind and nature with at least one entry for each change of inform	
,	Abandoned New well C Method: Dug D Bored Deepened Cable Driven Reconditioned Rotary S Jetted	Top Soil Sand, Gravel, Cabbles	13162
(5)	DIMENSIONS: Diameter of well 6 inches.	Sand, Gravel. Water	62 113
	Drilled 120 feet. Depth of completed well 108 ft.	Gray Clay, Silts, Water	113   120
(6)	CONSTRUCTION DETAILS:		
ì	Casing installed:       6       ' Diam. from ±2   ft. to 108   ft.         Welded       □   Diam. from   ft. to   ft.         Liner installed       □   Diam. from   ft. to   ft.         Threaded       □   Diam. from   ft. to   ft.		
Т	Perforations: Yes No X		
	Type of perforations In. by In.		
	SIZE of perforations In. by In. by In ft. Io ft.		
	perforations fromft. toft.		
	perforations from ft. to ft.		
	Screens: Yes X No	1 E E E U V E 175	
	Manufacturer's Name Johnson  Type Telescoping Model No		
	Diam. 5" Slot elze 25 from 103 lt. to 108 ft.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	Diamft. 10ft.		
•	Gravel packed: Yes No Size of gravel	DEPARTMENT OF ECOLOGY	
	Gravel placed fromft. toft.	CENTRAL REGION OFFICE	
	Surface seal: Yes X No To what depth? 18		-ti,
	Oid any strata contain unueable water? Yes No X		7 97
	Type of water?Depth of strata		
	PUMP: Manufacturer's Name		
	Type: H.P. H.P.		<del></del>
	WATER LEVELS. Land-surface elevation		
	Static level 62 ft. below top of well Date		
A	Artesian pressure lbs. per equare inch Date		
	Artesien water is controlled by(Cap, valve, etc.))		
	WELL TESTS: Drawdown is amount weter level is lowered below static level	Work started 11 29 90 . 19. Completed 11	30
	Ves a pump test made? Yes No I If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION:	
	и и и	I constructed and/or accept responsibility for const and its compliance with all Washington well cons	
fr	"EST Air Lift Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) Imp Water Level Time Water Level Time Water Level	Materials used and the information reported above a knowledge and belief.	
		NAME Okanogan Drilling (PERSON, FIRM, OR CORPORATION)	(TYPE OR PRINT)
<u> </u>		Address RT 2 Box 395 Okanongan	, Wash 9884
_	Date of test	(Signed) LLW Culott: h License N	lo. 1448
	lailer test gal. /min. with ft. drawdown after hrs.	Contractor (WELL DRILLER)	
	irrestgal /min_with stemeet atft. forhrs. irresian flowg.p.m. Date	Registration No.OKANODD1191T Date Dec 4.	.1990 . 19
	emperature of water Was a chemical analysis made? Yes No		
		L (USE ADDITIONAL SHEETS IE NECESS	SARY)

# STATE OF WASHINGTON DEPARTMENT OF CONSERVATION AND DEVELOPMENT

WELL		NoAp	017. 2	849	
Date .	3-6, <sub>19</sub> 61.	1	<u> </u>		200
Record	by well driller		1 1		
Source	driller's record				
	n State of WASHINGTON		<b></b>		
2000an	unty Okanogan		j		
	ea				
Ma					
SE	14 SE 14 sec 9 T 37 N, R . 2 Co Thomas Drilling (	7.E.	Diagram of	Section	
Des Uses	. C. Thomas Drilling	0			
Δd	dress Box 1416 Omak. Wa	sh.			1
Ma	athod of Drilling	Date ]	Peb.	, <sub>19</sub> 61	
Oumor	thod of Drilling Raymond E. Colbert	, Dave .	•	. ,	¥.
-wner.	dress. Tonasket, Wash.				1
	urface, datum ft above				
	below				
CORRE- LATION	MATERIAL		THICKNESS (feet)	DEPTH (feet)	
below las	anscribe driller's terminology literally but paint water-bearing, so state and record static ad-aurface datum unless otherwise indicated e Following log of materials, list all casings	Correlate w perforations	vith stratigra s, screens, et	iphic column,	Take Vand
	Top soil & boulders		5	2	. 6
	Sand - dry Sand, gravel & water	<del></del>	18	42 60	
	Gravel & water		5	65	
	PUMP TEST:				ŀ
	Dim. 8"x65 ft.				340
	SWL:				
	Water Temp. 52°				
	CASING:	<del>55 F+</del>		<u> </u>	
	O. Grain. ILOM O CO	10.			1
					į
					. 2
					1
					37.4
					12.
					8
Turn up		Sheet	of	sheets	. 16

WATER WELL REPORT Original & 1st copy - Ecology, 2st copy - owner, 3rd copy - driller	CURRENT Notice of Intent No. W232629
E C O L O C Y  Construction/Decommission ("x" in circle) 32399 Z	Unique Ecology Well ID Tag No. AKO 018
Sometruction	Water Right Permit No.
O Decommission ORIGINAL INSTALLATION Notice	Property Owner Name Ron - Janece Culo
of Intent Number	
	Well Street Address Hwy 97 Tonask zr
PROPOSED USE:   Domestic □ Industrial □ Municipal □ DeWater □ Irrigation □ Test Well □ Other	City Tongstort County Okcenos 45 Location WE14-14 E1/4 Sec 6 Twn 37 R 27 EWD circle
TYPE OF WORK: Owner's number of well (if more than one)	Education 2 141 2 1/4 See 1 141 7 10 or, circle
	Lat/Long (s, t, r Lat Deg Lat Min/Sec
DIMENSIONS: Diameter of well inches, drilled ft.  Depth of completed well ft.	Still REQUIRED) Long Deg Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No. 3727/6 0004
Casing Weided	
Installed:         ☐ Liner installed	CONSTRUCTION OR DECOMMISSION PROCEDURE
Perforations:  Yes  No	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
Type of perforator used	information. (USE ADDITIONAL SHEETS IF NECESSARY.)
SIZE of perfsin. byin. and no. of perfsfromft. toft.	MATERIAL FROM TO
Screens: No No Location. 56	WOTOP 50.1
Manufacturer's Name John 5007	
Type TC/S6 or Model No.  Diam Slot size JS from S ft. to 62 ft.  Diam. Slot size from ft. to ft.	5And gnd Gran 6 9
Gravel/Filter packed: ☐ Yes No ☐ Size of gravel/sand ☐ Materials placed from ☐ ft. to ☐ ft.	Brown SAND of 16
Surface Seal: No To what depth? 20 ft:	3,1+ SAND 16 28
Material used in seal Benfinish T	
Did any strata contain unusable water?	Gravel SAN 28 49
Type of water? Depth of strata	
Method of sealing strata off	Clean Gravel
PUMP: Manufacturer's Name H.P. H.P.	Water 44 63
WATER LEVELS: Land-surface elevation above mean sea level  ft.  Static level	Fine Comy Sand los 65
Artesian pressure Ibs. per square inchr Date	
Artesian water is controlled by	
(cap, valve, etc.)	
WELL TESTS: Drawdown is amount water level is lowered below static level	
Was a pump test made? ☐ Yes   No If yes, by whom?	
Yield: gal./min: with ft. drawdown after hrs.	
Yield gal/min. with fl. drawdown after hrs.  Yield gal/min. with fl. drawdown after hrs.	Par :
Recovery data (time-taken as zero when pump turned off) (water level measured from well	RECEIVED
top to water level)	
Time Water_Level Time Water Level Time Water Level	DEC 0.5 20do
Date of test 12 - 27 - 08	DEPARTMENT OF ECHUCY - CENTRAL REGIONAL OFFICE
<del></del>	
Bailer test gal./min. with ft. drawdown after hrs.  Airtest 23 gal./min. with stem set at 60 ft. for 7 hrs.	
Artesian flow g.p.m. Date	
Temperature of water Was a chemical analysis made? □ Yes 🔼 No	Start Pare 21-08 Completed Date 11-27-0
<u> </u>	-
WELL CONSTRUCTION CERTIFICATION: I constructed and/or ac	cept responsibility for construction of this well, and its compliance with
Washington well construction standards. Materials used and the informati	
MDriller   Engineer   Trainee Name (Print)   B, Wmoomfw	Drilling Company Moom An Dalling
Driller/Engineer/Trainee Signature 349 logo long	Address Parsor 3652 Obayare in
Oriller or trainee License No	City, State; Zip OMAK Wm 98441
If TRAINEE,	(1000 MA) X070 DD 112 7-1
Driller's Licensed No	Registration No Date
Driller's Signature	Ecology is an Equal Opportunity Employ
<u> </u>	

