State of Washington
REPORT OF EXAMINATION
FOR CHANGE OF WATER RIGHT

File NR:	CG4-01179C
WR Doc ID:	5319968

Change in Place of Use
Add Point of diversion

PRIORITY DATE	WATER RIGHT NUMBER	CHANGE APPLICATION NUMBER
August 14, 1970	G4-01179C	CG4-01179C

APPLICANT	WATER RIGHT HOLDER
Trout Unlimited 103 Palouse St., Ste. 14 Wenatchee, WA 98801-2251	Charles Eder Jr. 227D Eder Road Oroville, WA 98844

REMARKS: This change authorization for CG4-01179C is part of the Ninemile Creek Project which also addresses Change Application No.'s CG4-GWC06046 and CS4-162057CL.

Purpose and Quantity

PURPOSE	WITHDRAWAL RATE			ANNUAL QUANTITY (AC-FT/YRR)		PERIOD OF USE
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Irrigation of 103 acres Stockwater Domestic	750	-0-	GPM	194 25 6	-0-	May 1 – October 10 (Year around for stockwater and domestic uses)
				Total = 225 acre-feet		

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Okanogan	Groundwater	Ninemile Creek	49-Okanogan

Points of Withdrawal

SOURCE FACILITY/DEVICE	PARCEL	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well 1	4027123005	40N	27E	12	Govt Lot 9, SE¼SW¼	48.97433	-119.37465
Well 2	4027123000	40N	27E	12	Govt Lot 10, SW¼SW¼	48.97453	-119.38007

Datum: WGS84

Place of Use (See Attachment 1)

S½SE¼ Section 11; SW¼ Section 12; NW¼ Section 13; N½NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.

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Measurement of Water Use	
How often must water use be measured?	Weekly
How often must water use data be reported to Ecology?	Annually, by January 31st of each calendar year.
What volume should be reported?	Total Annual Volume
What rate should be reported?	Monthly Peak Rate of Diversion in cfs.

Provisions Related to the Portion of the Water Right Being Retained

Total Water Use
The combined total rate of withdrawal under Surface Water Claim No. 162057, and Groundwater Certificates 06046 and G4-01179C shall not exceed 1310 gpm. The combined annual withdrawal shall not exceed 578 ac-ft/yr.

Measurements, Monitoring and Reporting
An approved measuring device must 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", WAC 173-173, which 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.

Recorded water use data shall be submitted via the Internet. To set up an Internet reporting account, contact the Central Regional Office. If you do not have internet access, you can still submit hard copies by contacting the Central Regional Office for forms to submit your water use data.

Water Use Efficiency
The water right holder is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

Relinquishment of Claims
The *Eder Agreement Not to Divert and to Lease Water Rights* (Agreement clause 2c) states: "EDER agrees not to divert and beneficially use any water under WRC No. 301761 and WRC No. 301762." A formal relinquishment request for these claims shall be submitted to Ecology.

Proof of Appropriation
The water right holder must file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the superseding permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Schedule and Inspections
Department of Ecology personnel, upon presentation of proper credentials, will 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.

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Finding of Facts and Decisions

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 detrimental to the public interest.

Therefore, I ORDER the requested change of place and purpose of use under Trust Water Right Application No. CG4-01179C, be approved subject to existing rights and the provisions specified above.

YOUR RIGHT TO APPEAL

You have a right to appeal this Decision to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Decision. 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 all of the following within 30 days of the date of receipt of this Decision:

- File your appeal and a copy of this Decision 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 Decision 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.

ADDRESS AND LOCATION INFORMATION	
Street Addresses	**Mailing Addresses**
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503 **Pollution Control Hearings Board** 1111 Israel Road SW, Suite 301 Tumwater WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

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://www.leg.wa.gov/CodeReviser

Signed at Yakima, Washington, this _____ day of _____ 2015.

_____
Robert Barwin, P.E., Acting Section Manager
Water Resources Program/CRO

If you need this document in a format for the visually impaired, call the Water Resources Program at 509-575-2490. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

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INVESTIGATOR'S REPORT

NOTICE: COMBINED INVESTIGATOR'S REPORT

This is a combined Report of Examination that addresses three applications for change as part of the Ninemile Creek Project: CS4-162057CL, CG4-GWC06046 and CG4-01179C.

BACKGROUND

Description and Purpose of Proposed Changes

Three change/transfer applications have been submitted by Trout Unlimited – Washington Water Project (TU) on behalf of the Eder family ('the Applicant') to support several actions intended to reduce irrigation water use and improve instream flows in Ninemile Creek, an important tributary to Lake Osoyoos and the Okanogan River. Under an agreement with TU, the Eders have recently discontinued use of their surface water diversion under Surface Water Claim (SWC) No. 162057 and reduced their overall irrigated acres down to 203 acres. They have also employed more efficient irrigation methods on much of the remaining irrigated lands. To irrigate without using water directly from Ninemile Creek, the Eders will use water from wells under two Groundwater Certificate Nos. 6046-A and G4-01179C. These certificates do not authorize adequate water to irrigate 203 acres for a full irrigation season, so a portion of SWC No. 162057 is proposed to be transferred to the wells associated with these groundwater rights to make up the needed difference. Any portion of SWC No. 162057 that will no longer be needed for irrigation will be used to create an instream flow trust water right.

The applicant also proposes to modify the place of use and points of withdrawal for the groundwater certificates referenced above to better represent their current irrigation practices on the remaining 203 acres. The following is a summary of the project goals:

* Remove the existing surface water diversion from Ninemile Creek.
* Reduce irrigated acreage and increase irrigation efficiency on the Eder's Ranch, thereby increasing instream flows in Ninemile Creek.
* Create a common place of use and common withdrawal points (Wells 1 and 2) for the continued irrigation of 203 acres using a portion of SWC No. 162057, and Groundwater Certificate Nos. 6046-A and G4-01179C. Tables 1, 2, and 3 summarize the attributes[1] of these water rights and the proposed changes in the respective applications.
* Eliminate livestock access to Ninemile Creek with fencing to protect riparian vegetation and increase creek flow.

Tables 1, 2 and 3 below provided information on the three water rights and the changes proposed for each by the applicant.

