DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

AMENDED REPORT OF EXAMINATION
To Appropriate Public Waters of the State of Washington
This Report of Examination (ROE) supersedes the ROE issued March 3, 2011.

APPLICATION DATE	APPLICATION NO.
June 5, 2009	G4-35246

NAME

Misty Mountain LLC and Stuart Vista LLC

ADDRESS/STREET	CITY/STATE	ZIP CODE
206 West First Street	Cle Elum, WA	98922-1108

PUBLIC WATERS TO BE APPROPRIATED

SOURCE

Up to four wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	40	4.4

QUANTITY, TYPE OF USE, PERIOD OF USE

40 gallons per minute, 2.2 acre-feet per year for year-round multiple domestic supply for up to 13 homes; and 2.2 acre-feet per year for the irrigation of 0.87 acres from May 1 through September 30.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL

2,020 feet North and 1,450 feet East from the SW corner of Section 9, T. 19 N., R. 15 E.W.M. – Well ID ALN804. Up to three other well locations to be determined (within the NE¼SW¼ and SE¼NW¼ of Section 9).

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
NE¼SW¼ SE¼NW¼	9	19 N.	15 E.W.M.	39	Kittitas

PARCEL NUMBER	LATITUDE	LONGITUDE	DATUM

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.]

Parcel 8 of that certain Survey as recorded September 30, 2004, in Book 30 of Surveys, page 147 through 149, under Auditor's File No. 200409300027, records of Kittitas County, Washington; being a portion of Lot 4-B, SP2003-02 TILLMAN CREEK LARGE LOT SUBDIVISION, in the County of Kittitas, State of Washington, as per plat thereof in Book 8 of Plats, page 233 and 234, records of said County.

Parcel 13 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 Lots 4-A, 4-B and 4-C, SP2003-02 TILLMAN CREEK LARGE LOT SUBDIVISION, in the County of Kittitas, State of Washington, as per plat thereof in Book 8 of Plats, page 233 and 234, records of said County.

Parcel 19 of that certain Survey as recorded September 30, 2004, in Book 30 of Surveys, page 147, under Auditor's File No. 200409300027, records of Kittitas County, Washington; being a portion of Lots 4-A, 4-B and 4-D, 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, page 233 and 234, records of said County.

Parcel 21 of that certain Survey as recorded September 30, 2004, in Book 30 of Surveys, page 147, under Auditor's File No. 200409300027, records of Kittitas County, Washington; being a portion of Lots 4-A, 4-B and 3-D, 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, page 233 and 234, records of said County.

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
Continued:

A sixty foot (60') easement for ingress, egress and utilities over and under that existing road as delineated on 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 Sections 4 and 9, Township 19 North, Range 15 East, W.M., in the County of Kittitas, State of Washington; and a sixty foot (60') easement for ingress, egress and utilities over and under those certain easements as conveyed by instruments recorded November 15, 2004 under Auditor's File No. 200111150031, 200411150032, 200411150033, and recorded February 18, 2005 under Auditor's File No. 200502180022, all being in a portion of Section 4, Township 19 North, Range 15 East, W.M., in the County of Kittitas, State of Washington.

DESCRIPTION OF PROPOSED WORKS

One existing well (Ecology Well ID ALN804) was drilled in August 2007. Up to three additional wells will be completed in the same ground water source. Water from these wells will be used for domestic supply for a planned 13 unit residential development. The proposed domestic use will be regulated as a Group B, community public water system by the Washington State Department of Health. Domestic wastewater will be discharged to an onsite, engineered community drain field.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
December 31, 2011	December 31, 2021	December 31, 2025

PROVISIONS

Wells

- The water supply wells shall be drilled and completed into the unconsolidated alluvial material which may include the fractured top of the underlying bedrock. Water supply wells shall not be dually completed into the alluvial and bedrock aquifers. Use of a combination of wells completed in both alluvium and bedrock is not authorized.
- 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.
- 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.
- Flowing wells shall be constructed and equipped with valves to ensure that the flow of water can be completely stopped when not in use. Likewise, the well shall be continuously maintained to prevent the waste of water through leaky casings, pipes, fittings, valves, or pumps -- either above or below land surface.
- 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.
- Required installation and maintenance of an access port as described in WAC 173-160- 291(3).
- In order to maintain a sustainable supply of water, pumping must be managed so that static water levels do not progressively decline from year to year. 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 levels shall be measured and recorded bi-annually (May and September), using a consistent methodology. Data for the previous year shall be submitted by January 31 to the Department of Ecology.

