File NR: G4-35619
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DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
REPORT OF EXAMINATION FOR WATER RIGHT APPLICATION

PRIORITY DATE
May 3, 2013

WATER RIGHT NUMBER
G4-35619

MAILING ADDRESS
RST SERVICES, INC.
9706 4TH AVE NE STE 205
SEATTLE WA 98115

SITE ADDRESS (IF DIFFERENT)
UNKNOWN

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
4.48	GPM	0.414

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE ADDITIVE	WITHDRAWAL OR DIVERSION RATE NON-ADDITIVE	UNITS	ANNUAL QUANTITY (AF/YR) ADDITIVE	ANNUAL QUANTITY (AF/YR) NON-ADDITIVE	PERIOD OF USE (mm/dd)
Domestic Single	4.48		GPM	0.392		01/01 - 12/31
Irrigation		4.48	GPM	0.022		06/01 - 09/30

IRRIGATED ACRES ADDITIVE	IRRIGATED ACRES NON-ADDITIVE	PUBLIC WATER SYSTEM INFORMATION WATER SYSTEM ID	PUBLIC WATER SYSTEM INFORMATION CONNECTIONS
0.011	0	N/A	N/A

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
KITTITAS	GROUNDWATER		39-UPPER YAKIMA

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
1 Well	18588	N/A	19N	15E	09	S½	N/A	N/A

FILE COPY

Place of Use (See Attached Map)

PARCEL

18588

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

Tract A: Parcel 14 of that certain Survey as recorded September 30, 2004, in Book 30 of Surveys, pages 147 through 149 under Auditor's File No. 200409300027, records of Kittitas County, Washington; being a portion of Lot 4-B, SP-2003-02 TILLMAN CREEK LARGE LOT SUBDIVISION, in the county of Kittitas, state of Washington, as per plat thereof recorded in Book 8 of Plats, pages 233 and 234, records of said County.

EXCEPT that portion described as follows:

Beginning at the northeasterly corner of said Lot 14, which is the true point-of-beginning of said line; thence south 00°55'53" west along the east boundary line of said Lot 14, 354.58 feet; thence north 50°28'46" west, 209.50 feet; thence north 45°21'52" west, 170.15 feet; thence north 69°02'39" east, 223.98 feet, thence north 88°26'25" east, 73.97 feet; thence north 15°15'50" east, 20.27 feet to the true point-of-beginning and terminus of said line.

Tract B: that portion of Parcel 18 of that certain Survey as recorded September 30, 2004, in Book 30 of Surveys at pages 147 and 149 under Auditor's File No. 200409300027, records of Kittitas County, Washington; being a portion of Lot 4-C, SP-2003-02 TILLMAN CREEK LARGE LOT SUBDIVISION, in the county of Kittitas, state of Washington, as per plat thereof recorded in Book 8 of Plats, pages 223 and 234, records of said County, which is described as follows:

Beginning at the northwesterly corner of said Lot 18, which is the true point-of-beginning of said line; thence south 00°55'53" west along the west boundary line of said Lot 18, 361.37 feet; thence south 89°44'12" east along the south boundary line of said Lot 18, 228.08 feet; thence north 00°55'53" east 361.37 feet; thence north 89°44'12" west along the north boundary line of said Lot 18, 228.08 feet to the true point-of-beginning and terminus of said line.

Proposed Works

The location of the proposed well is to be determined within Parcel No. 18588.

Domestic wastewater will be discharged to an individual on-site septic system, pursuant to the Declaration of Covenant signed April 26, 2013, by the subject applicant.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
December 31, 2015	December 31, 2026	December 31, 2028

In determining the timeframe of the above Development Schedule, that is the amount of time for the applicant to implement the authorized use of water, a reasonable and just time was considered and allowed under the existing conditions to begin and to complete construction of the project. Sufficient time was also awarded in order for the applicant to collect water-use data and to put the water to full beneficial use. The **Development Schedule** reflects consideration of the cost and magnitude of the single resident project and the potential engineering and physical features typically to be encountered.

Measurement of Water Use

How often must water use be measured?	Monthly
How often must water use data be reported to Ecology?	Annually (Jan 31)
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

Provisions

A. Wells, Well Logs and Well Construction Standards

1. The subject well is authorized for groundwater withdrawal from the unconfined (UNC) aquifer within the Tillman Creek subbasin.
2. In the case that there is insufficient groundwater encountered in the UNC, a well can instead be developed into the underlying bedrock units per the recommendation presented by Anna Hoselton, Ecology licensed hydrogeologist.[1]
3. All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction." Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.
4. All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. If you are required to submit water measuring reports, reference this tag number.
5. Installation and maintenance of an access port as described in WAC 173-160-291(3) is required.
6. In addition to the required access port, the applicant shall install and maintain, in operating condition, an airline and pressure gage. The pressure gage shall be equipped with a standard tire valve and placed in a location accessible to Department of Ecology personnel. The airline shall extend from land surface to the top of the pump bowls and the total airline length shall be reported to the Department of Ecology upon completion of the pump system.
7. In accordance with WAC 173-160, wells shall not be located within certain minimum distances of potential sources of contamination. These minimum distances shall comply with local health regulations as appropriate. In general, wells shall be located at least 100 feet from sources of contamination. Wells shall not be located within 1,000 feet of the boundary of a solid waste landfill.

[1] Anna Hoselton, *Technical* Memorandum, dated October 28, 2013, p. 6.

B. Measurements, Monitoring, Metering and Reporting

1. An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use," WAC 173-173.
2. Water use shall be recorded **monthly** and maintained by the property owner for a minimum of five years. The maximum rate of withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year.
3. 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.
4. 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.