[1] cfs = cubic feet per second, gpm = gallons per minute, ac-ft = acre-feet, ac-ft/yr = acre-feet per year

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Table 1: Attributes of Surface Water Claim No. 162057 as Currently Asserted and Proposed Changes

Attribute	Existing	Proposed	
Name on Water Right Document	Charles Eder	State of Washington Trust Water Rights Program	Life Estates of Charles, Jr. and Sally Eder, Susan M. Eder, and Janet K. Eder, followed by State of Washington (WDFW)
Water Source	Ninemile Creek	Same	2 Wells
Priority Date	1913	Same	Same
Instantaneous Quantity (Qi)	5 cfs	5 cfs – Primary Reach 0.91 cfs – Secondary Reach (Maximum)	1310* gpm
Annual Quantity (Qa)	1104 ac-ft	Not specified	To be determined
Acres Irrigated	278	N/A	153
Purpose of Use	Irrigation, Stockwater, Domestic	Instream flow	Irrigation
Period of Use	April through October 1	Same	Same
Place of Use	S½S¼ Section 11; SW¼ Section 12; NW¼ Section 13; N½NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.	Ninemile Creek, Lake Osoyoos and Okanogan River	S½SE¼ Section 11; SW¼ Section 12; NW¼ Section 13; N½NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.
Diversion Point	Ninemile Creek, 1400 feet south and 600 feet west from the NE corner of Section 7, SE¼NE¼ Section 7, T. 40 N., R. 27 E.W.M.	None	**Well 1:** SE¼SW¼ Section 12, T. 40 N., R. 27 E.W.M. **Well 2:** SW¼SW¼ Section 12, T. 40 N., R. 27 E.W.M.

* The non-additive maximum rate of 1310 gpm is the total Qi authorized under all three change applications submitted for this project.

Table 2: Attributes of the Groundwater Certificate 6046-A (G4-*04105CWRIS) and Proposed Changes

Attributes	Existing	Proposed
Name	Charles Eder	Life Estates Held by Charles, Jr. and Sally Eder, Susan M. Eder, and Janet K. Eder, followed by the State of Washington (WDFW)
Priority Date	September 8, 1955	September 8, 1955
Instantaneous Quantity (Qi)	560 gpm	560 gpm

Table 2 continues on page 8.

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Table 2 – continued

Attributes	Existing	Proposed
Annual Quantity (Qa)	400 ac-ft	400 ac-ft
Irrigated Acreage	100 acres	100 acres within 203 acres through combined changes.
Purpose of Use	Irrigation	Irrigation
Period of Use	April through October 1	April 1 through October 10
Place of Use	SE¼SW¼ Section 12; within T. 40 N., R. 27 E.W.M.	S½SE¼ Section 11; SW¼ Section 12; NW¼ Section 13; N½NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.
Point of Diversion/ Withdrawal	**Well 1:** SE¼SW¼ Section 12, T. 40 N., R. 27 E.W.M.	**Well 1:** SE¼SW¼ Section 12, T. 40 N., R. 27 E.W.M. **Well 2:** SW¼SW¼ Section 12, T. 40 N., R. 27 E.W.M.

Table 3: Attributes of the Water Right G4-01179C and Proposed Change

Attributes	Existing	Proposed
Name	Charles Eder	Life Estates Held by Charles, Jr. and Sally Eder, Susan M. Eder, and Janet K. Eder, followed by State of Washington (WDFW)
Priority Date/ Change Application Date	August 14, 1970	August 14, 1970
Instantaneous Quantity	750 gpm	750 gpm
Annual Quantity	225 ac-ft (Irrigation - 194 ac-ft/yr, stockwater – 25 ac-ft/yr, domestic – 6 ac-ft/yr)	Same
Irrigated Acreage	103 acres	103 acres within new 203 acre place of use
Purpose of Use	Irrigation, Stockwatering, Domestic	Irrigation, Stockwatering, Domestic
Period of Use	May 1 to October 1 (Irrigation), Year around (Stockwatering, Domestic)	Same

Table 3 continues on page 9.

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Table 3 – continued

Attributes	Existing	Proposed
Place of Use	S½SE¼ and the NE¼SE¼ Section 11; SW¼ Section 12; NW¼, the W½NE¼, and the N½SW¼ Section 13; NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.	S½SE¼ Section 11; SW¼ Section 12; NW¼ Section 13; N½NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.
Point of Diversion/ Withdrawal	**Well 2:** SW¼SW¼ Section 12, T. 40 N., R. 27 E.W.M.	**Well 1:** SE¼SW¼ Section 12, T. 40 N., R. 27 E.W.M. **Well 2:** SW¼SW¼ Section 12, T. 40 N., R. 27 E.W.M.

Legal Requirements for 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 duly published in accordance with RCW 90-42.040(5) in the Omak-Okanogan Chronicle on April 1 and April 8, 2014. No protests or letters of concern were received.

State Environmental Policy Act (SEPA)

This application is subject to the provisions of the State Environmental Policy Act (SEPA), chapter 43.21 RCW. Ecology, 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 Ecology on March 31, 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 Claim or water right. This is necessary to establish whether the Claim or water right is eligible for change. R.D. Merrill v. PCHB and Okanogan Wilderness League v. Town of Twisp.
- RCW 90.14.160 states that any person entitled to divert water through an appropriation authorized through a general adjudication, who 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.

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- 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 in and out-of-stream uses.
- RCW 90.44.100 provides authority for Ecology to change the manner or place of use of a groundwater right, or add/change the point(s) of diversion of a groundwater right when the following conditions have been met. There is no enlargement of the water right to be changed, other existing water rights are not impaired due to the change, the water has been and will be put to beneficial use, is in the public interest, and the change is within the same body of groundwater.

INVESTIGATION

Charles, Jr. and Sally Eder, and their daughters Susan M. Eder and Janet K. Eder, Trout Unlimited (TU), and the Washington Department of Fish and Wildlife (WDFW) entered into an agreement[2] in support of the goals of the project and submitted three change applications referenced above. TU, on behalf of the Eders, describes the applicant's property interest in the proposed project as follows:

- Charles Eder, Jr. and Sally Eder hold concurrent life estates in property and appurtenant water rights within Sections 11, 12, 13 & 14, T. 40 N., R. 27 E.W.M., in northern Okanogan County under Statutory Warranty Deed, Okanogan County AFN 3158252 recorded September 30, 2010.
- Janet K. Eder and Susan M. Eder hold concurrent life estates in a smaller portion of the property and appurtenant water rights within Section, 12, T. 40 N., R. 27 E.W.M., in northern Okanogan County under Statutory Warranty Deed, Okanogan County AFN 3158252, recorded September 30, 2010.