WATER WELL REPORT Original & 1 <sup>st</sup> copy - Ecology, 2 <sup>nd</sup> copy - owner, 3 <sup>rd</sup> copy - driller	CURRENT Notice of Intent No. 623263	.0
Construction/Decommission ("x" in circle) 32399	Unique Ecology Well ID Tag No	•
<b>X</b> Construction	Water Right Permit No.	
O Decommission ORIGINAL INSTALLATION Notice of Intent Number	Property Owner Name Ron-June 2	
	Well Street Address Hung 47	
PROPOSED USE: Proposestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other	City Toncas Ket County Of	
TYPE OF WORK: Owner's number of well (if more than one)	Location 51/4-1/40 1/4 Sec 16 Twn 3	
Method: ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable. ☐ Cable. ☐ Detection ☐ Det	Lat/Long (s, t, r Lat Deg Lat	Min/Sec
DIMENSIONS: Diameter of well	Still <b>REQUIRED</b> ) Long Deg Lor	ng Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No. 3727/60009	
Casing X Welded 6 "Diam from 12 ft to 58 ft. Installed: Diam from ft. to ft.	CONCERNICATION OF PERCONAMICANO	PROCEDURE
☐ Threaded "Diam. from ft. to ft.	CONSTRUCTION OR DECOMMISSION Formation Describe by color, character, size of material and s	
Perforations: ☐ Yes	nature of the material in each stratum penetrated, with at least information. (USE ADDITIONAL SHEETS IF NECES	
SIZE of perfsin, by in, and no, of perfsfromft, toft.	MATERIAL MATERIAL	FROM TO
Screens: XYes I No XX-Pac Location  Annufacturer's Name \text{ Annufacturer's Name	NO topso.11	
Type         Model No.           Diam.         6         Slot size         75         from         ft. to         63         ft.           Diam.         Slot size         from         ft. to         ft.	SAND Grave	0 9
Gravel/Filter packed: ☐ Yes. ☑ Size of gravel/sand	Brown SANC	9 16
Surface Seal: 12) Yes \( \text{No To what depth?} \) \( \text{20} \) ft.  Material used in seal \( \text{R} \) \( \text{Prop} \) \( \text{Prop} \) \( \text{Prop} \)	Silty Spand	16 29
Did any strata contain unusable water?	Grand + SANd	29 38
Method of sealing strata off	Gray Clay & Grad	38 43
PUMP: Manufacturer's NameH.P		7.57
WATER LEVELS: Land-surface elevation above mean sea level ft.	Clean Grant	43 64
Static level 40 ft. below top of well Date 12-2-08	Fine Sand	124 +
Artesian pressure lbs per square inch Date		
Artesian water is controlled by (cap, valve, etc.)		
WELL TESTS: Drawdown is amount water level is lowered below static level		<u> </u>
Was a pump test made?  Yes  Yield:  gal./min. with  ft. drawdown after  hrs.		
Yield: gal/min. with ft. drawdown after hrs. Yield: gal/min. with ft. drawdown after hrs.		
Recovery data (time taken as zero when pump turned off) (water level measured from well		-
top to water level) Time Water Level Time Water Level Time Water Level	— REC	EIVED
		0.5.2008
Date of test. 12-2-08	DEPARTMENT OF THE PROPERTY OF	Y-CENTRAL REGIONAL OFFICE
Bailer test gal /min, with ft. drawdown after hrs.		T - WENTHAL HEGIONAL OFFICE
Airtest / gal/min. with stem set at / ft. for / hrs.  Artesian flow g.p.m. Date		
Temperature of water Was a chemical analysis made? ☐ Yes 🏞 No		
	Start Date 11-28-68 Complete	d Date <u>/2 - 2 - 0</u> \$
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accommodated washington well construction standards. Materials used and the information of the property of the standards of the construction of the standards of the standard	on reported above are true to my best knowledge ar	nd belief.
Driller/Engineer/Trainee Signature 311 Mood man	Address \$ \$ 30 x 3652	
Driller or trainee License No	City, State, Zip DMAN CV	7 98841
If TRAINEE,	MAN DX0700D	2 11 -7 -00
Driller's Licensed No	Registration No.	Date / Z - Z - Egual Opportunity Employer.

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

#### WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. <u>W-26278</u>

UNIQUE	WELL	I.D.	<i>f</i>	

	,	Water Right Permit No	
Q	OWNER: Name Stan McDaniel	Address P.O. Box 922, Tonasket, W	VA . 988
Ų	LOCATION OF WELL: County Okanogan	NW <u>wSE wsec 15</u> t 37 N., R	27_w.
(24)	STREET ADDDRESS OF WELL (or nearest address)		
(3)	PROPOSED USE: 1 Domestic   Industrial   Municipal   DeWater   Test Well   Other	(10) WELL LOG OF ABANDONMENT PROCEDURE DESC Formation: Describe by color, character, size of material and structure	
<u></u>	TYPE OF WORK: Owner's number of well	thickness of aquifers and the kind and nature of the material in each stratum with at least one entry for each change of information.	m penetrate
(-/	(if more than one)	MATERIAL FROM	ТО
	Abandoned : New well   St Method: Dug : Bored : Deepened : Cable : Driven :	Top Soil 0	
	Reconditioned 🗆 Rotary 🔽 Jetted 🗅	Sand 3	
(5)	DIMENSIONS: Diameter of well 6 Inches.	Sand, Gravel 28	
	Drilled 460 feet. Depth of completed well 430 ft.		
(6)		Blue Clay 240	
(0)	5	Sand, Some Gravel, Silty Water315	
	37	Silty Sand, Water 324	
	Liner installed	Wet Silty Clay 348	
	Threaded Diam. from tt. to tt.	Sand, Gravel, Water 430	460
	Perforations: Yea No 24 Type of perforator used		<del> </del>
	SIZE of perforations in. by in.	<del></del>	+
	perforations from H. to ft.		<del>                                     </del>
	parforetions from ft. to ft.		
	perforations from ft. to ft.		<u> </u>
	Screens: Yes X No		
	Manufacturer's Name COOK		
_	Type Telescoping Model No		
•	Diam. 5 Slot size 20 from 455 ft. to 460 ft.		↓
	DlamSlot aizefromft. toft.		<u> </u>
	Gravel packed: Yes No Size of gravel		<del></del>
	Gravel placed from ft. to ft.		<del>-</del>
	Surface seal: Yea No To what depth? 18 1.		1-
	Material used in seel Bentonite		+
	Did any strata contain unusable water? Yes No		
	Type of water?Depth of strata	DEPARTMENT OF ELLER.	
	Method of sealing strate off		
(7)	PUMP: Manufacturar's Name		<u> </u>
	Туре:		↓
(8)	WATER LEVELS: Land-surface elevation above mean sea levelft.	<b></b>	<del> </del>
	Static level 240		<del> </del>
	Artesian pressure  bs. per aquere inch   Date   Artesian water is controlled by		<del>                                     </del>
	(Cap, valve, etc.))	Work started 5/12/94 19. Completed 5/28/94	
9)	WELL TESTS: Drawdown is amount water level is lowered below static level	TOTA STATES	
	Was a pump test made? Yes No If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION:	
	gal./min. with 1, grawdown after 1, ma.	I constructed and/or accept responsibility for construction or	
	Est. Air Lift	and its compliance with all Washington well construction Materials used and the information reported above are true t	
	Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	knowledge and belief.	
	Time Water Level Time Water Level Time Water Level	NAME Okanogan Drilling	
_		(PERSON, FIRM, OR CORPORATION) (TYPE O	OR PRINT)
	<del></del>	Address Rt. 2, Box 395 Okanogan, WA. 9	8840
7	Data office	A 1 1 A	
[	Date of feet	(Signed) Lews Ololph License No. 144	18
	Baller test gal./min. with ft, drawdown after hre.	Contractor's (WELL DRILLER)	
	Airtest _30 gal./min. with stem set at _430 ft. for _3 hrs.	Registration ODD 119LT 7/11/94	10
	Artesian flow g.p.m. Date	NoDate	, 10
	Artesian flow g.p.m. Date  Temperature of water Was a chemical analysis made? Yes No	(LISE ADDITIONAL SHEETS IE NECESSARV)	ــ-۰۶ـــــــــــــــــــــــــــــــــ