C. Water Level Measurements

1. In order to maintain a sustainable supply of water and ensure that your water source is not impaired by future withdrawals, static water levels **should** be measured and recorded monthly using a consistent methodology. Static water level is defined as the water level in a well when no pumping is occurring and the water level has fully recovered from previous pumping. Static water level data **should** include the following elements:
   - Unique Well ID Number.
   - Measurement date and time.
   - Measurement method (air line, electric tape, pressure transducer, etc.).
   - Measurement accuracy (to nearest foot, tenth of foot, etc.).
   - Description of the measuring point (top of casing, sounding tube, etc.).
   - Measuring point elevation above or below land surface to the nearest 0.1 foot.
   - Land surface elevation at the well head to the nearest foot.
   - Static water level below measuring point to the nearest 0.1 foot.

D. Water Use Efficiency

1. 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.

E. Proof of Appropriation

1. Final beneficial-use calculations shall be determined during the investigation at the Proof of Appropriation stage.
2. 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 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.

F. Schedule and Inspections

1. 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.

G. General Conditions

1. This authorization shall in no way excuse the permittee from compliance with any federal, state, or local statutes, ordinances, permits, or regulations, including those required and administered by other programs of Ecology.
2. You (applicant) will record with the Kittitas County Auditor a property covenant requiring the applicant to maintain the "flow augmentation" facility in perpetuity.
3. Water cannot be put to beneficial use until the "flow augmentation" facility is permitted, constructed, and operational. Proof of operation of the facility must be submitted in writing to Ecology.
4. You (applicant) will pay the sum of **$57.02**, which represents a proportionate amount of the payment due and owing to the United States Bureau of Reclamation for storage and delivery of water under Paragraph 15(a) of the Water Storage and Exchange Contract No. 09XX101700, (Storage Contract) between the United States Bureau of Reclamation and the State of Washington Department of Ecology, Yakima Project, Washington, dated January 29, 2009.[2] The consumptive use of 0.072 acre-feet from September 1 through March 31 is subject to the terms and conditions of the Storage Contract.
5. You (applicant) will record with the Kittitas County Auditor a property covenant as required under WAC 173-539A-050 that restricts or prohibits trees or shrubs over a septic drain field on Parcel No. 18588.
6. You (applicant) will record with the Kittitas County Auditor an appropriate conveyance instrument under which the applicant obtains an interest in Trust Water Right No. S4-05259CTCL@2sb7 to offset consumptive use.
7. Any valid priority calls against the source Trust Water Right No. S4-05259CTCL@2sb7, based on local limitations in water availability, will result in temporary curtailment of the use of water under the permit until the priority call for water ends.

[2] "Long-Term Water Storage and Exchange Agreement between the U.S. and the State of Washington, Department of Ecology" (Contract No. 09XX101700), http://www.ecy.wa.gov/programs/wr/cro/images/pdfs/exchangecontract_012909.pdf, access on October 3, 2013.

Findings of Facts

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G4-35619, 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	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Suite 301 Tumwater WA 98501	**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://www1.leg.wa.gov/CodeReviser.

Signed at Yakima, Washington, this _____ day of _____, 2013.

_____

Mark Kemner, LHG, Section Manager
Water Resources Program/CRO

If you need this document in an alternate format, please 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.

BACKGROUND

This report serves as the written findings of fact concerning Water Right Application Number G4-35619.

Priority Processing

This application is being priority processed because it qualified under the criteria under which an application may be processed prior to competing applications (WAC 173-152).

Table 1: Summary of "Requested" Water Right

Applicant Name	RST Services, Inc.
Date of Application	May 3, 2013
Place of Use	Parcel No. 18588

County	Waterbody	Tributary To	WRIA
Kittitas	Groundwater		39-Upper Yakima

Purpose	Rate	Unit	Ac-ft/yr	Begin Season	End Season
Domestic Single	10	GPM	0.392	01/01	12/31
Irrigation	10	GPM	0.022	06/01	09/30

Source Name	Parcel	Well Tag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
1 Proposed Well	18588	N/A	19N	15E	09		N/A	N/A

GPM = Gallons per Minute; Ac-ft/yr = Acre-feet per year; Sec. = Section; Twp. = Township; Rng. = Range;
QQ Q = Quarter-quarter of a section; WRIA = Water Resource Inventory Area; E.W.M. = East of the Willamette Meridian.

Legal Requirements for Approval of Appropriation of Water

The place-of-use proposed for this application is located entirely within the area covered by the Upper Kittitas Groundwater Rule, WAC 173-539A and is therefore subject to the provisions of said rule, which provides that all new groundwater withdrawals in the area must be water-budget-neutral. Water-budget-neutral, as defined in WAC 173-539A, is "an appropriation or project where withdrawals of ground water of the state are proposed in exchange for discharge of water from other water rights that are placed into the Trust Water Right Program where such discharge is at least equivalent to the amount of consumptive use."

RCWs 90.03 and 90.44 authorize the appropriation of public water for beneficial use and describe the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340 and RCW 90.44.050. In accordance with RCW 90.03.290, determinations must be made on the following four criteria in order for an application for water rights to be approved:

- Water must be physically and legally available.
- There must be no impairment of existing rights.
- The water must be beneficial.
- The water use must not be detrimental to the public interest.

Because the applicant intends to mitigate for consumptive use under the requested appropriation through the purchase of Upper Kittitas mitigation credits from the Suncadia Water Exchange, this proposal is considered water-budget-neutral pursuant to WAC 173-539A. An additional element offered for this project will be the "Tillman Creek flow augmentation" project due to the presence of critical habitat for priority fish species in the Tillman watershed.

