



STATE OF WASHINGTON
 DEPARTMENT OF ECOLOGY
 DRAFT
REPORT OF EXAMINATION
Change of: Point of Diversion
WRTS File # CS4-SWC27

PRIORITY DATE	CLAIM NO.	PERMIT NO.	CERTIFICATE NO.
January 21, 1920			27

NAME Jon Small		
ADDRESS/STREET	CITY/STATE	ZIP CODE
4620 Small Brothers Drive	Entiat, Washington	98822-9719

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Entiat River

TRIBUTARY OF (IF SURFACE WATERS)
Columbia River

MAXIMUM CUBIC FEET PER SECOND (cfs)	MAXIMUM GALLONS PER MINUTE (gpm)	MAXIMUM ACRE FEET PER YEAR (ac-ft/yr)
0.47		59.6

QUANTITY, TYPE OF USE, PERIOD OF USE
A maximum of 0.47 cubic feet per second, 59.6 acre-feet per year for the irrigation of 12.6 acres from April 1 through October 31.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION
2600 feet west and 100 feet south of the northeast corner of Section 10, T. 25 N., R. 20 E.W.M.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
NW ¹ / ₄ NE ¹ / ₄	10	25 N	20 E.W.M.	46	Chelan
PARCEL NUMBER	LATITUDE		LONGITUDE	DATUM	
252010120100	47.6862		-120.3154	NAD83	

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
N/A	N/A	N/A

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
 [Attachment 1 shows location of the authorized place of use and point(s) of diversion or withdrawal]

E ¹ / ₂ NE ¹ / ₄ NW ¹ / ₄ and W ¹ / ₂ W ¹ / ₂ NW ¹ / ₄ NE ¹ / ₄ of Section 10, T. 25 N., R. 20 E.W.M. Chelan County Assessor Parcel Nos. 252010210050 and 252010120100.

DESCRIPTION OF PROPOSED WORKS

Knapp-Wham Ditch: A point of diversion (POD) consisting of a cement headworks, a rolling drum fish screen and fish bypass structure will be installed. Water will be conveyed from the Knapp-Wham Ditch POD in two 18-inch diameter PVC pipes 400 feet south to the Small turnout.

Small Turnout: A turnout consisting of a 20 horsepower General Electric motor and a 7 3/8 inch diameter Cornell pump that lifts water from the Knapp-Wham Ditch pipeline. Water is conveyed from the pumphouse via a 6 inch PCV mainline with 50 pounds per square inch (psi) delivery pressure at the pump. The apple trees are watered by Nelson Rotator R2000 undertree sprinklers with an operating pressure of 30 psi.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
Begun	April 1, 2010	October 1, 2010

PROVISIONS

1. Measurements, Monitoring, Metering and Reporting

- 1.1. An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC.
- 1.2. Diversion rates authorized by this report shall be recorded at the Knapp-Wham Ditch POD measuring device. If such a measuring device is not installed or incapable of measuring the Small's diversion at the Knapp-Wham Ditch POD structure, the Smalls are responsible for installing and maintaining a measuring device at the Small Turnout from the Knapp-Wham Ditch.
- 1.3. Water use data shall be recorded weekly. The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to the Department of Ecology by January 31st of each calendar year.
- 1.4. Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements". <http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>
- 1.5. Ecology prefers water use data submitted via e-mail in the form on an electronic spreadsheet. However, hard copies are still accepted. In the future, recorded water use data may be submitted via the Internet. Contact the Central Region Office for forms or information on available options for submittals.

2. Department of Fish and Wildlife Requirement(s)

The intake(s) shall be screened in accordance with Department of Fish and Wildlife screening criteria (pursuant to RCW 77.57.010, RCW 77.57.070, and RCW 77.57.040). Contact the Department of Fish and Wildlife, 600 Capitol Way N, Olympia, WA 98501-1091. Attention: Habitat Program, Phone: (360) 902-2534 if you have questions about screening criteria. <http://www.wdfw.wa.gov/reg/regions.htm>

3. Schedule and Inspections

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

4. Project Completion

The water right holder shall file the notice of project completion when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The superseding certificate will reflect the extent of beneficial use within the limitations of the change authorization. Elements of the project completion inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and compliance with provisions.