- Static water level data shall be submitted in digital format and shall 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.

Metering and Reporting

- An approved measuring device shall be installed and maintained for each of the sources authorized by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173.

- Water use data shall be recorded weekly and maintained by the property owner for a minimum of five years. The maximum monthly rate of diversion/withdrawal and the monthly total volume shall be submitted to the Department of Ecology by January 31st of each calendar year.

General

- 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.

- The water right holder shall file the notice of Proof of Appropriation of water (under which the permit 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. A 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.

- The water source and/or water transmission facilities are not wholly located upon land owned by the applicant. Issuance of a water right change authorization by the Department of Ecology does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between applicant and owner of that land.

- Use of water under this authorization shall be contingent upon the water right holder's maintenance of efficient water delivery systems and use of up-to-date water conservation practices consistent with established regulation requirements and facility capabilities.

- Water use under this authorization is contingent upon the conveyance of an equal (2.63 acre-feet per year) or greater amount of consumptive use from a suitable instream flow right (see trust water right agreement) to the Washington State Trust Water Right Program.

- Use of water under this authorization shall be contingent upon the Department of Ecology's written approval of and the permit holders compliance with a storage and release plan consistent with the offered mitigation, which addresses the anticipated impacts to Tillman Creek (July 1- March 31) and Yakima River (October 1 - March 31) associated with withdrawals under this authorization.

- If the aforementioned storage and release plan is not implemented consistent with the mitigation offered, all outdoor use shall no longer be authorized until such time that Ecology issues a letter stating that mitigation has been sufficiently reinstated.

- Per WAC 173-539A, consumptive use authorized under this permit is water budget neutral. Consumptive use quantities (total withdrawal minus return flow) shall be fully offset by debit of an equal consumptive use quantity of seasonal irrigation water rights placed into permanent trust in the Washington State Trust Water Right Program by Northland Resources LLC.

- Ecology is approving up to 13 connections as a maximum. The permittee recognizes that the Washington State Department of Health (DOH) may limit the connections to less than requested because the estimated indoor water use is not consistent with the DOH Water System Design Manual which recommends a minimum of 200 gpd for indoor use. If DOH requires greater than the 150 gpd per connection as proposed, the permittee may choose to reduce the number of connections and/or acres of irrigation to accommodate this greater minimum daily demand.

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 is physically and legally available, is a beneficial use, and will not impair existing rights, and is not detrimental to the public interest.

Therefore, I ORDER the approval of Application No. G4-35246 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
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, Ste 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://www.leg.wa.gov/CodeReviser

Signed at Yakima, Washington, this 31st day of March 2011.

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

BACKGROUND

Project Description

On June 5, 2009, Misty Mountain LLC, of Cle Elum, Washington (the applicant) filed an application with the Washington State Department of Ecology (Ecology) for a water right permit to appropriate public groundwater. The application was assigned application number G4-35246. The applicant requested authorization for an instantaneous withdrawal (Qi) of 250 gallons per minute (gpm) and an annual withdrawal volume (Qa) of 3.7 acre-feet per year (ac-ft/yr) for multiple domestic supply for a planned 12 unit residential development, referred to as Fircrest.

In a memorandum to Ecology dated October 19, 2009, the applicant requested the Qa be increased to 11 ac-ft/yr to supply 27 residential units. The purpose of the requested change to the application was to provide service to additional residential units at the planned Tillman Heights development, owned by Misty Mountain, LLC, and the planned Tillman 19 development, owed by Stuart Vista LLC. The size of the developments has since been reduced, with current plans calling for a total of 13 residential units at the properties owned by Misty Mountain LLC and Stuart Vista LLC.