Consultation with the Department of Fish and Wildlife

The Long-Term Water Storage and Exchange Agreement between the United States and the State Department of Ecology and the Yakima River Mitigation Water Services LLC Trust Water Agreement require that Ecology must give notice to the Department of Fish and Wildlife of applications to divert, withdraw, or store water, and to present the project to the Water Transfer Working Group (WTWG). Notice was officially provided on November 4, 2013, by Ecology personnel during a WTWG meeting. A positive reaction was unanimously communicated in response to this proposal.

Ecology did, however, receive comments regarding critical habitat and presence in lower Tillman Creek from the Department of Fish and Wildlife. Additionally, Ecology's Storage Contract provides that if a proposed water exchange does not meet certain conditions established in the Storage Contract, then supplemental ESA consultation is required.

Supplemental consultation was required for this application for the following reasons:

- The proposed consumptive use cannot be mitigated from an upstream source.
- The total hydrologic impact from current diversions and potential additional consumptive use may exceed 1% of critical low flow in Tillman Creek, where salmon, steelhead, and bull trout are present, and surrounding habitat may support the Northern spotted owl.

The United States Bureau of Reclamation with concurrences from WDFW and Wildlife Service and National Marine Fisheries Service determined the proposed project, with the consideration of both the offered mitigation and the supplemental environmental project may affect but is not likely to adversely affect:

1. Steelhead critical habitat in Tillman Creek and the mainstem Yakima River.[3]
2. Steelhead in the Yakima River or Tillman Creek.[4]
3. Bull trout in Tillman Creek.[5]
4. Northern spotted owl.[6]

WDFW participated in the selection and subsequent review of the supplemental environmental project.

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[3] "Biological Assessment of Potential Effects to Middle Columbia River Steelhead from Implementation of a Water Bank Program in the Tillman Subbasin Under a Long-Term Storage and Delivery Agreement," Bureau of Reclamation, Yakima, Wa., February 19, 2013, p. 24.

[4] Ibid., p. 23.

[5] Supplement to: "Biological Assessment of Potential Effects to Middle Columbia River Steelhead from Implementation of a Water Bank Program in the Tillman Subbasin Under a Long-Term Storage and Delivery Agreement," Bureau of Reclamation, Yakima, Wa., February 19, 2013, p. 8.

[6] Ibid., p. 9.

Public Notice

RCW 90.03.280 requires that notice of a water right application be published once a week, for two consecutive weeks, in a newspaper of general circulation in the county or counties where the water is to be stored, diverted and used. Notice of this application was published in The Daily Record on May 18th and 25th, 2013. No comments or protest were received by Ecology during the 30-day comment period. The application priority date and the requested instantaneous water duty were inaccurately advertised; however, republishing of the notice was unnecessary as those errors did not change the relevant facts of the proposed appropriation.

State Environmental Policy Act (SEPA)

A water right application is subject to a SEPA threshold determination (i.e., an evaluation whether there are likely to be significant adverse environmental impacts) if any one of the following conditions are met.

(a) It is a surface water right application for more than 1 cubic-foot per second (cfs), unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cfs, so long as that irrigation project will not receive public subsidies;

(b) It is a groundwater right application for more than 2,250 gallons per minute (gpm);

(c) It is an application that, in combination with other water right applications for the same project, collectively exceed the amounts above;

(d) It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA);

(e) It is part of a series of exempt actions that, together, trigger the need to do a threshold determination, as defined under WAC 197-11-305.

Because this application does not meet any of these conditions for Water Resources, it is categorically exempt from SEPA and a threshold determination is not required.

INVESTIGATION

Site Visit

A site visit was conducted on October 14, 2013, by Candis Graff and Anna Hoselton from Ecology. Surrounding geology was noted and photos were taken.

Proposed Use and Basis of Water Demand

The Tillman Creek subbasin is located within the Upper Kittitas Basin and is subject to the provisions of WAC 173-539A, therefore, no new groundwater use within the Tillman Creek subbasin is allowed unless the consumptive use associated with the new groundwater withdrawal is fully mitigated by a pre-May 10, 1905, priority existing water right.

The December 2009 Water System Design Manual[7] (WSDM) by the Department of Health (DOH) contains guidance for establishing water demands. The suggested methods, in order of preference, include:

1. Metered water-production and use records.
2. Comparable metered water-production and use data from analogous water systems. See WAC 246-290-221(3)(a) and Section 5.2.3.
3. The criteria presented in Chapter 5.

According to the WSDM, for new systems or water systems that have no source meter records, information can be obtained from analogous water systems or from information presented in Appendix D in order to estimate Average Daily Demand (ADD) and Maximum Daily Demand (MDD) for residential connections (WAC 246-290-221(3)).[8] Analogous water systems are defined in Section 5.2.3 of the WSDM as systems with similar characteristics, such as but not limited to: demographics, housing size, lot sizes, climate, conservation practices, use restrictions, soils and landscaping, and maintenance practices. As such, a reasonable level for a MDD for internal uses can be established at 350 gallons per day (gpd) per Equivalent Residential Unit (ERU).

The MDD values are set at 350 gpd/ERU, which is consistent with the WSDM. Under WAC 173-539A, 30% of domestic in-house use on a septic system is assumed to be consumptively used and 90% of outdoor domestic use is assumed to be consumptive.

