



State of Washington
 Department of Ecology
 Office of Columbia River
 Report of Examination for
 Trust Water Right Change
 To Instream Flow

WR File NR CS3-28687C@1
WR Doc ID 6324032

PRIORITY DATE	WATER RIGHT NUMBER	Trust Term
July 24, 1980	CS3-28687C@1	Permanent DNR Trust Water Agreement

Applicant	Mailing Address
Washington State Dept. of Natural Resources 713 Bowers Road Ellensburg WA	Washington State Dept. of Natural Resources Attn: Rick Roeder 713 Bowers Road Ellensburg WA 98926-9301

Purpose and Quantity

5 cfs and 716.0 acre-feet annually for Instream Flow of the Columbia River and Mitigation of new or existing water uses from March 10 to October 31 in the following quantities and location:

Primary Reach: Instream flow totaling 716.0 acre-feet per year,

Quantity Units	March	April	May	June	July	August	Sept.	Oct.	Total
ac-ft	22.62	70.67	106.62	126.98	151.82	128.60	81.20	27.49	716.0
Continuous instream flow cfs	0.52	1.19	1.73	2.13	2.47	2.09	1.36	0.45	N/A

cfs = cubic feet per second ac-ft = acre-feet

Secondary Reach: Instream Flow totaling 661.42 acre-feet per year.

Quantity Units	March	April	May	June	July	August	Sept.	Oct.	Total
ac-ft	20.90	65.28	98.49	117.30	140.25	118.80	75.01	25.39	661.42
Continuous instream flow cfs	0.48	1.10	1.60	1.97	2.28	1.93	1.26	0.41	N/A

Note: "Primary reach" means that portion of a water body that benefits from both the former consumptive use and former return flow waters of a water right. "Secondary reach" means that portion of a water body that benefits only from the former consumptive use of a water right.

Instream Flow Place of Use (See Attached Map)

Primary Reach: Begins at the historic point of diversion for Surface Water Right No. S3-28687C located on the east bank of the Columbia River 1,424 feet east and 2,570 feet north from the southwest corner of Section 18, T. 9N., R. 29E.W.M., and ending 5 miles downstream at a point approximately 1,220 feet east and 320 feet north of the southwest corner of Section 26, T. 9N., R. 29E.W.M.

Secondary Reach: Begins at the end of the Primary Reach being approximately 1,220 feet east and 320 feet north of the southwest corner of Section 26, T. 9N., R. 29E.W.M. and ending at the Columbia River's confluence with the Pacific Ocean. The length of the Secondary Reach is approximately 331 miles.

Reach	Water Source	River Mile	TWN	RNG	SEC	Latitude	Longitude
Beginning of Primary Reach	Columbia River	336	9N.	29E.W.M.	18	46.263678	-119.23719
End of Primary Reach and Beginning of Secondary Reach	Columbia River	331	9N.	29E.W.M.	26	46.227074	-119.15531
End of Secondary Reach	Pacific Ocean	0	-	-	-	-	--

Provisions

This instream flow water right is subject to the Columbia River Instream Resource Protection Program, Chapter 173-563 WAC. Any water right that is mitigated using this instream flow trust water will be subject to the same minimum flows for the Columbia River.

Columbia River Minimum Flow Rule

This authorization is subject to the following minimum flows as specified in WAC 173-563-040 and WAC 173-563-050 and the following table. It is subject to regulation by the Department of Ecology for protection of instream resources whenever the March 1 forecast of April-September runoff at The Dalles is 60 MAF or less, and when gauged flows are predicted by the BPA 30-Day Power Operation Plan to violate the following minimum flow provisions at:

Primary Control Station(s): McNary Dam
River Mile(s): 292.0

Minimum Average Weekly Flows
Columbia River Projects
(1,000 cubic feet/second)

PRIMARY CONTROL STATION: RIVER MILE:	Chief Joseph* (545.1)	Wells/Rocky Reach* (515.6) (473.7)	Rock Island & Wanapum* (453.4) (415.8)	Priest Rapids (397.1)	McNary (292.0)	John Day (215.6)	The Dalles (191.5)
Jan	30	30	30	70	60	60	60
Feb	30	30	30	70	60	60	60
Mar	30	30	30	70	60	60	60
Apr 1-15	50	50	60	70	100	100	120

