



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
Change of: Point of Withdrawal
WRTS File No. CS4-WRC130057

PRIORITY DATE	CLAIM NO.	PERMIT NO.	CERTIFICATE NO.
1902	130057 as changed by CV1-4P276		
NAME Randolph N. Cannon and James R. Cannon			
ADDRESS/STREET		CITY/STATE	ZIP CODE
7276 Entiat River Road		Entiat WA	98822-9740

PUBLIC WATERS TO BE APPROPRIATED

SOURCE

Two Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	650*	68

QUANTITY, TYPE OF USE, PERIOD OF USE

A maximum of 650 gallons per minute, 68 acre-feet per year, the irrigation of 17 acres from April 1 to October 31 from both wells.

*All withdrawals under Water Right Claim No. 130056 and Water Right Claim No. 130057 are limited to a combined maximum instantaneous withdrawal of 650 gallons per minute.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL

Well No. 1: 1,650 feet west and 2,400 feet north from the southeast corner of Section 33, T. 26 N., R. 20 E.W.M.

Well No. 2: 2,657 feet west and 1,032 feet south from the northeast corner of Section 33, T. 26 N., R. 20 E.W.M.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
Well No. 1: NW¼, SE¼	33	26 N.	20 E.W.M.	46	Chelan
Well No. 2: NW¼, NE¼	33	26 N.	20 E.W.M.	46	Chelan
PARCEL NUMBER	LATITUDE	LONGITUDE	DATUM		
Well No. 1: 262033420050	47.7092	-120.3319	NAD 83		
Well No. 2: 262033210090	47.7144	-120.3354	NAD 83		

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

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]

NE¼NW¼, lying south of the Entiat River; NE¼NE¼SE¼NW¼; W½NE¼; N½SE¼, lying west of the Entiat River; and E2/3N2/3SW¼SE¼, lying west of the Entiat River; all within Section 33, Township 26 N., Range 20 E.W.M.

DESCRIPTION OF PROPOSED WORKS

Well No. 1: A well 10 inches in diameter, 73 feet deep, with a 60 horsepower Aurora turbine pump connected to undertree sprinklers, handlines, and micro sprinklers throughout the farm.

Well No. 2: A well 10 inches in diameter, 58 feet deep, with a 30 horsepower Berkeley submersible pump connected to a 6 inch mainline running to handlines, micro sprinklers, and solidset undertree sprinklers throughout the farm.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
Begun	October 31, 2011	October 31, 2012

PROVISIONS

1. Well Construction Standards

- 1.1. All wells constructed in the state shall meet the construction requirements of Chapter 173-160 WAC titled "Minimum Standards for the Construction and Maintenance of Wells" and Chapter 18.104 RCW titled "Water Well Construction". Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.
- 1.2. All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. If you are required to submit water measuring reports, reference this tag number.
- 1.3. All repairs shall be performed in accordance with Chapter 173-160 WAC. The existing surface seal shall be repaired by filling the cavity between the well casing and the surrounding native material with dry bentonite chips such that upon completion the bentonite chips completely fill the cavity and slope from the well casing to the surrounding ground surface. The repair shall insure that the minimum standard for an annular seal listed in WAC 173-160-231 is achieved. The repair shall be conducted by a well driller licensed in the State of Washington per Chapter 173-162 WAC. If there are any questions regarding the surface seal repair, please call Department of Ecology, Central Region Office, Well Construction Coordinator at (509) 575-2490.

2. Measurements, Monitoring, Metering and Reporting

- 2.1. 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.
- 2.2. 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.
- 2.3. Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.
- 2.4. 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>
- 2.5. 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 Regional Office for forms or information on available options for submittals.

3. 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.

4. Non-Additive to Confirmed Claims

The water use authorized under this filing shall be considered non-additive to any water rights confirmed for said claim as a result of a general adjudication through Superior Court, should adjudication be undertaken.

5. 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.

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 or the public welfare.

Therefore, I ORDER approval of the recommended change to a point of withdrawal proposed under Change Application No. CS4-WRC130057, subject to existing rights and the provisions listed above.

You have a right to appeal this ORDER. 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 WAC 371-08-305(10). "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:

The Pollution Control Hearings Board
PO Box 40903
Olympia WA 98504-0903

OR

Deliver your appeal in person to:

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:

The Department of Ecology
Appeals and Application for Relief
Coordinator
PO Box 47608
Olympia WA 98504-7608

OR

Deliver your appeal in person to:

The Department of Ecology
Appeals and Application for Relief
Coordinator
300 Desmond Dr SE
Lacey WA 98503

3. And send a copy of your appeal to:

Mark C. Schuppe, Section Manager
Department of Ecology
Central Region Office
15 W Yakima Avenue Ste 200
Yakima WA 98902

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 30th day of June 2010.



Mark C. Schuppe, Section Manager
Water Resources Program
Central Region Office

BACKGROUND

Description and Purpose of Proposed Change

On August 13, 1987, Certificate of Change, Vol. 1-4, Page 276 (No. S4-CV1-4P276) issued, authorizing a change in place of use (POU) and the addition of a point of withdrawal (POW) for Water Right Claim (WRC) No. 130056 and WRC No. 130057. The two claims were changed and a combined withdrawal of up to 1.74 cubic feet per second (cfs) [780 gallons per minute (gpm)], up to 260 acre-feet per year (ac-ft/yr) for the irrigation of 65 acres from April 1 to October 31 was authorized. The Certificate of Change authorized a point of diversion, known as the Cannon-Anderson Ditch and a well located on the Cannon farm. The place of use of each claim was changed to be identical to each other and the instantaneous and annual water quantities (Qi and Qa) were combined to more accurately reflect lands irrigated under the claims, enabling combined management of water withdrawn under WRC No. 130056 and WRC No. 130057. Information contained in the Report of Finding of Fact and Decision for S4-CV1-4P276 and the subsequently issued Certificate of Change No. S4-CV1-4P276 is used in this Report of Examination (ROE).