WDFW owns a future interest in the fee simple absolute title to the Eder's property, including the water rights, subject to the life interests as noted above. At the passing of both Charles Eder, Jr. and Sally Eder, a portion of the property will be transferred to WDFW, and a lesser portion will be retained by their daughters. At the daughters passing, WDFW will acquire the remainder of the property. Throughout the duration of both life estate terms, the Eders will retain use of the water rights for irrigation of 203 acres.

History of Water Use

The Eder family property is approximately two miles east of Lake Osoyoos within the Nilemile Creek watershed just south of the Canadian border. Ninemile Creek runs through the Eder's Ranch from east to west flowing towards Lake Osoyoos and the town of Oroville WA. According to the Declaration of Charles Eder, Jr. (dated May 19, 2012), the Eder family has lived on the land for over 80 years. Mr. Eder stated in his declaration that the family has irrigated over 300 acres of alfalfa and pasture grass.

The Eder family has used the diversion from Ninemile Creek to irrigate several fields on both the north and south sides of the creek from the beginning of the irrigation season, usually early May, until the flow of the creek is low, typically late July or August. According to information provided by the applicant, when diversion from Ninemile Creek is no longer feasible the two irrigation wells authorized under

[2] "Eder Agreement Not to Divert and to Lease Water Rights"

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Groundwater Certificate Nos. 6046-A and G4-01179C, are used to continue irrigation through the rest of the season.

On October 14, 2012, Jay Pietraszek of Golder Associates Inc., met with Aaron Penvose of TU to view the diversion structures, place of use for SWC No. 162057 and the other water rights associated with the Eder property. Discussions and observations associated with the site visit included:

- The irrigation system throughout the property is fed by a main line, with both of the wells tied into the main line. The surface water diversion also ties into the main line and was gravity fed.
- The surface water diversion consisted of a 16-inch pipe that was suspended above the creek. To divert, the pipe was lowered into the creek and sandbagged in place. The pipe was gravity fed into the irrigation system main line.
- There was no metering system in place for the diversion and there is no stream or staff gauge in the creek near the diversion. A plate on the end of the diversion pipe was used to control the diversion rate.
- A USGS gauge is located on Ninemile Creek approximately 2.5 miles downstream of the diversion, less than a mile upstream of Osoyoos Lake.
- Approximately 100 feet below the diversion a debris screen/vault was used to screen out debris (and potentially fish).
- Two overflow pipes in the vault routed water back to the creek. Inspection of the ground below the overflow pipes indicated that the overflow pipes were not used significantly in the recent past (no clear channel back to creek, no erosion/scour below pipe outlets).
- Improvements have recently been completed to increase irrigation efficiency as follows:
    - Three center pivot irrigation sprinklers have been installed covering approximately 90 acres. These replace handline and wheel line sprinklers;
    - Of the three new center pivots, the largest is located on the northwest portion of the property and covers 50 acres, the other two are located in the vicinity of Well 1 and Well 2;
    - Solid set sprinklers are planned for installation on the south and east sides of the ranch house to replace handline sprinklers.
- Well 1 is the older and larger of the two wells and is outfitted with a 70 hp pump. Recent improvements have been made to the pump's electrical system and a metering system has been included.
- No improvements have been made to Well 2. There is no metering system on Well 2. The two wells are often used simultaneously, as was observed during the site visit.
- The surface water diversion was located approximately 1¼ miles upstream of the ranch house. It has been removed.
- Approximately one mile of Ninemile Creek commonly goes dry during the summer. This portion of the creek was dry during the site visit.
- Livestock exclusion fencing has been completed in the reach mentioned above. It might also receive some light restoration work (no heavy machinery) in the future according to TU.

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- Numerous juvenile fish were observed in the reach of Ninemile Creek near the diversion and can be observed below the reach that goes dry annually (typically within the southeast quarter of Section 12, T. 40 N., R. 27 E.W.M.)

Extent and Validity

To make the requested changes to SWC No. 162057, GWC 6046-A, and G4-01179C, a tentative determination of the extent and validity of the rights is required. Evaluations of the authorized verses actual water use is needed to establish how the three rights were historically exercised and how they can be used in the future to accomplish the requested changes. The following information was acquired from the applicant, TU, file documents and aerial photos.

Under SWC No. 162057, Charles Eder has asserted an appropriative water right claim to irrigate 278 acres with a priority date of 1913. Mr. Eder claimed 5 cfs and 1,104 acre-feet per year from Ninemile Creek. This is an equivalent water duty of 4 acre-feet per acre. An interview of Charles Eder by Aaron Penvose of TU clarified that the property was purchased by the Eder family in 1928. It is Mr. Eder's understanding that irrigation ditches were already in use on the property by 1928 diverting water from Ninemile Creek to irrigate orchard and pasture for sheep. The Eder family continued this practice until 1940 at which time they bought cattle. They continued to irrigate the property to produce alfalfa and pasture. Several of the family's parcels are part of an old Tribal allotment. He mentioned that he had been told some of the older ditches on the property had been used for irrigation when the property was owned by Tribal members (no dates were given). No other evidence was provided by Mr. Eder to verify water use under this claim prior to 1917.

Aerial Photo Evidence of Irrigation

Early photos (pre 1932)[3] establishing water use were not available for this investigation. An aerial photograph of the property taken on September 4, 1953 confirms that irrigation was occurring prior to authorization of any of the groundwater rights. The high altitude, black and white photo provides some distinction between natural undisturbed ground, irrigated acreage and tilled, but dry ground. Somewhere between 100 to 130 acres appear to have been irrigated. The natural vegetation contrasts the relatively dark, irrigated areas that occur along the creek in the southern ½ of the southern ½ of Section 11, NE¼ of the NE¼ of Section 14, and the NW¼ of the NW¼ of Section 13. There is likely irrigated land along the creek in the SW¼ of Section 12 as well. The estimated irrigated acreage is based on a comparison of the shape of the irrigated fields in the 1953 photo and more recent aerial photos with better resolution. The tilled but dry ground which showed up as lighter then the native vegetation, could have been as much as 100 acres and are mainly in the SW¼ of Section 12 and NW¼ of Section 13.

