



STATE OF WASHINGTON
 DEPARTMENT OF ECOLOGY
REPORT OF EXAMINATION
To Appropriate Public Waters of the State of Washington

APPLICATION DATE May 30, 2007	APPLICATION NO. S4-35068	
NAME City of White Salmon		
ADDRESS/STREET PO Box 2139	CITY/STATE White Salmon	ZIP CODE 98672-2139

PUBLIC WATERS TO BE APPROPRIATED

SOURCE Buck Creek		
TRIBUTARY OF (IF SURFACE WATERS) White Salmon River		
MAXIMUM CUBIC FEET PER SECOND 2.2	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR 780

QUANTITY, TYPE OF USE, PERIOD OF USE

As to the City of White Salmon's existing water rights for Buck Creek, the 2.2 cubic feet per second is non-additive.

As to City of White Salmon's entire portfolio of water rights, 1.2 cubic feet per second is additive to existing rights and one cubic foot per second is non-additive to existing rights. Up to 780 acre-feet is additive to existing rights for municipal water supply.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL 930 feet west and 366 feet north of the southeast corner of Section 16, T. 4 N., R. 10 E.W.M.					
LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE SE	SECTION 16	TOWNSHIP 4 N	RANGE 10 E.W.M.	WRIA 29	COUNTY Klickitat
PARCEL NUMBER 04101600000000	LATITUDE 45.82686	LONGITUDE -121.55206		DATUM Nad 83	

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

[Attachment 1 shows location of the authorized place of use and point(s) of diversion or withdrawal.]

Area served by the City of White Salmon as described in the City's 2005 Water System Plan. RCW 90.03.386 may have the effect of revising the place of use of this water right to the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health, so long as the City of White Salmon remains in compliance with the criteria in RCW 90.03.386(2). If the criteria in RCW 90.03.386(2) are not met, the place of use of this water right reverts to the service area described in the 2005 Water System Plan.

DESCRIPTION OF PROPOSED WORKS

The City of White Salmon is using two sources of water to meet its municipal needs. The first water source is a diversion of water directly from Buck Creek through a sand filtration water treatment plant that is designed and permitted to treat up to 2.2 cubic feet per second. The second source is two wells that are able to sustain a withdrawal of approximately 3 cubic feet per second (1346 gallons per minute). The City of White Salmon will divert no more than 1468 acre-feet per year from all sources and all water rights. The water is piped to the City of White Salmon and used for the City of White Salmon's municipal water supply.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE Begun	COMPLETE PROJECT BY THIS DATE January 1, 2013	WATER PUT TO FULL USE BY THIS DATE January 1, 2025
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PROVISIONS

WATER SYSTEM LIMITATIONS

1. Permit No. S4-35068P and existing City of White Salmon water rights are limited to a total diversion of 4 cubic feet per second from Buck Creek from November 1 through July 31.
2. Permit No. S4-35068P and existing City of White Salmon water rights are limited to a total diversion of 2.2 cubic feet per second from Buck Creek from August 1 through October 31.
3. Permit No. S4-35068P and existing City of White Salmon water rights are limited to a total of 5.2 cubic feet per second from Buck Creek, Jewett Springs, Well 1, and Well 2.
4. Certificates No's. 3474 and 7109 are limited to a total of 4 cubic feet per second and 688 acre feet from well 1 and well 2.
5. Certificate No. 10252 is limited to 1 cubic foot per second and 688 acre feet per year from Jewett Springs
6. When stream flow in Buck Creek is below 2 cubic feet per second at a location immediately below the White Salmon Irrigation Districts point of diversion (control point, located within the SE¹/₄ of Section 27, T. 4 N., R. 10 E.W.M.), Buck Creek water diversions for all of the City of White Salmon's existing water rights will be reduced to that quantity of water necessary to sustain 2 cubic feet per second at the control point, except that City of White Salmon diversions shall not be curtailed below 2 cubic feet per second.
7. Permit No. S4-35068P and existing City of White Salmon water rights are limited to a total annual appropriation of 1,468 acre-feet subject to actual beneficial use.
8. The water discharged to the Columbia River via the Bingen/White Salmon wastewater treatment plant will be measured to insure that consumptive use is not exceeded based on the mitigation provided for the 780 acre-feet diverted for Permit No. S4-35068P.

CONSUMPTIVE USE MONITORING

9. Consumptive use under this authorization shall not exceed 320 acre-feet of the 780 acre-feet authorized to divert. Diversions up to the full authorization of 780 acre-feet will be allowed if the City of White Salmon demonstrates through measurement (e.g. wastewater daily monitoring reports (DMRs)) that at least 460 acre-feet of the diverted water will return to the Columbia River downstream of the confluence with the White Salmon River via the Bingen/White Salmon wastewater treatment plant. The Department of Ecology will verify the City of White Salmon's measurements in cooperation with the Department of Health through review of water and sewer planning documents, SEPA review and annual metering submittals. These planning documents must describe the coordinated monitoring and management of the proposed water and sewer utilities to ensure the consumptive use limit will be observed in perpetuity. An accounting of the previous years' compliance shall be addressed within all future City of White Salmon Water System Plans.
10. The 320 acre-feet of consumptive use is based on the water service agreement between the City of White Salmon and Klickitat Public Utility District (KPUD). Use of water under this authorization is contingent upon the mitigation provided by the KPUD. Each City Water System Plan will report on the status of the water service agreement. The City of White Salmon shall not terminate this agreement, unless equivalent mitigation has been approved by the Department of Ecology and the Washington State Department of Health.
11. The 320 acre-foot consumptive use limit was specified by KPUD, but under the water service contract can increase to 500 acre-feet or more. The consumptive use limit of 320 acre-feet contained here was offered to prevent impacts to the Columbia River. If KPUD and White Salmon agree to assign more than 320 acre-feet of consumptive use from KPUD's trust water right holdings, up to the 780 acre-feet authorized in this permit, and if the Department of Ecology processes such assignment, then the required water and sewer monitoring shall apply to that limit.