On January 3, 1994, Randolph N. Cannon and James R. Cannon submitted to the Washington State Department of Ecology (Ecology) an Application for Change of Water Right for WRC No. 130056. The application was accepted and assigned Change Application No. CS4-WRC130056. In the Change Application, the Cannons propose to add a POW to WRC No. 130056. The proposed POW is located on the Cannon farm, about 10 feet from the east bank (river left) of the Entiat River at approximate river mile 8. The proposed changes to WRC No. 130056 as changed by Certificate of Change No. S4-CV1-4P276 is the subject of a separate ROE.

On January 25, 1994, Randolph N. Cannon and James R. Cannon submitted to Ecology an Application for Change of Water Right for WRC No. 130057. The application was accepted and assigned Change Application Control No. CS4-WRC130057. In the Change Application, the Cannons proposed the same POW addition as proposed in Change Application No. CS4-WRC130056.

This report will address the change proposed in Change Application No. CS4-WRC130057. The investigation, conclusions, and provisions included in this Report of Examination apply to the claim asserted under WRC No. 130057 as changed by Certificate of Change No. CV1-4P276.

Mr. Cannon stated he does not intend to use the POD authorized in Certificate of Change No. S4-CV1-4P276 and intends to irrigate solely from two wells. Therefore, this ROE will investigate a change from a point of diversion (POD) to a POW, rather than the addition of a POW.

As stated in the Change Applications, the purpose of the proposed changes to a POW is to “avoid access problems related to the ditch, reduce possible impact on fish and wildlife habitat, [and] reduce conveyance loss”. The Cannon-Anderson Ditch is no longer operational. During a conversation with James Cannon, he stated that switching to wells will increase his ability to efficiently manage water use on the pastures and orchards and enable separate cost accounting for irrigation for each crop type.

Attributes of the Claim and Proposed Change

Table 1

Summary of Proposed Changes to WRC No. 130057 as changed by Certificate of Change CV1-4P276.

<i>Attributes</i>	<i>Existing</i>	<i>Proposed</i>
Name	Randolph N. Cannon & James R. Cannon	Randolph N. Cannon & James R. Cannon
Claimed Date of First Use	1902	
Date of Application for Change		January 25, 1994
Instantaneous Quantity	1.74 cubic feet per second (780 gallons per minute)	No Change
Annual Quantity	260.00 acre-feet per year	No Change
Source	The Entiat River and a Well	Two Wells
Point of Diversion or Withdrawal	Point of Diversion: SW ¹ / ₄ SW ¹ / ₄ of Section 28, T. 26 N., R. 20 E.W.M. Well No. 1: NW ¹ / ₄ SE ¹ / ₄ of Section 33, T. 26 N., R. 20 E.W.M.	Well No. 1: NW ¹ / ₄ SE ¹ / ₄ of Section 33, T. 26 N., R. 20 E.W.M. Well No. 2: NW ¹ / ₄ NE ¹ / ₄ of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use	Irrigation of 65 acres	No Change
Period of Use	April 1 through October 31	No Change
Place of Use	NE ¹ / ₄ NW ¹ / ₄ , lying South of the Entiat River; NE ¹ / ₄ NE ¹ / ₄ SE ¹ / ₄ NW ¹ / ₄ ; W ¹ / ₂ NE ¹ / ₄ ; N ¹ / ₂ SE ¹ / ₄ , lying west of the Entiat River; and E2/3N2/3SW ¹ / ₄ SE ¹ / ₄ , lying west of the Entiat River section 33, T. 26 N., R. 20 E.W.M.	No Change

Legal Requirements for Proposed Change

The following is a list of requirements that must be met prior to authorizing the proposed change in Change Application No. CS4-WRC130057.

- **Public Notice**

A public notice of the changes proposed in Change Application No. CS4-WRC130057 was published in the Wenatchee World on March 31 and April 7, 1994. No protests or comments were submitted during the thirty-day 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 (cfs), unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cfs, 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 (gpm);
- 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 WAC 197-11-305.

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

The actual validity of a claim can only be determined by a Superior Court in an adjudication. Any tentative determination made on a claim by Ecology as part of an application for change investigation is not an adjudication of the claim.

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*.

A point of diversion for a surface water right may be changed to a groundwater POW. The authority is derived from RCW 90.03.380, RCW 90.44.020-030, RCW 90.44.100 and RCW 90.54.020(9). RCW 90.03.380(1) states that a water right that has been put to beneficial use may be changed if it would not result in detriment or injury to other water rights. Additionally, moving the point of diversion to a groundwater withdrawal requires compliance with the groundwater code (Chapter 90.44 RCW), including a finding that there be no detriment to the public welfare and that the source of the existing diversion and the proposed POW be part of the same water body.

INVESTIGATION

Information for this investigation was obtained during a site visit conducted on April 22, 2008 by Ecology representative Taylor Horne. An additional site visit was conducted on April 30, 2008, with Ecology representatives Taylor Horne, Ingrid Ekstrom, and Thomas Mackie present. Applicant James Cannon was present during the site investigations and provided information regarding the historical and current use of water asserted under WRC No 130057, as changed by Certificate of Change No. CV1-4P276. Additional information was obtained from:

- applicable RCW and WAC chapters.
- conversations with James Cannon, and his representative, Mary McCrea of Cascadia Law Group.
- 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

The Cannon farm is located in the Entiat River valley approximately 8 river miles upstream of the Entiat River's confluence with the Columbia River, about 7 miles northwest of the city of Entiat, Washington. The Cannons own orchard and pasture land on both sides of the river totaling 85 acres within Water Resource Inventory Area (WRIA) 46.