Apr 16-25	60	60	60	70	150	150	160
Apr 26-30	90	100	110	110	200	200	200
May	100	115	130	130	220	220	220
Jun 1-15	80	110	110	110	200	200	200
Jun 16-30	60	80	80	80	120	120	120
Jul 1-15	60	80	80	80	120	120	120
Jul 16-31	90	100	110	110	140	140	140
Aug	85	90	95	95	120	120	120
Sep	40	40	40	40	60	85	90
Oct 1-15	30	35	40	40	60	85	90
Oct 16-31	30	35	40	70	60	85	90
Nov	30	30	30	70	60	60	60
Dec	30	30	30	70	60	60	60

*For the reach from Grand Coulee through Wanapum, minimum average weekly flows shall be as shown above, or as necessary to maintain minimum flows (subject to low runoff and adjustment) at Priest Rapids, whichever is higher. As provided in WAC 173-563-050(1), the minimum average weekly flows set forth in this subsection are subject to a reduction of up to 25 percent during low flow years, except that in no case shall the outflow from Priest Rapids Dam be less than 36,000 cfs.

Use of water under this authorization can be expected to be curtailed at least once in every 20 years.

Findings of Facts

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 the requested change to the place and purpose of use under Change Application No. CS4-28687C@1 be subject to existing rights and the provisions specified above.

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of the Order.

File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.
- You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW Ste. 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Signed at Union Gap, Washington, this 14th day of June 2016.



Mark C. Schuppe, Operations Manager
 Office of Columbia River

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>.

INVESTIGATOR'S REPORT

Application for Water Right – Department of Natural Resources

Water Right Control Number CS3-28687C@1

Patricia Kirk, Department of Ecology

BACKGROUND

Description of Proposed Changes

This Report of Examination addresses Change Application No. CS3-28687C@1 submitted by the Department of Natural Resources' (DNR) Southeast Regional Office. The DNR has requested that the Department of Ecology (Ecology) permanently change Surface Water Right No. S3-28687C to an instream flow water right held in Ecology's Trust Water Right Program (TWRP) through a trust water agreement. The water will be made available to the TWRP by following 179 irrigated acres.

The proposed changes include instream flows of the Columbia River from the McNary Pool (Lake Wallula) to the Pacific Ocean and mitigation for new and/or existing water uses under a Trust Water Agreement between the DNR and Ecology. The water right has previously been used for the purpose of seasonal irrigation on state owned land managed by the DNR within the City of Pasco in Franklin County, WRIA 36. The current attributes of Surface Water Right No. S3-28686C and the proposed changes to the right are summarized in Table 1 below.

Table 1: Attributes of Surface Water Right No. S3-28687C and Proposed Changes

Attribute	Existing	Proposed
Name	Dept. of Natural Resources	Dept. of Ecology Trust Program
Priority date	July 24, 1980	Same
Water Source	Columbia River	Same
Purpose of Use	Irrigation of 179 acres	Instream flow and mitigation for new and/or existing water uses.
Instantaneous Quantity (Qi)	5 cfs	5 cfs
Annual Quantity (Qa)	716 ac-ft	716 ac-ft
Period of use	"Seasonal Irrigation" (dates not specified)	March 10 thru October 31
Place of Use	That portion of Sec. 16, T. 9N., R. 29E.W.M. lying south of SR I-182 and north of the Franklin Co. Irrigation District Canal, except the NW1/4SW1/4 and the SE1/4SE1/4, all in Franklin County, WA	Instream flow of the Columbia River from the original point of diversion to the Pacific Ocean.
Diversion Point	75 feet south and 1160 feet west from the center of Sec. 18, T. 9N., R. 29E.W.M:	N/A

cfs = cubic-feet per second; ac-ft = acre-feet

Expedited Processing

This application qualifies for expedited processing under WAC 173-152-050(2)(c)(ii). The proposed transfer of water to Ecology's TWRP will enhance flows of the Columbia River providing environmental benefit including mitigating new water uses.

Legal Requirements for the Proposed Change

The following is a list of requirements that must be met prior to authorizing the proposed changes.

Public Notice

A notice of application was published in accordance with RCW 90.42.040(5)(a) in the Tri-City Herald, Goldendale Sentinel, Skamania County Pioneer and the Clark County Columbian. The publication of the legal notice occurred on February 4th and 5th, and then again on February 11th and 12th of 2015. No protests or letters of concern were received.