The applicant intends to mitigate for consumptive use under the requested appropriation through creation of a water banking program, referred to as the Northland Water Exchange. The Northland Water Exchange will be established by transferring into the Washington State Trust Water Right Program (TWRP) water rights that divert water from the Yakima River or its tributaries and have a pre-1905 priority date (Trust Water Rights). The Trust Water Rights will be maintained in trust to mitigate for new out-of-priority water right permits, including the subject application. Specific terms of the Northland Water Exchange are described in Attachment 2 – Trust Water Right Agreement between Northland Resources, LLC, and the State of Washington, Department of Ecology.

Table 1
Summary of Application No. G4-35246

Attributes	*Proposed (as published in the Public Notice)*
Applicant	Misty Mountain LLC
Date of Application	June 5, 2009
Instantaneous Quantity	250 gpm
Annual Quantity	11 ac-ft/yr
Source	One or more wells
Point of Withdrawal	SE¼NW¼ and NE¼SW¼ of Section 9, T. 19 N., R. 15 E.W.M.
Purpose of Use	Multiple domestic
Period of Use	Year-round
Place of Use	As described on page 1 of this Report of Examination

Legal Requirements for Application Processing
The following requirements must be met prior to processing a water right application:

- **Public Notice**
  Notice of the application was published in the *Daily Record* of Ellensburg, Washington, on October 24 and 31, 2009. No comments or protests were received by Ecology during the 30-day comment period.

- **State Environmental Policy Act (SEPA)**
  On June 8, 2006, Kittitas County (SEPA lead agency) issued a Mitigated Determination of Non-Significance (MDNS) for the Tillman Heights (P-06-16) Performance Based Cluster Plat. On May 30, 2008, Kittitas County issued a MDNS for the Fircrest (P-07-27) Performance Based Cluster Plat. These decisions were made after review of completed environmental checklists and other information on file with the lead agency. Kittitas County determined certain mitigation measures or conditions were necessary in order issue Determinations of Non-Significance. Conditions relevant to this water right application include providing water service through a public water system approved by Department of Health and compliance with Ecology rules and regulation for groundwater withdrawals. These conditions were considered and incorporated into this report.

- **Water Resources Statutes and Case Law**
  Chapters and 90.44 RCW, specifically 90.44.060 authorizes the appropriation of public groundwater for beneficial use, and chapter 90.03 describes the process for obtaining water rights. RCW 90.42.100(2)(c) authorizes Ecology to issue new water rights using the Trust Water Right Program for water banking purposes. In addition, this application qualifies for expedited processing under WAC 173-539A-060(2).

INVESTIGATION

Site Visit
A site visit was performed by Kurt Walker from the Department of Ecology on July 22, 2010, and was attended by Sean Northrop of Northland Resources Inc.

Domestic Water Use
The proposed Fircrest development does not currently have a Group B water system plan. However, the applicant has presented water demand estimates by month (see Table 2). Average daily demand (ADD) for indoor water use purposes is estimated at 150 gallons per day (gpd) per equivalent residential unit (ERU). Outdoor water use is expected to primarily consist of lawn and garden irrigation, and is estimated using methods and assumptions found in Ecology's GUID 1210, *Determining Irrigation Efficiency and Consumptive Use*[1], and WAC 173-539A.

The 2009, *Water System Design Manual*[2] (WSDM) by the Washington State 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 246-290-2321(3)(a) and Section 5.2.3
3. The criteria presented in this chapter.

Analogous water systems are defined in Section 5.2.3 of the WSDM as systems with similar characteristics such as: demographics, housing size, income levels, lot sizes, climate, water pricing structure, conservation practices, use restrictions, soils and landscaping, and maintenance practices.

There is no water use for the proposed development to review, and records for qualifying analogous systems are not available. Currently, the proposed water demand estimates for indoor use are not consistent with the WSDM. As a result, Ecology's connection approval (13 units) is an upper limit and is contingent upon DOH's approval of a Group B water system which remains within the other limitations of this permit (i.e. Qi, Qa, irrigated acres, etc.). DOH has full discretion and authority to limit the number of connections to less than the proposed 13 units.

