Chelan County Water Conservancy Board

C/O 1205 Ormiston Street, Wenatchee, Washington 98801
Phone (509) 860-7466

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SEP 12 2011

DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Water Conservancy Board

Don Phelps, P.E.
Waikele Hampton
Chris Snapp

Alternate: Karin Whitehall

September 9, 2011

Department of Ecology
Central Regional Office
Attention: Ingrid Ekstrom
15 W. Yakima Street, Suite 200
Yakima, WA 98902

Greetings Ingrid,

Enclosed please find the following:

1. James Cannon ROE's/ROD's for CHEL-10-02 through CHEL-10-05

PLEASE NOTE:

As per previous discussion and e-mails please reference the original ROE packages(notebooks) with all of the attachments in your review process.

2. Bear Mountain Water District CHEL-08-11 ROE/ROD

3. United States CHEL-09-17 ROE/ROD

Please contact me with any questions,

Lisa deVera
Clerk, Chelan County Water Conservancy Board

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Chelan County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

For Ecology Use Only

Received:

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SEP 12 2011

Reviewed by: DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE
Date Reviewed: _____

Applicant: James R. Cannon **Application Number: CHEL-10-03**

This record of decision was made by a majority of the board at an open public meeting of the Chelan County Water Conservancy Board held **September 8, 2011**.

☑ **Approval:** The Chelan County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination on **September 8, 2011** and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:** The Chelan County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on **September 8, 2011** and submits this record of decision to the Department of Ecology for final review.

Signed:

Don Phelps, Chair
Chelan County Water Conservancy Board
Date: 9-8-11
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐ Other ☐

Waikele Hampton, Member
Chelan County Water Conservancy Board
Date: 8 Sept 11
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐ Other ☐

Chris Snapp, Member
Chelan County Water Conservancy Board
Date: 9-8-11
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐ Other ☐

Karin Whitehall, Alternate Member
Chelan County Water Conservancy Board
Date: _____
Approve ☐ Deny ☐ Abstain ☐ Recuse ☐ Other ☐

(Name), (Title)
(Board Name) Water Conservancy Board
Date: _____
Approve ☐ Deny ☐ Abstain ☐ Recuse ☐ Other ☐

Mailed to the Department of Ecology Central Regional Office of Ecology, via certified mail, and other interested parties on _____.

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

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CHELAN COUNTY
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

RECEIVED
SEP 12 2011
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Report of Examination

X Surface Water Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER (i.e., claim, permit, certificate, etc.)	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
07/05/10	S4-28583C	12/27/1984	CHEL-10-03

NAME
James Cannon

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
7940 Entiat River Road	Entiat	WA	98822

Changes Proposed: Change purpose Add purpose Add irrigated acres Change point of diversion/withdrawal

X Add point of diversion/withdrawal X Change place of use X Other (Temporary, Trust, Interties, etc.) Identify season of use.

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: X Exempt Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
1.56 cfs	700.44 gpm	12.4 afy	Frost protection as required

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Entiat River	Columbia River

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
	SW	NE	33	26 N.	20 E.W.M.	46	Chelan

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

W1/2NE1/4; NE1/4NW1/4 lying southwesterly of the Entiat River,
NE1/4SE1/4NW1/4; NW1/4SE1/4, lying west of the Entiat River, all within Section 33, T. 26N., R. 20 E.W.M., Chelan County

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,
262033120050; 262033130100; 262033420050; 262033120100			33	26 N.	20 E.W.M.

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	700.44	12.4	Frost protection March 15 – June1

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Entiat River and two wells	

AT A POINT LOCATED:			SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
Entiat River PARCEL NO. Well No. 1- 262033420050 Well No. 2- 262033120100	SW1/4 **Well No. 1** NW1/4 **Well No. 2** NW1/4	NE1/4 SE1/4 NE1/4	All in 33	26 N.	20 E.W.M.	46	Chelan

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River. Parcel numbers: 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, 262033430050, and a portion of parcel numbers 262033210050 and 262033300050.
.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,
			33	26N.	20 E.W.M.