On February 25, 1975, Ecology assigned WRC No. 130057 to a claim filed by Randolph N. Cannon. The claim asserts a right to 1.1 cfs, 128 ac-ft/yr, for the irrigation of 45 acres, from April 15 to October 1 from a POD on the Entiat River. The claimed date of first putting water to use is 1902. The claimed POD location corresponds to the historical location of the Cannon-Anderson Ditch, within the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 28, T. 26 N., R. 20 E.W.M. The claimed POU corresponds to lands that are currently irrigated by the Cannons on the east side of the Entiat River.

Also on February 25, 1975, Ecology assigned WRC No. 130056 to a claim filed by Randolph N. Cannon. The claim asserts a right to 2.2 cfs, 320 acre-feet per year (ac-ft/yr), for the irrigation of 80 acres and stock watering from April through September from a POD on the Entiat River. The claimed date of first putting water to use is 1890. The claimed POD location corresponds to the historical location of the Cannon Ditch, within the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 28, T. 26 N., R. 20 E.W.M. The claimed place of use (POU) is the NW $\frac{1}{4}$ of the SE $\frac{1}{4}$ and the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 33, T. 26 N., R. 20 E.W.M. The claimed POU corresponds to lands that are currently irrigated by the Cannons on the west side of the Entiat River. A total of 65 acres of irrigation on the Cannon farm are claimed under WRC No. 130056 and WRC No. 130057.

Historic Points of Diversion and Withdrawal

Commencing operation in 1890, the Cannon Ditch historically served the Cannon orchard and pasture lands west of the Entiat River approximately 1,400 feet southeast of the historic POD. Put into operation by 1902, the Cannon-Anderson Ditch historically served the Cannon's orchard and pasture lands lying east of the Entiat River approximately 2,300 feet southeast of the historic POD. In the early 1960's, the Cannons abandoned the use of the Cannon Ditch, switching solely to the Cannon-Anderson Ditch. Historical documents and statements by James Cannon evidence 65 acres of mixed orchard and pasture have been irrigated continuously since the claimed dates of first putting water to use under WRC No. 130056 and WRC No. 130057.

In 1986, Ecology authorized the addition of a POW to WRC No. 130056 and WRC No. 130057 with the Report of Findings of Fact and Decision for CV1-4P276. The following provision describing the management of the claims was included in the report:

The 1.74 cfs herein authorized for diversion under WRCs No. 130056 and No. 130057 shall be allowed only when the Cannon-Anderson ditch is the sole source utilized. If the well is the sole source, then the maximum instantaneous withdrawal shall be 1.34 cfs for irrigation of 65 acres. If the ditch and the well are used in combination, then authorized pumping rate shall be determined (within the range from 1.34 cfs to 1.74 cfs) in proportion to the rate diverted at each point.

Certificate of Change No. CV1-4P276 consolidated the management of WRC No. 130056 and WRC No. 130057 allowing the combined usage of the Cannon-Anderson Ditch and a POW. The change also merged the POUs of the claims to include 65 acres of the Cannon farm on both sides of the Entiat River.

The POW authorized by Certificate of Change No. CV1-4P276 was drilled in 1980 (Well No. 1). The well was not assigned a unique well identification number, although a well driller's log was submitted to Ecology in 1980. The well is 10 inches in diameter, 73 feet deep with a static water level of 12 feet at the time of drilling. A 60 horsepower Aurora turbine pump rated at 600 gpm is connected to the well. The well penetrates sands and gravels and is located within the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 33, T. 26 N., R. 20 E.W.M. In addition to waters withdrawn under WRC No. 130056 and WRC No. 130057, water is withdrawn under Ground Water Certificate No. G4-26270C from this well (refer to the **Other Rights Appurtenant to the Place of Use** section of this report for more details). A water meter is installed on Well No. 1.

Proposed Point of Withdrawal

Drilled in 1995, the proposed POW (Well No. 2) is located within the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 33, T. 26 N., R. 20 E.W.M., approximately 20 feet from the left bank of the Entiat River. A water meter is installed on the well. A well log was submitted to Ecology in 1995 and the well was assigned unique well identification number ABX237. The well is 10 inches in diameter, 58 feet deep with a static water level of 10.5 feet at the time of drilling. A water meter is installed on Well No. 2. The well penetrates clay, boulders, gravel, and sands. A detailed description of the hydrogeologic setting of the proposed POW is included in the **Hydrologic/Hydrogeologic Evaluation** section of this report.

The POD authorized in Certificate of Change No. CV1-4P276, the Cannon-Anderson Ditch, is no longer in use. Well Nos. 1 and 2 supply all the irrigation water associated with WRC No. 130056 and WRC No 130057. Diversion from all the PODs previously associated with the claims has been discontinued.

Water is delivered to the Cannon orchard and pastures via two independent irrigation systems; orchard irrigation water is withdrawn from Well No. 1 and pasture irrigation water is withdrawn from Well No. 2. The irrigation system connected to Well No. 1 consists of a 60 horsepower Aurora turbine pump rated at 600 gpm. Two six-inch mainlines are used to convey water across the property. A buried undertree system is installed to irrigate the orchards using Rainbird 20A sprinklers with 7/64th inch nozzles. The irrigation system connected to Well No. 2 consists of a 30 horsepower Berkeley submersible pump connected to a six inch mainline. The majority of the system used to irrigate the pastures consists of solid set with a few handlines in use on the smaller fields. Rainbird 20AH sprinklers with 1/8th inch nozzles are used for permanent irrigation in the pastures and Rainbird 30A sprinklers with 9/64th inch nozzles are used for the handlines.