5. Water Use Efficiency

Use of water under this authorization shall be contingent upon the water right holder's maintenance of efficient water delivery systems and use of up-to-date water conservation practices consistent with established regulation requirements and facility capabilities.

6. Easement Right-of-Way

The water source and/or water transmission facilities are not wholly located upon land owned by the applicant. Issuance of a water right change authorization by this department does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between applicant and owner of that land.

7. Regulation of Water Rights

In the event flows in the Entiat River are insufficient for the water right described in this authorization to be fully exercised, any curtailment of water rights junior to a January 21, 1920 priority date is limited to junior water right holders **upstream of the originally certificated point of diversion**. The originally certificated point of diversion is located within the NW¹/₄NW¹/₄ of Section 3, T. 25 N., R. 20 E.W.M., more specifically located 1200 feet distance bearing north 45 degrees west from the NW section corner of said Section 3.

FINDINGS OF FACT AND ORDER

Upon reviewing the investigator's report, I find all facts relevant and material to the subject application have been thoroughly investigated. Furthermore, I find the change of water right as recommended will not be detrimental to existing rights.

Therefore, I ORDER approval of the requested change in point of diversion under Surface Water Change Application No. CS4-SWC27, subject to existing rights and the provisions specified above.

You have a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in Chapter 371-08-305(10) WAC. "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your *Notice of Appeal*.
- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:	OR	Deliver your appeal in person to:
The Pollution Control Hearings Board PO Box 40903 Olympia WA 98504-0903		The Pollution Control Hearings Board 4224 – 6th Ave SE Rowe Six, Bldg 2 Lacey WA 98503

2. To serve your appeal on the Department of Ecology

Mail appeal to:	OR	Deliver your appeal in person to:
The Department of Ecology Appeals Coordinator P.O. Box 47608 Olympia WA 98504-7608		The Department of Ecology Appeals Coordinator 300 Desmond Dr SE Lacey WA 98503

3. And send a copy of your appeal to:

Mark Schuppe, Acting Section Manager
Water Resources Program -- Department of Ecology
Central Region Office
15 West Yakima Ave -- Suite 200
Yakima, WA 98902-3452

For additional information visit the Environmental Hearings Office Website: <http://www.eho.wa.gov> . To find laws and agency rules visit the Washington State Legislature Website: <http://www1.leg.wa.gov/CodeReviser>.

Signed at Yakima, Washington, this _____ day of _____ 2009.

Mark Schuppe, Acting Section Manager
Water Resources Program
Central Region Office

BACKGROUND

Description and Purpose of Proposed Change

On February 5, 1993, Naumes Inc. submitted to the Washington Department of Ecology (Ecology) an application to change the point of diversion (POD) authorized by Surface Water Certificate No. 27. The application was accepted and assigned Change Application control number CS4-SWC27.

At the time Change Application No. CS4-SWC27 was submitted, Naumes of Oregon Incorporated (Naumes) owned one of the parcels to which Surface Water Certificate No. 27 is appurtenant (Assessor No. 252010210050). An attachment to the change application states the original irrigation ditch, the Anders Ditch, "is no longer in existence". The applicant stated water had been delivered via the Knapp-Wham (K-W) Ditch "for 25 years." Change Application No. CS4- SWC27 was filed to change the certificated POD to the K-W Ditch point of diversion, located approximately one mile downstream of the certificated POD.

About one acre of irrigation under Surface Water Certificate No. 27 is appurtenant to a parcel that Jon L. and Debby C. Small (the Smalls) purchased from Gary E. Clark and Vicky Clark in 1983 (Assessor No. 252010120100).

In 1996, the Smalls purchased the parcel to which the majority of Surface Water Certificate No. 27 is appurtenant from Naumes (Assessor No. 252010210050). In 2008, Change Application No. CS4-SWC27 was assigned to Jon Small. The Smalls currently manage an apple orchard on the parcels and utilize the K-W Ditch to deliver water to their orchard irrigation system.