Monthly and annual use at full build-out of the project were calculated based on the proposed 1 ERU, DOH's MDD, Ecology's Guidance Document 1210, Determining Irrigation Efficiency and Consumptive Use, the Washington Irrigation Guide (WIG) for outdoor water use, and the assumptions found in WAC 173-539A. A crop irrigation requirement (CIR) for grass in the Cle Elum area of 18.11 inches was estimated using the WIG. Assuming the outdoor use is 90% consumptive, consistent with WAC 173-539A, and applying the WIG's CIR, the outdoor water requirement for 500 square feet (0.011 acre) of grass is 0.019 acre-feet per year. The calculated consumptive use and total water-use-calculations considered factors specified in WAC 173-539A and are summarized in **Table 2** and **Table 3** below.

Table 2: *Estimated Total Consumptive Use

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total Use (acre-feet)	.033	.030	.033	.032	.033	.036	.041	.039	.036	.033	.032	.033	**.414**
Total Consumptive (acre-feet)	.010	.009	.010	.010	.010	.013	.017	.015	.013	.010	.010	.010	**.137**

*Quantities are rounded.

[7] Department of Health, "Water System Design Manual," Olympia, Wa., 2009, pp. 27-32, www.doh.wa.gov/chp/dw/Publications/331-123.pdf, accessed on March 6, 2012.
[8] Department of Health, "Water System Design Manual," Olympia, Wa., 2009, p. 28, www.doh.wa.gov/chp/dw/Publications/331-123.pdf, accessed on March 6, 2013.

Table 3: *Domestic Water Use

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Indoor (gpd)	350	350	350	350	350	350	350	350	350	350	350	350
Outdoor (gpd)	0	0	0	0	0	43	82	60	45	0	0	0
Total (gpd)	350	350	350	350	350	393	432	410	395	350	350	350

*Quantities are rounded.

Other Rights Appurtenant to the Place of Use

See **Attachment 2** and **Attachment 3**.

Impairment Considerations

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right. An adequately constructed groundwater withdrawal facility is one that:

  (a) is constructed in compliance with well construction requirements.

  (b) fully penetrates the saturated zone of an aquifer or withdraws water from a reasonable and feasible pumping lift.

- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.
- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows.
- Degrade the water quality of the source to the point that the water is unsuitable for beneficial use by existing users (e.g., via sea water intrusion).

Water Availability, Planned Mitigation, and Water Duty

For water to be available for appropriation, it must be both physically available (for example, productivity of the aquifer) and legally available (for example, closure of basins to further appropriations).

Water Availability

Physical Availability

For water to be physically available for appropriation there must be ground water present in quantities and quality and on a sufficiently frequent basis to provide a reasonably reliable source for the requested beneficial uses. In addition, the following factors are considered:

- Volume of water represented by senior water rights, including federal or tribal reserved rights or claims.
- Water right claims registered under RCW 90.14.
- Ground water uses established in accordance with RCW 90.44, including those that are exempt from the requirement to obtain a permit.
- Potential riparian water rights, including non-diversionary stock water.
- Lack of data indicating water usage can also be a consideration in determining water availability, if the department cannot ascertain the extent to which existing rights are consistently utilized and cannot affirmatively find that water is available for further appropriation.

Based on the hydrogeologic setting described below, groundwater is physically available for the project due to the in-basin mitigation offered and the use of the Storage Contract.

Hydrologic/Hydrogeologic Evaluation

To meet expectations of both the applicant and other water-right holders ("no impairment") competing for the same source of water, it is necessary to consider the hydrologic effects between older systems and the proposed system. Through this analysis, an understanding can be gained of the potential for the addition in point-or-withdrawal (POW) and the water delivery system to affect other water-right holders. Finally, a conclusion whether impairment would occur and what conditions might prevent it can then be formulated.

The following hydrologic/hydrogeologic sections were prepared in a technical memorandum dated January 15, 2013, and October 28, 2013, by hydrogeologist, Anna Hoselton, and seeks to address, by way of discussion, analysis, and evaluation, physical availability, and potential for impairment to existing water users.

Water Availability Discussion (Hoselton, January 15, 2013)

The current investigation seeks to determine if water rights that will be or have been mitigated for the capture of groundwater that would otherwise support baseflow discharge to the mainstem Yakima River in consideration of and for the protection of existing senior surface water right holders can be issued. However, local water availability from groundwater and local surface water features near the point of the requested groundwater withdrawals is less clear.

Attempting to resolve the local physical availability question, a simplified water balance describing the inflows and outflows of water for the UNC aquifer in both the Tillman Creek Basin and the un-named basin were constructed and considered using the process described below:

- Study area basin boundaries were delineated.
- Total outcrop area of the unconsolidated sediment units (UNC) were collectively calculated and compared to the total outcrop area of all bedrock outcrops within the study area to determine if it was reasonable to treat the bedrock units separately.
- Finding the bedrock outcrops represents approximately 11% of the un-named basin and 35% of the Tillman Creek basin it was decided to evaluate the bedrock separate from the UNC unit.

Based on the hydrogeologic setting, well data, and the simplified water balances, groundwater is physically available within the study area UNC aquifer. Groundwater captured by wells in the study area is most likely to reduce the groundwater baseflow (BF) and Surface Runoff (SRO) components of the above balances. Water availability, however, also includes policy, management and legal considerations and is ultimately a permitting/management decision that is, only in part, based on the above information and that below.

Physical Water Availability (Hoselton, October 28, 2013)

Groundwater is physically available within the study area UNC aquifer for this request; however, the applicant may find need to develop a well through the overlying UNC and into the underlying bedrock where water availability is largely dependent on leakage from the overlying UNC.