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[1] Ecology's GUID 1210, *Determining Irrigation Efficiency and Consumptive Use*
http://www.ecy.wa.gov/programs/wr/rules/images/pdf/guid1210.pdf
[2] Department of Health's *Water System Design Manual* http://www.doh.wa.gov/ehp/dw/Publications/331-123.pdf

Table 2
Domestic Water Use

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Indoor (gpd per ERU)	150	150	150	150	150	150	150	150	150	150	150	150
Outdoor (gpd per ERU)	0	0	0	0	70	380	540	480	320	0	0	0
Total (gpd per ERU)	150	150	150	150	220	530	690	630	470	150	150	150

Monthly and annual total and consumptive use at full build-out of the project were calculated based on the planned 13 ERUs, the indoor and outdoor water use per ERU in Table 3, and the consumptive use factors specified in the *Upper Kittitas Emergency Groundwater Rule* (WAC 173-539A). Under WAC 173-539A, 30 percent of domestic indoor use discharged to a septic system is assumed to be consumptively used and 90 percent of outdoor domestic use is assumed to be consumptively used. Calculated total and consumptive use are summarized in Table 3.

Table 3
Estimated Total and Consumptive Use at Full Build-Out

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total (acre-feet)	0.19	0.17	0.19	0.18	0.27	0.63	0.85	0.78	0.56	0.19	0.18	0.19	4.4
Consumptive (acre-feet)	0.06	0.05	0.06	0.05	0.13	0.46	0.66	0.59	0.40	0.06	0.05	0.06	2.6

The applicant proposes to use 150 gpd per ERU as the basis for the developments irrigation. Ecology's Guidance Document 1210, *Determining Irrigation Efficiency and Consumptive Use,* was used in part to calculate the area that could be irrigated using 150 gpd per ERU. An average outdoor use of 150 gpd per ERU year-round is equal to about 0.17 ac-ft/yr per ERU per year. A crop irrigation requirement for grass in the Cle Elum area of 24 inches was estimated using the ASCE-Penman Monteith method. Assuming the outdoor use is 90 percent consumptive, consistent with the assumptions in WAC 173-539A, and applying the ASCE-Penman Monteith CIR, the proposed outdoor use is sufficient to irrigate approximately 2,900 square feet of grass per ERU or 0.87 acres for the entire Fircrest Development.

Hydrologic/Hydrogeologic Evaluation
The project site is located on the north flank of South Cle Elum Ridge. A drainage that forms the eastern branch of Tillman Creek, a tributary to the Yakima River, runs through the property. Surficial geology at the property is mapped as landslide deposits (Tabor, et al., 1982), described as poorly sorted mud to boulder-size materials. The landslide deposits likely overlie unconsolidated alluvial fan deposits, described as poorly sorted boulder gravel to gravelly sand. These unconsolidated deposits overlie bedrock consisting of Darrington phyllite; sandstone, shale, and conglomerate of the Manastash Formation; or Columbia River Basalt flows.

Flow gauging data are not available for Tillman Creek. The expected seasonal variability in flows was evaluated based on gauging data from Big Creek, which also drains South Cle Elum Ridge about 7 miles west of Tillman Creek. Gauging data from Big Creek collected by Ecology (gauging station number 39Q060) between February 2005 and February 2009 show a typical snowmelt runoff hydrograph, with a spring freshet beginning in late March or early April. Peak flows occur in late April and May, and then gradually decline from June through the end of summer. Although a smaller drainage area, the occurrence of the spring freshet at Tillman Creek is expected to mirror that observed in Big Creek.

Groundwater at the site is likely recharged primarily by precipitation and snowmelt infiltrating from the higher elevation South Cle Elum Ridge, and infiltration of precipitation and snowmelt falling directly on the site. Groundwater is expected to flow downslope to the north, ultimately discharging to surface water of Tillman Creek and, in turn, the Yakima River.

The applicant has three existing wells within the place of use; however, only one well (Ecology Well ID ALN804) is located within the area included in the public notice for points of withdrawal, and is the only existing well currently proposed to serve the project. The first well (ID APG987), located in the SE¼SW¼ of Section 9, was completed in July 2007 to a depth of 480 feet below ground surface (bgs). The driller's log describes clay with gravel, cobbles, and boulders to a depth of 247 feet bgs overlying phyllite to the total depth of 480 feet bgs. Casing was installed to a depth of 285 feet bgs. The static water level was reported as a depth of 254 feet. An air lift test was performed after well completion, with an estimated yield of approximately 2 to 3 gpm.