The 1953 photo taken in September indicates that the Eder's were able to beneficially use water from Ninemile Creek late into the irrigation season, at least in some years.

A 1954 photo confirms that approximately 180 acres were cultivated. Again, most of the distinguishable irrigation took place north of the creek. It was not possible to definitively distinguish irrigated acreage from dry land farming (or irrigation not yet installed) south of the creek based on the quality of the photograph. The photo was taken at the same time Mr. Eder applied for the first of the two

[3] Washington State case law (Department of Ecology vs. Abbott, 1985) established that water right claimants with claimed priority dates of 1917 or earlier had 15 years from 1917 (i.e. until 1932) to finish development of a project.

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groundwater rights. A later, 1964 black and white aerial photo shows at least 220 acres were irrigated in that year with another 20 to 40 acres possibly cultivated but not covered in a crop. A fourth black and white aerial photo from 1975 shows at least 200 irrigated acres. An additional 30 acres may have been irrigated and harvested, but no definitive conclusions could be drawn since the fields do not contrast as well with the natural vegetation.

Infra-red photos were evaluated for the following years: 1985, 1987, 1990, 1993, 1995, 1998, 2000, and 2003. Collectively, the photos indicate that the places of use for SWC No. 162057 and the two groundwater certificates were being irrigated. In some photos, some areas did not show active growth of a crop, however, the harvest of the fields may have been taking place at that time. Overall, there was no five year period where it was clear that less than 278 acres were being irrigated. It is also clear that in most if not all years irrigation took place throughout the entire irrigation season.

Landsat imagery was used to estimate the acres recently irrigated under each of the three water rights for which the change applications were submitted. The places of use for the surface water claim and two groundwater rights significantly overlap, requiring the acres irrigated within each place of use to be compared to the total acres irrigated. Table 4 presents a summary of this analysis for the period from 2007 through 2011.

Table 4: Estimated Irrigated Acres within Each POU Based on Landsat Imagery

Year	SWC 162057	G4-01179C	GWC 6046-A	Total Irrigated Acres
2007	164	161	59	188
2008	175	186	53	186
2009	243	256	117	285
2010	212	230	100	230
2011	256	261	123	290

Note: The total number of irrigated acres accounts for overlap among the three water rights/claims.

Review of Landsat images suggests that irrigation over the past several years was at a maximum in 2011, with 290 total acres irrigated within the authorized places of use. Additional acres were being irrigated outside the places of use, but these acres were not considered in this analysis since they are not supported by a water right.

Water Right Document Investigation

A 1955 Report of Exam (ROE) for Groundwater Certificate No. 6046-A provides information on the irrigated acreage found by the Water Resource's field examiner before the irrigation wells were drilled. The 1955 ROE states that 125 acres were irrigated using water diverted from Ninemile Creek (i.e. prior to authorization of any groundwater rights).

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On November 15, 1974 a field inspection was conducted after the Eder's applied for a second groundwater permit (which became GWC-01179C). The following summary of the water use on the Eder's property was recorded within the field notes:

> *The applicant has a total of 278 acres irrigated at this time from 3 sources including wells number 1 and 2 as well as Ninemile Creek. The place of use of the applicants vested claim from Ninemile creek [125 acre] was partially within the lands described above as does the place of use of GWC 6046-A [50 acres primary and 50 acres supplemental] but not to the full extent of the rights. The irrigation system is integrated with all 3 sources feeding the same system. The total acres developed under this [new] appropriation is 103 acres. This does not include 175 acres covered under existing rights or claimed rights.*

In summary, the field examiner understood the Eders' irrigation rights to consist of:

1. A vested surface water claim from Ninemile Creek for the irrigation of 125 acres (SWC No. 162057).
2. A groundwater right (GWC No. 6046-A) for 50 additional acres plus 50 acres that overlapped the surface water claim as a supplemental (non-additive) water supply.
3. A second groundwater right for 103 new acres (GWC-01179C).

Under these rights the combined irrigated acres total 278 acres.

When Mr. Eder filed Surface Water Claim SWC No. 162057 in 1974[4] for the irrigation of 278 acres, he seemed to have identified all of the acreage he was irrigating at that time. The water use from Ninemile Creek that had been perfected by 1932, however, appears to have likely been no greater than the 125 acres recorded by the field examiners in 1955 and 1974 and observed in the 1953 and 1954 aerial photos. At the claimed water duty of four (4) acre-feet per acre, the total water use for 125 acres of irrigation would be 500 acre-feet if creek water were available for the entire irrigation season.

A portion of the place of use for SWC No. 162057 was sold by the Eders to the Veranda Beach Golf Club in August of 2011. The Eders retained the water rights associated with the property. The Golf Club owners have allowed the Eder family to continue farming the property.

In 1968, Groundwater Certificate No. GWC-6046-A was issued to the Eders for 560 gpm, 400 acre-feet per year for the irrigation of 100 acres. This equates to a water duty of four (4) acre-feet per acre. It is clear from the field examiners notes quoted above, 50 of the irrigated acres were covered by SWC No. 162057 for part of the season and then irrigated using well no. 1 when the creek was too low. The other 50 acres under this right were new and would be irrigated from the well only.

Groundwater Certificate No. G4-01179C (priority date of August 14, 1970) was issued for 750 gpm from two wells for the irrigation of 103 acres, with a total annual quantity of 225 ac-ft/yr. 194 ac-ft/yr were authorized for irrigation providing a water duty of 1.88 ac-ft/ac. This is considerably less than the four (4) ac-ft/ac water duty authorized for GWC No. 6046-A. The records do not indicate a reason for the disparity.

[4] Claims Registration Act, RCW 90.14.041

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Other Water Rights on the Eder Property

A review of the Water Resource Tracking System (WRTS) online database indicated that the Eder's irrigated property is within the Okanogan Irrigation District's (OTID) place of use for Surface Water Permit S4-15346(B)P. The OTID has never served the Eder's property and is not capable of doing so at this time.