Place of Use

Well No. 2 is currently connected to an irrigation system that is used solely to irrigate pasture on both sides of the Entiat River. With this and subsequent proposed changes, Mr. Cannon intends to modify his water rights to enable the integrated management and use of his water rights throughout the Cannon farm. Historical aerial photographs and testimony from Mr. Cannon indicates 23 acres of pasture historically have been irrigated under WRC No. 130056 and WRC No. 130057. Well No. 1 is connected to a separate irrigation system that is used solely to irrigate orchards on both sides of the river. Historical aerial photographs and testimony from Mr. Cannon indicate that 42 acres of orchard lands historically have been irrigated under WRC No. 130056 and WRC No. 130057. Historical information indicates that a total of 65 acres have been irrigated with water withdrawn under WRC No. 130056 and WRC No. 130057, 48 acres west of the Entiat River and 17 acres East of the Entiat River.

Purpose of Use

No change in purpose of use is proposed in Water Right Change Application No. CS4-WRC130057. The Cannons will continue to use water as stated on WRC No. 130056 and WRC No. 130057 as changed by Certificate of Change No. CV1-4P276 "for irrigation of 65 acres from April 1 to October 31". This purpose of use is considered beneficial uses of water (RCW 90.54.020(1)).

Water Quantities

Certificate of Change No. CV1-4P276 authorized up to 1.74 cfs (780 gpm) instantaneous diversion (Qi) from the Cannon-Anderson Ditch and Well No. 1. The ROE for Certificate of Change No. CV1-4P276 states that a 650 gpm pump was installed to pump water from the ditch. A provision in the Certificate of Change defines a scalable maximum instantaneous diversion rate when the POD and POW are used in combination. A reduced instantaneous rate of withdrawal is authorized when a single POW is the sole source of water. The reduced Qi accounts for the lack of ditch loss (20 percent) in the delivery system when only the well was used. Mr. Cannon stated he historically operated the ditch and Well No. 1 concurrently. When the ditch was decommissioned and Well No. 2 was brought online, Mr. Cannon continued to withdrawal at a total combined maximum instantaneous withdrawal rate of 650 gpm; this Qi represents the historical maximum pumping rate from the ditch that is now withdrawn from two wells.

The Qi, if this change is approved, would be 650 gpm. Mr. Cannon intends to use both Well No 1 and the proposed Well No. 2 to irrigate lands on both sides of the Entiat River, within the POU's of WRC No. 130056 and WRC No. 130057. The instantaneous quantities that would be authorized for change by this report, if approved, represent a total instantaneous rate of withdrawal from all wells that cannot be exceeded.

Certificate of Change No. CV1-4P276 authorized up to 260 ac-ft/yr for the irrigation of 65 acres of mixed orchard and pasture, equating to a water duty of 4 acre-feet per acre. The site investigation indicated that 65 acres of orchard and pasture continue to be irrigated on the Cannon's farm, with 17 acres of irrigation east of the Entiat River and 48 acres of irrigation west of the Entiat River. WRC No. 130057 asserts irrigation of lands on the east side of the Entiat River. Therefore, the corresponding portion of the annual quantity (Qa) associated with WRC No. 130057 is 68 ac-ft/yr for the irrigation of 17 acres.

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. If approved, this authorization would contain provisions requiring the measuring and reporting of the quantities of water withdrawn or diverted.

Water use meters are installed on both Well No. 1 and Well No. 2.

Well Tags

Chapter 173-160 WAC contains requirements for well drillers, system operators and/or owners to tag new and existing wells with identification tags supplied by Ecology. The well identification program creates a standard system to identify all newly constructed or existing wells, so that property owners and various agencies can readily share well data. In addition, Ecology field staff use the well tag to identify the well. Accordingly, this authorization, if approved, would contain provisions requiring each well to be tagged with a unique identification number.

At the time of the site visit an Ecology well identification tag was not installed on Well No. 1. If approved, the change authorization will contain a provision requiring the installation of an Ecology-issued well identification tag on Well No. 1. The construction schedule associated with the change authorization will allow for adequate time to install a tag on Well No. 1.

Other Rights Appurtenant to the Place of Use the Adjacent Area

One surface water certificate, one groundwater certificate, two surface water permits, and five WRCs are appurtenant to the place of use of WRC No. 130056 and WRC No 130057 as changed by Certificate of Change No. CV1-4P276.

S4-28582C – Randolph N. Cannon and James R. Cannon

Surface Water Certificate No. S4-28582C was issued to the Cannons with a priority date of December 27, 1984. The certificate authorizes the maximum diversion from the Entiat River of 0.1cfs, 20 ac-ft/yr, for irrigation of 5 acres from April 15 to October 15. The authorized POD is the Cannon-Anderson Ditch. The place of use includes pastures southwest of the Entiat River at the southernmost extent of the Cannon's farm. The Cannon-Anderson Ditch is no longer in operation and water used within the POU is withdrawn from Well No. 1 as described in this report. If the Cannons are using water under this right, a Change Application should be filed to move the authorize POD to a POW, Well No. 1.