Issues related to Tillman Creek if this Application must rely on the USBR Contract:
The following section is excerpted from Ecology's "Tillman Creek Basin Reference Report (Inclusive of the small un-named basin adjacent and west of the Tillman Creek Watershed boundaries)" dated January 15th, 2013:

> Tillman Creek, according to Yakima Basin Joint Board, Biologist, David Childs and Washington Fish and Wildlife Fisheries and Habitat specialist, Paul La Riviere in their June 19, 2012 email communication with Ecology staff, Kurt Walker (Appendix 1), state that "...two ESA listed fish species...may have access to the lower portions of Tillman Creek, at this time..." below the culvert near the KRD siphon on Westside Road. La Riviere considers the culvert to be an illegal barrier and says that should the currently illegal barrier be removed, anadromous fish could access most of the basin. Consequently, if ESA listed fish are present, then under Contract No. 09XX101700 between the Bureau of Reclamation and the Washington Dept of Ecology, mitigation within the Tillman basin may be required to satisfy legal water availability issues.

The UNC aquifer in both the Tillman Creek basin and the un-named basin are generally unconfined aquifers. In unconfined aquifers, groundwater discharges to the land surface where the land surface is intersected by the water table. Where, when, and how much groundwater is discharged tends to be a function of timing of recharge, volume of recharge, the geometry and hydraulic characteristics of the unconfined flow system, and may occur as perennial or ephemeral discharge.

As groundwater is removed from the unconfined aquifer or from the underlying bedrock unit by wells and consumptively used, the amount of groundwater available to all parts of a basin's water budget is reduced. As a result, groundwater pumping is expected to reduce groundwater discharge to area springs, to Tillman Creek and its tributaries.

Effect of Groundwater Withdrawals on Surface Water and Springs (Hoselton, January 15, 2013)

As noted in the "Availability" section above, the UNC aquifer in both the Tillman Creek basin and the un-named basin are generally unconfined groundwater aquifers sometimes also referred to as the water table. In unconfined aquifers, groundwater discharges to the land surface where the land surface is intersected by the water table. Where, when and how much groundwater is discharged tends to be a function of timing of recharge, volume of recharge, the geometry and hydraulic characteristics of the unconfined flow system, and may occur as perennial or ephemeral discharge.

As groundwater is removed from the unconfined system by wells, discharge of the groundwater to wells, also known as "capture," reduces the amount of groundwater formerly available to all parts of a basin's water budget. As a result, groundwater pumping is expected to reduce groundwater discharge to area springs, to Tillman Creek and its tributaries, and to the un-named basin's drainage.

Legal Availability

To determine whether water is legally available for appropriation, the following factors are considered:

- Regional water management plans – which may specifically close certain water bodies to further appropriation.
- Existing rights – which may already appropriate physically available water.
- Fisheries and other instream uses (e.g., recreation and navigation). Instream needs, including instream and base flows set by regulation. Water is not available for out of stream uses where further reducing the flow level of surface water would be detrimental to existing fishery resources.
- The Department may deny an application for a new appropriation in a drainage where adjudicated rights exceed the average low flow supply, even if the prior rights are not presently being exercised. Water would not become available for appropriation until existing rights are relinquished for non-use by state proceedings.

Planned Mitigation

WAC 173-539A provides the following exception to the withdrawal of un-appropriated groundwater:

1. Uses for a structure for which a building permit is granted and the building permit application vested prior to July 16, 2009.
2. Uses determined to be water-budget-neutral pursuant to WAC 173-539A-050, which provides that water-budget-neutral projects may be approved. A water-budget-neutral project is one that is mitigated by a pre-1905 water right held by Ecology within the Trust Water Right Program.

The applicant has entered into a contract with Suncadia for a beneficial interest in a 0.161 acre-feet-per-year-portion of Trust Water Right No. S4-05259CTCL@2sb7. Suncadia also implemented a supplemental environmental project within the lower reach of Tillman Creek that improves flow and improves critical

passage and rearing habitat for salmon, steelhead, and bull trout in Tillman Creek. This supplemental project addresses potential flow-related impacts to Tillman Creek by redirecting up to 3 cfs from an unnamed stream into Tillman Creek.

Water Duty

In planning a community development, source capacity must be recognized. The total daily source capacity, in conjunction with storage designed to accommodate peak use periods, must be able to reliably provide sufficient water to meet the MDD for the water system. Reliability and sustainability must also be considered when planning for a water system. Lacking metered water use records, Ecology referred to and relied upon the Yakima County Superior Court's (Court) decision for surface water use in the Yakima River Basin Water Rights Adjudication: Report of Referee, Subbasin No. 5 to obtain water duty calculations. Ecology concurs with the Court's decision of 0.01 cfs or 4.48 gallons per minute (gpm) of maximum duty of water in Subbasin No. 5 for the purpose of a single domestic supply with a small lawn and garden.

Impairment, Qualifying Works, and Interference

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

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection.

Qualifying ground water withdrawal facilities are defined as those wells which in the opinion of the Department are adequately constructed. An adequately constructed well is one that:

(a) is constructed in compliance with well construction requirements.

(b) fully penetrates the saturated thickness of an aquifer or withdraws water from a reasonable and feasible pumping lift (WAC 173-150).

(c) has withdrawal facilities capable of accommodating a reasonable variation in seasonal pumping water levels.

(d) the withdrawal facilities and pumping facilities are properly sized to match the ability of the aquifer to produce water.

Well interference is the overlap of the cones of depression for two or more wells. Well interference reduces the water available to the individual wells and may occur when several wells penetrate and withdraw groundwater from the same aquifer. Each pumping well creates a drawdown cone. When several wells pump from the same aquifer, well density, aquifer characteristics, and pumping demand may result in individual drawdown cones that intersect and form a composite drawdown cone.