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	700.44 gpm	12.4	Frost protection March 15 – June 1

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Entiat River 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 west and 1,032 feet south from the northeast corner of Section 33, T. 26 N., R. E.W.M.	Columbia River

AT A POINT LOCATED:			SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
Parcel No. 262033130100	SW1/4	NE1/4					
Well No. 1 Parcel No. 262033420050	**Well No. 1** NW1/4	SE1/4	All in 33	26 N.	20 E.W.M.	46	Chelan
Well No. 2 Parcel No. 262033120100	**Well No. 2** NW1/4	NE1/4					

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River. Parcel numbers: 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, 262033430050, and a portion of parcel numbers 262033210050 and 262033300050.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,
			33	26 N.	20 E.W.M.

DESCRIPTION OF PROPOSED WORKS

Well No. 1: An existing 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: An existing 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:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	October 31, 2012	October 31, 2012

REPORT

BACKGROUND [See WAC 173-153-130(6)(a)]

On July 2, 2010, James Cannon of Entiat, Washington filed an application for change to add points of withdrawal, change the place of use to include all the lands irrigated under the Cannon water rights, and identify the season of use under Water Right Certificate No. S4-28583C to be consistent with the other water right authorized for frost protection, GWC 26270C. The application was accepted at an open public meeting on July 8, 2010, and the board assigned application number CHEL-10-03.

The application was filed with three other change applications, which are being considered by the Board concurrently with this change request. The goal is to integrate all of the Cannon water rights into a single system withdrawing from Well No. 1 and Well No. 2 and sharing a common place of use.

On June 30, 2010, Ecology issued Reports of Examination approving changes to WRC No. 130056 and WRC No. 130057, two other water rights owned by the Cannons. Information contained in Reports of Examination WRTS Files No. CS4-130056 and CS4-130057 is used in this Report of Examination (ROE).

Attributes of Water Rights as Currently Documented and Proposed Changes

Attributes	*Existing*	*Proposed*
Water Right Document No.	**S4-28583C**	
Name on certificate, claim, permit:	Randolph N. Cannon and James R. Cannon	Estate of Randolph N. Cannon and James R. Cannon
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	December 27, 1984	
Date of Application:		July 2, 2010
Instantaneous Quantity:	700.44 gpm (1.56 cfs)	No change
Annual Quantity:	12.4 afy	No change
Source:	Entiat River	Entiat River Well No. 1 Well No. 2
Point of Diversion or Withdrawal:	SW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	SW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M. Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M. Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Frost control	No change
Period of Use:	As required	March 15- June 1

Continued Place of Use:	NE1/4[illegible]1/4, W1/2NE1/4 southwest of Entiat River and NE1/4SE1/4NW1/4 and NW1/4SE1/4 west of Entiat River all in T. 26 N., R. 20 E.W.M.	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	None	None

Attributes	***Existing***	***Proposed***
Water Right Document No.	**S4-28582C**	
Name on certificate, claim, permit:	Randolph N. Cannon and James R. Cannon	Estate of Randolph N. Cannon and James R. Cannon
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	December 27, 1984	
Date of Application:		July 2, 2010
Instantaneous Quantity:	44.9 gpm (0.1 cfs)	No change
Annual Quantity:	20 afy	No change
Source:	Entiat River	Well No. 1 Well No. 2
Point of Diversion or Withdrawal:	SW1/4SW1/4 of Section 28, T. 26 N., R. 20 E.W.M. (Cannon-Anderson Ditch)	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M. Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Irrigation of 5 acres	No change
Period of Use:	April 15 – October 15	No change
Place of Use:	SW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	Family Farm Act water right	No change

Continued

Attributes	*Existing*	*Proposed*
Water Right Document No.	**G4-26270C**	
Name on certificate, claim, permit:	Randolph N. Cannon	Estate of Randolph N. Cannon
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	June 23, 1979	
Date of Application:		July 2, 2010
Instantaneous Quantity:	600 gpm	No change
Annual Quantity:	120 afy irrigation 10.6 afy frost control 2 afy group domestic	No change
Source:	Well No. 1 Well No. 3	Well No. 1 Well No. 2 Well No. 3
Point of Diversion or Withdrawal:	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M. Well No. 3: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M. Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M. Well No. 3: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Frost control Irrigation of 30 acres Group domestic supply	No change
Period of Use:	March 15- June 1 (Frost) April 15- Oct 15 (Irrigation)	No change
Place of Use:	SW1/4NE1/4 and NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M., all lying west of the Entiat River	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	Any water withdrawn from the well under this groundwater right for irrigation is supplemental to existing surface water rights for the place of use.	No provisions.