S4-28583C – Randolph N. Cannon and James R. Cannon

Surface Water Certificate No. S4-28583C was issued to the Cannons with a priority date of December 27, 1984. The certificate authorizes the diversion from the Entiat River a maximum of 1.56 cfs, 12.4 ac-ft/yr, for frost control as required. The POU includes the Cannon's orchards on the southwest (river right) side of the Entiat River. During the site investigation the pump in the Entiat River appeared to be maintained and Mr. Cannon stated he uses the pump for frost protection as weather conditions demand.

G4-26270C – Randolph N. Cannon

Superseding Ground Water Certificate No. G4-26270C was issued to Mr. Cannon with a priority date of June 23, 1979. The certificate authorizes the withdrawal from a well of 600 gpm, 10.6 ac-ft/yr, for frost protection as required from March 15 to June 1; 120 ac-ft/yr for the irrigation of 30 acres from April 15 to October 15; and 2 ac-ft/yr for continuous group domestic supply. All water withdrawals for irrigation are considered "supplemental to existing surface water rights for the described place of use". The term "supplemental" in this case is used to describe the irrigation portion of G4-26270C as a non-additive supply of water; meaning the instantaneous and annual quantities of water withdrawn under G4-26270C for irrigation shall be debited against maximum instantaneous and annual quantities authorized and claimed from existing surface water rights and claims appurtenant to the POU.

S4-29352P – Randolph N. Cannon and James R. Cannon

Surface Water Permit No. S4-29352P was issued to the Cannons with a priority date of August 4, 1987. The permit authorizes the diversion of up to 1.56 cfs, 5 ac-ft/yr, for frost protection from April 1 to May 31. The place of use includes the Cannon's orchard on both sides of the Entiat River. The point of diversion and pump are the same as used for frost protection under Surface Water Certificate No. S4-28583. During the site investigation the pump in the Entiat River appeared to be maintained and Mr. Cannon stated he uses the pump for frost protection as weather conditions demand.

S4-29646P – Randolph N. Cannon and James R. Cannon

Surface Water Permit No. S4-29646 was issued to the Cannons with a priority date of March 1, 1988. The permit authorizes the diversion of up to 0.22 cfs, 26.0 ac-ft/yr, for the irrigation of 10 acres from April 15 to October 15. The place of use includes pastures on the west side of the Entiat River. Irrigation for a portion of these pastures is claimed under the POU described in WRC No. 130056 and WRC No. 130057 as changed by Certificate of Change No. CV1-4P276. Aerial photographs indicate approximately 19 acres of pasture are irrigated within the POU of the permit. The combination of the 10 acres authorized under Surface Water Permit No. S4-29646 and the acreage claimed under WRC No. 130056 and WRC No 130057, as changed by Certificate of Change No. CV1-4P276, appear to cover the pasture irrigation occurring on Mr. Cannon's farm.

Surface Water Permit No. S4-29646 contains provisions that limit the total diversions under the permit, WRC Nos. 130056, 130057, and 09551, and Surface Water Certificate No. S4-28582C, to a maximum of 2.19 cfs. Surface Water Permit No. S4-29646 authorizes the diversion of water from the Cannon–Anderson Ditch, which is no longer in operation. Water is currently withdrawn from Well No. 1, as previously described in this report. Mr. Cannon should submit a Change Application to switch from the Cannon-Anderson Ditch POD to a POW.

WRC130053 – Randolph N. Cannon

A short-form claim was signed by Mr. Cannon on June 25, 1974 and was assigned WRC No. 130053 on February 25, 1975. The claim asserts a domestic and stock watering right from a well. The POU is the W½NE¼ of Section 33, T. 26 N., R. 20 E.W.M. The POU corresponds to the location of a home and a stock pen on the Cannon’s farm east (river left) of the Entiat River.

WRC130054 – Randolph N. Cannon

A short-form claim was signed by Mr. Cannon on March 15, 1974 and was assigned WRC No. 130054 on February 25, 1975. The claim asserts a domestic right from well. The place of use is the same as WRC No. 130053: W½NE¼ of Section 33, T. 26 N., R. 20 E.W.M. WRC No. 130054 may assert the right to domestic water supply for a home located on the southwest (river right) side of Entiat River within the claimed POU.

WRC150162 – Randolph N. Cannon

WRC No. 150162 was filed by Mr. Cannon on June 30, 1974 and was assigned WRC No. 150162 on March 21, 1975. The claim asserts a continuous domestic supply water right from a well in the amount of 10 gpm, one ac-ft/yr. The claimed date of first putting the water to use is March 1904. The POU claimed is within the NW¼ of SE¼ of Section 33, T. 26 N., R. 20 E.W.M. This claim may assert a right to domestic water supply for a home located within the claimed POU.

WRC150163 – Randolph N. Cannon

WRC No. 150163 was filed by Mr. Cannon on June 30, 1974 and was assigned WRC No. 150163 on March 21, 1975. The claim asserts a continuous domestic supply water right from a well in the amount of three gpm, ¼ ac-ft/yr. The claimed date of first putting water to use is June 1938. The place of use claimed is within the NW¼ of the SE¼ of Section 33, T. 26 N., R. 20 E.W.M. This claim may assert a right to domestic water supply for a home located within the claimed POU.

WRC095511 – Rowena G. Minkiewitz

WRC No. 095511 was filed by Rowena G. Minkiewitz on April 11, 1974. The claim asserts a right to 200 miner’s inches under a six inch pressure, 140 ac-ft/yr, for the irrigation of 35 acres from April 1 to October 15 from a surface water source. Included with the claim is a notice of appropriation of water dated January 3, 1914 for the Cannon–Anderson ditch. The Report of Examination for Change Application No. S4-CV1-4P276 states that “it appears that approximately 6 acres had been irrigated” under WRC No. 95511 north of the Cannon property. It appears that water diverted under this claim has been used to irrigate the homestead lands north of the Cannon farm and Entiat River Road, owned by Mr. Cannon.