Notice was also given by letter in accordance with RCW 90.42.040(5)(b) containing pertinent information to all appropriate state agencies, potentially affected local governments and federally recognized tribal governments, and other interested parties. After the Washington Dept. of Fish and Wildlife (WDFW) inquired via e-mail about the proposed changes to Surface Water Right No. S3-28687C, a comment letter dated March 16, 2015, was received by Ecology not objecting to the change.

State Environmental Policy Act (SEPA)

This application is subject to the provisions of the State Environmental Policy Act (SEPA), Chapter 43.21 RCW due to an instantaneous quantity of water greater than 1.0 cubic foot per second (cfs) of diverted flow involved. The DNR, acting as lead agency, determined the subject action does not have a significant adverse impact on the environment and an Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(c). A final Determination of Non-Significance was issued by the DNR on December 23, 2014. No comments were received.

Water Resources Statutes and Case Law

This Application is subject to legal requirements in statute, administrative rules, and relevant case law, which must be considered prior to issuance of the requested change(s). Among these legal requirements:

- RCW 90.03.380(1) allows for a water right that has been put to beneficial use to be changed. The point of diversion, place of use, and purpose of use may be changed if the change would not result in harm or injury to existing water rights.
- The Washington State Supreme Court has held that Ecology, when processing a Water Right Change Application, is required to make a tentative determination of extent and validity of the water right. This is necessary to establish whether the water right is eligible for change. *R.D. Merrill v. PCHB and Okanogan Wilderness League v. Town of Twisp*.
- RCW 90.14.180 states that any person entitled to divert water through an authorized appropriation under RCW 90.03.330, 90.44.080, or 90.44.090, which abandons or voluntarily fails, without sufficient cause, to divert all or any part of said water right for a period of five successive years after July 1, 1967, shall relinquish such water right or portion thereof, to the state.
- RCW 90.42.080 gives the Washington Department of Ecology the authority to acquire existing surface or groundwater rights for Ecology's Trust Water Right Program (TWRP) for the purposes of instream flow, groundwater preservation and/or mitigation for instream and out-of-stream uses.

INVESTIGATION

In considering this application, the investigation included, but was not limited to, research and/or review of:

- Water Right Change Application CS3-28687C@1 and water right documents pertaining to Surface Water Right No. S3-28687C.
- Infra-red and aerial photos of the place of use taken between 1990 and 2013.
- DNR crop reports for the place of use.
- Franklin County Assessors' information.
- Discussions with DNR and Ecology staff.
- State water code, administrative rules, regulations and policies.
- *Washington Irrigation Guide* (WIG), 1992 publication.
- *Ecology Guidance 1210* (GUID 1210)
- Trust Water Agreement between Ecology and the DNR.
- Photos of the irrigation delivery system.
- SEPA checklist prepared by the DNR.
- USBR AgriMet data (Legrow Monitoring Station)

History of Water Use

Surface Water Right No. S3-28687C issued to the DNR on February 13, 1998, for the irrigation of 179 acres on state land in the northwestern portion of the City of Pasco. The priority date for Surface Water Right No. S3-28687C is July 24, 1980. The place of use is a single parcel (current Franklin County Parcel No. 117510016) situated adjacent to and south of State Highway 182, two miles east of the Columbia River and on the north side of the Franklin County Irrigation District Canal.

The DNR parcel has been irrigated under a lease agreement with a private party (lessee) since the water right was established. Two center pivots have historically been used on the property to irrigate a variety of crops including alfalfa, potatoes, corn, wheat, and timothy hay according to crop records submitted to the DNR. The point of diversion for this water right is the Franklin County Irrigation District (FCID) pump station within the northern portion of the McNary Pool reach of the Columbia River. Water is delivered to the southern boundary of the place of use through the FCID canal. Two centrifugal pumps lift water to the property directly from a screened concrete turnout box on the canal. Though the water is delivered by means of the FCID canal, the place of use for this water right has not historically been considered within the Franklin County Irrigation District.

Water Right Provisions

Surface Water Right No. S3-28687C is provisioned under the *Family Farm Act*, Chapter 90.66 RCW, and Columbia River Instream Resource Protection Program under Chapter 173-563 WAC.