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

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

ECY 050-1-20

### WATER WELL REPORT

Application	No.
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STATE OF V	VASHINGTON Permit No
(1) OWNER: Name Ted Eleve	Address Tonnabet Wash.
V LOCATION OF WELL: County Pray oran	- NW, BE V Sec. HB T37N, R278WM
searing and distance from section or subdivision corner	
(3) PROPOSED USE: Domestic of Industrial   Municipal	(10) WELL LOG:
Irrigation Test Well Other  (4) TYPE OF WORK. Owner's number of well	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.
(4) TYPE OF WORK: Owner's number of well (if more than one)	MATERIAL FROM TO
Deepened Cable Driven Reconditioned Rotary Detted	Sand, bravel Boulder 0 60.
(5) DIMENSIONS: Diameter of well inches.	While Grey Broken Counte 60 250
Drilled 250 ft. Depth of completed well 250 ft.	
(6) CONSTRUCTION DETAILS:	
Casing installed: 6 "Diam. from #1 ft. to 60 ft.	
Threaded   "" Diam. from	
Perforations: Yes   No to	
Type of perforator used	
SIZE of perforations in, by in.	
perforations from ft. to ft.	
perforations from ft. to ft.	
Screens: Yes   No 18	
Manufacturer's Name	
Type Model No	
Diam. Slot size from ft, to ft.  Diam. Slot size from ft, to ft.	
Gravel packed: Yes No Size of gravel:	
Surface seal: Yes No D To what depth? 8	BECZINED
Did any strata contain unusable water? Yes No	NEUZIVED
Type of water?	
	1 SIAY 29 70-3
7) PUMP: Manufacturer's Name	עבטל בבויבו עב בטטו מטא
	(C)
8) WATER LEVELS: Land-surface elevation above mean sea level	
tatic level	
Artesian water is controlled by(Cap, valve, etc.)	
9) WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 3-17 19 79 Completed 3-18 1979
Vas a pump test made? Yes No If yes, by whom?	WELL DRILLER'S STATEMENT:
n n n n	This well was drilled under my jurisdiction and this report is
	true to the best of my knowledge and belief.
decovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	601:010 00:
Time Water Level Time Water Level Time Water Level	NAME (Person, firm, or corporation (Type or print)
	Address PO Box 607-Omak, Wash.
Date of test	[Signed] Me C. Cura
after test 12 gal/min, with ft. drawdown after hrs.	(Well Driller)
emperature of water	License No. 0382 Date 3-15 , 1979
(USE ADDITIONAL SH	EETS IF NECESSARY)
L.7 (19(E1.20)	A deliate 1

Application	No.		
		_	

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy WATER WELL REPORT STATE OF WASHINGTON Permit No. . . . (1) OWNER: Name TED ELXRE Address 11 EBERLE RO. , TOWASKET, WA. 98855 (2) LOCATION OF WELL: County OKANOGAN \_ UU 1/2 UU 1/2 Sec 15 т 37 N R 27 €, W M ing and distance from section or subdivision corner (10) WELL LOG: (3) PROPOSED USE: Domestic M Industrial Municipal Irrigation | Test Well | Other Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation. Method: Dug | Bored | Cable [ Driven 🛘 Rotary Jetted 🗆 Reconditioned [ (5) DIMENSIONS: DIMENSIONS: Diameter of well inches prilled 400 ft. Depth of completed well ft. (6) CONSTRUCTION DETAILS: Casing installed: 6" Dlam from 1 n. to 59 n. Threaded [ haro Welded A Seep Perforations: Yes 🗆 No 🕱 Type of perforator used...... SIZE of perforations ...... in. by ..... in. \_\_\_\_\_ perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Screens: Yes 🗆 ` No 💆 Manufacturer's Name..... Type Model No..... Dlam, ...... Slot size ..... from ..... ft. to ..... Diam. Slot size ft. to ft. Gravel packed: Yes 🗆 No 🚺 Size of gravel: ..... Gravel placed from ...... ft. to ..... ft. Surface seal: Yes No D To what reports? 18 Did any strata contain unusable water? Yes 🗆 No 🗆 Type of water?..... Depth of strata...... Method of sealing strata off..... (7) PUMP: Manufacturer's Name..... لائتدا 🖰 (8) WATER LEVELS: Land-surface elevation above mean sea level.... Static level (a) the below top of well Date 9-03-80 DECKSTAGE ... Artesian water is controlled by (Cap, valve, etc.) (9) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? Yes D No D 'If yes, by whom?...... ..., 1980 Completed 9/22 , 1980 WELL DRILLER'S STATEMENT: gal./min. with ft. drawdown after hrs. .. . . true to the best of my knowledge and belief. Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) NAME AlieD ORILLO FUR Time Water Level | Time Water Level | Time

This well was drilled under my jurisdiction and this report is

[Signed]

License No. 0973 Date 7 -25 1980

ate of test gal/min, with ft. drawdown after hrs.

Artesian flow g.p.m, Date

Department

NOT Warranty the Data and/or the Information on the

WATER WELL REPORT	CURRENT Notice of Intent No	670
V C O L O C V	Unique Ecology Well ID Tag No	LF 5/2
Construction/Decommission ("x" in circle) Construction Co	Water Right Permit No.	
of Intent Number	Property Owner Nam Towaske T Free	Methodas Four
PROPOSED USE: Domestic Industrial Municipal DeWater Irrigation Test Well Other	Well Street Address Haville Roll	
	City buskee County:	Okanosan
TYPE OF WORK: Owner's number of well (if more than one)  New Well  Reconditioned Method: Dug Bored Driven	Location NW4- 1/4 SW/4 Sec 15	37.77 W
Deepened Cable Rotary Dietted	1	U1 01
DIMENSIONS: Diameter of well 6 inches, drilled 358 ft.	Lat/Long: Lat Deg	Lat Min/Sec
Depth of completed well 358 ft.	REQUIRED) Long Deg	Long Min/Sec MA
CONSTRUCTION DETAILS	Tax Parcel No.	Long Wall Doc 1
Casing Welded 6 " Diam from +2 ft. to 353	ft. CONSTRUCTION OR DECOMMISSI	ON PROCEDURE
	ft. Formation: Describe by color, character, size of m	aterial and structure, and the
	kind and nature of the material in each stratum per	netrated, with at least one
Perforations: Yes X No	entry for each change of information. Indicate all (USE ADDITIONAL SHEETS IF NECESSARY.	water encountered.
Type of perforator used	MATERIAL	FROM TO
SIZE of perfsin. byin. and no. of perfs fromft. tof	SAMO SAMO	
creens: XYes No X K-Pac Location	SAULA CALLANDE	0 74
fanufacturer's Name	SAND DEC CUE	74 196
ype STAINLESS Model No.	SAND, CRS, SILT, GRY	196
iam. 6 Slot Size 18 from 353 ft. to 358 ft.	WIAPRY 5 Lopm	270
iamSlot Sizefromft. toft.	SAND, CRS, GRY WIAPRY	270
Gravel/Filter packed: Yes No Size of gravel/sand	8 Copm	280
ft. to ft.	SAND, SILT, GRY, DENSE	
Surface Seal: X Yes \( \text{No} \) To what depth? \( ft \)	W/Apex 8 Coph	350
Materials used in seal BENIDNITE  Did any strata contain unusable water? □Yes No	SAND, CRS, CARY, WATER	350 358
Type of water?	OF ECOLOGY	
Method of sealing strata off	- deceived	
PUMP: Manufacturer's Name		2
Гуре: H.Р	DEC 2 3 2004	
WATER LEVELS: Land-surface elevation above mean sea level ft.	\$ FO	8
Static level 190 ft. below top of well Date 12-7-64	TRAL BEGION ST	
rtesian pressurelbs. per square inch Date	RECEIVED	
Artesian water is controlled by	000	
(cap,valve, etc.)	_ DEC 2 0 2004 %G	(n
VELL TESTS: Drawdown is amount water level is lowered below static level.	PEPARTMENT OF ECOLOGY	7
Was a pump test made? Yes No If yes, by whom?	WELL DRILLING UNIT	-
(ield: gal/min_with ft_drawdown_after hrs	WELL UNILLING DIVIT	
field: gal/min. withft. drawdown afterhrs  field: gal/min. withft drawdown afterhrs	VEEL UNILLING ONLY	
field:     gal/min. with     ft. drawdown after     hrs       field:     gal/min. with     ft. drawdown after     hrs       field:     gal/min. with     ft. drawdown after     hrs.	WELL DRILLING DNIV	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs. gal/min. with ft. drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from	WELL DRILLING DNIV	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level)	WELL DRILLING ONT	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level)	WELL DRILLING ONT	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level)	WELL DRILLING ONT	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level) ime Water Level Time Water Level Time Water Level ate of test	WELL DRILLING ONT	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs field: gal/min. with ft. drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level) fime Water Level Time Water Level Time Water Level  Fate of test	WELL DRILLING ONT	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft drawdown after hrs field: gal/min. with ft drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level) fime Water Level Time Water Level Time Water Level  Pate of test gal/min. with ft. drawdown after hrs writest gal/min. with stem set at 355 ft for hrs writesian flow g.p.m Date		
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft drawdown after hrs field: gal/min. with ft drawdown after hrs. ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level) time Water Level Time Water Level Time Water Level  aller test gal/min. with ft. drawdown after hrs threst 20 gal/min. with stem set at 355 ft for hrs thresian flow g.p.m Date	Start Date 12-1-04 Completed Da	
field: gal/min. with ft. drawdown after hrs field: gal/min. with ft drawdown after hrs field: gal/min. with ft drawdown after hrs. geovery data (time taken as zero when pump turned off)(water level measured from ell top to water level) time Water Level Time Water Level Time Water Level  attended to test gal/min. with ft. drawdown after hrs timest 50 gal/min. with stem set at 3.55 ft for hrs tresian flow g.p.m Date temperature of water Was a chemical analysis made? Yes No	Start Date 12-1-04 Completed Date onsibility for construction of this well, and its construction of the co	me 12 - 7 - 04  Compliance with all
field: gal/min. with	Start Date 12-1-04 Completed Date onsibility for construction of this well, and its comported above are true to my best knowledge and	ompliance with all d belief.
field: gal/min. with	Start Date 12-1-04 Completed Date onsibility for construction of this well, and its comported above are true to my best knowledge and Drilling Company Clear Water	me/2-7-04  Compliance with all d belief.  Drilling
field: gal/min. with	Start Date 12-1-04 Completed Date on Sibility for construction of this well, and its comported above are true to my best knowledge and Drilling Company Clear Water P.O. Box 15	ompliance with all d belief.  Drilling
field: gal/min. with ft drawdown after hrs field: gal/min. with ft drawdown after hrs. field: gal/min. with ft drawdown after hrs. fecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level) fime Water Level Time Water Level Time Water Level fine Water Level Time Water Level Time Water Level ft. drawdown after hrs ft. d	Start Date 12-1-04 Completed Date on Start Da	ompliance with all d belief.  Drilling

