File No. G1-28427
WAC Doc ID: 4269099

DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
REPORT OF EXAMINATION
FOR WATER RIGHT APPLICATION

PRIORITY DATE	APPLICATION NUMBER
April 10, 2006	G1-28427

MAILING ADDRESS	SITE ADDRESS (IF DIFFERENT)
Dick Chapin 100 Timber Ridge Way NW, #3216 Issaquah, WA 98027	Delicious Water System Spurlock Road, Bush Point,

Quantity Authorized for Withdrawal or Diversion

DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
5	GPM	2.7

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Multiple Domestic (DM)	5 gpm			2.7 DM		DM: Year-round, as needed

Source Location

WATERBODY	TRIBUTARY TO	COUNTY	WATER RESOURCE INVENTORY AREA
Aquifer C		Island	WRIA 6

SOURCE FACILITY/DEVICE	PARCEL	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well, ECY ID: AKY 738	029-S62050-00-9007-3	29N	2E	6	NW NE		

Place of Use (See Map, Attachment 1)

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

Beginning at the Northeast corner Section 6, Township 29 N Range 02E, W.M. Thence S0°10′31" W 415.4 ft, thence N 90°W 1337.5 ft to the Northwest boundary of Spyglass Drive and the true point of beginning. Thence continuing Southwest along the northern margin of Spyglass Drive S 56°28′17"W 700.2 ft, thence S 56°28′26W

11.8 ft, thence S 67°20′36"W 89.8 ft, thence N 33°31′45"W 133.7 ft, more or less to the shore of Admiralty Inlet. Thence continuing Northerly and Easterly along the shore of Admiralty Inlet to a point that is N 33°31′43" W 231.1 ft from the true point of beginning, thence S 33°31′43"E 231.1 ft to the true point of beginning.

AND Beginning at the Northeast corner of Section 6 Township 29N Range 02E W.M. Thence S 0°10′31"W 415.4 ft, thence N 90°W 1002.0 ft to the true point of beginning, thence S 1°4′17"W 175 ft, thence N 88°55′38"W 235.1 ft, thence S 0°20′30"E 209.2 ft, thence N 88°55′40"W 62 ft to the northern margin of Scurlock Road, thence continuing along the northern margin of said road N 44°17′59"W 379.3 ft, thence N 56°28′11"E 207.3 ft, thence S 88°55′34"E 391.3 ft to the true point of beginning.

AND Beginning at the Northeast corner of Section 6 Township 29N Range 02E W.M. thence S 1°10′23" W 1049.1 ft, thence N 90°W 1902.8 ft to the true point of beginning. Thence N 0°39′39"E 180.4 ft, thence a curve to the right with at angle of 44°01′11", a radius of 53.63 ft, and a cord direction of N 22°40′15"E. Thence N 55°44′42"E 303.48 ft, thence a curve to the right with an angle of 77°59′25", a radius of 34.7ft, and a cord direction of S 85°15′36"E. Thence S 44°23′18"E 296.3 ft, thence a curve to the right with a angle of 48°24′52", a radius of 120.2 ft, and a cord direction of S 20°10′52"E. Thence S 0°40′8" W 115.3 ft, thence N89°15′08"W 173.7 ft, thence S4°34′28"W 21 ft, thence N88°38′26"W 193.2 ft, thence N0°11′24"E 47.31 ft, thence N89°27′44"W 183.5 ft to point of beginning.

Proposed Works

Well is 78 feet deep. Withdrawal is metered.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	December 31, 2023	December 31, 2025

Measurement of Water Use

How often must water use be recorded?	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

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, which describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

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

Water samples representative of the formation shall be analyzed by a state-accredited laboratory for Chloride (mg CL^-), Conductivity (mhos), and Hardness (mg $CaCO_3$). An increasing trend in the

concentrations of these groundwater constituents shall trigger review by the department to evaluate whether an increasing trend is due to seawater intrusion or very hard, naturally occurring, groundwater. If Ecology determines this withdrawal degrades the resource due to saltwater intrusion, withdrawal shall be altered to arrest the trend toward seawater intrusion.

Chloride Monitoring

In November of each year, the following information shall be submitted in writing to the Department of Ecology, Northwest Region Office, Bellevue, Washington.

April and September measurements from the subject well(s) of:

- Chloride and conductivity (the chemical analysis shall be performed by a state-accredited laboratory)
- Depth to static water level (with pump off long enough to allow for stabilization)
- The chloride/conductivity sampling and the static water level measurement shall be conducted concurrently.