Hydrologic/Hydrogeologic Evaluation

The following statements are excerpted from an October 29, 2008 “Technical Memorandum, Re: Technical analysis for Water Right Change Application Nos. CS4-WRC130056 and CS4-WRC130057, Randolph Cannon” written by Ingrid Ekstrom, LHD, Ecology staff Hydrogeologist. The complete memorandum and list of references is available at the Department of Ecology, Central Region Office, upon request.

Site Area Geology

A description of the site specific geology in the vicinity of the Cannon property is based on area well logs, topographic maps, and site observations. Well No. 2 is located approximately 20 feet (ft) east of the Entiat River along a narrow reach of the river valley. Directly downstream the river valley becomes slightly wider, where two canyons with intermittent streams, Ringstead Canyon and Crum Canyon, enter the valley. In the subject area, small terraces and alluvial fans are found on either side of the valley floor along the bedrock walls. Well No. 2 was drilled on the main valley floor at an elevation of approximately 10 to 15 ft above the river.

Area well logs record sand, gravel, and cobbles with occasional silt and clay. The gravel and sand compose the majority of the unconsolidated material, and clays and silts appear to form discontinuous lenses closer to ground surface, typically within the upper 20 to 30 ft below ground surface (bgs). For example, the driller’s log for Well No. 2 records clay and gravel to 28 ft bgs and sand, gravel, and cobbles between 29 and 58 ft bgs. The nature of the unconsolidated material penetrated by Well No. 2 and its proximity to the Entiat River suggest that the well is completed into the recent fluvial deposits left behind by the Entiat River and/or sand and gravel glaciofluvial deposits from the alpine glaciers.

Well logs were also used to approximate the thickness of the unconsolidated sands and gravels that overlie the crystalline bedrock. Wells completed in the vicinity of Well No. 2 range in depth from 30 to 120 ft below ground surface (bgs). Two of the well logs reviewed recorded encountering bedrock at depths of 64 and 82 ft bgs. However, these wells appear to be located (based on general well log location descriptions) near the bedrock valley wall, where the underlying bedrock slopes from the upland area toward the valley center. Well No. 2 was drilled to 58 feet and completed in the unconsolidated sediments. As a result, the thickness of the unconsolidated deposits near Well No. 2 is greater than 58 ft, and may be as thick as 120 ft (the deepest area well cited above) or greater, with actual thicknesses depending on local bedrock topography.

Site Area Hydrogeology

In order to analyze the proposal to add Well No. 2 as a POW, it is important to consider the ground water flow system in the subject area and its relationship to the river system. A characterization of the hydrogeology for the site area included an analysis of the following: saturated thickness of the aquifer, ground water – surface water interaction, area well yields, aquifer parameters, and ground water recharge and discharge relationships.

Ground water levels provide an estimate of the aquifer's saturated thickness when considered with the thickness of valley fill deposits. In the subject area, ground water levels recorded on well logs for the unconsolidated deposits range from 8 to 81 ft bgs, with most between 8 and 30 ft bgs. Some of the deeper water levels are associated with wells at higher elevations and closer to the bedrock valley walls. Based on static water levels and well depths, the known saturated thicknesses for area wells range from 13 to 68 ft. The aquifer at Well No. 2 has a known saturated thickness of at least 47.5 ft. Because the wells in Ecology's database that are directly adjacent to Well No. 2 do not encounter bedrock, the saturated thickness of the unconsolidated sediments at the proposed well site is recognized to be greater than 47.5 ft. Actual aquifer saturated thickness will vary with the elevation of the underlying bedrock surface.

Ground water and surface water elevations and the nature of aquifer and river bed sediments suggest good hydraulic communication between the Entiat River and the valley fill aquifer in the subject area. Static water level elevations in wells adjacent to the river are typically similar (within 5 to 10 ft) to the elevation of the Entiat River. Additionally, the applicant indicated that he has observed water level fluctuations in his stock water well that appear to correlate with changes in river level. The stock water well is located approximately 600 ft to the southeast of Well No. 2 and about 40 ft east of the river. During times of low river flow, the applicant reports that in the past, the water level in the well would drop below the pump intake. The presence of coarse sands and gravels that dominate the valley fill aquifer and the Entiat River bed also supports a system in which water is able to flow easily between the aquifer and the river. The above information and the proximity of Well No. 2 to the river suggest a high degree of ground water - surface water interaction between the aquifer near Well No. 2 and the Entiat River.

Area wells completed in the unconsolidated sediment aquifer are estimated by drillers to yield between 20 and 800 gpm, with most in the 20 to 100 gpm range. Many of the reported well yields depend on well efficiencies, well design, intended use, and test method, rather than a maximum aquifer yield. Sediment type, available saturated thickness, and well yields suggest the subject aquifer in the vicinity of Well No. 2 has a transmissivity (T) in the range of 15,000 gallons per day per foot (gpd/ft) to 40,000 gpd/ft and a specific yield typical of unconfined sand and gravel aquifers. The above estimated T range falls within the basin wide range of 12,000 to 60,000 gpd/ft presented for Entiat valley fill deposits by Kirk et al (1995). Ground water recharge to the subject aquifer is from precipitation, irrigation return flows, and ground water – surface water interaction with the Entiat River. Ground water discharges to pumping wells and as seepage to the river, where head relationships and aquifer geometries facilitate.