MEASUREMENTS, MONITORING, METERING AND REPORTING

12. **Meter Installation.** An approved measuring device shall be installed and maintained the source authorized by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173. <http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>
13. **Record Weekly, Report Annual Totals.** Water use data shall be recorded weekly and maintained by the property owner. The maximum rate of diversion and the annual total volume shall be submitted to the Department of Ecology by January 31st of each calendar year. The City shall demonstrate metering compliance with each of the water system limitations concurrent with each annual metering submittal.
14. **Electronic Reporting.** Recorded water use data shall be submitted via the Internet. To set up an Internet reporting account, contact the Central Region Office. If you do not have Internet access, you can still submit hard copies by contacting the Central Region Office for forms to submit your water use data.
15. **Metering Rule Description And Petition Info.** WAC 173-173 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 titled "Water Measurement Device Installation and Operation Requirements".
<http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>
16. **Buck Creek Flow Gaging Plan.** A gaging plan shall be submitted to the Department of Ecology no later than 90 days after the issuance of this report that insures that the 2 cubic feet per second low flow condition will be monitored within the Buck Creek Basin at a control point located within the SE¼ of Section 27 T. 4 N., R. 10 E.W.M., downstream of the White Salmon Irrigation District's Point of Diversion. Ecology may for good cause extend the submittal date for the gaging plan.

DEPARTMENT OF FISH AND WILDLIFE

17. **Fish Screening Criteria.** The intake(s) shall be screened in accordance with Department of Fish and Wildlife screening criteria (pursuant to RCW 77.57.010, RCW 77.57.070, and RCW 77.57.040). Contact the Department of Fish and Wildlife, 600 Capitol Way N, Olympia, WA 98501-1091. Attention: Habitat Program, Phone: (360) 902-2534 if you have questions about screening criteria.

SCHEDULE AND INSPECTIONS

18. **Authority to Access Project.** 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.
19. **Project Completion.** The water right holder shall 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 water right. 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.

FINDINGS OF FACT AND ORDER

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

Therefore, I ORDER approval of Surface Water Right Application No. S4-35153 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 Hearing 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 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
<p>Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503</p>	<p>Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608</p>
<p>Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501</p>	<p>Pollution Control Hearings Board PO Box 40903 Olympia WA 98504-0903</p>

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 _____ 2010.

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

BACKGROUND

Project Description

On September 20, 2005, the City of White Salmon (the City) filed Surface Water Right Application No. S4-35068 with the Washington State Department of Ecology (Ecology) for a water right permit to appropriate public surface water. The application was amended on May 30, 2007, and again on May 27, 2009. The applicant requested authorization for an instantaneous diversion (Qi) of 2.2 cubic feet per second (cfs) and 780 acre-feet per year (ac-ft/yr) cumulative annual diversion volume (Qa).

The City currently holds three water right certificates: Certificate Nos. 3474 and 7109 each are authorized to divert from Buck Creek tributary to the White Salmon River and to withdraw water from two wells, while Certificate No. 10252 is authorized to divert water from Jewett Springs tributary to the White Salmon River. The combined instantaneous quantity for Buck Creek is 4 cfs (1795.2 gallons per minute [gpm]) and Jewett Springs¹ provides an additional 1 cfs of capacity (448.8 gpm, or 2,244 gpm total). The Buck Creek water system diverts water through a sand filtration water treatment plant that is designed and permitted to treat up to 2.2 cfs. The City estimates the wells are able to sustain a withdrawal of approximately 3 cfs (1346 gpm). The water is piped to be used for the City of White Salmon's municipal water supply.

The proposed appropriation of surface water is from Buck Creek, a tributary to the White Salmon River within Klickitat County, Washington. The City's intent is to add water to the general municipal water supply necessary to meet the current and projected demands within the City of White Salmon water system. The water will be used in conjunction with the City's other water rights. The City's primary motivation in submitting this application is they are exceeding their annual authorization of 688 acre-feet inclusive of all existing water rights. A secondary motivation is to increase their maximum instantaneous authorization of 5 cfs (inclusive of all rights) to 6 cfs, which represents the peak capacity available to the City from all their sources (although only available currently during emergencies due to limitations in treatment capacity).

The City currently is authorized to divert 688 acre feet and is proposing to divert an additional 780 acre feet for a total diversion of 1468 ac-ft/yr from all sources all water rights.

Table 1
Summary of Application No. S4-35068

Attributes	Proposed
Applicant	City of White Salmon
Priority Date	May 30, 2007
Instantaneous Quantity	2.2
Annual Quantity	780
Source	Buck Creek
Point of Diversion	930 feet west and 366 feet north of the southeast corner of Section 16, T. 4 N., R 10 E.W.M
Purpose of Use	Municipal Water Supply
Period of Use	Continuous
Place of Use	Area served by the City of White Salmon

¹ Jewett Springs is an untreated source that does not currently provide potable water to City residents. The City uses it intermittently for non-potable contract water and it is available as an emergency source.

Legal Requirements for Application Processing

The following requirements must be met prior to processing a Water Right Application:

- **Public Notice**
Notice of the proposed appropriation was published in the *White Salmon Enterprise*, of White Salmon, Washington, on June 3 and 10, 2010. No protests were received by Ecology. However, Ecology did receive letters providing input from the Yakama Nation and the Washington State Department of Fish and Wildlife (WDFW), which are discussed in the Investigation section of this report, and copies are available in the water right file.
- **State Environmental Policy Act (SEPA)**
A SEPA review of the proposed diversion was completed by the City and concluded with a Determination of Nonsignificance issued on July 27, 2010 (see water right file).
- **Water Resources Statutes and Case Law**
Chapters 90.03 and 90.44 RCW authorize the appropriation of public water for beneficial use and describe the process for obtaining water right. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340

Four Statutory Tests

This Report of Examination (ROE) evaluates the application based on the information provided by the City and independent investigation by Ecology. To approve the application, Ecology must issue written findings of fact and determine each of the following four requirements of RCW 90.03.290 has been satisfied:

1. The proposed appropriation would be put to a *beneficial use*;
2. Water is *available* for appropriation;
3. The proposed appropriation would not *impair existing water rights*; and
4. The proposed appropriation would not be detrimental to the *public welfare*.