The Eders also hold two other surface water claims that were filed during the 1997-98 open registry[5]:

- SWC No. 301761 claims a right to 433 ac-ft/yr for the irrigation of 109 acres.
- SWC No. 301762 claims a right to 208 ac-ft/yr for the irrigation of 52 acres.

For these two water right claims to be valid, they would need to have been beneficially used prior to 1917. The place of use for these two claims overlap the place of use for SWC 162057. Irrigation on the Eder's property prior to 1954 had been determined to be no greater than the 125 acres indicated by the field examiners notes quoted above. Since these acres are already covered by SWC No. 162057, the later claims appear to be duplicative and provide no addition water rights to the Eders.

Estimated Water Use

Since the documented places of use for the two groundwater rights and claim overlap, and the irrigation system combines the water from the creek and wells throughout the property, the water use under each right cannot be evaluated separately. Therefore, the total estimated quantity of water used during the 2009 and/or 2011 irrigation season from all sources(years of greatest use - when the overall irrigated acres exceeded the authorized acres), was compared to the total authorized water available under SWC No. 162057, GWC 6046-A, and G4-01179C. The calculations for the water used are limited to the 278 acres authorized under the three water rights. Water applied to land in excess of 278 acres is not eligible for change.

It should be noted that the Landsat analysis provided in Table 4 indicates that at least 278 acres have been irrigated in two separate seasons in the past five years. Therefore, no recent relinquishment has occurred out of the 278 irrigated acres covered by the three water rights.

The water use was estimated using information from the Washington Irrigation Guide (WIG). The WIG provides methods for estimating the crop irrigation requirement (CIR) based on the crop location within the state and type of crop that is grown (USDA NRCS 2007), in conjunction with an assumed application efficiency. The declaration of Mr. Eder indicates that irrigation has historically been used to grow alfalfa and pasture grass. Pasture requires a higher water duty so it was used in the calculations.

An application efficiency of 60% has been estimated by TU (Declaration of Aaron Penvose; June 5, 2012) based on the condition and age of the irrigation system prior to the upgrades associated with this project. This value is at the lower end of efficiency estimates for surface irrigation methods, periodic move handline, and side roll (wheelline) sprinkler systems provided in Ecology's Guidance Document 1210 (Ecology, 2005). It is incorporated into this report based on the condition of the system stated in Mr. Penvose's Declaration.

[5] RCW 90.14.068

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The total irrigation requirement (TIR) can be calculated by dividing the crop irrigation requirement (CIR) by the application efficiency (Ea). The monthly crop irrigation requirement from the WIG for pasture/turf in Omak, Washington was used, the climate station closest to the Eder's ranch.

Applying the estimated application efficiency of 60% to this quantity results in a total irrigation (TIR) requirement of 1037.8 ac-ft/yr, as follows:

CIR for pasture from the WIG = 26.89 inches per year (or 2.24 ac-ft/acre)
TIR = CIR/Ea
= 2.24/0.6
= 3.73 ac-ft/acre per year
TIR for 278 acres = (3.73 ac-ft/acre)(278 acres) = **1037.8 ac-ft/yr**

Table 5: Estimated Water Use By Month

Month	Number of Irrigation Days[1]	Monthly Crop Irrigation Requirment (CIR) Pasture/Turf	Total Irrigation Requirement (with an application efficiency of 60%)
May	25	3.39	130.8
June	30	6.43	248.1
July	31	7.65	295.2
Aug	31	5.52	213.0
Sept	30	3.59	138.4
Oct	10	0.32	12.4
Total	157	**26.89 (inches/year)**	**1037.8 ac-ft/year**

[1] The irrigation season according to the WIG begins on May 7 and ends on October 10 (USDA NRCS 2007).

To add instream flow to the purpose of use of SWC No. 162057, both the quantity of water used to irrigate 125 acres and the consumptive portion of that use must be determined. The total quantity is calculated as follows:

The TIR for 125 acres = (125 acres)(3.73 ac-ft/acre) = **466.3 ac-ft/year**

The consumptively used portion (CU) is calculated using the efficiency of the system (Ea) of 60% and the average evaporation for sprinkler (%Evap) of 10% in the following manner:

CU = TIR (Ea + %Evap)
= 466.3 ac-ft/acre (0.6 + 0.1)
= 326.4 ac-ft/year

The total irrigation requirement of 466.3 ac-ft/year is the quantity of water available for change for SWC No. 162057. The portion not needed for the irrigation of 203 acres will become an instream flow trust water right, with the consumptive portion providing water in the Secondary Reach.

The quantities indicated in Table 6 are those tentatively determined to be the extent of the surface water claim and the two groundwater rights proposed for change. Since both of the groundwater rights have been exercised to their full extent and no changes have been proposed for their use, there is no requirement to alter the quantities authorized under either right. The only changes needed for

Groundwater Certificate Nos. 6046-A and G4-01179C is to add a point of withdrawal and redefine places of use to coincide with actual use.

Table 6: Summary of Water Quantities Available for Change

	SWC 162057	GWC 6046-A	G4-01179C	Total
Acreage	125	50[1]	103	278
Annual Water Duty Authorized (ac-ft/acre)[2]	3.73	4	1.88	
Total Annual Quantity Available for Change (ac-ft/yr)	**466.3**	**200**	**194**	**860.3**

[1]Excludes the 50 acres of standby reserve allocated to this right.
[2]Based on pasture/ turf with 60% application efficiency

860.3 ac-ft/yr is less than the estimated total use of 1037.8 ac-ft/yr in Table 5. This discrepancy is due to the lower water duty authorized for GWC No. G4-01179C; a water duty of 1.88 ac-ft/acre is less than the TIR value of 3.73 ac-ft/acre for pasture/turf at 60% system efficiency. Regardless, in combination a total of only 860.3 ac-ft/yr is found to be valid under the three water rights.

Annual Consumptive Water Use (ACQ)

RCW 90.03.380(1) states that, "A change in the place of use, point of diversion, and/or purpose of use of a water right to enable irrigation of additional acreage or the addition of new uses may be permitted (to a water right) if such changes result in no increase in the annual consumptive quantity of water used under the water right". The annual consumptive quantity [ACQ] is calculated by averaging the actual or estimated annual amount of water diverted pursuant to the water right, reduced by the estimated or actual annual amount of return flow averaged over the two years of greatest use within the most recent five-year period of continuous beneficial use of the water right.

