DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
REPORT OF EXAMINATION
FOR WATER RIGHT APPLICATION

PRIORITY DATE
10/26/2011

WATER RIGHT NUMBER
G3-30654

MAILING ADDRESS
Pomeroy School District No. 110
P.O. Box 950
Pomeroy WA 99347

SITE ADDRESS (IF DIFFERENT)

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
250	GPM	0

Purpose

PURPOSE	WITHDRAWAL RATE	ANNUAL QUANTITY (AF/YR)	PERIOD OF USE (mm/dd)
Heat Exchange	250 GPM	0	01/01 - 12/31

250 gallons per minute continuously for nonconsumptive heat exchange

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Garfield	Groundwater		35-Middle Snake

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
	8052140052300	BHF755	12 N.	42 E.	31	SW¼SE¼	46.47147°	-117.59547°

Datum: WGS84

A well 75 feet North and 1360 West from the SE corner of Section 31

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

8052140052300, 8052140102340, 8052140032350, 8052150002400

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

The place of use is the Pomeroy Jr./Sr. High School building located on Lots 1-5 and Lot 10 of Block 14 and all of Block 15 in Pomeroy's Addition, Pomeroy City, Garfield County, WA, in the SW¼SE¼ of Section 31, T. 12 N., R. 42 E.W.M.

Proposed Works

The groundwater for the proposed system would be pumped from an extraction well by a submersible turbine pump utilizing a variable speed drive that modulates the water flow to match the building heating/cooling demand. A separate building system will absorb heat from the well water in heating mode or transfers heat to the well water in cooling mode. After passing through the heat exchanger, 100 percent of the well water is returned to the ground through a separate injection well.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Completed	Completed	Completed

Measurement of Water Use

How often must water use be measured?	Weekly
How often must water use data be reported to Ecology?	Upon request by Ecology
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

Provisions

Wells, Well Logs and Well Construction Standards

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.

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.

Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

Measurements, Monitoring, Metering and Reporting

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.

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.

Underground Injection Control Program

The subject infiltration system shall be registered with Ecology's Underground Injection Control Program prior to discharge of any water withdrawn under this authorization.
http://www.ecy.wa.gov/pubs/wac173218.pdf

Water Use Efficiency

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

Schedule and Inspections

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.

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. G3-30654 subject to existing rights and the provisions specified above.

Your Right To Appeal

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

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

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

- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

- You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

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

Signed at Spokane, Washington, this 19th day of September, 2013.

Keith L. Stoffel, Section Manager

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov. To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser.

INVESTIGATOR'S REPORT
Application for Water Right -- Pomeroy School District No. 110
Water Right Control Number G3-30654
Eastern Regional Office, Department of Ecology

BACKGROUND

Description and Purpose of Proposed Application

On October 26, 2011, the Washington State Department of Ecology (Ecology) accepted Water Right Application Number G3-30654 submitted by the Pomeroy School District, No. 110. Attributes of the application are presented below in Table 1. Lands covered by the proposed place of use are owned by the Pomeroy School District, No. 110, parcel numbers 8052140052300, 8052140102340, 8052140032350, and 8052150002400. The points of withdrawal and injection are located on the same land.

The proposed water use is nonconsumptive heat exchange.

Attributes of Proposal

Table 1 Application Summary

Name	**Pomeroy School District No. 110**
Priority Date	10/26/2011
Instantaneous Rate	250 gpm
Annual Quantity	0 af/yr
Purpose(s) of Use	Heat Exchange
Period of Use	Continuous
Place(s) of Use	Pomeroy Jr./Sr. High School, Section 31, T. 12 N., R. 42 E.W.M

Table 2 Geographic Setting

County	Water body	Tributary To	WRIA
Garfield	Groundwater		35-Middle Snake

Table 3 Proposed Sources of Withdrawal or Diversion

Source Name	Parcel	Well Tag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
Well	8052140052300	BHF755	12 N.	42 E.	31	SW¼SE¼		

Priority Processing

This application qualifies for priority processing under WAC173-152, allowing it to be processed ahead of competing applications. Normally, new water right applications are acted upon in the order in which they are received – by priority date. Certain new water right applications are afforded priority processing if they meet certain conditions. With respect to this application, WAC 173-152-050(2) provides that an application may be processed prior to competing applications if the department determines that:

> "The proposed water use is nonconsumptive and if approved would substantially enhance or protect the quality of the natural environment." (WAC 173-152-050(2)(b)

Ecology also has a policy titled "Priority Processing of Heat Pump Applications" (POL 2020). This Policy reiterates that an application for withdrawal of water for heat exchange purposes may be given priority processing provided the conditions set forth in WAC 173-152-050(2)(b) are met.