INVESTIGATION

Research

In consideration of this application, Ecology reviewed available documents pertaining to the application's site conditions, projected water usage and demand, the City's *2005 Water System Plan*, and the potential effect on existing water right holders. Ecology also looked at historical data from Buck Creek submitted by the City and Ecology files, which contained historic information on stream flow and diversions at the City's point of diversion. This included the information submitted by the City and pertinent Ecology records. The review also included information and recommendations provided by WDFW and the Yakama Nation co-fish managers.

Since 2004, the City has been working with Ecology on addressing their exceedance of their water rights. In addition to conservation measures implemented by the City in the last 5 years, the City and Ecology have collaborated on ways to secure a new water right for the City. One topic of discussion is the need for mitigation of impacts to the Columbia River.

To address this issue, the City entered into a water service contract with the Public Utility District No. 1 of Klickitat County, who owns water rights held in trust by Ecology on the Columbia River upstream of the City. The City provided a copy of this March 4, 2010 contract to Ecology for use in this permitting decision (see water right file). The contract provides 500 acre-feet (or more if allowed by KPUD) in perpetuity to the City. By letter, dated June 23, 2010, KPUD clarified that 320 acre-feet of this quantity should be assigned to its consumptive trust water holdings.

The term of the contract is indefinite unless the City provides notice to KPUD of its intent to terminate. The contract is subject to a previous commitment between KPUD and Columbia Gorge Aluminum Company (CGAC), whom KPUD is required to serve should the aluminum plant restart operations. By email dated February 11, 2010 (see file), KPUD informed Ecology that CGAC had waived its first-call interest in up to 500 acre-feet of KPUD's trust water holdings provided to the City.

Site Visits

A site visit was performed on June 28, 2010, by Eric Hartwig, Dan Haller, and John Kirk of Ecology. Representatives from the City of White Salmon, Yakama Nation, Underwood Conservation District, and WDFW were present at the site visit. The site visit included inspection of the proposed point of diversion and water treatment facilities and an interview with the applicant.

WDFW and Ecology staff made multiple site visits in July and August 2010 to collect data to determine habitat conditions. Data was collected for:

- Steam flow.
- Toe width.
- Critical riffle depth.

Although this is a snapshot in time, the data showed there is habitat available for fish and wildlife to thrive. Additional detail on these data are provided in the Hydrology section of this ROE.

Input from Stakeholders

WDFW submitted a letter to Ecology on September 20, 2010 (see file), in which they recommended the proposed application be modified to minimize impacts to fish. WDFW recommended the following four conditions be met upon issuance of a water right permit.

- Diversion operated under the City of White Salmon water rights to be screened in compliance with Hydraulic Code (Chapter 77.55 RCW).
- Any work, including screening, on the diversion, bypass or outfall must have a valid Hydraulic Project Approval (HPA) from WDFW.
- During the months of August, September, and October, the City's water diversion is to be limited to no greater than 2 cfs from all water rights combined from the Buck Creek municipal diversion during low flow years when drought or drought like conditions exist.
- The Surface Water Source Limitation (SWSL) conditions on the original right should also apply to new water rights until such a time as rule or minimum flows are adopted.

The City has submitted an email and attached two letters of support describing the economic impact that acquiring a new water right would have on the City, Klickitat County, and the State of Washington. Also discussed is the recreational impacts on the City's population (see file).

The Yakama Nation submitted three letters (see file) addressing the concerns they have in issuance of a new water right from Buck Creek.

The first letter is dated July 9, 2010. The letter was in response to the June 28, 2010, site visit and existing application. The concerns are:

- The proposed Condit Dam removal on the White Salmon River will allow recolonization of traditional habitat for anadromous fish that has not been available for over 90 years. Buck Creek is expected to be one of the main spawning tributary for these fish.
- Whether the 1957 Surface Water Source Limitation (SWSL) is up to contemporary standards and whether 2 cfs is a viable minimum instream flow.
- The application was unacceptably vague with regard to the actual intent.

The letter also encouraged Ecology to work with the City to use an alternative source to meet the water needs.

The second letter dated October 11, 2010, was in response to a meeting held on September 22, 2010, at Ecology. The meeting was attended by representatives from Ecology, WDFW, Yakama Nation, and the City. The meeting was held to discuss the parties' needs and to work toward a solution on the application. The letter has four recommendations:

- Limit the City of White Salmon's instantaneous diversion from Buck Creek to the 2.2 cfs. As stated, the Yakama Nation would like to see more water left in the creek, not less.
- The Yakama Nation would be willing to help the City and White Salmon Irrigation District pursue a change in point of diversion to the mainstem White Salomon River to ease the burden of diversions from Buck Creek.
- The Yakama Nation understands according to RCW 77.57.070 diversions will be screened to comply with state and federal regulations, and stream flows continually gaged in locations that will help all users ensure no impairment to the aquatic resource and other environmental values.
- Commission a study such as an Instream Flow Incremental Methodology (IFIM) and Physical Habitat Simulation (PHABSIM) or other habitat suitability modeling to determine instream flow needs for fish and aquatic life in Buck Creek, or plan an adaptive management plan based on actual needs of returning fish once Condit Dam is removed.

After consulting with the Washington Department of Fish and Wildlife and the Yakama Nation, the City of White Salmon submitted a proposal to address their concerns (see file email dated October 11, 2010, and follow-up meeting documentation from October 26, 2010). The City proposes to manage their water rights from Buck Creek as follows:

- Permit No. S4-35068P and existing City water rights are limited to a maximum diversion of 4 cfs from Buck Creek, except during the months of August, September, and October when the maximum diversion from Buck Creek will not exceed 2.2 cfs (or 2 cfs during low flows).
- Permit No. S4-35068P and existing City water rights are limited to a combined total 5.2 cfs from Buck Creek, Well 1, and Well 2 (an extra 1 cfs available from Jewett Springs).
- Permit No. S4-35068P and existing City water rights are limited to a total of 1,468 acre-feet.