General Impairment Discussion (Hoselton, October 28, 2013, 2013)

In the case of the subject application, no specific location within the parcel has been given for construction of the proposed well. Of the existing wells reported to have been drilled on adjacent parcels, only one well, ALN804, has been field verified for location. ALN804 is located approximately 450 feet to the northwest of the closest point of the subject parcel's northwestern boundary. The well is 6 inches in diameter, was drilled to a depth of 160 feet, but was apparently partially backfilled and completed to a depth of only 114 feet. The static water level (swl) was measured at 32 feet below the

top of the casing (btc) on August 13, 2007 and the yield was estimated by the driller to be in the range of 20 gallons per minute (gpm) by air test. The driller's materials description could be interpreted as mass wasting sediments for the entire depth of the well, or possibly an encountering of broken phyllite bedrock at 46 feet and below. Regardless, because the well is also perforated from 35 to 45 feet, the well has been classified as withdrawing groundwater primarily from the UNC aquifer.

Existing area well, APG967 is located on adjacent parcel id 20846 to the south of the subject parcel but has not been field located and distances between this well and the subject parcel are currently unknown. APG967 is an 8 inch diameter, 385 foot deep well that is cased to 302 feet with perforations from 103 to 127 feet. The swl was recorded to be 83 feet btc "after 24 hrs" which indicates some uncertainty whether the groundwater level had achieved equilibrium by the completion of construction. Yield was estimated by the driller to be 1 to 1½ gpm. As constructed, the well penetrates mass wasting sediments to a depth of 97 feet and phyllite bedrock thereafter to a depth of 385 feet. The estimated yield suggests the phyllite bedrock unit controls the rate of groundwater entry into the borehole, however the location of the perforations suggest a leakage component from the overlying UNC is likely.

Existing area well, APG987 is located on adjacent parcel id 11825 to the west of the subject parcel but has not been field located and distances between this well and the subject parcel are currently unknown. APG987 is a 6 inch diameter, 295 foot deep well that is cased to 285 feet which had a swl of 254 feet at the completion of well construction. As constructed, the well penetrated mass wasting sediments to a depth of 247 feet and phyllite bedrock thereafter to a depth of 480 feet. The well was apparently backfilled or decommissioned from 480 to 295 feet. The casing is not reported to be perforated. The well was estimated to yield in the range of 2 to 3 gpm by the driller using air test methods. The estimated yield, swl, completion depth, and un-perforated casing together suggest the phyllite bedrock unit controls the rate of groundwater entry into the well's borehole, however, a leakage component from the overlying and upslope UNC is suspected.

Existing area failed well attempt (dry hole), APG986 is located on adjacent parcel id 20845 to the southeast of the subject parcel but has not been field located. Construction of the 760 foot deep borehole began on July 27, 2007 and was terminated on August 13, 2007 without production of groundwater from the phyllite bedrock. The borehole was cased to a depth of 165 feet with a liner installed to a depth of 407 feet. The borehole penetrated mass wasting sediments to a depth of 27 feet and phyllite bedrock thereafter to a depth of 760 feet. It is not known if groundwater has seeped into the borehole since well development was abandoned.

The well information discussed above is consistent with conditions found at other Tillman basin area wells reviewed in earlier investigations. Multiple previous analyses of wells constructed into the UNC aquifer or into the underlying bedrock within the Tillman basin indicate that the present well density and aquifer characteristics that tend to product steep and narrow drawdown cones and low yield wells will limit potential for interference between wells. Consequently, the additional withdrawal of 0.414 af/yr under Application No. G4-35619 is not anticipated to interfere with the ability of nearby well owners to fully utilize their well(s).

Consumptive use of groundwater from the well proposed under Application No. G4-35619 will, however, proportionately reduce groundwater discharge to basin surface waters of lower head. In particular, should a well be located on the subject parcel east of the red dashed line shown in Figure 1, it is likely to capture groundwater that would otherwise discharge to surface water at or upstream of the adjudicated surface Water Right Claim No. 05216 held by George and Diane Burchak. Although legal

documents filed with Kittitas County Conservancy Board Application No. CS4-05216SB5A (KITT-11-10) by George and Diane Burchak assert that they have always been able to divert their full water right irrespective of the season or water year, consumptive use of groundwater from the area east of the dashed red line in Figure 3 is likely to result in reduction of groundwater baseflow to the adjudicated diversion.

The Point of Diversion (POD) for adjudicated surface Water Right Claim No. 05216 held by George and Diane Burchak, is located on Iron Mountain Creek, a tributary to Tillman Creek, on Kittitas County Parcel 951166 at an elevation of approximately 2,470 ft msl. Wells located side slope to or upslope of the POD for Water Right Claim No. 05216 may have potential to capture groundwater that would otherwise support flow above, near, or at the diversion. Owners of wells which may be constructed in these locations should be cautioned that, during circumstances such as a severe drought, a call of impairment may be made by the owners of Court Claim No. 05216. In such event, wells owners near, side slope to or upslope of the POD for Court Claim No. 05216 may be subject to possible curtailment of water use by Ecology or the Court.

Figure 1: Subject parcel boundary shown in solid red line. Red dashed line marks the western extent of the area in which groundwater wells are likely to capture groundwater that would otherwise discharge to Iron Mountain Creek above and near the Burchak diversion of adjudicated senior Water Right Claim No. 05216.