#### 1510V D\* 5 . . . o CEARLON AS STRAILON BLDG. STARFAL WASHINGTON

### RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permii No. G. W. 5542

	1211 9x 2 1 1 1 1 1	1 A 1			
F No. 1136 Ob 8-38 5N 56311	TARPA, WASHINGTON	Allon BLDG.			Edlar
	L DRILLER OR OTHER S		WORKS	(2)	55507
nder Permii No. G. W. 554	2			·73	7/R27E-16
	structur of works for the withors wand of the factual information necess (945.)			o tur-	SW, NE Guogen Co.
Tonasket Weno	Ke Growers To:	unsitute wash.		* * * * * * * * * * * * * * * * * * *	
	works where water is taken		\		
. Date on which work on we	il or other structure was starte	•			
. Date on which work was	completed	4/8/60	and a service of the state may all the easy assessment.		
. If work on well or other st	ructure was abandoned, give da	ate			
and reason for abandonme	eu <b>t</b>		, a b	· · · · · · · · · · · · · · · · · · ·	
. DESCRIPTION OF WORKS:				\$ (A) 	
(a) WELL: Depth. 98	it Diameter 8" in.	or ft. Dug or skilled	Drilled	**************************************	
Flowing or pump wel	l pamp Water Tem	p. 54	granger revises relig	19. N	
Ir Primo Werre Tuna	and size of pump isElec.	submersible,	emellika karan sak hit ili yaya sa gipuli mera angangayay.		
AT A COMP TERMIN A Y DC				•	
	notor or engine is 5 h.p.	electric	anner gen gan ganger		
Type and size of r	notor or engine is5h.p.s d surface to water level before			· . · · · · · · · · · · · · · · · · · ·	
Type and size of r Depth from groun	d surface to water level before	pumping 2/5		feet	
Type and size of r Depth from groun  After continuous	•	pumping 25 urs, the measured disch	arge of the pun	feet np lii feet	
Type and size of r Depth from groun After continuous	d surface to water level before operation for 8	pumping 2.5  urs, the measured disch  of water level is (Pumping level	arge of the pun	feet	
Type and size of r Depth from groun After continuous 130 Recovery data (ta	d surface to water level before operation for 8 hours hours g.p.m., and the drawd wn o	pumping 25  urs, the measured disch  of water level is  (Pumping level)  ff) (time taken as zero	arge of the pun	feet	
Type and size of r Depth from groun After continuous 130 Recovery data (ta	d surface to water level before  operation for 3ho  intleast four)  g.p.m., and the drawdown o  ken after pump has then shut o	pumping 25  urs, the measured disch  of water level is  (Pumping level)  ff) (time taken as zero	arge of the pun	feet np is feet is real	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level	d surface to water level before operation for 3ho	pumping 25  urs, the measured disch  of water level is  (Pumping level)  ff) (time taken as zero	arge of the pun 53 of minus state water when pump tu	feet np is feet is real	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level	d surface to water level before operation for 3ho	pumping 25  urs, the measured disch  of water level is  (Pumping level)  ff) (time taken as zero	arge of the pun 53 of minus state water when pump tu	feet np is feet is real	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level	d surface to water level before operation for 3ho	pumping 25  urs, the measured disch  of water level is  (Pumping level)  ff) (time taken as zero	arge of the pun 53 of minus state water when pump tu	feet np is feet is real	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level	d surface to water level before operation for 3ho	pumping 25  urs, the measured disch  of water level is  (Pumping level)  ff) (time taken as zero	arge of the pun 53 of minus state water when pump tu	feet np is feet is real	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level	d surface to water level before operation for 3ho	pumping 25  urs, the measured disch  of water level is  (Pumping level)  ff) (time taken as zero	arge of the pun 53 of minus state water when pump tu	feet np is feet is real	
Type and size of r Depth from groun After continuous 130 Recovery data (ta off) (water level Time	d surface to water level before operation for	pumping 2/5  urs, the measured disch of water level is (Pumping let ff) (time taken as zero er level)  Time	arge of the pun	feet  np is  feet  rned	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level Time  Date of test  If Figuring Well: Mo	d surface to water level before operation for	pumping 2/5  urs, the measured disch of water level is (Pumping level)  Time  g.p.m. on	arge of the pun  33  The industration water water  Water Level  (Date)	feet  np is  feet  rned	
Type and size of r Depth from groun After continuous 130 Recovery data (ta off) (water level Time  Date of test Ir Figuring Well: Mo	d surface to water level before operation for	pumping 2/5  urs, the measured disch of water level is (Pumping let ff) (time taken as zero er level)  Time  g.p.m. on	arge of the pun  33  The industration water water  Water Level  (Date)	feet  np is  feet  rned	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level  Time  Date of test  If Figuring Well: Mo Shut-in pressure a Water is controlled	d surface to water level before operation for	pumping 2/5  urs, the measured disch of water level is (Pumping level)  Time  g.p.m. on  lbs. per sq. in. on	arge of the pun  53  6) primal static water when pump tu  Water Level  (Date)	feet ap is feet	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level  Time  Date of test  If Figuring Well: Mo Shut-in pressure a Water is controlled	d surface to water level before operation for	pumping 2/5  urs, the measured disch of water level is (Pumping level)  Time  g.p.m. on  lbs. per sq. in. on	arge of the pun  53  6) primal static water when pump tu  Water Level  (Date)	feet ap is feet arrived	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level  Time  Date of test  If Figure Well: Mo Shut-in pressure a Water is controlle Casing: (Give diame- casing size.)	d surface to water level before operation for	pumping 2/5  urs, the measured dischoof water level is (Pumping level)  Time  g.p.m. on  lbs. per sq. in. on  Cap. valve, etc.) and depth 1 low ground	arge of the pun  33  The industratic water water when pump tu  Water Level  (Date)  (Date)	feet ap is feet arrived	
Type and size of r Depth from groun After continuous  130 Recovery data (ta off) (water level Time  Date of test  If Figure Well: Mo Shut-in pressure a Water is controlle Casing: (Give diame casing size.)	d surface to water level before operation for	pumping 2/5  urs, the measured dischoof water level is (Pumping level)  Time  g.p.m. on  lbs. per sq. in. on  csp. valve, etc.)  and depth L low ground from 0	(Date)	feet  np is  feet  rned  rned  reach	
Type and size of r Depth from groun After continuous  130  Recovery data (ta off) (water level Time  Date of test  If Figure Well: Mo Shut-in pressure a Water is controlle Casting: (Give diame casing size.)  B in diam in diam	d surface to water level before operation for	pumping 2/5  urs, the measured disch of water level is (Pumping level)  Time  g.p.m. on  lbs. per sq. in. on  lbs. per sq. in. on  from 0  from 0	(Date)  arge of the pun  to minus state water  when pump tu  Water Leve  (Date)	feet  np is  feet  rned  rned  tt.	