Ecology shared this proposal with WDFW, who responded by email dated October 12, 2010, in general agreement with the City's proposed compromise.

Ecology shared this proposal with the Yakama Nation, who responded by letter dated November 15, 2010 (see file). The Yakama Nation responded as follows:

- Reiterated commitment to work with City to reduce diversions from Buck Creek during times when flows are inadequate for fish.
- Proposed to work with the City to move its currently unused water right capacity on Buck Creek (difference between current plant capacity of 2.2 cfs and water right authorization of 4 cfs) to another source.
- Identified inadequacy of 2 cfs SWSL and the need for more rigorous study of appropriate Buck Creek minimum flows.
- Clarified it does not support additional instantaneous diversions from Buck Creek but does not object to additional withdrawals from City wells.

Using this research, information and input, Ecology evaluated water availability and potential effects of the proposed appropriation on existing groundwater and surface water rights. Each of the four requirements specified in RCW 90.03.290 were individually examined and are presented below.

Water rights held by the City of White Salmon

The City of White Salmon was incorporated in 1907 and has two Surface Water Certificates to divert water from Buck Creek and to withdraw water from two wells. This water is the primary municipal water source. The City of White Salmon also holds one surface water certificate from Jewett Springs.

Surface Water Certificate No. 3474 has a priority date of May 18, 1923, for 2 cfs (897.6 gpm). The annual quantity for this right is not specified on the certificate, but was expressly limited to that amount actually and beneficially used. Surface Water Certificate No. 7109 has a priority date of February 13 1957, for 2 cfs (897.6 gpm) and 688 acre-feet. These water rights divert water from Buck Creek and the two wells² and are for continuous municipal water supply. Both rights share a common diversion located within the SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 16, T. 4 N., R. 10 E.W.M. The place of use is White Salmon and Bingen.

Surface Water Certificate No. 10252 has a priority date of February 27, 1963, for 1 cfs and 688 ac-ft. This right is a "supplemental" water right from an unnamed spring tributary to Jewett Creek. The point of diversion for this right is within the NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 19, T. 3 N., R. 11 E.W.M. Ecology has interpreted the instantaneous quantity as additive to existing rights and the annual quantity as non-additive to existing rights.

All the City of White Salmon water rights are limited to divert or withdraw up to 688 ac-ft/yr.

Surface Water Certificate No. 7109 is provisioned to insure that the SWSL entered on May 13, 1957, is met. The SWSL has a minimum flow within Buck Creek of 2 cfs.

In order to determine whether the proposed application represents a beneficial use of water, Ecology must determine the extent of the City's existing water rights³.

² The wells were added to both certificates in the late 1990s pursuant to change applications filed by the City and processed by Ecology in response to a public health emergency.

³ "Beneficial use" has two elements: (1) the purposes or types of activities for which the water right may be used and (2) the amount of water that may be used as limited by the principle of "reasonable use". *Ecology v. Grimes*, May 1993, Washington State Supreme Court.

City records show historic instantaneous diversions on Buck Creek, the wells, and Jewett Springs have all met or exceeded water right authorizations. Although lower today, due to conservation measures, municipal rights are not subject to relinquishment so long as they are not wasteful.

The annual quantity of the first City right, Certificate No. 3474 is not described in the water right file and must be estimated using the principle of reasonable use. For municipal rights, Ecology often looks to the intent of the application to serve a given population through a reasonable planning horizon, along with a per capita water use allocation to estimate annual quantities where none were explicitly specified. In this case, however, Certificate No. 3474 derives not from an application for municipal use filed by the City, but rather an assignment of a portion of a permit issued to White Salmon Irrigation District, and subsequently changed to municipal use. Consequently the application provides detail on the amount of proposed agricultural irrigation and not population served.

Population served by Certificate No. 3474 can be estimated by later water right documents. In 1957, the City filed for another water right, which became Certificate No. 7109 upon issuance. The application for Certificate No. 7109 described 2301 people presently served by Certificate No. 3474 in 1957 and an estimated population of 3070 people to be served in 1985. In the 1957 ROE for Certificate No. 3474, Ecology awarded a total of 688 acre-feet to meet 3070 people at 200 gpcd inclusive of Certificate No. 3474 and Certificate No. 7109. Therefore, based on the ratio of the population served in 1957 to the proposed 1985 population, the extent of Certificate No. 3474 is estimated to be 515 acre-feet and the extent of Certificate No. 7109 is estimated to be 173 ac-ft (for a total of 688 ac-ft).

When the City applied for Certificate No. 10252 in 1963, it listed a present population of 1600 and the same intent to serve 3070 in 1985. Finding adequate annual quantity available in existing rights already held by the City, Ecology did not authorize any additional annual quantity from Jewett Springs, but did authorize it as another source with an additive instantaneous quantity available for source redundancy and peaking.

With the exception of the first certificate where it is difficult to know with certainty the original service area and population served by the City, subsequent certificates issued to the City by Ecology were “pumps-and-pipes” certificates. These documents were issued before the City had beneficially used the entire quantity authorized consistent with the intent of the application. However, by the late 1990’s the City had perfected these quantities and began to exceed the combined water right authorization of 688 acre-feet.

Other Water Rights on Buck Creek

White Salmon Irrigation District

There are two surface water right certificates held by the Whiter Salmon Irrigation District (WSID) for a combined diversion rate of 6.5 cfs to irrigate a total of 594.79 acres and domestic use.

In reviewing of the WSID water right it was determined that a portion of their water rights has not been irrigated for more than a five year period. Ecology has contacted WSID to resolve this issue and determine whether there is a sufficient cause for not irrigating the entire right.

Washington Department Of Natural Resources Claims.

The Washington Department of Natural Resources (WDNR) holds 22 water right claims for non diversionary stock water with in the Buck Creek basin. The WDNR currently does not have any stock on these lands.