When the original water right permit issued for Surface Water Right No. S3-28687C, it was designated by Ecology as a "Publicly Owned Land Permit" under the *Family Farm Act*, Chapter 90.66 RCW. RCW 90.66.050(3) states, "*Such permits shall be issued only to governmental entities permitting the irrigation of publicly owned lands.*" The *Family Farm Act* makes a clear distinction between "Publicly Owned Land Permits" and "Family Farm Permits" where the land is privately owned. The State of Washington has continually owned and managed the DNR parcel since the original application for Surface Water Right No. S3-28687C was established, so the "publicly owned" nature of the right has remained unchanged.

The criteria by which changes can be made to a water right's purpose and place of use established under the *Family Farm Act* are expressed within RCW 90.66.060 and RWC 90.66.065, and are in addition to those criteria for requested changes that must be met under RCW 90.03.380. Publicly Owned Land Permits are distinctly different from Family Farm Permits and are not subject to those limitations to water right changes which are specifically intended for and apply to Family Farm Permits. New or existing water rights that are mitigated by this instream trust water right may, however, be subject to the limitations imposed by Chapter 90.66 RCW according to the ownership of the place of use at the time mitigation is established.

Surface Water Right No. S3-28687C is also provisioned in accordance with Chapter 173-563 WAC, *The Instream Resources Protection Program for the Main Stem Columbia River*. The provision states that, "The annual quantity allocated [under this right] is considered to be a portion of the amount reserved by the adoption of the JohnDay/McNary Pool Basin Plan. The priority date of this filing, as against other uses, is fixed as of July 24, 1980". This provision subjects Surface Water Right No. S3-28687C to, "those minimum flows specified in WAC 173-563-040 and WAC 173-563-050 for the Columbia River and is subject to regulation by Ecology for protection of instream resources whenever the March 1 forecast of April through September runoff at The Dalles Dam is 60 million acre-feet or less..." The frequency of curtailment due to insufficient water to meet the designated minimum instream flow specified in WAC 173-563-040 is estimated to be once every 20 years.

Other Rights Appurtenant to the Place of Use

Several water rights appear to overlap with the place of use for Surface Water Right No. S3-28687C. At least 27 water rights' defined places of use were found to coincide, to some degree, with the DNR parcel.

The review of overlapping rights revealed that the vast majority belong to the City of Pasco for municipal and industrial uses with ten rights also having irrigation as a purpose of use. They are a variety of permits and certificates, both ground and surface water, some of which are currently in the water right change process. The City of Pasco water rights typically encompass the entire city as their place of use, but the irrigation portions are limited to smaller more specific locations none of which appear to include the DNR parcel.

Five of the overlapping water rights are US Bureau of Reclamation (USBR) rights or reservations, and there is a Burlington Northern (BN) water right for irrigation. Again, the overlap is due to extremely large places of use defined on the USBR or BN water right documents. However, the irrigation portions are limited to lands that do not include the DNR parcel. Out of the 27 possible overlapping water rights examined, the irrigated acreage defined on each water right did not appear to include the place of use for Surface Water Right No. S3-28687C.

The original Report of Examination for Surface Water Right No. S3-28687C written in May of 1990 investigated the relationship of the DNR parcel to the Franklin County Irrigation District and whether or not the parcel was within the boundaries of the District. It was determined at that time by the water rights examiner that the FCID's Surface Water Certificate Nos. S3-00861C and S3-27711C did not include the DNR parcel.

NOTE: The DNR plans to sell the parcel as of the writing of this report. The land will be sold without benefit of any portion of Surface Water Right No. S3-28687C. Any future irrigation within the parcel will need a new or transferred water right.

Proposed Use

The applicant has requested that the entire quantity of water beneficially used under Surface Water Right No. S3-28687C is transferred to instream flow and be held by Ecology's Trust Water Right Program. The DNR intends to create new opportunities for irrigation projects mitigated by this trust water where the viable water source is the Columbia River.

Place of Use

The place of use for an instream flow trust water right is defined within a Primary Reach and Secondary Reach of a water body.

The "Primary Reach" is that portion of a water body that benefits from both the former consumptive use and former return flow waters of a water right (the total quantity of water diverted). The consumptively used water is that portion permanently removed from the river. The return flow portion of the water right is the quantity of water that is diverted but is neither absorbed by the crop nor evaporates into the air during irrigation. It is the water that will seep into the ground and return to the groundwater table and/or river, or would do so if not captured by other water users. The Primary Reach of a trust water right typically starts at the historic point of diversion of the original right and ends where no more return flows are anticipated to re-enter the river.