The second well (Well ID ALN804), located in the NE¼SW¼ of Section 9, was completed in August 2007 to a depth of 160 feet bgs. The driller's log describes clay with gravel and boulders and sandy clay to a depth of 31 feet bgs, broken basalt from a 31 to 46 feet bgs, and broken phyllite from 46 feet to the total depth of 160 feet bgs. Casing was installed to a depth of 114 feet bgs, and perforated between depths of 35 and 45 feet bgs. The static water level was reported as a depth of 32 feet. An air lift test was performed after well completion, with an estimated yield of approximately 20 gpm. On August 4, 2010, Ecology requested that the driller of ALN804 (Fogle Pump & Supply) seal the open hole portion of the well past the bottom of the casing to ensure that the well was not dually completed. The work is expected to be completed before or shortly after this report is written.

The third well (Well ID APG967), located in the SE¼SE¼ of Section 9, was completed in November 2007 to a depth of 385 feet bgs. The driller's log describes clay with gravel and cobbles to a depth of 97 feet bgs, overlying phyllite to the total depth of 385 feet bgs. Casing was installed to a depth of 302 feet bgs. The static water level was reported as a depth of 83 feet. An air lift test was performed after well completion, with an estimated yield of approximately 1 to 1.5 gpm.

The wells completed into phyllite produce relatively low yields (about 1 to 3 gpm). The higher yield from well ALN804 is likely due to this well being completed partially into shallow, fractured basalt. It is assumed that most of the yield from this well is derived from the overlying alluvial material and fractured basalt, rather than the phyllite. Given that the first water bearing zone encountered in well ALN804 fractured basalt immediately underlying unconsolidated deposits, it is likely hydraulically related to the Yakima River.

The Ecology well log database was searched for nearby driller's logs to provide additional information on local hydrogeologic conditions. Seven wells were mapped in quarter-quarter sections adjacent to the property, with depths of completion ranging from 150 to 330 feet bgs. The logs for all but one well (Well ID APG209) indicate completion in what is interpreted to be either Darrington phyllite or the Manastash Formation, with depth to bedrock ranging from a few feet up to about 140 feet. The unconsolidated deposits are typically described as clay with gravel, cobbles, and boulders. The log for well APG209, located in the SE¼NW¼ of Section 9, describes 298 feet of clay and clay with gravel and boulders overlying sand, which may represent a thick sequence of landslide deposits. Depth to water and yield were reported as 210 feet bgs and 6 gpm, respectively.

Most wells in the area are completed in deeper bedrock, and the extent of shallower water bearing zones appears limited. New wells constructed under this authorization shall tap the unconsolidated deposits which may include the fractured top of the basalt bedrock if present.

Planned Mitigation

Northland, Inc. has offered mitigation by the use of the Northland Water Exchange and a conceptual plan for storing and releasing water on-site and off-site to address local impacts to Tillman Creek and the Yakima River.

The Northland Water Exchange has been created by the transfer of pre-1905 water rights to instream flow and water banking purposes through the TWRP. As a result of these transfers, the Exchange represents mitigation credits based on the consumptive use of these water rights on a month-by-month basis. The mitigation credits will be debited to mitigate for consumptive use under the subject application. The Exchange currently has mitigation credits represented by the following approved applications:

- **CS4-02223CTCLsb2@1 (Pasco).** This application, approved by Ecology on April 19, 2010, permanently changes an unperfected change authorization for year-round domestic supply, seasonal irrigation, and stock watering, to instream flow for water banking purposes. The historic authorized point of diversion is an unnamed spring, tributary to Spex Arth Creek and the Yakima River. Consumptive use recognized under this Trust Water Right is 55 ac-ft/yr.

- **CS4-01676(B)CTCL@1 (Newton).** This application, approved by Ecology on May 14, 2010, permanently changes the use from seasonal irrigation and stock watering to instream flow for water banking purposes. The historic authorized point of diversion is the Younger Ditch diversion from the Yakima River. Consumptive use recognized under this Trust Water Right is 73.7 ac-ft/yr.