The retained portion of SWC No. 162057 that will be used to continue irrigating 203 acres will be used on 50 of the original irrigated acres, but it will also be needed to provide additional water to the 103 acres under GWC No. 01179. This would increase the total number of acres the water will be applied to, even though the total quantity of water used for irrigation under the claim will decrease. This increase of acreage requires the ACQ of the claim be determined.

The portion of the claim that remains for the purpose of irrigation plus the instream flow portion cannot exceed the original consumptive use. In this case, 125 acres were tentatively found to be the historic extent of the irrigated acreage under the claim based on the following information:

1. The irrigated acres on the Eder's property in both 2009 and 2011 exceeded the authorized 278 acres of the combined water rights.
2. At least 125 irrigated acres were within the claimed place of use in each of the two years.
3. The creek diversion was used to its full capacity.

In conclusion, the surface water claim was beneficially used to its full extent. Therefore, the combined 153 acres of irrigation and the instream flow portion of SWC No.162057 cannot exceed an ACQ of 326.4 ac-ft/yr.

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The annual consumptive quantity test is not required for the groundwater changes since no additional purposes of use are being proposed nor additional acreage added.

Instantaneous Water Use (Qi)

The instantaneous quantity of water diverted from Ninemile Creek was not measured. The quantity of water authorized as a primary water source from well nos. 1 and 2 from the two groundwater rights is 200 ac-ft and 194 ac-feet respectively, totaling 394 ac-ft. An additional 200 ac-ft can be withdrawn when it is required to supplement the creek during times of low flow on 50 acres. Therefore, a maximum of 594 ac-ft can be withdrawn from the wells under these rights. Power record data from the past several years (2006 through 2011) analyzed by Aaron Penvose of Trout Unlimited indicate that the total water withdrawn from wells varied from a low of approximately 295 ac-ft in 2006 to a maximum of approximately 533 ac-ft during the 2009 irrigation season. Given that nearly the entire authorized quantity was withdrawn in 2009, including the non-additive portion, the authorized total instantaneous rate of 1,310 gpm is reasonable and would likely have been needed to withdraw 533 ac-ft of water during a single irrigation season.

Hydraulic Continuity

A review of available geologic mapping[6] indicates that the aquifer adjacent to Ninemile Creek is composed of unconsolidated glacial debris and possible alluvium. Well nos. 1 and 2 are both completed in unconsolidated sand and gravel deposits at total depths of 168 feet and 185 feet, respectively, based on a review of well logs from Ecology's database. Some finer grained deposits (silt and clay), mixed with coarser materials were noted in the well logs at shallower depths, suggesting the presence of some glacial till in addition to more permeable deposits.

Static water levels in wells 1 and 2 noted at the time of drilling were 60 feet and 138 feet, respectively. Ninemile Creek has a steep gradient adjacent to the irrigated lands, with about 200 feet of elevation drop over the approximately one mile distance from the eastern to western extent of the irrigated acreage. As a result, the creek and the aquifer are at about the same elevation along the western portion of the property. The steep gradient of Ninemile Creek combined with the proximity of the wells to the creek (<1,200 feet) suggests that the wells are hydraulically connected with the creek, particularly at the western end of the irrigated acreage, where the level of the creek and the level of the water table appear to coincide based on the static water levels noted at the time of drilling. The two wells are both completed into the same body of groundwater.

Irrigation Requirements for the Retained 203 Acres

At present, the Eders have ceased diverting water from the creek, but continue irrigating 203 acres from their two wells. Their groundwater certificates alone do not provide enough water to irrigate 203 acres for a full season. The water duty of 1.88 ac-ft/acre authorized under Groundwater Certificate No. G4-01179C does not meet the crops full seasonal requirement. To make up the difference, a portion of the surface water claim, must be transferred to the wells (or said another way, the two wells need to be added as alternate sources to the surface water claim).

[6] Geologic Map of the Oroville 1:100,000 Quadrangle, Washington. Washington Division of Geology and Earth Resources Open File Report 90-11, May 1990, WDNR.

DRAFT

The first step is to estimate how much water the 203 acres will require with installation of the new center pivots. Based on Exhibit K of the "*Eder Agreement Not to Divert and to Lease Water Rights*" (Eder-Proposed Irrigation Plan), it appears that 144 of the 203 acres will be irrigated with center pivots. These acres are assumed to have an irrigation efficiency of 90%, based on Ecology's Guidance Document 1210 (Ecology, 2005). The remaining 59 acres are assumed to remain at 60% irrigation efficiency. Given these assumptions, the estimated water requirements for the requested change are:

For the 144 acres Irrigated with Center Pivots:

Where:

TIR per acre = CIR/Ea
= 2.24/0.9
= 2.49 ac-ft/acre

CIR = 2.24 ac-ft/acre (for pasture from WIG)
Ea = 90% (for center pivots with spray heads)
%Evap. = 10%

TIR = 144 (2.49 ac-ft/acre)
= <u>358.6 ac-ft/yr</u>

For the 59 acres Irrigated with Hand Lines/Wheel Lines:

Where:

TIR per acre= 2.24/.6
= 3.73 ac-ft/acre

Ea = 60% (old system est. efficiency)

TIR = 59 (3.73ac-ft/acre)
= <u>220.1 ac-ft/yr</u>

The TIR for the combined 203 acres is: 358.6 + 220.1 = <u>578.7 ac-ft/yr</u>

The two groundwater certificates authorize a total of 394 ac-ft/yr for a total of 175 acres. Therefore, the difference between what is needed and authorized is: 578.7 - 394 = <u>184.7ac-ft/yr</u>

An additional 184.7 ac-ft/yr of water authorized under SWC 162057 will be needed to fulfill the irrigation needs of 203 acres. Given that 466.3 ac-ft/yr of water are available for transfer under SWC No. 162057, 184.7 ac-ft/yr may be used to cover the deficit. That leaves 281.6 ac-ft/yr of SWC No. 62057 available for transferred to instream flow.

Instream Flow: Primary and Secondary Reaches

The new place of use for an instream flow water right is defined by the primary and secondary reach. "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.