Attributes	*Existing*	*Proposed*
Water Right Document No.	**S4-29646P**	
Name on certificate, claim, permit:	Randolph N. Cannon and James R. Cannon	Estate of Randolph N. Cannon and James R. Cannon

Continued		
As modified by Certificate of Change number:	NA	
Priority Date, First Use:	March 1, 1988	
Date of Application:		July 2, 2010
Instantaneous Quantity:	98.78 gpm 0.22 cfs	No change
Annual Quantity:	26 afy	No change
Source:	Entiat River	Well No. 1 Well No. 2
Point of Diversion or Withdrawal:	SW1/4SW1/4 of Section 28, T. 26 N., R. 20 E.W.M. (Cannon-Anderson Ditch)	Well No. 1: NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M. Well No. 2: NW1/4NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.
Purpose of Use:	Irrigation of 10 acres	No change
Period of Use:	April 15- October 15	No change
Place of Use:	SE1/4SE1/4NW1/4; NE1/4NE1/4SW1/4: SW1/4SW1/4NE1/4; W1/2NW1/4SE1/4; SW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M.	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River.
Existing Provisions:	Family Farm Act water right	No change
	Maximum combined diversion under Water Right Claims 130056 and 130057 (1.74 cfs), Certificate No. S4-28582C (0.1 cfs), Water Right Claim No. 095511 (0.13 cfs) and this permit shall not exceed 2.19 cfs. Any portion of the defined quantity withdrawn from the well will be proportionately reduced from the diversion.	Maximum combined diversion under Water Right Claims 130056 and 130057 (650 gpm), Certificate No. S4-28582C, Water Right Claim No. 095511 and this permit shall not exceed 852.05 gpm.
	Exercise of this right is interruptible based on instream flows in the Entiat River as measured at the Ardenvoir gage: April 15-August 31, 116 cfs; September 1-October 15, 77 cfs.	No change

Existing provisions: The water right is subject to Washington Department of Fisheries juvenile salmon screening criteria (pursuant to RCW 75.20.040) and/or Washington State Department of Wildlife gamefish screening criteria.

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

The Cannon farm as shown on Attachment A 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 land on both sides of the river totaling approximately 154 acres within Water Resource Inventory Area (WRIA) 46. The change applications, if approved, will authorize these Cannon water rights to have Well No. 1 and Well No. 2 as points of withdrawal and the water to be used within the combined place of use as shown on Attachment A.

Surface Water Certificate No. S4-28583C was issued to the Cannons with a priority date of December 27, 1984. The certificate authorizes the maximum diversion from the Entiat River of 1.56 cfs, 12.4 ac-ft/yr, for frost protection on 35 acres of orchard as required. The authorized POD is the Cannon Ditch. The place of use includes orchards on the Cannon farm within Parcels No. 262033130100; 262033420050; and a portion of parcel numbers 262033210050 and 262033300050. The Cannon Ditch is no longer in operation and water used within the POU is withdrawn from Well No. 1 as described in this report.

Historic Points of Diversion and Withdrawal

Commencing operation in 1890, the Cannon Ditch historically served the Cannon orchard and pasturelands 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 pasturelands 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.

Proposed Points of Withdrawal

Well No. 1 was drilled in 1980. 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 NW¼SE¼ of Section 33, T. 26 N., R. 20 E.W.M. In addition to waters withdrawn from this well under Water Right Claim No. 130056 and Water Right Claim No 130057, water is also withdrawn under Ground Water Certificate No. G4-26270C. (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.

Well No. 2, drilled in 1995, is located within the NW¼NE¼ 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 30 horsepower Berkley submersible pump rated at 350 gpm is connected to the well. 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 S4-28583 is still in use. The water is diverted from the river via a pump. Mr. Cannon wishes to retain the point of diversion to allow for flexibility when water is needed for frost control under this right. Well Nos. 1 and 2 would also be authorized as points of withdrawal under this water right.

Water is currently delivered to the Cannon orchard and pastures via two independent irrigation systems; orchard irrigation water is primarily 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 and two six-inch mainlines 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.