Pacific Power and Light Company Claims

The Pacific Power and Light Company hold two surface water claims on Buck Creek. Both claims are for 10 gpm (0.02cfs) and one ac-ft/yr for domestic use. These water right claims are downstream of the City’s point of diversion.

Yakama Nation Tribal Rights

The Yakama Nation has an unquantified right for water within Buck Creek for tribal fishing rights.

Water rights on White Salmon River

Pacific Power and Light Company Claims

The Pacific Power and Light hold nine surface water claims on the White Salmon River. Eight claims are for 10 gpm (0.02cfs) and 1 acre foot per year for domestic use for each. The other claim is for 1400 cfs and 1013600 acre feet for power generation.

The power generation claim is for Condit Dam. The dam is proposed to be decommissioned and removed in October 2011.

United States Department of Fish and Wildlife Certificate No. 06483

The United States Department of Fish and Wildlife (USFW) hold the above referenced certificate to divert 30 cfs from the White Salmon River for fish culture. The USFW has facility in the SE¼NW¼ of Section 14 T. 2 N., R. 10 E.W.M. The facility diverts water into two raceways and discharges back to the White Salmon River approximately 100 feet downstream from the point of diversion.

Water Right Certificate No. S2-26675G

This water right is to divert 0.06 cfs and 16 acre feet of water from the White Salmon River. This water is for supplemental water for 16 acres of irrigation.

Yakama Nation Tribal Rights

The Yakama Nation has an unquantified right for water within the White Salmon river for tribal fishing rights.

Water System Planning

In order to determine whether the proposed use of water is beneficial, Ecology must look to the City’s planning documents to determine future population water demands. The City has a Water System Plan approved by the Department of Health and reviewed by Ecology in 2005. That document identifies a deficit of approximately 300 acre-feet over the existing rights of 688 acre-feet. The plan also identifies a future need of 1,405 acre-feet by 2022. The City’s application requests an increase in their overall water right portfolio to 1,468 acre-feet.

The City provided historic water use information to assist Ecology in making this permitting decision. Table 1 below shows monthly water use data over the last several years.

Table 1
Monthly Water Use Data in Acre-Feet

Month	2003	2004	2005	2006	2007	2008
JAN	40.90	43.22	55.38	59.71	52.36	51.21
FEB	78.90	95.95	113.25	116.13	95.36	99.03
MAR	122.63	138.49	165.96	173.64	140.50	150.73
APR	168.91	187.13	231.57	229.73	190.38	202.69
MAY	243.33	252.33	291.96	327.87	278.24	261.52
JUN	381.24	352.15	365.24	440.33	381.30	335.69
JUL	556.80	463.54	475.34	597.14	505.51	416.92
AUG	693.64	610.51	625.40	738.57	620.63	487.08
SEP	745.53	732.49	782.20	841.90	710.59	556.96
OCT	803.58	819.14	897.79	906.89	771.63	603.96
NOV	846.67	888.26	966.92	957.50	822.46	637.76
DEC	889.89	940.87	1028.45	1008.11	873.77	687.87

The data shows dramatic reductions in water use over the last several years due to aggressive conservation activities implemented by the City. These activities were prompted in large part due to revelations that their wells were over-pumping the aquifer. This prompted the City to build a slow sand filtration plant on Buck Creek and resume diversions from that source.

Instream Flow Rules and Mitigation of Impacts

The proposed withdrawal will create impacts on Buck Creek, the White Salmon River and the Columbia River, which must be considered relative to adopted instream flow rules and the public interest. No instream flow has been adopted by rule for Buck Creek or the White Salmon River. An instream flow rule has been adopted for the Columbia River in Chapter 173-563 WAC.

On November 17, 2010, Buck Creek was identified as Critical Habitat for Bull Trout (*Salvelinus confluentus*) under the Endangered Species Act. A critical habitat designation does not impose restrictions on non-federal lands unless federal funds, permits or activities are involved. However, designating critical habitat on federal or non-federal lands informs landowners and the public of the specific areas that are important to the recovery of the species. Ecology is considering this critical habitat listing as part of the Public Interest Statutory Test.

RCW 90.03.255 specifies that: “Provision for an impoundment or other resource management technique in an application shall be made solely at the discretion of the applicant and shall not otherwise be made by the department as a condition for approving an application that does not include such provision.”

Based on Ecology and other stakeholders disclosure of concerns about potential impacts associated with the proposed diversion, the City has proposed two mitigation measures for consideration.