- **CS4-00365CTCLsb5 (Henshaw).** This application, approved by Ecology on May 24, 2010, permanently changes the use of a portion of Acquavella Adjudicated Court Claim No. 00365 from seasonal irrigation to instream flow for water banking purposes. The historic authorized point of diversion is the Younger Ditch diversion from the Yakima River. Consumptive use recognized under this Trust Water Right is 89 ac-ft/yr.

The current mitigation credits represented by the transfer and change of the above three water rights are as follows by estimated total monthly consumptive use:

Table 4
Available Consumptive Use Mitigation Credits

Water Right	Apr	May	Jun	Jul	Aug	Sep	Annual
Pasco	0.09	4.18	11.5	15.9	14.0	9.22	55
Newton	0	15.7	26.6	31.4	0	0	73.7
Henshaw	0	1.4	17.3	28.6	25.2	16.5	89
Total	0.09	21.28	55.4	75.9	39.2	25.72	217.7

Notes: Pasco water right includes approximately 0.01 ac-ft per month consumptive use mitigation credits from October through March.
Consumptive use mitigation credits under the Newton water right will be used prior to July 29 each year.

The total year round consumptive use associated with the proposed use is 2.63 ac-ft/yr. Table 3 presents the estimated monthly consumptive use for the project. The consumptive use impacts to surface water flows in the Yakima River Basin associated with this application will be mitigated on a month-to-month basis by a combination of assigning consumptive use mitigation from the Northland Water Exchange and providing scheduled releases from storage to address new out-of-season impacts. Specific terms of the Northland Water Exchange, including requirements to provide sufficient storage for release of mitigation water outside the historical irrigation season, are described in Attachment 2.

In addition to use of the Northland Water Exchange, Northland, Inc. has offered mitigation to address the local impacts to Tillman Creek. The following excerpt is taken from a brief report submitted by Aspect on behalf of Northland Inc.

> *The total year round consumptive use associated with the proposed use is 2.63 ac-ft/yr. Table 3 presents the estimated monthly consumptive use for the project. During the spring freshet (April, May, and June) no mitigation of the combined 0.64 consumptive impacts to surface water flows in Tillman Creek will be performed, as these impacts are not expected to adversely affect aquatic resources. However, the combined 0.64 acre-feet of consumptive use impacts to surface water flows in the Yakima River Basin over this period will be mitigated by assigning consumptive use mitigation from the Northland Water Exchange that will insure the project is water budget neutral with no impact to TWSA. Specific terms of the Northland Water Exchange are described in Attachment 2.*
>
> *In May and June of each year [a total of] 1.99 acre-feet of water, equal to the July through March consumptive use of the project, will be withdrawn and stored in an on-site pond. From July through March, water will be released from the pond to Tillman Creek at rates equal to the monthly consumptive use listed in Table 3, fully mitigating impacts to surface water flows in Tillman Creek and the Yakima River. As a result of the storage and release mitigation plan, a total of 2.63 acre-feet of mitigation credits will be debited from the Northland Water Exchange between April and June to account for project demand during these months (0.64 acre-feet) and storage for mitigation releases (1.99 acre-feet). Because the July through March project use will be mitigated by the water stored in May and June, no additional debit to the Northland Water Exchange will be needed over this period.*

The applicant is aware that separate diversionary permits, reservoir permits, and secondary use permits are necessary components of mitigation offered to address impacts to the Yakima River and Tillman Creek. No uses may commence until such time that Ecology determines in writing that Northland has a storage and release plan which adequately addresses both the impacts to Tillman Creek and the Yakima River.

Impairment Considerations

Groundwater Rights

Ecology's water rights and well log databases were searched to identify nearby groundwater rights or water right permit-exempt wells that could be affected by the proposed groundwater appropriation. Two groundwater certificates (G4-27877CWRIS and G4-01251CWRIS) were identified within one mile of the project. These certificates authorize a combined use of 25 ac-ft/yr for multiple domestic use with points of withdrawal in the SW¼SW¼ of Section 4, Township 19 North, Range 15 E.W.M. The locations of nearby water right permit-exempt wells are discussed above in the Hydrologic/Hydrogeologic Evaluation section. Most wells in the area are completed relatively deep in bedrock, and would be likely not be affected by pumping a well completed in unconsolidated deposits. The closest well completed in unconsolidated deposits is well APG209, located in a parcel adjacent to the north side of the project. Potential effects of the proposed groundwater withdrawal on this well were used to evaluate the potential for groundwater impairment.