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Perforated casing or acreem	Ferf	orated	casing	OF	acreens
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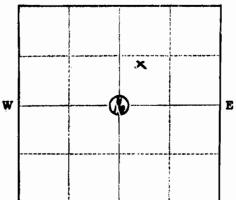
total of 30 perforations (Physider per find and size of perforations, or describe e-reen)	from	94	to	<b>9</b> 6	ft.
seems transferred comment of interest expenses approaches the distance approaches on the comment of the comment	from	***************************************	to	*******************	ft.
	from		to	renterer berben ertepane	<b>f</b> t.
the state of the s	from	**************************************	to		ft
The state of the s	from	dates to the property	to		ft

Log of Will on Tunnel: (Describe each stratum or formation clearly, indicate if water bearing) and give thickross and depth ar indicated.)

MATERIAL	Thickness (Feet)	Depth to bettern (Feet)
Q to 14 feet top soil and toulders	14	14
14' to 32' sand with water at 25'	18	32
32' to 40' silt and clay, no water	8	40
40' to 45' slit and water		45
45' to 47' silt and some graval		47
47! to 92! clay, file silt and water	45	92
92! to 98! (grava)	6	98
		<u> </u>
		ļ

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	Dimensions:	- ۱۹۷۲ ما در ۱۹۷۱ ما در ما در		en 1, 1114 4 111 -2211 -141-2411-2411-2411-24	and the same of the same and		11
		(Tunnel-)ength,	course, and cross-sec	tional size)	(Tress	ch-miulmum 🚧 me	ximum depths)
	Bottom width	ft	. Discharge	g.y	o.m. Date o	of test	halid of ben'n market parties. The file of selection
	Danislan of	stan harming n		fauance to norte	1 '- # 4		

N



Sec. 16 Twp. 37 Rge. 27

Show approximate location of well or other works with (X) on section plat at left.

Box 14 16 Omet Um

Scale: 1" == 2000

S

WATER WELL REPORT  Original & 1" copy - Ecology, 2nd copy - owner, 3rd copy - driller  E C 0 1 0 6 7  Construction/Decommission ("x" in circle)  Construction 41453    Decommission ORIGINAL INSTALLATION Notice  of Intent Number  PROPOSED USE: Deponestic   Industrial   Municipal   DeWater   Irrigation   Test Well   Other    TYPE OF WORK: Owner's number of well (if more than one) New well   Reconditioned   Method:   Dug   Bored   Driven   Depend   Cable   Rotary   Jetted    DIMENSIONS: Diameter of well   inches, drilled   387 ft. Depth of completed well   387 ft.  CONSTRUCTION DETAILS  Casing   Welded   O Diam. from   2 ft. to   29 ft. to   397 ft.  Installed:   Liner installed   4 Diam. from   10 ft. to   397 ft.	CURRENT Notice of Intent No	FANOG A-W RAZ EWA circle www one Min/Sec  ng Min/Sec
Threaded" Diam. fromft. toft.  Perforations:	CONSTRUCTION OR DECOMMISSION  Formation: Describe by color, character, size of material and sature of the material in each stratum penetrated, with at least information. (USE ADDITIONAL SHEETS IF NECES)	structure, and the kind and one entry for each change of
	MATERIAL	FROM TO
Screens:  Yes No K-Pac Location	TOP Soil	0 4
Manufacturer's Name	Tight SAND & GRANE	4/ 20
Type         Model No.           Diam.         Slot size         from         ft. to         ft.           Diam.         Slot size         from         ft. to         ft.	BHALL SLAD	20 23
Diam. Slot size from ft. to ft.	CLAY Bound GRAVEL	23 28
Gravel/Filter packed: ☐ Yes ZNO ☐ Size of gravel/sand		
Materials placed from ft. to ft.	Limestone & SHALE	28 96
	FAAC SHALE	96 99
Surface Seal: 18 Yes   No To what depth? 23 ft.	State & LIMSTONE	99 211
Material used in seal GRANULAR BON-TOUZE	FRAC SHALE	211 217
Did any strata contain unusable water?	Stale & Limestone	217 326
Type of water? Depth of strata		
	FRAC SHAPE	326 331
Method of sealing strata off	SHALE ELimestone	331 385
PUMP: .Manufacturer's Name		
Type:H.P		
WATER LEVELS: Land-surface elevation above mean sea levelft.		
Static level 63 ft. below top of well Date 5-9-11		-
Artesian pressure lbs. per square inchr Date		-
Artesian water is controlled by		
(cap, valve, etc.)		
WELL TESTS: Drawdown is amount water level is lowered below static level		
Was a pump test made? ☐ Yes ☐ No If yes, by whom?		
Yield:     gal./min. with     ft. drawdown after     hrs.       Yield:     gal./min. with     ft. drawdown after     hrs.		
Yield: gal./min. with ft. drawdown after hrs.		-
Recovery data (time taken as zero when pump turned off) (water level measured from well		
top to water level)	PECE	VED
Time Water Level Time Water Level Time Water Level		
<del></del>	MAV 13	2011
		LUII
Date of test	DEPARTMENT OF ECOLOGY -	PENTONI DECIONAL OFFICE
Bailer testgal./min. withft. drawdown afterhrs.	DENAMIMENT OF ECOTOR'S	PLANTE LEGICIO CONTRACTOR DE LA CONTRACT
Airtest 2 1/2 gal./min. with stem set at 385 ft. for 4 hrs.	-	
	-	
Artesian flowg.p.m. Date		<del></del>
Temperature of water Was a chemical analysis made? ☐ Yes 💆 No		<u> </u>
	Start Date 5757 / Complete	ed Date <u>5-9-11</u>
WELL CONSTRUCTION CERTIFICATION: I constructed and/or acc Washington well construction standards. Materials used and the information of Driller   Engineer   Trainee Name (Print)   DAN (E)   BO'CON Driller/Engineer/Trainee Signature   BO'Con Driller/Engineer/Trainee   BO'Con Driller/Engineer/Traineer/Traineer/Traineer/Traineer/Tr	n reported above are true to my best knowledge ar  Not brilling Company O CONNON DR  Address Back, Nghhm	nd belief.
Driller or trainee License No. 0358	City, State, Zip BREWSter WH	9,0012
Differ of-trained License No	<u></u>	10010
If TRAINEE,	Contractor's	ال س
Driller's Licensed No.	Registration No. CCONNDL 922 D5	Date 5 -10-11
Driller's Signature	Ecology is an	Equal Opportunity Employer.