"Secondary reach" means that portion of a water body that benefits only from the former consumptive use of a water right. Any return flows resulting from irrigation have re-entered the river and therefore been "added back" to the river flow by the beginning of the Secondary Reach.

The point of diversion for Surface Water Right No. S3-28687C is located within the northern (up-stream) portion of the McNary Pool at approximately Columbia River Mile 336. The pool extends from the McNary Dam at River Mile 292 to approximately River Mile 346, a 54 mile long reach. Return flows from the irrigated DNR parcel likely re-entered the Columbia River within the McNary Pool along the reach that is closest to the irrigated parcel. This is due to the local topography and hydrogeology. The Primary Reach will therefore, start at the point of diversion (approximately RM 336) and end five miles downstream at River Mile 331.

The Secondary Reach, where only the consumptive portion is assigned to instream flows will begin at the end of the Primary Reach (RM 331) and continue downstream on the Columbia River until it reaches the Pacific Ocean.

The points of diversion for new or existing water rights mitigated by this instream flow right must be located in either the Primary or Secondary Reach, or be withdrawn from wells in close hydraulic continuity in those same reaches of the Columbia River.

Extent and Validity of the Water Right

To make the requested changes to Surface Water Right No. S3-28687C, Ecology must make a tentative determination of the extent and validity of the water right. This includes: determining the acreage historically irrigated, the quantity of water diverted, the quantity of water consumed by the crop or lost to evaporation (consumptive use), and the quantity of water that is unused which may return to the Columbia River (return flows). Under RCW 90.14.160 any portion of a water right not exercised for a period of five successive years, without sufficient cause, shall be relinquished and revert to the state.

Aerial and infra-red photos of the DNR property provide evidence for the number of acres historically irrigated and the extent of the season water was applied to the crop(s). Recent aerial and infra-red photos (2013) show approximately 205 acres have been irrigated using two center pivots. Of those, 16.9 acres under the western center pivot are not within the authorized place of use for Surface Water Right No. S3-28687C. The 16.9 acres are covered by two other rights, Surface Water Certificate Nos. S3-28788C and S3-28789C. Additionally, there are 9.1 irrigated acres within the place of use in excess of the 179 authorized (205 acres – 16.9 acres – 179 acres = 9.1).¹

Aerial and infra-red photo evidence also shows that, from the early 1990's through 2013, 179 acres or more of irrigation routinely took place on the DNR parcel under the two center pivots. This is in addition to the irrigated acreage under the other two adjacent water rights (Surface Water Certificate Nos. S3-28788C and S3-28789C). There is evidence in the infra-red photos that crops were grown throughout the irrigation season in most years.

To determine the greatest annual consumptive use of water that was applied to the DNR parcel, the crop types grown as well as the years they were grown must be determined. According to crop report information submitted to the DNR by the lessee, the crop types have varied over time and have included alfalfa, corn, timothy hay, wheat, potatoes and grass. Of these, alfalfa and grass require the greatest quantity of seasonal water. The crop records indicate that alfalfa has been grown simultaneously under each center pivot at least once in every consecutive five year period since water use began; therefore, those particular irrigation seasons likely represent the years of greatest consumptive use of water.

The Certificate of Water Right for Surface Water Right No. S3-28687C defines the season of use as simply "seasonal irrigation" with no specific dates given. No flow meter data or power records are available to provide evidence for the annual quantity of water diverted specifically for the DNR property under this water right. There are also no records to show when water was first applied to the fields in the spring or last applied in the fall. The DNR reported that the lessee claimed to have typically started irrigating around March 10 and finished in late October.

United States Bureau of Reclamation (USBR) AgriMet data from the Legrow Monitoring Station was supplied to Ecology by the DNR for review to help determine the length of the irrigation season for alfalfa. Both the consumed water quantities and the dates for the beginning and end of that consumptive use were provided by month and year for the most recent 15 year period. The AgriMet data supports the March start date as the time when alfalfa typically starts consuming water in the area.² On average, March 6, has been the date consumptive use (evapotranspiration) can be measured for alfalfa at the USBR Legrow Monitoring Station which is approximately 12.5 miles east of the place of

¹ No additional acreage above the approved quantity can be irrigated using Surface Water Right No. S3-28687C unless previously authorized by Ecology through the water right change process. No such changes have been requested; therefore, the 9.1 acres are not considered part of this current change proposal and not included in any of the water use calculations in this report.