According to Mr. Cannon, withdrawal rates from the two wells are controlled by a valve at each well. Well No. 1 is typically operated at 500 gpm and Well No. 2 is operated at 300-350 gpm. Both wells can also be run up to their rated capacities.

Place of Use

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 indicate that water under Water Right Certificate S4-28583C has been used for frost protection of orchards on the Cannon farm within the W1/2NE1/4, NE1/4NW1/4 southwest of the Entiat River, SE1/4NW1/4 and NW1/4SE1/4 west of the Entiat River. This land is within the proposed combined place of use as shown on Attachment A.

Purpose of Use

No change in purpose of use is proposed in this application.

Season of Use

There is no defined season for frost control stated on Certificate S4-28583C. The other water right for frost control, G4-26270C, has a season from March 15 to June 1. Mr. Cannon requests the same season of use for S4-28583C.

Water Quantities

Certificate S4-28583C authorizes up to 1.56 cfs (700.44 gpm) instantaneous diversion (Qi) and 12.4 ac-ft/yr from the Entiat River for frost control. Mr. Cannon intends to use the diversion from the Entiat River and/or both Well No 1 and the proposed Well No. 2 to frost control on orchard lands on both sides of the Entiat River, within the combined place of use of all of the Cannon water rights.

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 under this right.

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

Previous changes

There have been no changes to the water right since the permit was issued.

SEPA

- The board has reviewed the proposed project in its entirety. 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 is 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.

The information or conclusions in this section were authored and/or developed by Don Phelps, Waikele Hampton and Mary McCrea.

<u>COMMENT AND PROTESTS</u> [See WAC 173-153-130(6)(b)]

Public notice of the application was given in the Wenatchee World on July 22 and 29, 2010. Protest period ended on August 30, 2010.

There were no protests received during the 30-day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION [See WAC 173-153-130(6)(c)]

The following information was obtained from a site inspection conducted by Don Phelps and Waikele Hampton on July 15, 2010, technical reports, research of department records, and conversations with the applicant and/or other interested parties.

Proposed project plans and specifications

Changes proposed to this right include:

1. adding points of withdrawal to include two wells in the NW1/4 SE1/4 and the NW1/4 NE1/4 of Section 33, T. 26 N., R. 20 E.W.M.;

Continued

2. adding to the place of use to include all land authorized for irrigation under other water rights owned by James Cannon and the estate of Randolph Cannon in Section 33, T. 26N., R. 20 E.W.M., Parcel Nos. 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, 262033430050, and a portion of parcel numbers 262033210050 and 262033300050; and

3. identifying the season of use to be consistent with the other water right for frost protection owned by James Cannon and the estate of Randolph Cannon.

Other water rights appurtenant to the property (if applicable)

One surface water certificate, one groundwater certificate, two surface water permits, Water Right Claim No. 130056 and Water Right Claim No 130057 as changed by Certificate of Change No. CV1-4P276 and approved for a subsequent change by Reports of Examination WRTS File Nos. CS4-WRC130056 and CS4-130057, and five additional water right claims are appurtenant to the place of use of S4-28582C. Mr. Cannon has concurrently with this change application filed applications for change for the surface water certificate, groundwater certificate and surface water permit. The applications request that both Well No. 1 and Well No. 2 be authorized as points of withdrawal under each right and that the place of use include the combined place of use under all of the Cannon water rights.

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

Surface Water Certificate No. S4-28582C. a Family Farm Act water right, 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 0.1 cfs, 20 ac-ft/yr, for irrigation of 5 acres from April 15 to October 15. The POU includes a portion of the Cannon's pasturelands on the southwest (river right) side of the Entiat River.

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. The existing water rights for irrigation as of the priority date of this right were WRC 130056 and WRC 130057.

The Cannons have filed four water right claims for domestic supply: WRC 130053 is for a portion of the Cannon farm on the east side of the river. WRC 130054, 150162, and 150163 are for land west of the Entiat River within the same place of use as G4-26270C. These claims are for single domestic while the groundwater certificate is for "continuous group domestic supply." The groundwater right was historically used for group domestic supply for farm workers. Certificate G4-26270C includes a provision that any water used for irrigation under the certificate is supplemental to any existing water rights. There is no provision that the right for domestic supply is supplemental to any existing water rights. The water right claims for single domestic supply are not under consideration by this Board. The validity of the claims can be determined only by a court through an adjudication.