1. Nonconsumptive Use: Ecology Water Resource Program Policy POL-1020 governs determination of consumptive vs. nonconsumptive water use. The Policy defines ground water use as nonconsumptive when:

"...there is no diminishment of the source. In order not to diminish the source, the withdrawn water is injected or infiltrated immediately back to the aquifer. The water must be returned in the same quantity and quality (excluding temperature change) at a point in close proximity to the withdrawal wells. An example of this use is a heat pump."

2. Substantially Enhance or Protect the Natural Environment: An open-loop water source exchange system such as that proposed generally provides a considerable improvement in energy efficiency over comparable traditional systems. There is an energy savings over air-source heat pumps, particularly during periods of below-freezing weather, and there is no direct combustion associated with these systems as there would be with coal, oil or natural gas. The energy savings and reduction of greenhouse gases that this type of system provides over conventional heating and cooling systems can be considered as substantially enhancing the natural environment.

The proposed open-loop heat exchange system meets the criteria set forth in WAC 173-152-050(2)(b) and is afforded priority processing. Priority processing was approved by Keith Stoffel, Water Resources Section Manager, Eastern Regional Office on November 1, 2011.

Legal Requirements for Approval of Appropriation of Water

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 available
- There must be no impairment of existing rights

- The water use must be beneficial
- The water use must not be detrimental to the public interest

This report serves as the written findings of fact concerning all things investigated regarding Water Right Application Number G3-30654.

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 *Pomeroy East Washingtonian* during the weeks of December 28, 2011 and January 4, 2012.

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, unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cubic feet per second, 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;
(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, it is categorically exempt from SEPA and a threshold determination is not required.

INVESTIGATION

Ecology employee Jeff MacLennan met with Jim Collins, head of maintenance for the Pomeroy School District, on August 6, 2013. Pomeroy Jr/Sr High School is located in a suburban area near Pataha Creek.

There were enough unknowns surrounding this application that a preliminary permit was issued on February 16, 2012 for pump test purposes. The results of that pump test are included throughout the following narrative. On July 29, 2013, while discussing the results of the pump test with Chris Comstock of Strata, the geo-technical company conducting the pump test, it was learned the heat exchange system was installed in the summer of 2012 and immediately put into service. This was confirmed by Mr. Collins. Mr. Collins stated the heat exchange system is fully developed and has been operating since September, 2012 at full capacity. An inspection of the meter confirmed there has been significant use.

Proposed Use and Basis of Water Demand

The Pomeroy School District proposes to use groundwater as part of a heat exchange system for heating and cooling the Pomeroy Jr/Sr High School building. The groundwater for the proposed system would be pumped from the source well by a submersible turbine well pump using a variable speed drive to control the water flow so as to match the building heating and cooling needs. The water is injected into a double wall flat plate heat exchanger. This heat exchanger facilitates the transfer of heat between the well loop and building loop while maintaining a separation between the two systems. An additional air gap exists between the heat exchanger plates, further separating the groundwater system and the building heating system to ensure no cross contamination from a potential leak in the heat exchanger.

The building heating system will absorb heat from the well water in heating mode or transfer heat to the well water in cooling mode. At the design rate of 250 gpm, the peak change in temperature of the well water is a maximum of 10 degrees F. Once passed through the heat exchanger, 100 percent of the well water is returned to the ground through a separate injection well.