The preferred target aquifer for water supply is the unconsolidated landslide/alluvial deposits. The potential effect of pumping a well completed in the unconsolidated deposits on water levels at other nearby wells was evaluated using the Theis non-equilibrium equation corrected for unconfined conditions using the method of Jacob (1944) and the following parameters. A transmissivity of 50 feet squared per day was estimated based on an assumed 10 foot thickness of the water bearing zone (either fractured bedrock or coarse-grained unconsolidated deposits) and an assumed hydraulic conductivity of 5 feet per day for these materials. A storativity of 0.2 was assumed. A worst case scenario was evaluated assuming pumping of a single well at an instantaneous pumping rate of 40 gpm for 25 days, until the annual quantity of 4.4 acre-feet is exhausted. The exact location of well APG209 relative to potential well locations at the project is not known, so a distance of 250 feet was assumed. Applying the above values, the estimated drawdown at 250 feet from the pumping well after 25 days is 0.31 feet.

Surface Water Rights

No surface water rights were identified as diverting from Tillman Creek down gradient of the Fircrest project well locations (NE¼SW¼ and SE¼NW¼ of Section 9). Consumptive use impacts to the mainstem Yakima River associated with the project will be mitigated through use of credits available from transfer of pre-1905 water rights to the TWRP and scheduled surface water releases.

Water Availability

Water availability includes legal availability (e.g., closure of basins to further appropriation) and physical availability (e.g., productivity of the aquifer). Under WAC 173-539A all groundwater in upper Kittitas County, including the project site, was withdrawn from further appropriation, except where the new appropriation is water budget neutral. The rule defines water budget neutral as "…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". The appropriation proposed under the subject application will be water budget neutral by dedicating 2.63 ac-ft/yr of consumptive use available from the Northland Water Exchange to mitigation purposes. Month by month mitigation is offered to account for the project's indoor and outdoor uses both during and after the irrigation season (April 1 – September 30). Out-of-irrigation season (October 31 – March 31) uses will be mitigated through an acceptable storage and release program to address out-of-season impacts.

Well ALN804 was estimated to produce 20 gpm at the time of drilling. An off-site well (APG209) completed into unconsolidated alluvial deposits was estimated to produce 6 gpm at the time of drilling. It is expected that a total of four wells completed into the unconsolidated deposits could produce the requested Qi of 40 gpm.

Public Interest Considerations

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

Consideration of Protests and Comments

No protests or comments were received during the 30-day comment period following publication of the public notice.

CONCLUSIONS

- Water is physically available at quantities sufficient to meet project demand, although multiple wells may be required to achieve the necessary Qi. When combined with the proposed mitigation measures, water is legally available under the provisions of WAC 173-539A.
- According to RCW 90.54.020 multiple domestic use is considered a beneficial use.
- Approval of the proposed appropriation, when combined with the proposed mitigation measures, will not result in impairment of existing water right holders.
- Approval of the proposed appropriation, when combined with the proposed mitigation measures, is not detrimental to the public interest.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend Application No. G4-35246 be authorized in the amounts and within the limitations listed below and subject to the provisions beginning on Page 2.

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.

- 40 gallons per minute
- 2.2 acre-feet per year-round multiple domestic supply of 13 units
- 2.2 acre-feet per year for irrigation of 0.87 acres from May 1 through September 30

Point of Withdrawal

- Well ALN804 - NE¼SW¼, Section 9, Township 19 North, Range 15 E.W.M.
- Up to three additional wells within the NE¼SW¼ and/or SE¼NW¼ of Section 9, Township 19 North, Range 15 E.W.M.

Place of Use
As described on Page 1 of this Report of Examination.