Hydrogeologic Analysis of the Site

Change Application Nos. CS4-WRC130056 and CS4-WRC130057 propose to add Well No. 2 as a POW to each claim as changed by Certificate of Change No. S4-CV1-4P276. Well No. 2 is 10 inches in diameter and was drilled to a depth of 58 ft in 1995. The well was completed with a 9-inch diameter 50-slot stainless steel well screen extending from 42 to 57 ft bgs. The driller conducted an airtest on April 12, 1995, and recorded a discharge rate greater than 230 gpm after 1.5 hours. The well is currently equipped with a 30 horsepower submersible pump, and the applicant indicated that normal operational pumping rates are typically between 250 and 350 gpm. The well log records that a bentonite surface seal was installed to a depth of 19 ft bgs.

At the time of the site visit a cavity had developed around the well casing near ground surface. In order to repair the upper part of the surface seal, the cavity should be cleaned of any debris and filled with bentonite chips to just above ground surface, such that the bentonite slopes away from the well casing to the surrounding ground surface. A 2-inch annulus filled with bentonite must be present after repair, and all well construction must be performed by a driller licensed in the State of Washington. The above well information is based on the [2008] site visit, conversations with the applicant, and the well log on file with Ecology.

Impairment

The nearest known well to Well No. 2 is approximately 600 feet to the southeast. The well is owned by the applicant and used for stock water on the property. Ecology's well log database records several other domestic wells in the NW¼ and the NW¼NE¼ of Section 33, T. 26 N., R. 20 E.W.M. Well logs record only general locations for these wells, often to the nearest quarter or quarter-quarter section. The proposed well is approximately 600 ft southwest of the closest neighboring tax parcel boundary (not owned by the applicant), where an exempt well may be present.

The impairment analysis considers the potential for drawdown impacts at nearby wells by analyzing the local geology, aquifer characteristics, nearby well yields, and performance of Well No. 2. The Theis non-equilibrium well equation and image well theory were used to simulate pumping near the Entiat River boundary to the west and a bedrock no-flow boundary to the east. Using a conservative range of T (15,000 to 30,000 gpd/ft) for the subject aquifer and an average withdrawal rate of 275 gpm, the simulated drawdown after the 214 day irrigation season was less than one ft at a distance of 200 ft from Well No. 2. As a result, pumping from Well No. 2 over the course of the irrigation season is not anticipated to cause adverse effects to any wells in neighboring parcels (see Appendix A).

Same Source of Water

To add a well as an additional POW to a surface water right, the well must be in direct hydraulic continuity with the original surface water source. Direct hydraulic continuity exists when, as a result of pumping the proposed well, additional water from the original surface water source will flow into and recharge the aquifer where it can eventually be captured as ground water. Additionally, the proposed well must be located and constructed such that within a short time after pumping starts, the majority of the pumped water should be derived from, or replaced by, the surface water source; and within a short time after pumping stops, the ground water that has been removed from aquifer storage should be replaced by infiltration from the surface water source.

The Entiat River is the source of water for the authorized POD under WRC No. 130056 and WRC No 130057. Well No. 2 is completed in the unconsolidated valley fill aquifer that is in direct hydraulic connection with the Entiat River. This determination is based on the proximity to the Entiat River, well depth, the permeable sands and gravels penetrated by the subject well, the similarity in static water level between the well and the river, and the apparent ground water – surface water interaction with the Entiat River. Based on the analysis contained herein, Ecology has determined that the proposed well and the original POD exercised under Claim Nos. 130056 and 130057 withdraw water from the same source.

The timing relationship between pumping Well No. 2 and the associated depletion rates from the Entiat River were analyzed using Western Water Consulting's Well Pumping Depletion Model (2001). Specifically, the model was used to estimate lag time between the start and termination of pumping at the well under the WRCs and the resultant increase and decrease in depletion of the river, respectively. Evaluating an average pumping rate of 275 gpm as authorized under Certificate of Change No. S4-CV1-4P276 and a conservative range of transmissivities (15,000 to 30,000 gpd/ft), depletion rates at the river due to pumping at Well No. 2 are estimated to be within 85% of the pumping rate within 1 day of the start of pumping. Similarly, after termination of pumping, impact to the river is estimated to be reduced by approximately 85% in less than one day and by 95% within approximately five days once pumping has stopped. As a result, Well No. 2 is considered to be in direct hydraulic continuity with the Entiat River, and the well could be effectively managed in the same manner as the originally authorized POD to preclude any potential impacts to other water rights" (Ekstrom, 2008).

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 historic POD and proposed POW are located within the Lower Entiat stream management unit that extends from the confluence of the Entiat and Columbia Rivers to Entiat river mile 16.2. The 1890 claimed date of first use of WRC 130056 and the 1902 claimed date of first use of WRC No. 130057 predate the September 3, 2005 priority date of the minimum instream flow; therefore, withdrawals asserted under the claims are not subject to curtailment when minimum instream flow levels are not met.

Impairment, Qualifying Ground Water Withdrawal Facilities, and Well Interference

There are three concepts that are important when considering whether a withdrawal of water from a well would impair another existing water right. The concepts are defined as follows:

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection i.e. water rights that are both senior and junior in priority to the right the applicant seeks to change.

Qualifying ground water withdrawal facilities are defined as those wells which in the opinion of the Department of Ecology are adequately constructed. An adequately constructed well is one that (a) is constructed in compliance with well construction requirements; (b) fully penetrates the saturated thickness of an aquifer or withdraws water from a reasonable and feasible pumping lift (WAC 173-150); (c) the withdrawal facilities must be able to accommodate a reasonable variation in seasonal pumping water levels; and (d) the withdrawal facilities including pumping facilities must be properly sized to the ability of the aquifer to produce water.