According to the calculations above, there are 466.3 ac-ft/yr available to be transferred to instream flow at the historic point of diversion. The Secondary Reach instream flow is that portion of 281.6 ac-ft that was consumptively used.

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Secondary Reach Instream Flow:

		Where:
CU	= TIR (Ea + %Evap.)	Irrigation system efficiency Ea = 60%
	= 281.6 (0.6 + 0.1)	% Evap. = 10%
	= **197.1 ac-ft/yr**	

If approved, the instream flow portion of Surface Water Claim No. 162057 would be defined by:

1. A season of use from April 15 to October 10.
2. A Primary Reach where 5 cfs and 466.3 ac-ft/yr would remain instream as a result of removing the surface diversion from Ninemile Creek.
3. A Secondary Reach where the consumptively used portion of 281.6 ac-ft/yr would be protected instream as a result of the Eders fallowing 75 acres.

Table 7: Quantities of Instream Flow in the Secondary Reach

Month	acre-feet /month	Instantaneous Quantity (cfs)
May*	24.8	0.50
June	47.1	0.79
July	56.1	0.91
Aug	40.5	0.67
Sept	26.3	0.44
Oct*	2.3	0.12
Season	**197.1**	**Maximum cfs = 0.91**

*The typical irrigation season starts May 9 and ends October 10 according to the WIG.

The Primary Reach for this instream flow trust water right will begin at the historic diversion point of SWC No. 162057. This point on Ninemile Creek is located 600 ft west and 1,400 ft south of the NE quarter corner of Section 7, T. 40 N., R. 28 E.W.M. The Primary Reach ends at the point on Ninemile Creek where all of the return flows from irrigation on the Eder Ranch are anticipated to have returned to the creek, approximately 2.3 miles downstream. That point is approximately 2,600 ft west and 1,000 ft south of the NE corner of Section 14, T. 40 N., R. 27 E.W.M.

The Secondary Reach starts at the point where the Primary Reach ends and continues approximately 1.5 miles downstream to the confluence of Ninemile Creek and Lake Osoyoos (Okanogan River). The season of the trust water right in the secondary reach is shorter because it is based on consumptive used estimated from the WIG, while the primary reach season is based on diversion practices.

Combined Place of Use for Irrigation

Redefining the place of use for the groundwater rights and claim will not expand the overall place of use that existed when the rights were exercised individually. The proposed combined place of use is S½SE¼ Section 11; SW¼ Section 12; NW¼ Section 13; N½NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.–This

change would allow the already authorized acreage to fall within a more easily defined area.–The modified place of use will still fall within the original claimed place of use.

Impairment Considerations

"Impair" or "impairment" means to:

1) adversely impact the physical availability of water for a beneficial use that is entitled to protection, and/or;
2) to prevent the beneficial use of the water to which one is entitled, and/or;
3) degrade the quality of the source to the point that water is unsuitable for use by existing water right holders (WAC 173-150).

Ninemile Creek flows will be increased during the irrigation season as a result of cessation of irrigation on 75 acres. In addition, the Primary Reach will fully benefit from cessation of the surface water diversion. Combining the place of use for the individual water rights will not expand the overall place of use that existed when the rights were exercised individually.

A review of Ecology's water rights database indicates that no other water right holders are divert surface water or withdraw groundwater within a mile of wells 1 and 2. The nearest groundwater and surface water right holders are in the lower reaches of Ninemile Creek, at a significantly lower elevation (>300 ft. lower) than the elevation that wells 1 and 2 are withdrawing from. Groundwater users in that area are withdrawing from shallow wells completed in alluvial deposits, rather than the glacial aquifer used by the Eder's wells. Transferring a portion of the surface water right to groundwater is not expected to cause impairment, because of the hydraulic connection between the creek and the aquifer (i.e., the wells will be using the same source of water that was historically used), net water use will decrease, and the instantaneous withdrawal rates from the wells will not increase.

Public Interest Considerations

Water use changes associated with this project are expected to provide environmental benefits to the Upper Columbia Steelhead ESU and other biota by providing critical cool water refuge via side channel and onsite habitat improvements on the property and in the neighboring side channel. The Okanagan River watershed supports populations of Upper Columbia River summer/fall Chinook and Okanogan River sockeye salmon, and Upper Columbia steelhead (listed as threatened under the Endangered Species Act). The overall goals of the project as outlined by Trout Unlimited support significant habitat improvement on Ninemile Creek:

* Remove an existing surface water diversion from Ninemile Creek and cease diversions of surface water on a permanent basis to improve and enhance the riparian function of the creek.
* Reduce irrigated acreage and increase irrigation efficiency, thereby increasing instream flows in Ninemile Creek.

Consideration of Protests and Comments

No protests or comments were received during the comment period.

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CONCLUSIONS

It is the conclusion of this examiner that, in accordance with chapter 90.42 RCW, water is available to transfer a portion of **SWC No. 162057** to instream flow in Ninemile Creek, and such a transfer will not impair existing water rights, will enhance flows of the creek, and is not detrimental to the public interest.

It also is the conclusion of this examiner that, in accordance with chapter 90.03.380 RCW, water is available to change a portion of **SWC No. 162057** from surface water to groundwater use from wells 1 and 2, and to change the place of use. These changes will not impair existing water rights, and are not detrimental to the public interest. Expansion of the place of use will not increase consumptive use.

It also is the conclusion of this examiner that, in accordance with chapter 90.03.380 RCW, water is available to change the place of use and add an existing withdrawal point to **Groundwater Certificate Nos. 6046-A** (G4-*04105CWRIS) and **G4-01179C** to allow withdrawals from both wells 1 and 2. These changes will not impair existing water rights, and are not detrimental to the public interest.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that the requests for the changes proposed by applications CS4-162057CL, CG4-GWC06046, and CG4-01179C be approved in the amounts and within the limitations listed below and subject to the provisions listed on pages 2, 3 and 4 of this report.

Change Application No. CS4-162057CL:

Instream flows proposed in Ninemile Creek:
5 cfs, 466.3 ac-ft/yr in the Primary Reach from April 15 to October 10.
197.1 ac-ft/yr in the Secondary Reach from May 1 to October 10.

Retained portion:
Irrigation of 153 acres, 1310 gpm (non additive), 184.7 ac-ft/yr from two wells and within the place of use defined below.