Attributes of the Change Application and Proposed Change

Table 1 Summary of Proposed Changes to Surface Water Certificate No. 27

<i>Attributes</i>	<i>Existing</i>	<i>Proposed</i>
Name	J. L. Phipps	Jon Small
Priority Date Date of Application for Change	January 21, 1920	February 5, 1993
Instantaneous Quantity	1.00 cubic feet per second	No Change
Annual Quantity	Not Specified	Not Specified
Source	Entiat River	Entiat River
Point of Diversion or Withdrawal	NW¼NW¼ Sec. 3, T. 25 N, R. 20 E.W.M.	NW¼NE¼ Sec. 10, T. 25 N., R. 20 E.W.M.
Purpose of Use	Irrigation	No Change
Period of Use	Not Specified	No Change
Place of Use	28 acres within the NE¼NW¼ and 7 acres within the NW¼NE¼ of Section 10, T. 25, R. 20 E.W.M	Chelan County Parcel No. 25-20-10-2-1-0050

Legal Requirements for Proposed Change

The following is a list of requirements that must be met prior to authorizing the proposed change in Water Right Change Application No. CS4- SWC27.

- **Public Notice**

A public notice was printed in the Wenatchee World on April 14 and 21, 1993. No protests or comments were submitted to Ecology during the protest period.

- **State Environmental Policy Act (SEPA)**

A water right application is subject to a SEPA threshold determination (i.e. an evaluation whether there are likely to be significant adverse environmental impacts) if any one of the following conditions are met.

- It is a surface water right application for more than one cubic feet per second, unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cubic feet per second, so long as that irrigation project will not receive public subsidies;
- It is a groundwater right application for more than 2,250 gallons per minute;
- It is an application that, in combination with other water right applications for the same project, collectively exceed the amounts above;
- It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA);
- It is part of a series of exempt actions that, together, trigger the need to do a threshold determination, as defined under Chapter 197-11-305 WAC.

Because this application does not meet any of these conditions, it is categorically exempt from SEPA and a threshold determination is not required.

Water Resources Statutes and Case Law

RCW 90.03.380(1) states that a water right that has been put to beneficial use may be changed. The point of diversion, place of use, and purpose of use may be changed if it would not result in harm or injury to other water rights.

The Washington Supreme Court has held that Ecology, when processing an application for change to a water right, is required to make a tentative determination of extent and validity of the claim or right. This is necessary to establish whether the claim or right is eligible for change. *R.D. Merrill v. PCHB* and *Okanogan Wilderness League v. Town of Twisp*.

RCW 90.14.180 states that if a water user fails to put a portion of a water right to beneficial use for a period of five successive years after July 1, 1967, that all or a portion of the right shall be relinquished. Showing of “sufficient cause” for nonuse under RCW 90.14.140 can exempt a water right from relinquishment.

INVESTIGATION

Information for this investigation was obtained during a site visit conducted on July 16, 2008 by Ecology representative Taylor Horne. Applicant Jon Small was present during the site investigation and provided information regarding the historical and current use of water authorized under Surface Water Certificate No. 27. Additional information was obtained from:

- applicable RCW and WAC chapters,
- conversations with Mr. Small,
- Ecology records,
- historical aerial photographs,
- historical maps,
- Geographic Information System (GIS) data,
- Chelan County records,
- documents listed in the References section of this report.

History of Water Use

Surface Water Certificate No. 27 was issued by Ecology's predecessor agency with a priority date of January 21, 1920. Surface Water Certificate No. 27 authorizes the diversion of one cubic foot per second of water from the Entiat River for the irrigation of 28 acres within the NE $\frac{1}{4}$ NW $\frac{1}{4}$ and 7 acres with the NW $\frac{1}{4}$ NE $\frac{1}{4}$, for a total of 35 acres of authorized irrigation within Section 10, Township 25 N., Range 20 E.W.M. The place of use is located within the Entiat River basin, Water Resource Inventory Area (WRIA) 46, at approximate river mile 6 on the west bank of the river. The application for a permit states that the original point of diversion from the Entiat River was located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 3, T. 25 N., R. 20 E.W.M. Water was conveyed via the Martin-Saunders Ditch, crossed the Entiat River via a wood pipe, and carried in the "old Farris ditch" to irrigate the place of use in Section 10; this system of ditches is most likely what is referred in the application as the Anders ditch that "is no longer in existence."