It is strongly recommended that well construction on the subject parcel occur only on the west side of the dashed red line shown in Figure 3 so as to avoid capture of groundwater that would otherwise support surface water flow at or above the diversion point for adjudicated Court Claim No. 05216.

Beneficial Use

The proposed uses of water for single domestic and incidental irrigation of lawn and garden are defined in statute as beneficial uses (RCW 90.54.020(1)).

Public Interest Considerations

When investigating a water right application, Ecology is required to consider whether the proposal is detrimental to the public interest. Ecology must consider how the proposal will affect an array of factors such as wildlife habitat, recreation, water quality, and human health. The environmental resources and other natural values associated with the area were taken into account during the consideration of this application.

Consideration of Protests and Comments

No protests were filed against this application.

Conclusions

In conclusion:

- Water is physically available at the quantities sufficient to meet project demand. When combined with the proposed mitigation measures, water is legally available under the provisions of WAC 173-539A.
- RCW 90.54.020 recognizes domestic and irrigation uses as beneficial uses of water.
- Approval of the proposed appropriation will not result in impairment of existing water rights.
- Approval of the proposed appropriation is not detrimental to the public interest.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and within the limitations listed below and subject to the provisions listed above.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

- 4.48 gallons per minute (gpm).
- 0.414 acre-feet per year (0.392 ac-ft/yr for single domestic and 0.022 ac-ft/yr for incidental irrigation).
- Continuous indoor single domestic for 1 residence.
- Seasonal irrigation of up to 0.011 acre of lawn and garden from June 1 through September 30 annually.

Point of Withdrawal

Exact location of 1 well to be determined within the S½, Section 09, Township 19 North, Range 15 E.W.M., Kittitas County.

Place of Use

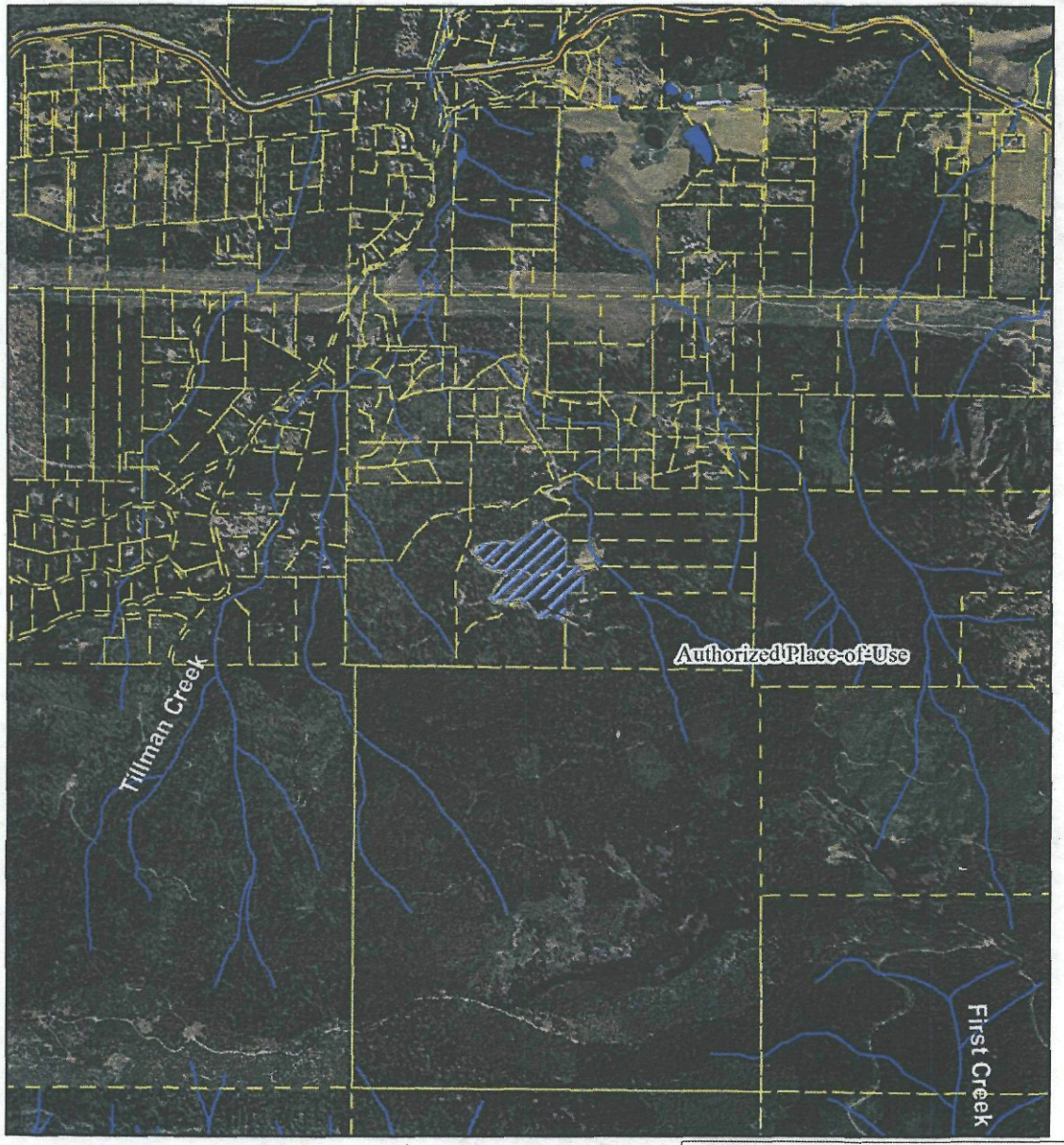
As described on Page 2 of this Report of Examination.