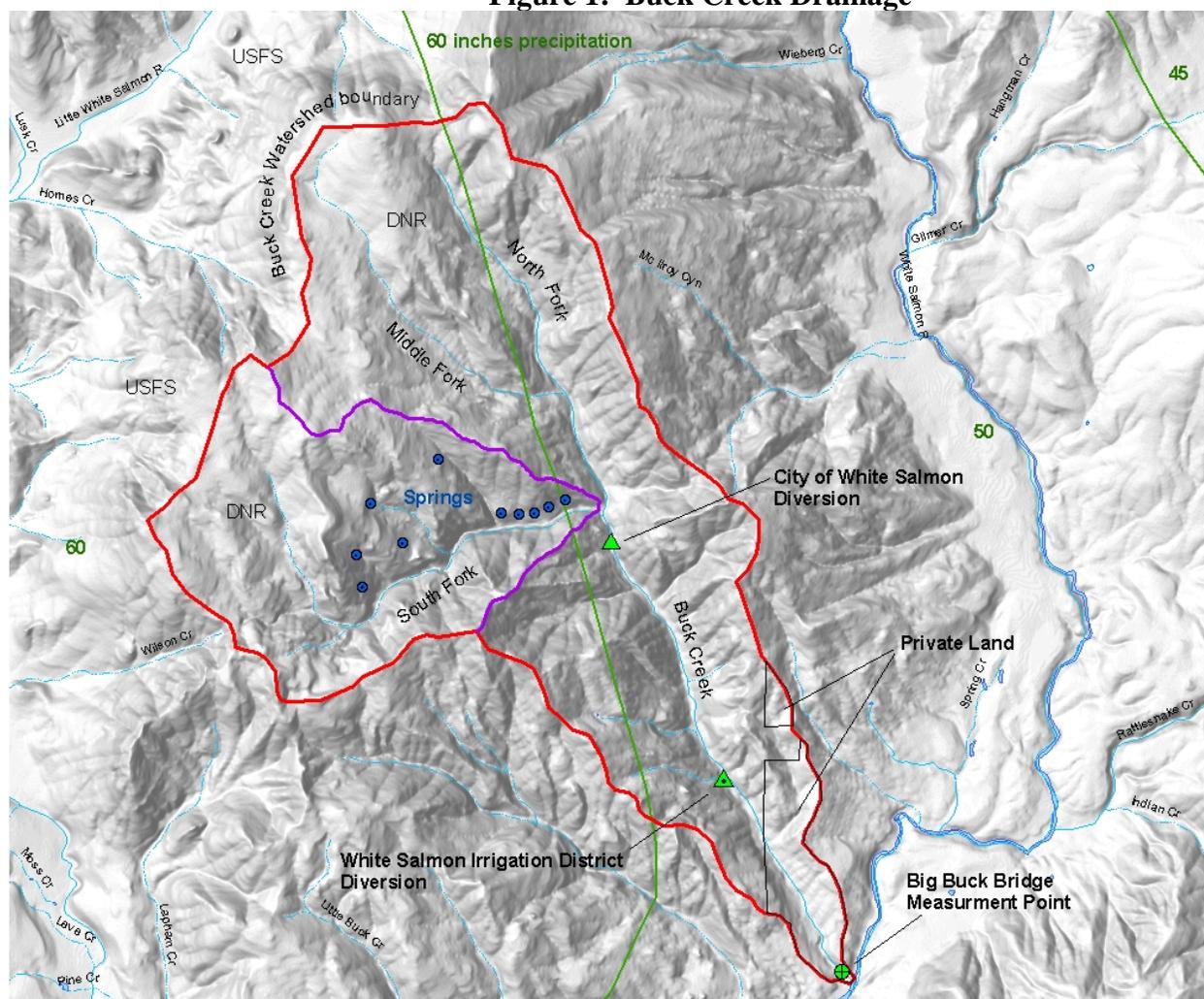
First, the City proposes to mitigate for impacts to the Columbia River through assignment of an equal amount of water (measured in consumptive use) from the KPUD trust water holdings. Second, the City proposes to limit not only this authorization, but their existing Certificate 3474 and 7109 from Buck Creek to a combined maximum diversion of 2.2 cfs during August, September and October (or 2 cfs if the low flow condition is triggered at the gaging station).

HYDROLOGY REVIEW OF BUCK CREEK WATER SHED

The Buck Creek Watershed is located about 8 miles east of the crest of the Cascade Mountains, and about 7 miles northwest of the City of White Salmon. It is located in the southwestern corner of Klickitat County. The total area of the watershed is about 8838 acres (13.8 square miles). Average annual precipitation across the area is about 60 inches. The watershed is oriented northwest to southeast with Buck Creek draining south easterly to the White Salmon River. Steep sided stream valleys occur throughout most of the watershed. The elevation of the watershed ranges from about 4000 feet at Monte Carlo Peak to about 300 feet at the confluence with the White Salmon River. The watershed is heavily forested and largely undeveloped. Most of the land area (about 92%) is owned by the Washington State Department of Natural Resources (DNR) and is managed for forest resource and wildlife utilization. The U.S. Forest Service owns about 3% of the area and the remainder is privately held. The privately held land is consolidated into two blocks at the lower end of the drainage near the White Salmon River, and is not interspersed among the state and federally owned land (see Figure 1).

The principal drainage basins within the Buck Creek Watershed are the North Fork, South Fork, and Middle Fork. The confluence of the North and Middle Forks of Buck Creek is located about one mile above the City diversion. The combined area of the North and Middle Fork drainages above the City diversion is about 3400 acres, or 38% of the entire watershed. The drainage area of the South Fork of Buck Creek is about 2775 acres or 31% of the entire drainage area (Figure 1). The confluence of the South Fork of Buck Creek with the main stem of Buck Creek is located less than a quarter mile above the City diversion. On August 12, 2010, Ecology staff observed the confluence of the South Fork and visually estimated the flow of the South Fork to be about 6 cfs and the combined flow of the North and Middle Forks to be about 3 cfs. On the same day staff from the WDFW measured the flow of Buck Creek above the City diversion and found it to be flowing 9.2 cfs. This measurement is consistent with Ecology's visual estimates at the South Fork confluence. Although precipitation across the South Fork drainage is probably a bit higher than in the North\Middle Fork drainage, it is not enough to fully account for nearly twice as much base flow in the South Fork drainage. The higher base flow in the South Fork drainage is likely due to the numerous springs that occur on the north side of the stream valley (Redford, 1973); while relatively few, if any, such springs exist in the North\Middle Fork drainage (Figure 1).

Figure 1: Buck Creek Drainage



Hydrogeology

The Buck Creek Watershed is located near the western edge of the Columbia River Flood Basalt Province. The predominant rock type throughout the watershed is the Miocene age Grande Ronde Basalt Formation which extends from the headwater areas to the confluence with the White Salmon River. Limited outcrop exposures of the Wanapum Basalt Formation occur in the eastern half of the watershed. Each basalt formation is composed of numerous individual basalt flows. The contact zones between basalt flows are referred to as interflow zones which often contain loose fragments of vesiculated basalt rock which often create good aquifers. Within interflow zones groundwater is able to flow laterally with relative ease, however, vertical flow can be greatly impeded by the more dense basalt flow interiors. The basalt rock of the watershed is crossed with a number of mapped faults, the most prominent of which is Buck Creek Fault which trends northwest to southeast and runs roughly parallel to Buck Creek. The manner and extent to which these structures may control or affect the movement of groundwater within the watershed is unknown.