Although Surface Water Certificate No. 27 indicates that 35 acres of irrigation were authorized under the right, analysis of historical aerial photographs shows 12.6 acres of irrigation, of which 11.7 acres is orchard and 0.9 acres is turf. Information included in a recent Report of Examination (S4-29932P) indicates that "approximately 12 acres" of irrigation was historically put to beneficial use under Surface Water Certificate No. 27 (see "Other Rights Appurtenant to the Place of Use and Immediate Area" section of this report). Mr. Small currently irrigates 12.6 acres on the property.

Proposed POD

An attachment dated February 2, 1993, submitted with the change application by a Naumes representative states that the certificated POD for Surface Water Certificate No. 27 "is no longer in existence". The attachment states, "We currently withdraw our water from the Knapp-Wham Ditch. We have a record for withdrawal (sic) from this ditch for 25 years." No direct evidence is available to verify the exact date when water authorized under Surface Water Certificate No. 27 was first withdrawn from the K-W Ditch. According to the attachment, diversion of water from the K-W Ditch for irrigation of lands within the place of use (POU) of Surface Water Certificate No. 27 began in 1968 (1993 minus 25 years equals 1968).

The POD for the K-W Ditch is located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 10, T. 25 N., R. 20 E.W.M., on a parcel owned by Jon Small (Assessor No. 252010120100) on the west bank of the Entiat River. This is the proposed POD in Change Application No. CS4-SWC27, located approximately one mile downstream from the certificated POD for Surface Water Certificate No. 27.

Knapp-Wham Ditch Description and Small Turnout

In November 2008, a new POD structure for the K-W Ditch was under construction. Immediately upstream of the headworks bifurcation, an 80 foot by 30 foot sediment settling basin will be constructed to minimize the fine suspended bedload from entering the fish screen. The basin will be designed to accommodate 16.5 cfs. Inflow into the fish screen and K-W Ditch will be controlled by the bifurcation gate located within the screen structure that will be constructed to accommodate 8.61 cfs at 100 percent flow. A 12-inch diameter PVC fish bypass pipe will accommodate 0.75 cfs. A 9.88 foot by 2.50 foot rolling drum fish screen designed by the Department of Fish and Wildlife will be installed (Reclamation 2006).

The K-W Ditch is comprised of buried PVC pipe in various diameters from 30 inches to 12 inches. Water is conveyed from the K-W Ditch POD in a PVC pipe 400 feet south to the Small turnout, where water is siphoned from the ditch pipe into the Small irrigation system. The Small turnout consists of a 20 horsepower General Electric motor and a 7 3/8 inch diameter Cornell pump that lifts water from the K-W Ditch pipeline. An independent power meter is installed at the pumphouse. No water meter is installed.

K-W Ditch continues in a southerly direction, roughly paralleling the Entiat River. The 15 turnouts along the ditch use various sizes of electric pumps to divert water from the pipe into the on-farm irrigation systems. The K-W Ditch terminates at the Mills Canyon residential development on a parcel currently owned by Grant and Tammy Giacomazzi (Assessor No. 252014695070). Excess water is released into Mills Creek. Mills Creek crosses several parcels in a northeasterly direction and converges with the Entiat River at the Entiat River Road bridge, at approximate river mile 3.2, in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 13, T. 25 N., R. 20 E.W.M.

The K-W Ditch operates from April 1 through October 31. Mr. Small stated that he has historically used water from the ditch during this entire irrigation season.

Measuring and Reporting Water Use

RCW 90.03.360 requires that the owner of any water diversion maintain substantial controlling works and a measuring device. It must be constructed and maintained to permit accurate measurement and practical regulation of the flow of water diverted. Technical requirements for the measuring and reporting of water use are described in Chapter 173-173 WAC and will be included as provisions of this Report of Examination, if approved.

When completed, the K-W Ditch POD structure will include a measuring device capable of recording the instantaneous and annual quantities of water diverted into the K-W Ditch. If the proposed change in POD is approved, the Small's diversion from the Entiat River will be recorded by the K-W Ditch POD measuring device. If such a measuring device is not installed or incapable of measuring the Small's diversion at the K-W Ditch POD structure, the Smalls are responsible for installing and maintaining a measuring device at the Small Turnout from the K-W Ditch.