On February 4, 2009, Mr. Cannon submitted to Ecology a Showing of Compliance GWC-26270C to add a well as an authorized point of withdrawal under the groundwater certificate. Supp. Ex. 1. The well, referred to in this Report of Examination as Well No. 3, is located approximately 10 feet from Well No. 1 in the NW1/4SE1/4 of Section 33, T. 26 N., R. 20 E.W.M. The well is a shallow well that the Cannon's have used to supply domestic water under G4-26270C.

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 that 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, which was issued as a Family Farm Act water right, 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 pasturelands on the west side of the Entiat River.

Surface Water Permit No. S4-29646 contains provisions that limit the total diversions under the permit, Water Right Claim 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.

WRC 130056

On February 25, 1975, Ecology assigned Water Right Claim 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 SW¼ of the SW¼ of Section 28, T. 26 N., R. 20 E.W.M. The claimed place of use (POU) is the NW¼ of the SE¼ and the SW¼ of the NE¼ 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.

WRC 130057

Also on February 25, 1975, Ecology assigned Water Right Claim 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

Continued
Entiat River. The claimed date of first putting water to use is 1902. The claimed POU location corresponds to the historical location of the Cannon–Anderson Ditch, within the SW¼ of the SW¼ 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. A total of 65 acres of irrigation on the Cannon farm are claimed under Water Right Claim No. 130056 and Water Right Claim No. 130057.

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 Water Right Claim No. 130056 and Water Right Claim No. 130057.

In 1986, Ecology authorized the addition of Well No. 1 as a POW to Water Right Claim No. 130056 and Water Right Claim 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 Water Right Claims 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 Water Right Claim No. 130056 and Water Right Claim 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.

In 2010, Ecology authorized the addition of Well No. 2 as a POW under Water Right Claim Nos. 130056 and 130057 in Reports of Examination WRTS File Nos. CS4-WRC 130056 and CS4-WRC 130057. The ROEs authorize a combined withdrawal from Wells No. 1 and No. 2 under these two water rights not to exceed 650 gpm for the irrigation of 65 acres.

WRC130053 – Randolph N. Cannon

A short-form claim was signed by Mr. Cannon on June 25, 1974 and was assigned Water Right Claim 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 Water Right Claim No. 130054 on February 25, 1975. The claim asserts a domestic right from a well. The place of use is the same as Water Right Claim No. 130053: W½NE¼ of Section 33, T. 26 N., R. 20 E.W.M. Water Right Claim 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

Water Right Claim No. 150162 was filed by Mr. Cannon on June 30, 1974 and was assigned Water Right Claim 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

Water Right Claim No. 150163 was filed by Mr. Cannon on June 30, 1974 and was assigned Water Right Claim 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

Water Right Claim 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. S4CV1-4P276 states that "it appears that approximately 6 acres had been irrigated" under Water Right Claim 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, which are now owned by Mr. Cannon.

Public Interest (groundwater only)

The proposed change is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The change to a point of withdrawal for 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. Providing a POW alleviates the need for repeated construction in the river and the associated disturbances from increased silt loading and stream bank modifications.

This change is consistent with the Entiat WRIA 46 Management Plan. The Plan recognizes the high degree of connectivity between surface and groundwater in the watershed and calls for treating both as one source for all water quantity actions. The Plan also "recommends that water users in the Entiat River watershed continue conversion of surface water diversions to ground water/well withdrawals when/where feasible." Plan at page 9-7.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. There are several circumstances that can cause the board's tentative determination to differ from the stated extent of the water right within water right documentation. Water right documents attempt to define a maximum limitation to a water right, rather than the actual extent to which a water right has been developed and maintained through historic beneficial use. Additionally, except for a sufficient cause pursuant to RCW 90.14.140, water rights, in whole or in part, not put to a beneficial use for five consecutive years since 1967 may be subject to relinquishment under Chapter 90.14.130 through 90.14.180 RCW. Water rights may additionally be lost through abandonment. The Board's tentative determination was based upon the following findings: historical evidence, power records, statements by Mr. Cannon, aerial photographs, the Reports of Examination for WRC 130056 and WRC 130057 issued by Ecology in 2010, historical documents, and observations during the site visits establish that there has been no relinquishment or abandonment of the water right.