Report by: MELISSA DOWNES — 3.31.2011

Melissa Downes, Water Resources Program — Date

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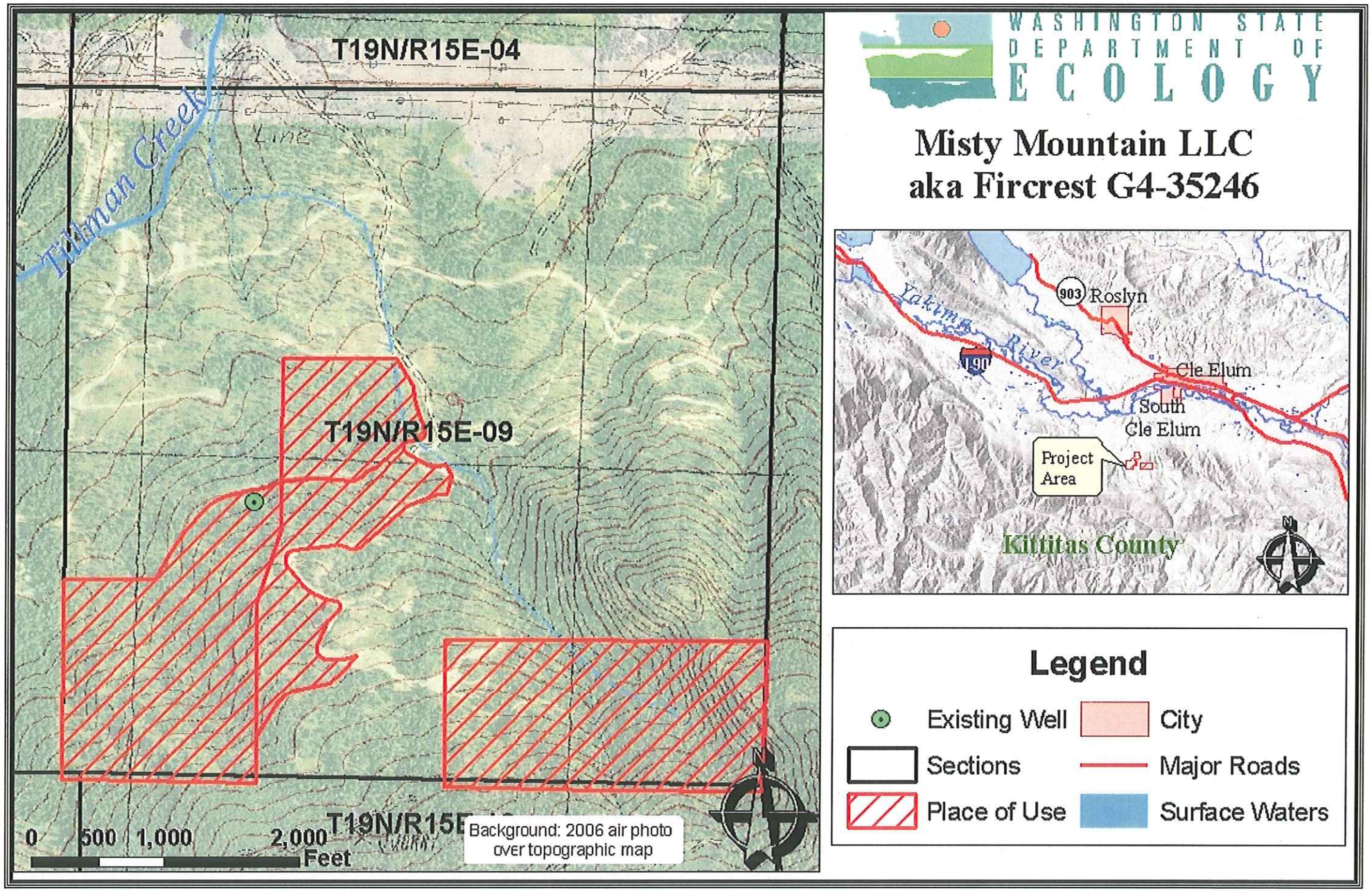

Attachment 1

Attachment 2

Trust Water Right Agreement
First Amendment to Trust Water Right Agreement
Second Amendment to Trust Water Right Agreement

This document may be found in the WRTS File No. G4-35246
Located at Water Resources Program
Central Region Office

If you would like a copy of this document, please contact:
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