Proposed Use

No change in purpose of use is proposed in Change Application No. CS4-SWC27. Jon Small will continue to use water as stated on Surface Water Certificate No. 27 "for the purpose of irrigation". Agricultural irrigation is considered a beneficial use of water (RCW 90.54.020(1)).

Water diverted under Surface Water Certificate No. 27 is currently applied to 11.7 acres of apple orchard and 0.9 acres of turf. Water is conveyed from the pumphouse via a 6 inch PCV mainline with 50 pounds per square inch (psi) delivery pressure at the pump. The apple trees are watered by Nelson Rotator R2000 undertree sprinklers with an operating pressure of 30 psi, that are rated at a constant two gpm output per head. Turf grass provides ground cover between orchard rows.

Water Quantities

Surface Water Certificate No. 27 authorizes the diversion of one cfs. No flow meter is installed on the Small pump to record the instantaneous and annual diversion rate. A calculation of the theoretical instantaneous pumping rate based on pump size, pump efficiency, and estimated total dynamic head indicates that the pump is capable of diverting more than one cfs from the Knapp-Wham Ditch.

Mr. Small stated that he uses Nelson R2000 2.0 FC K4-12 solid set undertree sprinkler heads throughout the orchard. The manufacturer's information indicates these sprinkler heads operate at a constant two gpm output rate. Mr. Small stated that he runs 84 to 96 heads per set, resulting in an output range of 168 gpm to 192 gpm; the average output can be estimated at 180 gpm and the maximum can be estimated at 210 gpm, or 0.47 cfs accounting for up to 10% in-line losses due to leaks. A 0.47 cfs maximum instantaneous pumping rate is in accordance to Mr. Small's estimates of his irrigation practices. Mr. Small stated during the height of irrigation season he runs two 12-hour sets per day, resulting in 24-hours a day, 7 days a week of irrigation.

Part of this investigation includes quantifying the historical beneficial use of the water right proposed for change. If water meter records are not available, aerial photographs, historical power records, irrigation system capacity, and crop irrigation requirements (CIR) can be used to make a tentative determination of beneficial use of the water right, based on types of activities for which the water is used and limited by reasonable use of water.¹ Power records from the 2007 and 2008 irrigation season indicate that irrigation peaked during August in 2007 and July in 2008, with decreased irrigation during the months of May, June, and September. Small amounts of irrigation occurred during April and October. Mr. Small's pattern of irrigation mirrors the varying water demand of tree fruit in the Entiat area and annual climatic variations (Table 4-15, Chapter 173-546 WAC).

Amid a dearth of reliable water pumping data, CIR data from Chapter 173-546 WAC are used to make a tentative determination of the annual quantity. The CIR for tree fruit in the Entiat region is 37.27 inches per acre per year; the CIR for turf grass is 31.68 acre-inches per year. Solid-set undertree sprinklers are used throughout the property. A 65-percent application efficiency rate is reasonable based on the age and condition of irrigation system, and this application efficiency rate is included in the calculation of the total irrigation requirement (TIR). The TIR for the orchard is calculated by dividing the CIR by the 65-percent application efficiency of the irrigation system. The TIR for Mr. Small's orchard is 4.78 acre-feet per acre, or 55.9 acre-feet per year (ac-ft/yr) for 11.7 acres of orchard. The TIR for turf is 4.06 acre-feet per acre, or 3.7 ac-ft/yr for 0.9 acres of turf. The total TIR for Mr. Small's property is 59.6 ac-ft/yr.

¹ Ecology Water Resource Program Policies 1210, 1120, and 1200; see Ecology v. Grimes, 121 Wn.2d 459, 852 P.2d 1044 (1993)

Other Rights Appurtenant to the Place of Use and Immediate Area

Four water right claims and one surface water permit are appurtenant to the certificated place of use of Surface Water Certificate No. 27.