The springs in the South Fork drainage likely emerge from the truncated interflow zones of the Grande Ronde Basalt Formation, which appear to dip southeasterly from the headwaters area. Confirmation through direct observation was not possible as all of the known springs are located in heavily forested areas and are covered by soil, forest debris, and vegetation. However, Ecology staff visited one of the larger springs in the summer of 2010 and found that spring water was rising from an area with a large quantity of vesiculated Grande Ronde rock fragments on the ground surface. This strongly indicates the presence of a basalt interflow zone beneath the forest cover. The source of water for the basalt aquifers and ultimately the springs is the precipitation that falls annually and finds its way into the basalt interflow zones, especially at higher elevations where the basalt is uplifted and interflow zones tend to be more exposed and open to receive recharge.

The paucity of springs in the North Fork/Middle Fork drainage may be due to the more gentle topography relative to the South Fork drainage. The South Fork springs tend to be located on steeper slopes near the creek where the southeasterly dipping basalt was likely eroded into a Deccan Trap like sequence of truncated stair stepping basalt flows. This erosional pattern may not occur in the North and Middle Fork drainage, and therefore, the basalt interflow zones may not be interrupted in this area. If this is the case, then groundwater within this area may travel further down valley and discharge to Buck Creek at locations below the South Fork confluence and City diversion.

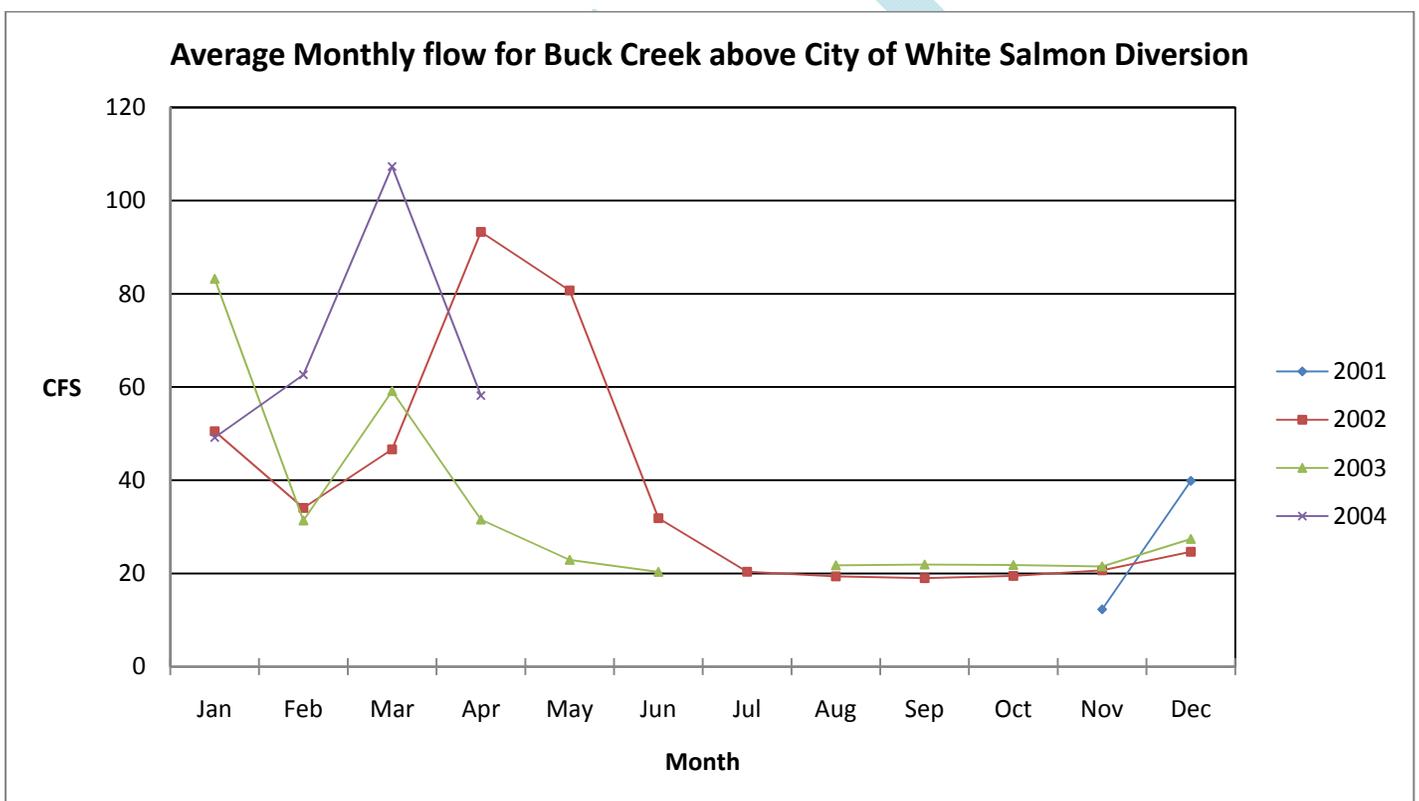
The basalt springs provide a robust supply of base flow to Buck Creek during summer and fall, even in severe drought years such as 2001. Ecology staff has noted that in watersheds of similar size and geologic character the lack of basalt base flow can result in dramatically lower late season stream flow. For example, the East Prong of the Little Klickitat receives no basalt base flow contribution across its entire length from Satus Pass to Three Creeks Lodge. In the drought year of 2005 this entire reach was observed to be completely dry on July 25th. The ability of the basalts in Buck Creek Watershed to capture and store precipitation and then discharge it to the creek will tend to moderate potential late season reductions in creek flow due to climate change.

Hydrology

In 2001 the City of White Salmon contracted with Bell Design Company to measure stream flow just above the City diversion. Hourly readings of stream flow began on November 2, 2001, and continued into May of 2004. Additionally, at the same location, a miscellaneous flow measurement of 6.7 cfs was recorded on September 21, 2001. For the years of 2002 and 2003 the average monthly stream flows from December through June were all at least 20 cfs or more (Figure 2). The average monthly flows during the time frame of July through November remained remarkably steady at around 20 cfs. These summer/fall flows are close to what can be expected for average water years. Precipitation for 2002 and 2003 appears to have been just a little below average in south central Washington (relative to the 30 year time frame of 1980-2010 - NRCS Snotel data). The steady summer stream flows were largely due to the significant discharge contribution from the Grande Ronde Basalt.