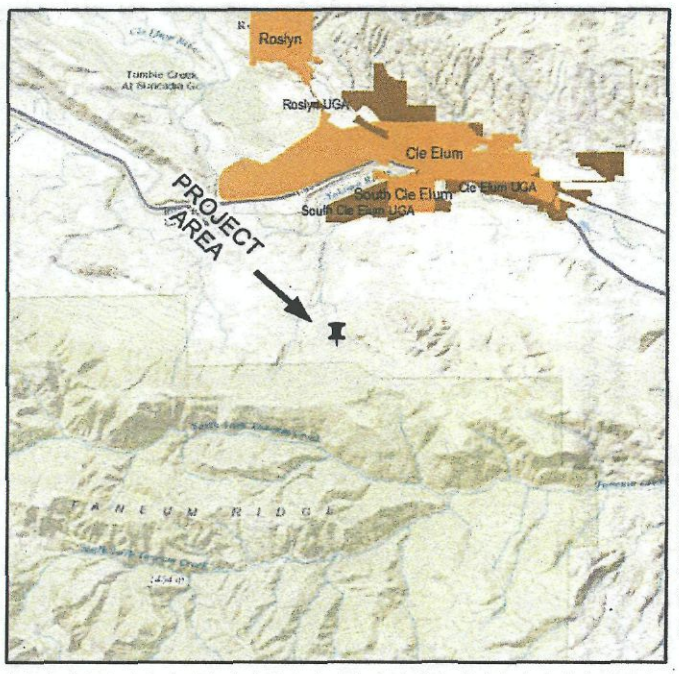
Candis L. Graff, Report Writer

12-5-13
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.

RST SERVICES, INC.
G4-35619
T19N/R15E.W.M.
WRIA 39 - Kittitas County





Basemap - ESRI US Topographic Maps

Legend

- Authorized Place of Use
- Water Courses
- Highway
- Sections
- Townships
- Parcels
- City

0 950 1,900 3,800 5,700 7,600 Feet

Basemap - NAIP 2011

Map Date: 10/2/2013

Comment:
Place of use and source locations are as defined within the Report of Examination cover sheet for the document identfied in the header above.

ATTACHMENT 1

Attachment 2

Table 4: Water Rights Appurtenant to Place-of-Use

Control Number	Document Type	Purpose	Qa (annual)	Source
G4-35630(A)	New App	DM, IR	150 (shared)	Up to 15 Wells
G4-35630(B)	New App	DM, IR	150 (shared)	Up to 15 Wells
S4-84638-J	CFO	SR	166,846	Yakima R.
S4-84639-J	CFO	SR	250,261	Kachees R.
S4-84640-J	CFO	SR	446,610	Yakima R.
S4-84641-J	CFO	SR	38,768	Bumping R.
S4-84642-J	CFO	SR	216,850	Tieton R.
S4-84643-J	CFO	SR	5,300	Tieton R.
S4-84644-J	CFO	SR	472	Yakima R.
S4-84645-J	CFO	SR	2	Tieton R.
S4-84646-J	CFO	SR	56	Yakima R.
S4-84647-J	CFO	SR	60	Yakima R.
S4-84648-J	CFO	SR	408	Yakima R.
S4-84649-J	CFO	SR	1,265	Tieton R.
S4-84650-J	CFO	SR	5,120	Yakima R.

SR=Storage, CFO=Conditional Final Order

Ground Water application Nos. G4-35630(A) and G4-35630(B) request permits for up to 15 wells for multiple residences to be owned by various land owners over a broad, general place-of-use.

Surface Water Certificate Nos. S4-84638-J-S4-84650-J are owned by the United States Bureau of Reclamation and are authorized to use water for storage for flood-control purposes covering the entire Yakima Basin in the authorized place-of-use.

Attachment 3

Table 5: Vicinity Water Rights within 0.5-Mile Radius

Control Number	Document Type	Purpose	Qa (annual)	Source
G4-35485P	Permit	DS, IR	0.414	1 Well
G4-35574P	Permit	DS, IR	0.414	1 Well
G4-35486P	Permit	DS, IR	0.414	1 Well
G4-35487P	Permit	DS, IR	0.414	1 Well
G4-35490P	Permit	DS, IR	0.414	1 Well
G4-35500P	Permit	DS, IR	0.414	1 Well
G4-35491P	Permit	DS, IR	0.414	1 Well
G4-35246P	Permit	DM, IR	1.340	Up to 4 Wells
G4-35483P	Permit	DS, IR	0.137	1 Well
G4-35308P	Permit	DS, IR	0.137	1 Well
G4-35482P	Permit	DS, IR	0.137	1 Well
G4-35481P	Permit	DS, IR	0.137	1 Well
S4-35476	New App.	IF	3.0	Tillman Creek
S4-35477	New App.	IF	3.0	Tillman Creek

IR=Irrigation, including incidental lawn and garden, DM=Domestic Multiple, DS=Domestic Single, IF=Instream Flow

Permit Nos. G4-35385P, G4-35574P, G4-35486P, G4-35487P, G4-35490P, G4-35500P, G4-35491P, G4-35483P, G4-35308P, G4-35482P, and G4-35481P authorize water for single residences and use either existing wells or propose a new well for their system and are mitigated for total consumptive use.

G4-35246P authorizes multiple domestic and incidental irrigation uses for up to 4 wells for 4 homes and is mitigated for consumptive use.

S4-35476 and S4-35477 are new applications for instream flow in order to construct storage ponds for flow augmentation in the Tillman Creek. Mitigation was not offered to offset consumptive use and Ecology has not processed them.