Change Application No. CG4-GWC06046

560 gpm, 200 ac-ft/yr for the irrigation of 50 acres and 200 ac-ft/yr for irrigation of an additional 50 acres as a non-additive water supply to the retained portion of CS4-162057CL, from two wells and within the place of use defined below.

Change Application No. CG4-01179C

750 gpm, 225 ac-ft/yr, 194 ac-ft/yr for the irrigation of 103 acres, 6 ac-ft/yr for group domestic supply, and 25 ac-ft/yr for stock water from two wells and within the place of use defined below.

Points of Withdrawal for all three water rights:
Well 1: SE¼SW¼ Section 12, T. 40 N., R. 27 E.W.M.
Well 2: SW¼SW¼ Section 12, T. 40 N., R. 27 E.W.M.

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Combine Place of use for all three water rights:
S½SE¼ Section 11; SW¼ Section 12; NW¼ Section 13; N½NE¼ Section 14; all within T. 40 N., R. 27 E.W.M.

Report by: _____ Date: _____

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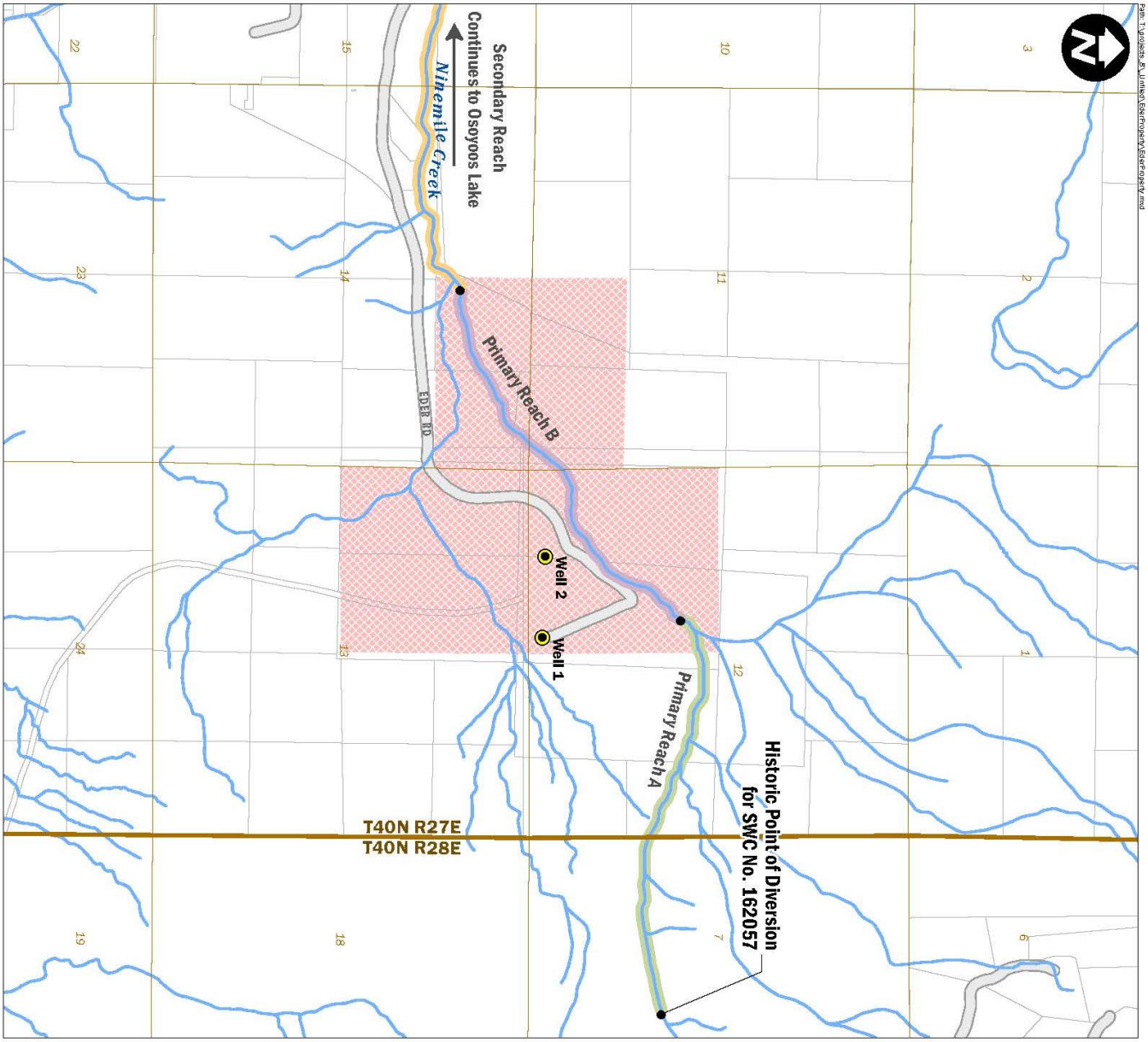
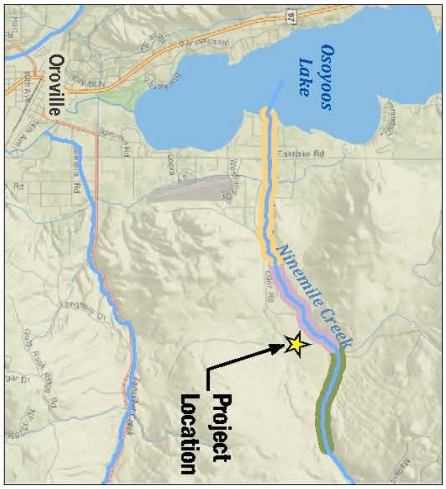
ATTACHMENT 1





Comments: *Place of use and point of diversion are defined on the cover sheet under the heading "LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED."*

- Authorized Point of Withdrawal
- Authorized shared place of use for CS4-162057CL, CG4-GWC06046 and CG4-01179C
- Primary Reach A
- Primary Reach B
- Secondary Reach
- Road
- Section (TRS)
- Township & Range
- Parcel

0 1,000 2,000 4,000 Feet

Eder Property

Water Right Change Applications
CS4-162057CL, CG4-GWC06046 and CG4-01179C
WRIA 49, Okanogan County, Washington

May, 2014

ATTACHMENT NO. **1**