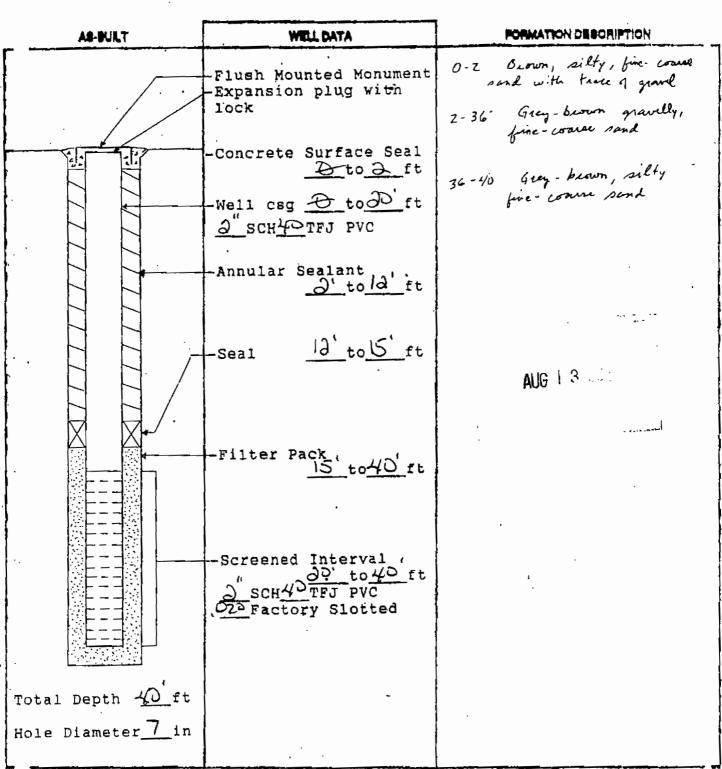
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WATER WELL REPORT	Notice of Intent No. W24938	24	
Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller		ナルフの	
Construction/Decommission ("x" in circle) 3/986/	Unique Ecology Well ID Tag No.	-020	
Construction	Water Right Permit No.		
O Decommission ORIGINAL CONSTRUCTION Notice of Intent Number	Property Owner Name Ty & Kuth	y olsow	
PROPOSED USE: Domestic Industrial Municipal  DeWater Irrigation Test Well Other	Well Street Address 93 Warre	und	
TYPE OF WORK: Owner's number of well (if more than one)	City Towasket County:	Okunoga	
New Well Reconditioned Method: Dug Bored Driven	Location NW 1/4- 1/4 NW 1/4 Sec 1 4	wn 37 R27	or
Deepened	Lat/Long: Lat Deg	Z7 W	WWM
DIMENSIONS: Diameter of well 6 inches, drilled 23.5 ft.	(s,t,r still	_	7
Depth of completed well 233 ft.	REQUIRED) Long Deg	Long Min/Sec	
CONSTRUCTION DETAILS	Tax Parcel No. 3727/4000		
Casing $\square$ Welded" Diam. from $\underline{+2}$ ft. to $\underline{233}$ finstalled: $\square$ Liner installed" Diam. fromft. tof	ft. CONSTRUCTION OR DECOMMISSION Formation: Describe by color, character, size of m		and the
Installed:	kind and nature of the material in each stratum per	netrated, with at least	
Perforations: Yes No	entry for each change of information. Indicate all v (USE ADDITIONAL SHEETS IF NECESSARY.		
Type of perforator used	MATERIAL	T	TO.
SIZE of perfsin_by in_ and no_ of perfs fromft. tof		FROM	то
icreens: Yes XNo K-Pac Location	701 201 0	0 0	, —
Manufacturer's Name	Sand & Small france	6 3	10 20
SypeModel No	Cly 2 Havel	30 1	200
tiam. Slot Size from ft. to ft.		120 17	1
iamSlot Sizefromft. toft.	Ciny or en mech	12-2	<u> </u>
Gravel/Filter packed: Yes No Size of gravel/sand	Cly gray Hard	113 40	25
Materials placed fromft. toft.	Sand W/ Grance (Wel	205 2	16
Surface Seal: Yes No To what depth? 233 ft	Jan stravel W/Water	402	<u>-27</u>
Materials used in seal <u>le"Casiny Bentowite</u> Did any strata contain unusable water? \( \subsection \) Yes \( \subsection \) No	Shall gruy	2342	<u> 25</u>
Type of water? Depth of strata		<del> </del>	
Method of sealing strata off		ļ	
PUMP: Manufacturer's Name			
Гуре: Н.Р		<del>                                     </del>	
WATER LEVELS: Land-surface elevation above mean sea level ft.		<del>                                     </del>	
Static level 140 ft. below top of well Date 102408		8	
Artesian pressurelbs. per square inch Date	<u> </u>	-i	
Artesian water is controlled by (cap,valve, etc.)	C C C	==	
WELL TESTS: Drawdown is amount water level is lowered below static level.	RECEIVED	, a	
Was a pump test made? Yes No If yes, by whom?		CP	
Yield:gal./min. withft. drawdown afterhrs.	OCT 3 0 2008	<del></del>	
Yield: gal./min. with ft. drawdown after hrs. Yield: gal./min. with ft. drawdown after hrs.	DEPARTMENT OF ECULOR REC	ewen	
ecovery data (time taken as zero when pump turned off)(water level measured from	WEIL DRILLING UNIT	EIVED	
vell top to water level) Fime Water Level Time Water Level Time Water Level	NOV (	5 2008	
Time water Level Time water Level Time water Level	IAOA' (	J 7 Z000	
	DEPARTMENT OF ECOLOG	I By - Central Hegronal Offici	Æ
Date of test			
Bailer testgal/min. withft. drawdown afterhrs.  Airtestgal/min. with stem set at232ft. forhrs.			
Artest gal/min. with stem set atgr. forhrs.  Artesian flowgr.m. Date	10/21/20	10/2//2	
remperature of waterWas a chemical analysis made? ☐ Yes No	Start Date_ 10 /Z1/08 Completed Da	ite 10124/08	Š
VELL CONSTRUCTION CERTIFICATION: 1 constructed and/or accept resp	consibility for construction of this well, and its	compliance with all	ł
Vashington well construction standards. Materials used and the information	reported above are true to my best knowledge a	nd belief.	
Driller Dengineer Trainee Name (Print) Floy 6 601500	Drilling Company Clear Water D	rilling	
Oriller/Engineer/Trainee Signature 71, 18alum	P.O. Box 155		
	CHRIST STATE OF THE STATE OF TH		
briller or Trainee License No. 2912	M-1- 33/4 001	50	
	City, State, Zip Malo, WA 991	1 1	
Oriller or Trainee License No	M-1- 33/4 001	1 1	28

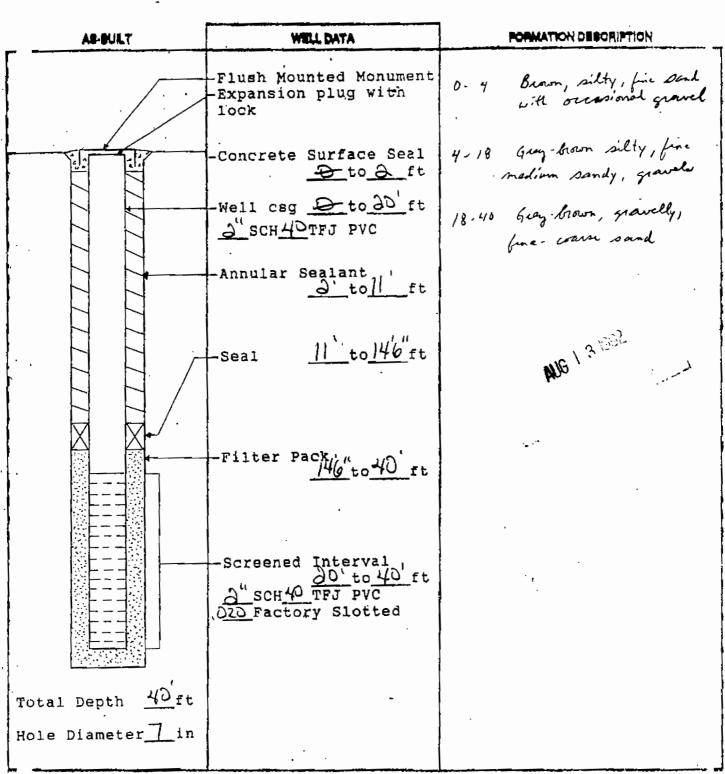
WATER WELL REPORT	Notice of Intent No. W240	7295
Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller	Unique Ecology Well ID Tag No. BA	1836
Construction/Decommission ("x" in circle)		
Construction	Water Right Permit No.	
of Intent Number	Property Owner Name TY 06304	/
PROPOSED USE: Domestic Industrial Municipal	Well Street Address 93 Warrow	2PO.
DeWater Irrigation Test Well Other		
TYPE OF WORK: Owner's number of well (if more than one)	City To wasker County: 1	
New Well Reconditioned Method: Dug Bored Driven	Location 12 W14- 1/4 AVW14 Seg 4 Tv	-
Deepened Cable Rotary Detted	Lat/Long: Lat Deg L	WWM
DIMENSIONS: Diameter of well inches, drilled 58 ft.	[ (5,t,r 5till	~//
Depth of completed wellft.	REQUIRED) Long Deg L Tax Parcel No. 3727/4008	ong Min/sec?
CONSTRUCTION DETAILS 6 Diam. from +2 ft. to 58 ft.		
Casing Welded Diam. from ft. to ft. to ft. to ft.		
Threaded Diam. from ft. toft.	kind and nature of the material in each stratum pene	
Perforations: Yes No	entry for each change of information. Indicate all wa (USE ADDITIONAL SHEETS IF NECESSARY.)	iter encountered.
Type of perforator used	MATERIAL -	FROM TO
SIZE of perfsin. byin. and no. of perfsfromft. toft.		
Screens: Yes No K-Pac Location	The state of the s	
Manufacturer's Name	alean out	
TypeModel No           DiamSlot Sizefromft. toft.		
Diam. Slot Size from ft. to ft.		
Gravel/Filter packed: Yes No Size of gravel/sand		
Materials placed from ft. to ft.		
Surface Seal: Nes No To what depth? 58 ft		
Materials used in seal 6" CABOUR & Blow CON!/ C		
Did any strata contain unusable water? Yes No		
Type of water?Depth of strata	OF THE	CO
Method of sealing strata off	RECEIVERS	
PUMP:         Manufacturer's Name		P
	APR 15 2008 ~ T	<u> </u>
WATER LEVELS: Land-surface elevation above mean sea-level ft.  Static level 2 ft. below top of well Date 4/3/08	DEPARTMENT IF FULL OF CO.	-
Artesian pressurelbs. per square inch Date	WELL DRILLING UNIT	<del>2</del>
Artesian water is controlled by	20	- <del>3</del>
(cap,valve, etc.)	" may may,"	7
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. withft. drawdown afterhrs.		CA DE ECOLO
Yield: gal/min. with ft. drawdown after hrs.  Yield: gal/min. with ft. drawdown after hrs.	ļ	Received
Recovery data (time taken as zero when pump turned off)(water level measured from	· /	APR 2 1 2000
vell top to water level) Time Water Level Time Water Level Time Water Level		7 7 2008
Time Water Level Time Water Level . Time Water Level		\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \
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	**	AL REGION
Date of test	**************************************	MAL REGIONAL
Bailer test gal./min. with ft. drawdown after hrs.		REGIO OF
Bailer test gal/min. with ft. drawdown after hrs.  Airtest gal/min. with stem set at ft. for hrs.  Artesian flow g.p.m. Date	1/10/100	11/2/2
Bailer test gal/min. with ft. drawdown after hrs.  Airtest 100 gal/min. with stem set at 5 oft. for hrs.	Start Date 4/3/08 Completed Date	11/2/2
Bailer testgal/min. withft. drawdown afterhrs.  Airtestgal/min. with stem set atft. forhrs.  Artesian flowg.p.m. Date  Temperature of waterWas a chemical analysis made?	Start Date 4/3/06 Completed Date onsibility for construction of this well, and its co	e 4/30B
Bailer testgal/min. withft. drawdown afterhrs.  Airtestgal/min. with stem set atft. forhrs.  Artesian flowgp.m. Date  Temperature of waterWas a chemical analysis made?YesNo  WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsible to the information responsible to	Start Date 4/3/16 Completed Date on Sibility for construction of this well, and its comported above are true to my best knowledge and	e 4/30G5 ompliance with all d belief.
Bailer testgal/min. withft. drawdown afterhrs.  Artestgal/min. with stem set atft. forhrs.  Artesian flowgp.m. Date  Temperature of waterWas a chemical analysis made?	Start Date 4/3/06 Completed Date onsibility for construction of this well, and its composed above are true to my best knowledge and Drilling Company Clear Water Dr	e 4/30G5 ompliance with all d belief.
Bailer testgal/min. withft. drawdown afterhrs.  Airtestgal/min. with stem set atft. forhrs.  Artesian flowgp.m. Date  Temperature of waterWas a chemical analysis made? \[ \] Yes \[ \] No  WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsible to the information of	Start Date 4/3/16 Completed Date on Sibility for construction of this well, and its comported above are true to my best knowledge and	e 4/30G5 ompliance with all d belief.
Bailer testgal/min. withft. drawdown afterhrs.  Airtestgal/min. with stem set atft. forhrs.  Artesian flowgp.m. Date  Temperature of waterWas a chemical analysis made? \[ \textstyle Yes \]  No  WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept response washington well construction standards. Materials used and the information recommendation of the construction of the constru	Start Date 4/3/06 Completed Date on Sibility for construction of this well, and its construction of this well, and its construction of this well, and its consequence of the construction of this well, and its consequence of the construction of this well, and its consequence of the construction of this well, and its construction of this well, and its construction of this well, and its consequence of the construction of this well, and its consequence of the construction of this well, and its consequence of this well, and its consequence of the construction of this well, and its consequence of the construction of this well, and its consequence of the construction of this well, and its consequence of the construction of this well, and its consequence of the consequence of the construction of this well, and its consequence of the construction of this well, and its consequence of the consequence of t	e 4/366 ompliance with all d belief. illing Inc.
Bailer testgal/min. withft. drawdown afterhrs.  Artestgal/min. with stem set atft. forhrs.  Artesian flowgp.m. Date  Temperature of waterWas a chemical analysis made?	Start Date 4/3/16 Completed Date on Sibility for construction of this well, and its composed above are true to my best knowledge and Drilling Company Clear Water Dr P.O. Box 155	e 4/366 ompliance with all d belief. illing Inc.