One of the questions answered by the pump test was the ability of the aquifer to supply water at 250 gpm for an extended period of time. Table 4, Step Draw-Down Test Summary, below, was taken from the pump test report provided by Strata, a geotechnical services corporation. (Strata, A Professional Services Corporation, *Hydrogeologic Report, Pomeroy Junior/Senior High School, Pomeroy School District No. 110, Pomeroy Washington*. July 26, 2013. p. 4)

Table 4 Step Draw-Down Test Summary

Test Date: February 29, 2012				
Test Initiated:	10:18 a.m.			
Pumping Duration:	260 minutes (60 additional minutes for recovery)			
Pump Intake depth:	231 feet Below Top of Casing (BTOC)			
Static Groundwater Level at Test Initiation:	25.60 feet BTOC			
Test Parameters	**Step 1**	**Step 2**	**Step 3**	**Step 4**
Step Duration (minutes)	60	70	65	65
Average Discharge Rate[1] (gpm)	105.4	185.3	227.8	255.1
Maximum Drawdown Observed[2]	8.79	23.92	36.41	48.38
Test Terminated:	2:38 p.m.			
Approximate Total Gallons Discharged:	48,734 gallons			

1. Discharge rate (in gallons per minute, GPM) varied slightly due to head changes in well casing. Based on anticipated system requirements of 200 to 250 GPM, discrete step draw-down discharge roughly correlate to between 0.5 and 1.25 time the design system flow.
2. Drawdown represents the difference between water levels at the end of each step and static water level at test initiation (time 0).

The proposed ground source heat pump system would not result in a consumptive use of groundwater since all of the water used would be injected back into the ground. No chemicals are added to the water; the quality of the water is unchanged except for temperature.

Other Rights Appurtenant to the Place of Use

There are no water rights appurtenant to the Pomeroy School District's property. There are five certified water rights and two water right claims belonging to Pomeroy City providing municipal water to the school district (see Table 5).

Table 5 Pomeroy City Rights

Water Right Number	Holder	Priority Date	Qi	Qa (af)	Purpose	Distance from G3-30654 Source (ft)
GWC2367	Pomeroy City	4/9/1954	500 gpm	746	Municipal	1950
S3-27070CWRIS	Pomeroy City	6/27/1981	0.23 cfs	165	Multiple Domestic	15,560
GWC1016	Pomeroy City	6/1/1942	750 gpm	148	Municipal	3500
GWC1017	Pomeroy City	6/1/1942	500 gpm	130	Municipal	3500
S3-26755CWRIS	Pomeroy City	10/24/1980	0.53 cfs	387	Multiple Domestic	15370
S3-131332CL	Pomeroy City	5/1/1902	300 gpm	484	General Domestic	12700
S3-131333CL	Pomeroy City	11/1/1920	0.53 cfs	387	General Domestic	15370

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 and (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).

Table 6 outlines the water right claims within a mile of the proposed source.

Table 6 Rights within One Mile of Proposed Source

Water Right Number	Holder	Priority Date	Qi (gpm)	Qa (af)	Purpose	Distance from Source Well (ft)
G3-001144CL	Miller	1/1/1939	15	24.2	Domestic Supply Irrigation	2815
S3-120648CL	Heirs	Pre-1917	10	1	Domestic Supply	4400
S3-120650CL	Heirs	Pre-1917	10	1	Domestic Supply	4400
S3-139980CL	Johnson	6/1915	10	2	Domestic Supply	2060
S3-069945CL	Williams	10/24/1890	10	2	Stockwater	2780
G3-009899CL	Bott	9/1960	15	24	Domestic Supply Irrigation	1900
G3-129029CL	Morrow	1938	30		Heat Exchange	900

Impairment, Qualifying Ground Water Withdrawal Facilities, and Well Interference

Because this is a non-consumptive use there should be no impairment to any of the groundwater rights identified in Tables 5 and 6.

Strata also evaluated the pumping wells connectivity with nearby Pataha Creek . Strata concluded, "The aquifer is isolated from the creek by low permeability, massive basalt layers that exist between the Creek channel elevation and elevation where water was first encountered at 137 feet in the pumping well." (Strata, A Professional Services Corporation, *Hydrogeologic Report, Pomeroy Junior/Senior High School, Pomeroy School District No. 110, Pomeroy Washington*. July 26, 2013. p. 7). With that, this use of groundwater should have no impact on Pataha Creek.