² The irrigation season start date for alfalfa identified in the *WIG* (1990) in Richland is April 23. This later date is not supported by the USBR AgriMet data or the WSU Research Bulletin 1982, *Irrigation Requirements Estimates and Methodologies*. There are no data conflicts with the end of season date or the total annual Crop Irrigation Requirement (CIR).

use. Agrimet dates of first consumptive use are reported as early as February 20, but are more likely due to the crops use of residual soil moisture and precipitation.

The Agrimet data as well as the *Washington Irrigation Guide (WIG)* 1990 support an October 31, end to the irrigation season for alfalfa in the Pasco area. There is only one infra-red photo available in the latest part of the irrigation season, October 20, 2011, when alfalfa was the only crop grown. The photo shows crop growth under both center pivots.

Water Use Calculations

Without direct measurements of the water quantity diverted or other means to know the total water use, estimates must be calculated using comparative data. Water use calculations below are based on crop requirement values published in the *WIG* for the Richland area (the closest data station), and methodology found in Ecology's *GUID 1210*. A full season of alfalfa grown on 179 acres where consumptive irrigation water use commenced on March 10, and ended October 31, is assumed.

The quantity of water beneficially used under Surface Water Right S3-28687C can be estimated using the Crop Irrigation Requirement (CIR) for alfalfa combined with the system efficiency (Ea) of the irrigation method used to determine the Total Irrigation Requirement (TIR) for the DNR parcel. The 1990 publication of the *WIG* provides an average CIR value for alfalfa of 39.56 inches per acre (or 3.30 acre-feet/acre) in the Richland area.

With no actual diversion rate data, the efficiency of the irrigation system cannot be calculated. The DNR has reported that the irrigation system including the pumps, pipes and center pivots were maintained in good working order but had no data on the present efficiency of the combined system. Ecology's *GUID 1210; Table 1: Summary of Application Efficiency Ranges, Consumptive Use and Return Flows*, provides values for a variety of irrigation methods including center pivots similar to those used on the DNR parcel. *GUID 1210* provides an average system efficiency (Ea) value of 90% for a center pivot with spray heads. An end gun has been used on the larger (western) center pivot. The average efficiency value provided for this type of center pivot is slightly lower at 80%. Average system efficiency is assumed for the water use calculations since no other information is available.

The subsequent TIR calculated is the estimated amount of water that must be delivered through the system with a given efficiency, and includes both the consumptive and non-consumptive portions of the water diverted. **Table 2** below provides both the calculated TIR for the DNR parcel and the consumptive (CU) portion of that water use. The TIR is the minimum quantity that will be considered instream flow in the Primary Reach of the river. The total CU is assigned to the Secondary Reach as instream flow and mitigation for new or existing water uses.

The actual annual amount of water diverted could be higher than the TIR calculated in Table 2. Any additional water diverted above the calculated TIR would be considered return flows.

Table 2: Estimated Water Use

Calculated Value	West Center Pivot	East Center Pivot	Total
Acres Irrigated	110.9	68.1	
CIR (ac-ft/acre)	3.30	3.30	
Ea	80%	90%	
TIR per acre Where: $TIR\ per\ acre = CIR \div Ea$ (ac-ft/acre)	4.13	3.67	
TIR Where: $TIR = (CIR \div Ea) \times acres$ (ac-ft)	457.46	249.70	707.16
%CU	90%	100%	
Total CU Where: $Total\ CU = TIR \times \%CU$ (ac-ft)	411.72	249.70	661.42

The quantity of water that will no longer be consumed and therefore transferred instream and held in Ecology's TWRP is estimated to be 661.42 ac-ft. This quantity will contribute to Columbia River flows in both the Primary and Secondary Reaches of this trust water right during the irrigation season which starts approximately March 10 and ends as late as October 31. This is also the quantity that may be made available for future mitigation.

The instantaneous and monthly quantities that will be protected as instream flow in the Secondary Reach are listed below in Table 3. The monthly consumptive use values, totaling 661.42 ac-ft, have been determined using the AgriMet "mean daily consumptive use (CU)" values from 2000 to 2014 for alfalfa at the Legrow Monitoring Station. The monthly CU quantities were found by dividing the "mean daily CU" for a given month by the "mean annual CU". The instantaneous rates given in Table 3 are the corresponding constant flow that will produce the monthly total amount.