Water Use

Certificate S4-28583C authorizes up to 12.4 ac-ft/yr for frost protection "as required" within the Cannon's orchards on the southwest side of the Entiat River. According to ROE WRTS File No. CS4-130056, during Ecology's site investigation in April 2008, "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." ROE, p. 8. Based upon the evidence provided, the Board concludes that there has been no relinquishment or abandonment of Certificate S4-28583C.

Place of Use

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. In Reports of Examination WRTS File Nos. CS4-WRC 130056 and CS4-WRC 130057 issued in June 2010, Ecology combined the places of use under the two water right claims, WRC 130056 and 130057 to include 65 irrigated acres. The place of use for S4-28582C includes 5 additional irrigated acres within the SW1/4SE1/4 of Section 33. Water right S4-29646P, which is also included in the requested changes, authorized the irrigation of an additional 10 acres. WRC 0095511 authorizes irrigation of the property acquired by Mr. Cannon in the NE1/4NW1/4 on the north side of the Entiat River, Parcel No. 262933210010, which is the location of Mr. Cannon's residence. The irrigated acres within the combined place of use for all Cannon water rights are shown on Attachment A to this report. The map is the same as Attachment 1 to the Reports of Examination issued by Ecology in June 2010 for WRC 130056 and WRC 130057, with the addition of the place of use under WRC 0095511, in parcel no. 262033210010, and an area of pasture in the SE1/4SE1/4NW1/4 as shown on Attachment A.

The place of use is complicated by the fact there have been three surveys in the Entiat. According to information provided by Mr. Cannon, the first or original survey was the Federal Survey of 1883 conducted by Benson and Associates. The location of the 160-acre land patent issued to N.M. Cannon, Jim Cannon's grandfather, in 1901, and the place of use of the water rights represented by WRC 130056 (water right filed in 1890) and 130057 (water right filed in 1902), were based upon the 1883 survey. Because the 1883 survey was incomplete and inaccurate, the federal government initiated a "dependent resurvey" in 1915 (Adams). Section 33, T. 26N., R. 20 E.W.M. was resurveyed, including the Cannon homestead. However, unlike properties upriver from the Cannon homestead, the lands in Section 33 were not put into tracts.

According to a written statement from Rebecca J. Cate, Washington Professional Land Surveyor, Ex. 4 to this change application, supplemental plats are on record and additional Federal surveys were done in the 1980's. The result is "[t]he locations of property lines for parcels based on the original 1883 survey are often different when compared to the locations of property lines for the same parcel based on Dependent Resurveys that began in 1915." Mr. Cannon has provided documents that show the 1915 Dependent Resurvey differs from the 1883 survey upon which the patent and original water rights were based and that the original 1883 survey established lines lying to the north and west of the lines from the 1915 Dependent Resurvey. *See,* Ex. 5 to this application.

Based upon the documents provided by Mr. Cannon and the reports of Examination issued for the Cannon water right claims in June 2010, the Board concludes that the place of use is as described in the Board's decision on page 2 and as shown on Exhibit A.

Landowner Signatures

The legal description of the place of use for frost control under S4-28583C is overly broad and includes land owned by Gordon Gallagher and Longview Timber Company. *See*, Ex. 3 to Landowners Signature memorandum. Mr. Cannon is providing the signature of Longview Timber. Information provided by Mr. Cannon negates any requirement that Mr. Gallagher provide his signature.

Mr. Cannon provided documentation that the land planted in orchard on the eastern 3 acres of the parcel shown as being owned by Mr. Gallagher, Parcel No. 262033210050, is actually owned by the Cannons. *See*, pages 2-4 and Exhibits 6-10, Landowner Signature memorandum.