Water Availability

For water to be available for appropriation, it must be both physically and legally available.

Physical availability

For water to be physically available for appropriation there must be ground or surface water present in quantities and quality and on a sufficiently frequent basis to provide a reasonably reliable source for the requested beneficial use or 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 Chapter 90.14 RCW
- Ground water uses established in accordance with Chapter 90.44 RCW, including those that are exempt from the requirement to obtain a permit; and
- 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.

The well log for the proposed source suggests water is available in the quantity required for a non-consumptive heat exchange system. This was verified by the step down pump test as seen in Table 5 above.

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 drainages 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.

Beneficial Use

The use of water for heat exchange purposes is defined in statute as a beneficial use (RCW 90.54.020(1)).

Public Interest Considerations

Consideration of Protests and Comments

No letters of concern were filed against this application.

The proposed withdrawal of water is considered a nonconsumptive appropriation. Approval of this application would result in an overall benefit to the natural environment by increasing the energy efficiency of the heating and cooling system of the building. There has been no public expression of protest or concern regarding the subject proposal, and no findings through this investigation indicating that there would be any detrimental impact to the public welfare through issuance of the water right. With that, this use is considered to be in the public interest.

Conclusions

In conclusion, water is available for appropriation, and the proposed use would be a beneficial use, would not impair existing water rights, and would not be detrimental to the public welfare. This examiner finds that water is available for appropriation for nonconsumptive continuous heat exchange in the amount of 250 gallons per minute.

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. Because the applicant has shown the water has been put to full beneficial use, I also recommend this water right be certificated.

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:

250 gpm
0 acre-feet per year
Heat Exchange

Point of Withdrawal

Well: 75 feet north and 1,360 feet west from the southeast corner of Section 31 in the SW¼ SE¼ of Section 31, Township 12 North, Range 42 E.W.M.

Place of Use

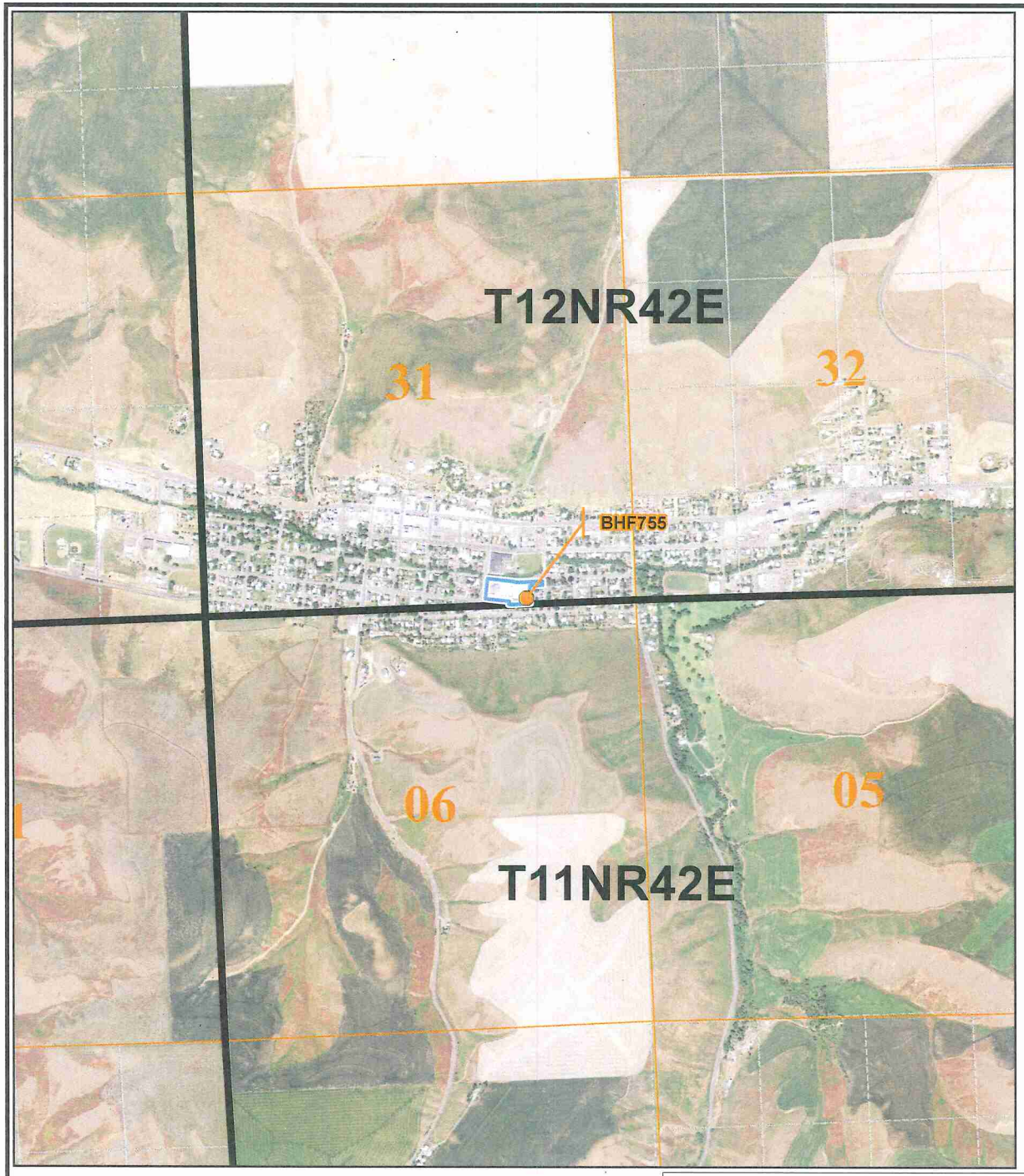
As described on Page 2 of this Report of Examination.