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	START DAND NO. 207/32
PROJECT NAME: US FOREST SOLV BE TO ASKET	DOUNTY: Chelan
WILL IDENTIFICATION NO. MID-1  DIRLLINGHETHOD TELLUSSIS HAMMER-KEVERS HIGH	LOCATION WE IN NE IN SON IC THE 37N R 27E
AND THE PLY HAVED - LIMBOLD	RANGER STATION - WINESAP RP.
Layne Invironmental Services, Inc.	WATER LEVEL ELEVATION: 30.964
MANATURE: A DALAMA	MOUND SURFACE BLEVATION: 920
CONSULTING PIPM DANCE - MOORE	NETALLED: 7-34-92
REPRESENTATIVE:KILL FECS	DEVELOPED:



	, START DARD NO. 204/3 2
PROJECT NAME: USFORGET SOLVICE TOWAS KET	ChelAn B
WELL IDENTIFICATION NO. MO D-2  DHILLING METHOD: TEXUSSION HAMMER, TEXUSSION THAN MICH.	STREET ADDRESS OF WELL: TOWASKET RANGER
DAILLING METHOD: TERLUSSION HAMMER, TRUMBSE FUR	STREET ADDRESS OF WELL: TONASKET RANGER
DALLER: Kithand Jimenez	STATION - WENESAP RD.
Layne Environmental Services, Inc.	WATER LEVEL ELEVATION: 29.36
MONATURE Will from	GROUND SURFACE SLEVATION: 9/9
	NETALED: 7-24-92
REPRESENTATIVE: PILL FCCS	DRYBLOPED:
•	



1.	TART CARD NO. 20713
PROJECT NAME: US FOREST Service TOASKet	COUNTY: OKANOGAN /
WELL INSTRUMENTALLING MUJ-3	LOCATIONINE W NE W See 16 THE 37N R 27N
DAILLING METHOD: TERLUSS ON HAMMER Knyoes the	STREET ADDRESS OF WELL! TOWASKET RANGER
man real extraors \text{\tint{\text{\tin\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texi}\text{\texi}\text{\text{\text{\texi}\text{\text{\text{\text{\texi}\text{\text{\texit{\text{\ticl{\texi}\tin\text{\texit{\texi{\texi{\texi}\texi{\texi{\	STATELL - WINESAP RD.
Layne Fry ronmental Services, Inc.	WATER LEVEL ELEVATION: 29.32
MONATURE: PLOW MINE	GROUND SURFACE BLEVATION: 9/7
DONALTING PIEME AMOUNT MODEL	NOTALIED: 7-24-92
MEP RESENTATIVE: BILL FCCS	DEVELOPED:
\	

AS-BULT	WELL DATA	PORMATION DESCRIPTION
	-Flush Mounted Monument -Expansion plug with lock	0-14 Bearn, sitty, fore sand with occasional grand
	-Concrete Surface Seal 	14-40 Gay-Brown, frie-medium sand
	Well csg 2 to 3 ft 3"sch 10 TFJ PVC	. ,
	-Annular Sealant 3' to 13' ft	
	-Seal <u>13 to 15</u> ft	AUG 1 3 1802
	-Filter Pack, to 40 ft	
	Screened Interval, 30 to 40 ft 3 SCH 40 TFJ PVC OZO Factory Slotted	· .
Total Depth 40 ft	-	
Hole Diameter 7 in		

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PROJECT NAME: U.S. FORST SCRUÇCE WELL IDENTIFICATION NO	COUNTY: OKONOGON  LOCATION: MWA SE 14 Sec 16 Twn 32MR 27E  STREET ADDRESS OF WELL: Towasket Site
DIRECTO INCLUDE IN THE PROPERTY OF THE PROPERT	WATER LEVEL ELEVATION: ALA
FIRM: FAVERONNAL WEST EXPLOS  SIGNATURE: STATE D. Sheet  CONSULTING FIRM: D/4M PAR FAVERON.  REPRESENTATIVE: STACY PARTYSON.	WATER LEVEL ELEVATION:
AS-BUILT WELL DATA	FORMATION DESCRIPTION
Flush monvered to capped both  2" P.U.L. Fill  Bothom to to  Bradonite	
SCALE: 1" = / D' / PAGE	
ECY 050-12 (Rev. 11/89)	<del></del>

,	1 .			CARD NO	<b>53</b> 3	
PROJECT NAME: U.S. Fore		COUNTY:	OKONOgon	<u>,                                     </u>		
WELL IDENTIFICATION NO.	1-2	LOCATION: ///	W14 SE14 Sec 16	Twn 320 A 22	4	
DRILLING METHOD: Habandan	remail,	STREET ADDR	RESS OF WELL:	rasket gir	4	
DRILLER: Lobert A.	Shellow				—	
	Jest Explor		. ELEVATION: <i>/\D/A</i>			
SIGNATURE: Most A	Shefit	GROUND SURFACE ELEVATION:				
consulting FIRM: Oly mf		INSTALLED: _	adbandoned	10-10-9	<u> </u>	
REPRESENTATIVE: Staly	Patter 500	DEVELOPED:				
AS-BUILT	WELL DATA		FORMATION DI	ESCRIPTION		
		L palled			_ ㅜ	
	Flush moments + capped below	ground			i	
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-	Kentowite					
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ECY 050-12 (Rev. 11/89)