Mr. Cannon has also provided documentation that establishes that the place of use authorized under S4-28583C includes only that portion of the Parcel No. 262033210050 that is planted to orchard. In the Report of Examination for the water right permit, Supp. Ex. 6, Ecology stated that the right for frost control was for 35 acres of orchards lying southwest and west of the Entiat River in the W1/2NE1/4, NE1/4NW1/4, NE1/4SE1/4NW1/4 and NW1/4SE1/4. Based upon Ex. 3 to the Landowners Signature memorandum and Supp. Ex. 5, the 35 acres of orchard are all accounted for on land owned by the Cannons. It is clear that S4-28583C authorizes delivery of frost water only to the portion of the parcel shown as being owned by Mr. Gallagher that is (1) in orchard and (2) actually owned by Mr. Cannon. *See also,* Supp. Ex. 7, Proof of Examination for S4-28583C, which found that water was for frost control on 35 acres of developed orchard all west of the Entiat River.

Mr. Cannon and his father, Randolph Cannon, applied for the water right for frost control on their property. The water right is authorized only for 35 acres of orchard, all of which are owned by the Cannons. Therefore, the Board concludes that there is no water right under S4-28583C for frost control within the NE1/4NW1/4 southwest of the Entiat River on any land other than that owned by the Cannons. Mr. Cannon is obtaining the signature of Longview Timber for land within the SE1/4NW1/4. This Board finds that no other signatures are required.

Geologic, Hydrogeologic, or other scientific investigations (if applicable)

Hydrologic/Hydrogeologic Evaluation

The following statements are excerpted from the Report of Examination WRTS File No. CS4-WRC 130056, which included excerpts 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. Additional information regarding Well No. 1 is from excerpts taken from the July 13, 2011 memorandum by Aspect Consulting "Re: Cannon Water Right Change Applications, Hydrogeologic Evaluation of Surface Water to Groundwater Right Changes," Supp. Ex. 3.

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, aerial photographs, geologic maps, and site observations.

Well No. 1 is located on a flat, low bench on the Entiat River valley floor with ground surface elevation about 10 feet above river level. This well taps the coarse-grained valley fill deposits. Ground surface rises steeply from the valley floor to the southwest and northwest. Bedrock underlying these steep slopes forms a relatively impermeable boundary along the margin of the valley fill aquifer. The Entiat River flows adjacent to the northeast and southeast sides of the Cannon's property, coming within about 500 feet of Well No. 1.

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. Well No. 1 is located downstream in the slightly wider section of the valley. The well is located approximately 540 feet west of the Entiat River and was drilled on the main valley floor about 8 to 10 feet 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. 1 records clay and gravel to 22 feet bgs and gravel and sand between 23 and 73 feet. 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 Wells No. 1 and 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. 1 was drilled to 73 feet and completed in unconsolidated sediments. 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 Nos. 1 and 2 is greater than 73 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 Wells No. 1 and 2 as POWs, 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 Wells No. 1 and 2 has a known saturated thickness of at least 47.5 ft. Because the wells in Ecology's database that are directly adjacent to Wells No. 1 and 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 riverbed 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 Wells No. 1and 2 to the river suggest a high degree of ground water - surface water interaction between the aquifer near Wells No. 1 and 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 Wells No. 1 and 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 No. CHEL-10-03 proposes to add Well No. 1 and Well No. 2 as authorized points of withdrawal under S4-28583C. The driller's log for Well No. 1 indicates it is completed to a total depth of 73 feet and encountered about 22 feet of clay and gravel overlying a water bearing sand and gravel. The well casing is slotted between depths of 25 and 71 feet. Depth to water at the time of drilling was 12 feet, or approximately the same elevation as the nearby river. The well was initially tested at a rate of 800 gpm, with water level drawdown of 35 feet.

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 air test 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.

The above well information is based on the 2008 site visit for WRTS File Nos. CS4-WRC130056 and CS4-WRC130057 and the July 2, 2010 site visit, conversations with the applicant, and the well logs on file with Ecology.

In order to add or change to a groundwater point of withdrawal, the original surface water source and proposed groundwater source must be in hydraulic continuity with each other. The original source water for each of the rights considered for change is the Entiat River. Based upon high transmissivity of the aquifer, similar water level elevations in the river and well, and the proximity of the well to the river, Aspect and Ecology determined that Wells No. 1 and No. 2 are in hydraulic continuity with the Entiat River.

The information or conclusions in this section were authored and/or developed by Don Phelps, Waikele Hampton, the applicant and Mary McCrea.

Impairment

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 the well in question. Ecology previously concluded that "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." Report of Examination WRTS File No. CS4-WRC 130057, page 11.