WRC300062 – Knapp-Wham Ditch

On December 18, 1997, Conard Peterson, acting as agent for the Knapp-Wham Ditch, submitted a claim to Ecology. The claim was assigned identifier number WRC300062. The claim asserts a right to 300 cfs, 2000 ac-ft/yr, from a diversion on the Entiat River with an October 1903 claimed date of first use. The claimed purposes of use include the irrigation of 320 acres, domestic uses for 27 units, stockwater, mining, milling, and power production. The claimed POU includes multiple parcels on the south and west side of the river, including the POU of Surface Water Certificate No 27.

A Notice of Appropriation of Water recorded on October 19, 1903, states that Frank E. Knapp and Gilbert T. L. Wham began using water from the ditch on April 20, 1903 “for irrigation, stock and domestic purposes and for milling mining and for the purposes of creating power”. A separate agreement document describes how the costs of labor and maintenance of the ditch was proportioned: two-thirds to Mr. Knapp and one-third to Mr. Wham. The Agreement was certified on September 29, 1906, by Justice of the Peace C. A. Harris “in and for Entiat Precinct Chelan County”.

Information provided during the site visit indicates that water diverted under Water Right Claim No. 300062 has not been applied to the Small property. Although the Knapp-Wham POD has been utilized to divert water under Surface Water Right No. 27 for several years, the quantity of water diverted and acres irrigated has not increased beyond the perfected quantities under the right.

WRC128590 – J. K. McArthur and Son

On February 24, 1975 J. K. McArthur submitted a claim to Ecology. The claim was assigned identifier number WRC128590. The claim asserts a right to 8 gpm, 2 ac-ft/yr, for domestic supply purposes from a well located within the NW¼ of the NE¼ of Section 10, T. 25 N., R. 20 E.W.M. The claimed date of first use is January 1920. Water withdrawn under this claim is most likely used in one of the houses located within the POU of Surface Water Certificate No. 27. Jon Small does not use ground water withdrawn from this well to irrigate his property.

Surface Water Permit No. S4-29932P- Jon Small

On March 26, 1993 Ecology issued Jon Small Surface Water Permit No. S4-29932P. The permit authorizes the diversion of up to 0.11 cfs, 20.8 ac-ft/yr, from the Entiat River for the irrigation of 8 acres from April 1 to October 1. The place of use is west of the Entiat River and east of the orchard to which Surface Water Certificate No. 27 is appurtenant. In the Report of Examination (ROE) for S4-29932, the investigator notes, “Review of aerial photos indicate that approximately 12 acres of the right (SWC27) were perfected and beneficially (sic) using water. That twelve acres is located above the Knapp Wham Ditch adjacent to the applicant’s property.” This description corresponds to the location of Chelan County Parcel No. 25-20-10-2-1-0050 as described in Change Application No. SWC27. According to the ROE for S4-29932P, no portion of Surface Water Certificate No. 27 is appurtenant to the POU described in Surface Water Permit No S4-29932P. Evidenced by recent aerial photography and the site visit, Mr. Small appears to be currently irrigating approximately 8 acres of orchard and pasture within the POU of S4-29932P.

Hydrologic/Hydrogeologic Evaluation

Located in Chelan County, the Entiat basin (WRIA 46) encompasses both the Entiat River and the Mad River watersheds and minor tributaries, consisting of approximately 305,641 acres. The Entiat River flows 43 miles in a southeasterly direction from its headwaters in glaciated basins 4.5 miles east of the Cascade crest to its confluence with the Columbia River near the city of Entiat. Numerous tributaries flow into the Entiat River during its course to the confluence at river mile 483 on the Columbia, approximately 20 miles north of Wenatchee. The topography of the area varies between rolling hills near the river mouth to steep uplifted mountains near the headwaters, with glaciated features most evident in the upper half of the Entiat basin. Alluvial fans are present where tributaries transported eroded soil and bedrock downhill to the Entiat River floodplain. Mean annual runoff for the Entiat basin varies widely throughout the period of measurement, indicating a snowmelt dominated system that relies on the alluvial and glacially derived sediments in the valley bottoms as primary storage for groundwater in the Entiat basin (EWPU 2004).