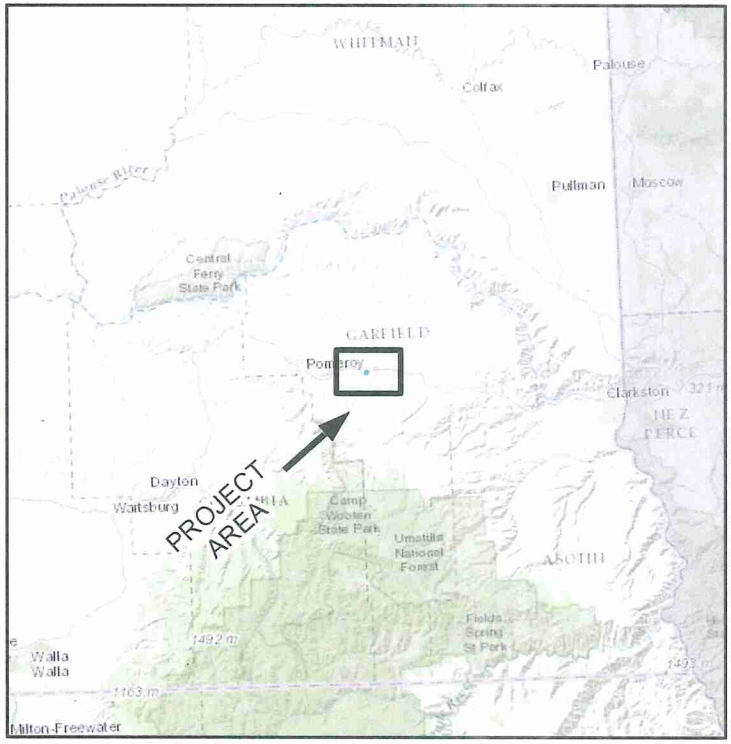
J MacLennan 9-17-2013

Jeff MacLennan, Report Writer *Date*

If you need this publication in an alternate format, please call the 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.

Pomeroy School District No. 110
G3-30654
T12N/R42E





Basemap - (ESRI US Topographic Maps)

Legend

Authorized Place of Use

Townships

Sections

Authorized Point of Withdrawl

0 660 1,320 2,640 3,960 5,280 6,600 Feet

Basemap - (NAIP 2011 1m color)

DEPARTMENT OF ECOLOGY State of Washington

Map Date: 8/13/2013

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