Well interference may occur when several wells penetrate and withdraw ground water from the same aquifer. Each pumping well creates a drawdown cone. When several wells pump from the same aquifer, well density, aquifer characteristics, and pumping demand may result in individual drawdown cones that intersect and form a composite drawdown cone. At any point in an aquifer, the composite drawdown caused by pumping wells will be greatly influenced by the transmissivity (T) of the aquifer. In aquifers with high Ts, composite drawdown will generally be much less than in aquifers with similar properties but with low Ts. Transmissivity is related to hydraulic conductivity (K) and the saturated thickness (b) of an aquifer by the relationship $T=Kb$.

An aquifer's hydraulic conductivity (K) is derived from the physical properties of both the fluid and geologic materials that form an aquifer. Once formed, an aquifer's saturated thickness (b) becomes important in evaluating its transmissivity. For regions of similar K in an aquifer, a large saturated thickness will result in a much higher T than a small saturated thickness. As a result, regions of similar K in an aquifer with a large saturated thickness will experience less composite drawdown or well interference than with a small saturated thickness.

Some conditions, however, will increase or steepen composite drawdown in an aquifer. For instance, where characteristics (such as very fine, clay-rich, or poorly sorted sediments) of an unconfined aquifer cause significant drawdown relative to the saturated thickness, the composite drawdown will increase as saturated thickness is reduced and T becomes smaller. Additionally, in regions where negative or no-flow boundaries occur, such as near the edges of a valley fill aquifer where it is bounded by bedrock, composite drawdown will be steeper than in the central part (generally the greatest thickness region) of the aquifer. Consequently, it is commonly understood that the greatest composite drawdown or well interference is more likely to occur in regions of low transmissivities, thin saturated thicknesses and near negative or no-flow boundaries than in regions of high transmissivities, large saturated thicknesses, and away from negative or no-flow boundaries.

The nearest POW, owned by Mr. Cannon, is 600 feet to the southeast from the proposed POW. As stated in the *Hydrologic/Hydrogeologic Evaluation*, well interference is not likely to occur throughout the irrigation season to any permit exempt wells on the neighboring parcel over 600 feet to the north.

Regulation of Water Rights

If the proposed changes are approved, all POWs authorized by this report are subject to curtailment based on the priority system, whereby senior rights must be satisfied before a junior right may divert water. In order to preserve the integrity of the priority system when a POD is changed to a POW, water use at the new POW must be managed in the same manner as the original POD. If a situation occurs in which the priority system mandates that diversions under WRC No. 130056 and WRC No 130057 must be curtailed, all withdrawals from the authorized POWs must be curtailed until all senior water rights upstream of the original POD are fulfilled. The original POD is recognized as that point 1,800 feet west and 2,600 feet north of the southeast corner of Section 33, being within the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 33, T. 26 N., R. 20 E.W.M.

Public Interest Considerations

The addition of a POW to a water right must not have a detrimental effect upon the public interest (RCW 90.44.100(2)). A public interest investigation includes analyzing harm to fish and wildlife, effects on endangered or threatened species, impacts to wetlands, recreation, water quality, and any other concerns expressed by commenting and protesting parties.

In general, removing PODs and instream structures from a river has a positive impact on aquatic habitat. Diversions and instream pumps require frequent servicing that involves entering the river to repair structures, remove silt and debris from screens, and maintain pushup dams. Replacing a POD with a POW alleviates the need for repeated construction in the river and the associated disturbances from increased silt loading and stream bank modifications.

CONCLUSIONS

After careful consideration of the facts presented in this report, the author makes the following conclusions

- Water has been put to beneficial use as asserted under WRC No 130057 as changed by Certificate of Change No. CV1-4P276.
- The subject water right claims will not be enlarged by approving the change to a POW. The quantities of water withdrawn at the authorized POWs are limited to the quantities historically put to beneficial use, as listed on the cover page of this report.
- The proposed POW withdraws from the same source of water as the claimed POD.
- The proposed changes will not impair existing water rights or claims.
- The proposed changes are not detrimental to the public interest.

RECOMMENDATIONS

Based on the above investigation and conclusions, the author recommends that the request for change to WRC No 130057 as changed by Certificate of Change No. CV1-4P276 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:

- 650 gallons per minute*
- 68 acre-feet per year
- Irrigation of 17 acres from April 1 through October 31

*All withdrawals under Water Right Claim No. 130056 and Water Right Claim No. 130057 are limited to a combined maximum instantaneous withdrawal of 650 gallons per minute.

Points of Withdrawal

Well No. 1: NW¼, SE¼, Section 33, Township 26 North, Range 20 E.W.M.

Well No. 2: NW¼, NE¼, Section 33, Township 26 North, Range 20 E.W.M.

Place of Use

NE¼NW¼, lying south of the Entiat River; NE¼NE¼SE¼NW¼; W½NE¼; N½SE¼, lying west of the Entiat River; and E2/3N2/3SW¼SE¼, lying west of the Entiat River; all within Section 33, Township 26 N., Range 20 E.W.M.



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

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REFERENCES

Chelan County Conservation District (NOTE: Renamed "Cascadia Conservation District"). *Detailed Implementation Plan, Entiat Water Resource Inventory Area (WRIA) 46 (EWPU DIP)*. February 2006. <http://www.cascadiacd.org/files/documents/Entiat_FinalDIP_022106.pdf>

Ekstrom, Ingrid. *Technical Memorandum, Re: Technical analysis for Water Right Change Application Nos. CS4-WRC130056 and CS4-WRC130057, Randolph Cannon*. October 29, 2008, in Application Files.

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

Attachment 1