Aspect analyzed the potential for impairment of existing groundwater rights or permit-exempt wells from Well No. 1, assuming that the full additional 58.4 afy and 72 gpm from the combined water right changes would occur only at Well No. 1 and that the March 15 through June 1 frost protection occurred during the same period. *See,* Supp. Ex, 3. This analysis, which considered the maximum possible impacts, found no indication of impairment. The closest parcels to Well No. 1 not owned by Cannons are located east of the Entiat River, about 600 feet from Well No. 1. Five wells were mapped in the well log database within about ¼ mile of Well No. 1. However, locations are given only at the section or ¼ section scale and accurate locations could not be determined. Three groundwater claims and a certificate of change on a groundwater claim are mapped in Ecology's database within about ¼ mile of Well No. 1 and all located east of the Entiat River. Aspect determined that the drawdown from the increased average pumping rate over the irrigation season would be less than 1 foot at the river

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and east of the river would be significantly less. Aspect concluded there is no indication for potential impairment and the Board concurs with this assessment.

CONCLUSIONS [See WAC 173-153-130(6)(d)]

Tentative determination (validity and extent of the right)

The water right proposed for change exists to the extent set forth on page 1.

Relinquishment or abandonment concerns

The water right has been continuously beneficially used. There are no relinquishment or abandonment concerns regarding this right.

Hydraulic analysis

No hydraulic analysis was required. The new points of withdrawal have been determined to be from the same body of public water as the original point of diversion based upon the hydrologic review summarized above.

Consideration of comments and protests

There were no comments or protests.

Impairment

The proposed changes can be made without injury or detriment to existing water rights.

Public Interest

The proposed change to add groundwater withdrawal is in the public interest.

Water Quantities

The authorized instantaneous quantities under all water rights by season of use are shown in Table 1, attached.

DECISION [See WAC 173-153-130(6)(e)]

Name on Certificate:	James R. Cannon and Estate of Randolph N. Cannon
Priority Date:	12/27/1984
Instantaneous Quantity:	700.44 gpm
Annual Quantity:	12.4 acre-feet
Source:	Entiat River and two wells
Points of Withdrawal:	Pump within the SW1/4NE1/4, Section 33, T. 26 N., R. 20 E.W.M. Well No. 1: NW1/4 SE1/4, Section 33, T. 26 N., R. 20 E.W.M. and 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: NW1/4 NE1/4, Section 33, T. 26 N., R. 20 E.W.M. and 2,657 west and 1,032 feet south from the northeast corner of Section 33, T. 26 N., R. E.W.M.
Purpose of Use:	Frost protection
Period of Use:	March 15 to June 1
Place of Use:	NE1/4 NW1/4; NE1/4 NE1/4 SE1/4 NW1/4; SE1/4SE1/4NW1/4; W1/2 NE1/4; N1/2 SE1/4, west of the Entiat River; and E2/3 N2/3 SW1/4SE1/4, west of the Entiat River. Parcel numbers: 262033120050, 262033210010, 262033120100, 262033130100, 262033420050, 262033430050, and a portion of parcel numbers 262033210050 and 262033300050.

PROVISIONS [See WAC 173-153-130(6)(f)]

Farm Plan: If the requested changes to the Cannon water rights are approved, each of the rights will be appurtenant to the entire place of use for the Cannon farm. The Cannons have grown orchard on the lands currently in orchard for the past 100+ years. The two authorized points of withdrawal will be authorized to be used under all water rights and will be metered to ensure that the water right limitations are not exceeded. If in the future the Cannons change the crops grown on the currently irrigated acres, they will notify Ecology by February 15th of the year in which the change is proposed to take place, and provide a map that identifies the specific acreage's planted/to be planted in each crop type and identifies which water rights will be used to meet the particular needs of that crop.

Conditions and limitations

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 that 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.

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. **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.

Construction Schedule

Begin project and put water to beneficial use by October 31, 2012.

Signed at Wenatchee, Washington

This 8 day of Sept 20__.

Don Phelps

Don Phelps, Chair
Chelan County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT A

Randolph & James Cannon Place of Use of Integrated Water System

0 205 410 820 1,230 1,640 Feet

Well
Place of Use
Parcel Boundary

Prepared by J.E. Caldwell January 27, 2011