Table 3: Instream Flow in the Secondary Reach

	March	April	May	June	July	August	Sept.	Oct.	Total
Qi Continuous (in cfs)	0.48	1.10	1.60	1.97	2.28	1.93	1.26	0.41	
Qa Monthly total (in ac-ft)	20.90	65.28	98.49	117.30	140.25	118.80	75.01	25.39	661.42

The Primary Reach will also benefit from water that was diverted under this water right but was not consumed by the crop and ended up returning to the river. That return flow quantity plus the total consumptive use quantity can be no greater than the total authorized annual diversion (Qa) of 716 ac-ft

per year. The total will be no less than the estimated TIR value of 707.16 ac-ft per year. In this case, it is known that the lessee of the place of use diverted more water than the authorized amount simply because he irrigated more than 179 acres with the 2 center pivots. There is no evidence that less than 716 ac-ft were diverted under Surface Water Right S3-28687C.

Impairment Considerations

Under RCW 90.42(4)(a) exercise of an instream flow trust water right may take place only if Ecology first determines that the authorization will not impair or injure any other water rights. No impairment issues are anticipated as a result of the proposed change to Surface Water Right S3-28687C. If any impairment occurs as a result this change to a instream flow trust water right, RCW 90.42.040(4)(b) states, "If impairment becomes apparent during the time a trust water right is being exercised, the department [Ecology] shall cease or modify the use of the trust water right to eliminate the impairment."

Consideration of Protests and Comments

No protests were received for consideration. The Washington Department of Fish and Wildlife provided a letter in which they expressed no objections to the changes to Surface Water Right S3-28687C and its inclusion in Ecology's Trust Water Right Program.

Conclusions

The author of this report makes the following tentative determination concerning the proposed changes to Surface Water Right S3-28687C in accordance with Chapter 90.42 RCW and RCW 90.03.380:

Surface Water Right S3-28687C represents a valid right to divert water from the Columbia River. At least 707.16 ac-ft of river flow is estimated to have been required to irrigate the 179 acres authorized. The full annual quantity of 716 ac-ft authorized under the right was likely and reasonably diverted when alfalfa was grown, and is considered the quantity that benefits the Primary Reach of this instream trust water right.

The consumptive quantity of water used within the place of use was calculated to be 661.42 ac-ft. It is the quantity considered to benefit the Secondary Reach and that quantity available to mitigate new or existing water rights in the Primary and Secondary Reaches of this instream flow trust water right.

No other water rights currently authorize irrigation on the place of use defined under Surface Water Right S3-28687C.

No impairment of other water rights is anticipated.

RECOMMENDATIONS

Based on the above investigation and conclusions, it is recommended that the requested changes to Surface Water Right No. S3-28687C under Change Application No. CS3-28687C@1 be approved in the amounts and within the limitations expressed below and as described on pages 1 and 2 of this Report of Examination.

Primary Reach

Instream Flow: 716 ac-ft per year from March 10 through October 31 in the following quantities.

Quantities	March	April	May	June	July	August	Sept.	Oct.	Total
Qa Monthly total (in ac-ft)	22.62	70.67	106.62	126.98	151.82	128.60	81.20	27.49	716.0
Qi Continuous instream flow (in cfs)	0.52	1.19	1.73	2.13	2.47	2.09	1.36	0.45	N/A

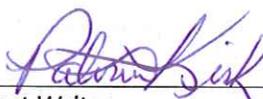
The Primary Reach starts at the original point of diversion for Surface Water Right S4-28687C on the Columbia River (approximately River Mile 336) and end at River Mile 331.

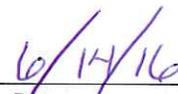
Secondary Reach:

Instream Flow: 661.42 ac-ft per year from March 10 through October 31 in the following quantities.

	March	April	May	June	July	August	Sept.	Oct.	Total
Qi Continuous (in cfs)	0.48	1.10	1.60	1.97	2.28	1.93	1.26	0.41	
Qa Monthly total (in ac-ft)	20.90	65.28	98.49	117.30	140.25	118.80	75.01	25.39	661.42

The Secondary Reach starts at the end of the Primary Reach (River Mile 331) and end at the Columbia River's confluence with the Pacific Ocean (River Mile 0).


Report Writer


Date

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NAIP 2013 Aerial Imagery



Legend

- River Mile
- FCID Canal
- DNR POD
- DNR POU



DNR
CS3-28687C@1
 WRIA 36, Franklin County



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