RILLING METHOD: Alban	nw-3	COUNTY: OKENESON				
RILLING METHOD: Alban	かんしろ					
		LOCATION: NAI'4 SE 14 Sec 16 TWO 37N R 27E STREET ADDRESS OF WELL: TOWASKEF				
RILLER: Robert A.	5 he Idon					
IRM: ENUMERAMENTO LA	est Explor	WATER LEVEL ELEVATION:				
IGNATURE: ALT H.	Shir-	GROUND SURFACE ELEVATION:				
ONSULTING FIRM: 0/4 m	, , , , , , , , , , , , , , , , , , ,	INSTALLED: <u>addaylance</u> 10-10-85				
EPRESENTATIVE:	afferson	DEVELOPED:				
AS-BUILT	WELL DATA	FORMATION DESCRIPTION				
	- Flush mywnman + copped below	grownd				
	Bother to top Benton it	l From with				
		OCT 1 8 1995				
DALE: 1"=/D	PAGE 1	OF				

File Original and F Department of Ecol Second Copy — Ow Third Copy — Drill	irst Copy with logy ner's Copy
(1) OWNER:	Name Un

### WATER WELL REPORT

Application	No	-0
Permit No.	<u>/.</u>	

Thire	Copy	- Driller's	s Copy			STATE OF V	<b>VASHINGTON</b>			Permit No	/	!
						No.			Hy	97 N F	mask	ret
(2 <sup>&gt;</sup>				ELL: County		NOGAN	T44.55 21	1015	SE /	4 SE 74 3	ZN. R.	27wм
(3)	PRO	POSED	USE:	Domestic 🚜	Industrial [		(10) WELL		los cham	otes size of motorio	Land star	******
		PE OF I	UODIC.	Owner's num			show thickness a stratum penetra	of aquifers ted, with	and the i	cter, size of materia kind and nature of t ne entry for each c	the materi hange of	al in each formation.
(4	)*r	E OF V	NUKK: New we	(if more than	one) ethod: Dug	☐ Bored ☐		MAT	FERIAL		FROM	TO
			Deepene	4 <u>-</u>	Cable	Driven 🗆	Over				0_	
			Recondit	doned 🗆	Rotar	y El Jetted 🗆				13 YOW		19
(5)	DIM Drille	ENSION		Diameter Depth of cor	of wellnpleted well	6 inches.	777776	761 2	<u>~</u>		77	# <i>U</i>
(6)	CON	ISTRUC	TION I	DETAILS:				<del></del>				
	Casi	ng insta	lled:	2" Diam. fr	om 1	t. to ft.						
		Threaded [	<b></b>	" Diam. fr	om t	t. togg ft.						
		Welded 2		" Diam. fr	om 7 1	t. to 3 4 ft.			IS C	(E,17"		
		orations		No <b>25</b> (								
						in.			AUG	<del></del>		
						) ft.	<del></del>		1.00	_ IN 1504		
			-			<b>ft</b> .		903	AGTICT		<del></del>	
		-	periora	dona from	ft. to	<u> </u>		7.	1./-			
		ens: <sub>Yes</sub>		-								
						)						
						t. to ft.		1,50	(	- V	<b>)</b>	
	)	Diam,	Siot	size fr	om f	t. to ft.		В 🔏 .	Charles and the control of the contr	Dates in A. Other role		
	Grav	vel pack	ed: Yes	□ No <b>(</b> \$	Size of gravel	l:			7.00	<del>2 1984 -</del>		
		Gravel pla	aced from			n.						
,	Surf	ace seal	Yes P	No □ To	what depth?	20 "			PARTME			
Ĺ	الن	Material u	sed in sea	1 POITLA	Nd CL	MENT		Sac	JNANE R	EGIONAL OFFICE		
				tain unusable		es No D			-			
(7)						нР						
(8)	WAT	TER LE	VELS:	Land-surfac	e elevation	t.						
	lev <del>e</del> l	10	T LLIS.			ett.			·			
				=								
		Artesian w	vater is co	ntrolled by	(Cap, va	lve, etc.)				16.6		
(9)	WEL	LL TEST	rs:	Drawdown is lowered below	amount water	er level is	Work started.	1/16	19 8		76	1980
		p test made / 5 gal./s			, by whom? rawdown afte	r hrs.	WELL DRII	,				,
"	r 5 7	7 2	in Vill	FF	"						3 45.2.	
		<del>- 1</del>	<del>''</del>	1 4 - 1		**				my jurisdiction a ige and belief.	ina this i	eport is
				zero when pu water level)	mp turned of	ff) (water level	_					
Тъп		Water Lev			el Time	Water Level	NAME /- O	9h e (Person.	firm, or c	Corporation) (T	ype or pr	int)
••••	······ •			·····		•				h COLI		
	)											Ę
ਂ ;	,		•		·····		[Signed] W	Ill.	in	13 Cm		
		-				terhrs.	[magneti]			(Well Driller)		
						? Yes 🗆 No 🗆	License No/	3 56	)	Date 4 /	16	19.54
,	>	_ 3-					14 Un	41,1			_	-
~	)				(USE	ADDITIONAL SH	EETS IF NECESS	ARY)47				_

•		:
WATER WELL REPORT Original & 1" copy - Ecology, 2nd copy - owner, 3rd copy - driller	CURRENT Notice of Intent No. W-225774	· .
Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No. AHT	586
© Construction 335/93	Water Right Permit No	
O Decommission ORIGINAL INSTALLATION Notice	Property Owner Name Yacundo Lay	ata Hernanade
of Intent Number	Well Street Address 239 Havilla I	
PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other	City Tonasket County Okar	
TYPE OF WORK: Owner's number of well (if more than one)	Location <u>NE</u> 1/4-1/4 <u>NE</u> 1/4 Sec <u>1</u> 4Twn 37	
	Lat/Long (s, t, r Lat Deg Lat	AA AA IAI
DIMENSIONS: Diameter of well 6 inches, drilled 95 ft.  Depth of completed well 95 ft.	Still REQUIRED) Long Deg Lor	ig Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No. 3727140016	·
Casing              □ Welded             □ Liner installed             □ Threaded             □ Threaded             □ Diam. from             □ Diam. from             □ Diam. from             □ ft. to             □ ft. t	CONSTRUCTION OR DECOMMISSION	PROCEDURE
Perforations:  Yes No No	Formation: Describe by color, character, size of material and s nature of the material in each stratum penetrated, with at least of	
-Type of perforator used	information. (USE ADDITIONAL SHEETS IF NECES	
SIZE of perfs in. by in. and no. of perfs from ft. to ft.	MATERIAL	FROM TO
Screens:	Top Soil	0 2
Type Telescoping Model No. S.S.	Sandy Clay with Boulders	2 25
Díam 6 Slot síze 30 from 90 ft. to 95 ft.	Brown Sand	25 60
Diam Slot size from A to A	Wet Sand	60 75
Gravel/Filter packed: ☐ Yes Ø No ☐ Size of gravel/sand	Sand, Gravel, Water	75 94
Surface Seal: DYYes D No To what depth? 18 ft.		
Material used in seal <u>Cement &amp; Bentonite</u> Did any strata contain unusable water? □ Yes ™No		-
Type of water? Depth of strata		
Method of sealing strata off		
Type: H.P. H.P.	•	
WATER LEVELS: Land-surface elevation above mean sea levelft_		
Static levelFlowingft. below top of well Date		
Artesian pressure lbs per square inch. Date		
Artesian water is controlled by <u>Cap &amp; Plug</u>		
(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?	in the second	- 10 W. W.
Yield: 20 gal./min. with ft. drawdown after hrs.	ale C	EIVED
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	FEB 2	6 2009
top to water level)	DEPUBLIMENT OF COLUMN	<u> </u>
Time Water Level Time Water Level Time Water Level	- CONTINUE OF EGALOGY	CENTRAL-REGIONAL OFFICE

Temperature of water Was a chemical analysis made? ☐ Yes ☐ No	
· — ·	Start Date 10/8/08 Completed Date 10/9/08
WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.	
Doriller - Engineer - Trainee Mane (Print) / Jaseph I. Both	Drilling Company Okanogan Drilling
Driller/Engineer/Trainee Signature 2016 10 10 10 10 10 10 10 10 10 10 10 10 10	Address 48 Rodeo Hall Rd.  City, State, Zip Okanogan, Wa. 98840
If TRAINEE, Driller's Licensed No.	Contractor's Registration No. OKANODD941RJ Date 10/16.08
Driller's Signature	Ecology is an Equal Opportunity Employer.

Date of test

gal./min. with \_\_\_\_\_ft. drawdown after \_\_\_\_\_hrs.

\_\_\_\_\_ft. for \_\_\_\_\_hrs. \_\_\_\_g.p.m. Date \_\_10/9/08

gal./min. with stem set at \_\_\_\_\_