Additionally, several point measurements were taken by WDFW above the City diversion works in the summer of 2010. On July 7 the stream flow was measured to be about 15 cfs and on August 12 it was about 9 cfs. This suggests that precipitation in the Buck Creek Watershed for water year 2010 was probably less than that of 2002 and 2003.

Figure 2: Buck Creek Stream Flow Data



The winter and spring stream flow data demonstrate the transitional elevation characteristic of the watershed. There are three very different peak runoff periods within the January to April time frame. It is of interest to note that the peak runoff events for 2003 and 2004 occurred in January and April respectively, and yet the late season average base flows were very similar. This is an indication that future changes in climate may have less of an effect on the late season stream flow in this watershed relative to others similarly situated.

At the location just above the City diversion the low end of the stream flow range for Buck Creek is probably about 6 cfs. Flows in the 6 to 7 cfs range were recorded in late September and during the first half of November of 2001. The two worst drought years over the last 30 for this general area were water years 2001 and 2005, with 2001 being perhaps a bit more severe. Therefore, it is reasonable to conclude that 6 cfs represents an extremely low flow for this location on the creek.

On July 7, 2010, WDFW and Ecology staff measured Buck Creek at 5 locations: above and below the City diversion, above and below the White Salmon Irrigation District (District) diversion, and at Big Buck Bridge (Figure 1). Stream gains were recorded across this entire reach of Buck Creek. From the City diversion to the District diversion the creek gained 1.89 cfs. This was a 13% increase relative to the 14.72 cfs measured above City diversion. On the same day a stream gain of 3.84 cfs was measured at Big Buck Bridge, which is about two miles below the District diversion and near the confluence with the White Salmon River. This represents a 32% gain relative to the 12.05 cfs measured below the District diversion. The total unregulated flow (if there were no diversions) at Big Buck Bridge was computed to be 20.45 cfs. On August 12, 2010 the stream flow measurements were repeated at all five locations. Between the City diversion and the District diversion the stream gain was measured to be 1.6 cfs for a 23% increase relative to the 6.92 cfs measured below the City diversion. A gain of 2.03 cfs was measured between the District diversion and Big Buck Bridge, a 46% increase in flow relative to the 4.41 cfs measured below the Districts' diversion. The unregulated flow at Big Buck Bridge was computed to be 12.83 cfs.

Summary

The 13.8 square mile Buck Creek Watershed produces higher late season stream flow than most watersheds of similar size in the eastern Cascade Mountains. With an annual average precipitation of around 60 inches the basalt interflow zones receive significant recharge on an annual basis. The stored water is eventually discharged to Buck Creek as base flow. The majority of the land is owned and managed by the state Department of Natural Resources; therefore, it is unlikely that runoff patterns or stream flow quantities will be significantly altered as a result of private development. Furthermore, the winter/spring runoff patterns and subsequent base flow measurements suggest that the watershed will be resistant to late season stream flow reductions due to climate change. Buck Creek gains water from the City diversion all the way to a point near the confluence with the White Salmon River. Some of this water may have traveled within the basalt aquifers from the North and Middle Fork drainages to discharge as base flow in this lower reach. In average precipitation years the monthly flow for July above the City of White Salmon diversion will likely be around 20 cfs. In extreme drought years such as 2001 and 2005 the average July flows at the same location will likely fall between 7 and 9 cfs.

The Hydrological review was conducted by John Kirk PG, LHg. The technical memorandum is available upon request at the Department of Ecology's Central Regional Office in Yakima Washington.

Four Statutory Tests Conclusions

The conclusions based on the above investigation are as follow:

Beneficial Use

In accordance with RCW 90.54.020(1), the proposed municipal water supply is a beneficial use. Based on the quantities available to the City under its existing water rights, and the proposed planning projections, the quantities requested are reasonable and beneficial.

Availability

Based on the collective information summarized above of this report and subject to the limitations herein, water is found to be available in Buck Creek and the White Salmon River.

Impairment of Other Water Rights

With the proposed limitations placed upon this permit, impairment of other rights will not occur.

Public Welfare

Based on the need to provide reliable regional public water supply by the City to area residents to accommodate reasonable growth, the potential financial benefits information provided by the City, the proposed impacts to fisheries, the proposed mitigation offered by the City, and consultation with the Yakama Nation and the Washington Department of Fish and Wildlife, the water use will not be detrimental to the public welfare.

RECOMMENDATION

I recommend approval of Water Right Application No. S4-35068 as provisioned and issuance of a permit to allow the appropriation of surface water from Buck Creek located within Klickitat County, Washington, as;

- Permit No. S4-35068P and existing City water rights are limited to a total diversion of 4 cfs from Buck Creek from November 1 through July 31.
- Permit No. S4-35068P and existing City water rights are limited to a total diversion of 2.2 cfs from Buck Creek from August 1 through October 31.
- Permit No. S4-35068P and existing City water rights are limited to a total of 6.2 cfs from Buck Creek, Jewett Springs, Well 1 and Well 2.
- When stream flow in Buck Creek is below 2 cfs at a location immediately below the White Salmon Irrigation Districts Point of Diversion (control point, located within the SE¼ of Section 27, T. 4 N., R. 10 E.W.M.), Buck Creek water diversions for all of the City's existing water rights will be reduced to that quantity of water necessary to sustain 2 cfs at the control point, except that City diversions shall not be curtailed below 2 cfs.
- Permit No. S4-35068P and existing City water rights are limited to a total of 1,468 acre-feet, subject to actual beneficial use.
- The water discharged to the Columbia River will be measured to insure that consumptive use is not exceeded based on the mitigation provided for the 780 acre feet diverted for Permit No. S4-35068P.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

Report by: _____
Eric Hartwig, Department of Ecology

Date

If you need this publication in an alternate format, please call Water Resources Program at 360 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Attachment 1

S4-35068
City Of White Salmon