The proposed POD is located at approximate river mile 6 of the Entiat River, about 1,600 feet southeast of the confluence of Roaring Creek into the Entiat River. The river is approximately 100 feet wide at the proposed POD, flowing from the northwest to the southeast. The place of use is located within the Entiat River basin valley, which is approximately 0.25 to 0.35 miles wide in the vicinity. Roaring Creek enters the Entiat River in the one mile of the Entiat River between the certificated POD and the proposed POD. Flows in Roaring Creek at the Ecology telemetry gauge (46B060) can range from over 30 cfs during the spring freshet to less than 1 cfs during the end of irrigation season.

Impairment Considerations

Impairment of Minimum Instream Flow Water Rights

The term "instream flow" is used to identify a specific stream flow (typically measured in cubic feet per second, or cfs) at a specific location for a defined time, and typically following seasonal variations. Instream flows are usually defined as the stream flows needed to protect and preserve instream resources and values, such as fish, wildlife and recreation. Instream flows are most often described and established in a formal legal document, typically an adopted state rule.

Once established, a minimum flow constitutes an appropriation with a priority date as of the effective date of the rule establishing the minimum flow (RCW 90.03.345). Thus, a minimum flow set by rule is an existing right which may not be impaired (RCW 90.03.345; RCW 90.44.030).

Adopted in 2005, Chapter 173-546 WAC established a minimum instream flow for the three stream management units in the Entiat River Basin (WRIA 46). Both the certificated POD and the proposed POD are within the Lower Entiat stream management unit. The January 21, 1920 priority date of Surface Water Certificate No. 27 predates the September 3, 2005 priority date of the minimum instream flow; therefore, the diversion authorized under Surface Water Certificate No. 27 is not subject to curtailment when minimum instream flow levels are not met. However, a diversion authorized under Surface Water Certificate No. 27 is subject to curtailment based on the priority system, whereby senior rights must be satisfied before a junior right may divert water.

There is no history of curtailment of water rights due to unavailability of water in the Entiat basin. The location of the originally certificated POD is described on the Application for a Permit: "Intake in NW¼ NW¼ Section 3 Twp. 25 N. R. 20 E.W.M. NW section corner Sec. 3 bears approximately N 45 deg. W 1200 ft. dist."

If the proposed POD change is approved and in the event flows in the Entiat River are insufficient for the water right represented by Surface Water Certificate No. 27 to be fully exercised, any curtailment of water rights junior to a January 21, 1920 priority date is limited to junior water right holders upstream of the originally certificated POD. A provision will be added to this report specifying this requirement in the event of curtailment of certain diversions from the Entiat River. Such a provision is necessary to ensure any water users in the one-mile reach between the originally certificated POD and the proposed POD will not be detrimentally affected by the change, if approved.

Ecology water right records indicate that 15 water right claims and 11 water right certificates may exist in the one-mile reach of the Entiat River between the certificated POD and the proposed POD. Several of the claims have dates of first use of water that predate the January 21, 1920 priority date of Surface Water Certificate No. 27. The Department of Fish and Wildlife indicates that one POD may exist in the reach, operated by the Entiat National Fish Hatchery. The proposed change in POD is not expected to impair existing water rights, as 0.47 cfs will remain instream for the one-mile downstream reach, allowing the same quantity to be available for diversion from the river at the proposed POD. In effect, surface water right holders in the one-mile reach between the certificated POD and the proposed POD will experience an increase in Entiat River flows of 0.47 cfs.

A "Gain-Loss Analysis" conducted in 2002 for the Entiat River indicated no significant river losses in the one-mile reach (CCD 2002). No complaints of impairment or detriment to existing water rights have been submitted to Ecology since 1968, when Naumes Inc. asserted the proposed POD was first diverted authorized under Surface Water Certificate No. 27.

Consideration of Protests and Comments

No protests or comments were filed against this application.

CONCLUSIONS

After careful consideration of the facts presented in this report, I make the following conclusions:

- Surface Water Certificate No. 27 represents a valid water right that authorizes the diversion of 0.47 cfs, 59.6 ac-ft/yr, and the right is eligible for change.
- The water right will not be enlarged by approving the proposed change in point of diversion. The quantity of water diverted at the authorized point of diversion is limited to the quantities historically put to beneficial use, as listed on the cover page of this report.
- The change of authorized point of diversion of water for beneficial use is allowed by law (RCW 90.03.380).
- The proposed change in point of diversion, subject to the provisions listed in this Report of Examination, will not impair existing rights.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend the request for change to Surface Water Certificate No. 27 be approved in the amounts and within the limitations listed below and subject to the provisions beginning on Page 2, et seq.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

- 0.47 cubic feet per second
- 59.6 acre-feet per year
- Irrigation of 12.6 acres from April 1 through October 31

Point of Diversion

2600 feet west and 100 feet south of the northeast corner of Section 10, within the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 10, Township 25 North, Range 20 E.W.M.

Place of Use

E $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ and W $\frac{1}{2}$ W $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 10, T. 25 N., R. 20 E.W.M. Chelan County Assessor Parcel Nos. 252010210050 and 252010120100

Report by: _____
Taylor C. Horne, Water Resources Program

Date

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REFERENCES

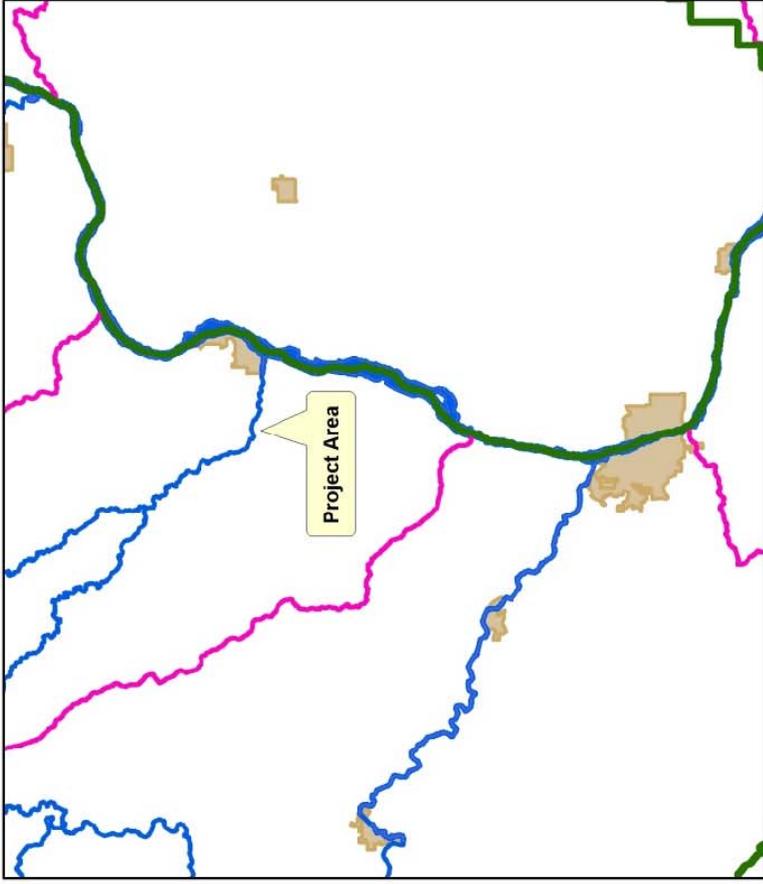
Bureau of Reclamation (BR). *Predesign Memorandum: Knapp-Wham / Hanan-Detwiler Consolidation Project*. September 2006.

Chelan County Conservation District (now Cascadia Conservation District) (CCD). *Entiat Subbasin Gain-Loss Analysis*. January 2003. <http://www.cascadiacd.org/index.php?page_id=257>.

Entiat Watershed Planning Unit. *Entiat WRIA 46 Plan & Appendices*. October 2004. <http://www.cascadiacd.org/index.php?page_id=255>.

Attachment 1

Jon Small
 Surface Water Certificate No. 27
 Sec. 10, T 25N, R. 20 E.W.M.
 WRIA 46 - Chelan County



- Legend**
- County
 - WRIA
 - cities
 - Local Roads
 - Townships
 - Sections
 - Parcels
 - Authorized Point of Diversion
 - Authorized Place of Use
 - Small Turnout
 - Knapp-Wham Ditch

Comments:
 Place of Use and Point of Diversion are as defined on the cover sheet under the heading, 'LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED.'