This data collection will assist the applicant and Ecology in determining if actions are necessary to prevent an increasing trend in chloride concentrations (an indicator of seawater intrusion). Preventative actions may include – reducing the instantaneous pumping rate, reducing the annual volume pumped, scheduling pumping to coincide with low tides, raising the pump intake, and/or limiting the number of service connections.

Water Use Efficiency

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.

Proof of Appropriation

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.

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. G1-28427, 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 111 Israel RD SW STE 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

Signed at Bellevue, Washington, this 18 day of July 2013.

Jacqueline Klug, Section Manager
Water Resources Program/NWRO
Department of Ecology

BACKGROUND

Ecology entered into an expedited cost reimbursement agreement to process water right application G1-28427 at the applicant's request. The application represented greater than or equal to 10% of all applications in the sub-basin. The results of Ecology's investigation are discussed, below, showing adequate supply for the applicant's needs. Chapin requested enough water for the Delicious Water System to serve 9 connections.

The estimated time for development of the entire project is 10 years.

The project site is located in Water Resource Inventory Area (WRIA) 6 in Island County which includes Whidbey and Camano Islands. Using the criteria established in Seawater Intrusion Topic Paper (Kelly, 2005), the site has a low risk of saltwater intrusion.

Table 1
Summary of Application No. G1-28427

Attributes	*Proposed*
Applicant	Dick Chapin
Application Received	April 10, 2006
Instantaneous Quantity	5 gpm
Annual Quantity	2.7 acre-feet per year (requested)
Point of Diversion	1 well in NW1/4 NE1/4 Sec. 6 Twn 29N Rng 02E W.M.
Purpose of Use	Multiple Domestic Supply Purposes
Period of Use	Year-round as needed
Place of Use	Beginning at the Northeast corner Section 6, Township 29 N Range 02E, W.M. Thence S0°10′31" W 415.4 ft, thence N 90°W 1337.5 ft to the Northwest boundary of Spyglass Drive and the true point of beginning. Thence continuing Southwest along the northern margin of Spyglass Drive S 56°28′17"W 700.2 ft, thence S 56°28′26W 11.8 ft, thence S 67°20′36"W 89.8 ft, thence N 33°31′45"W 133.7 ft, more or less to the shore of Admiralty Inlet. Thence continuing Northerly and Easterly along the shore of Admiralty Inlet to a point that is N 33°31′43" W 231.1 ft from the true point of beginning, thence S 33°31′43"E 231.1 ft to the true point of beginning. AND Beginning at the Northeast corner of Section 6 Township 29N Range 02E W.M. Thence S 0°10′31"W 415.4 ft, thence N

	90°W 1002.0 ft to the true point of beginning, thence S 1°4′17"W 175 ft, thence N 88°55′38"W 235.1 ft, thence S 0°20′30"E 209.2 ft, thence N 88°55′40"W 62 ft to the northern margin of Scurlock Road, thence continuing along the northern margin of said road N 44°17′59"W 379.3 ft, thence N 56°28′11"E 207.3 ft, thence S 88°55′34"E 391.3 ft to the true point of beginning. AND Beginning at the Northeast corner of Section 6 Township 29N Range 02E W.M. thence S 1°10′23" W 1049.1 ft, thence N 90°W 1902.8 ft to the true point of beginning. Thence N 0°39′39"E 180.4 ft, thence a curve to the right with at angle of 44°01′11", a radius of 53.63 ft, and a cord direction of N 22°40′15"E. Thence N 55°44′42"E 303.48 ft, thence a curve to the right with an angle of 77°59′25", a radius of 34.7ft, and a cord direction of S 85°15′36"E. Thence S 44°23′18"E 296.3 ft, thence a curve to the right with a angle of 48°24′52", a radius of 120.2 ft, and a cord direction of S 20°10′52"E. Thence S 0°40′8" W 115.3 ft, thence N89°15′08"W 173.7 ft, thence S4°34′28"W 21 ft, thence N88°38′26"W 193.2 ft, thence N0°11′24"E 47.31 ft, thence N89°27′44"W 183.5 ft to point of beginning.

Legal Requirements for Application Processing

The following requirements must be met prior to processing a water right application:

- **Public Notice**
  A notice of publication was published in the Whidbey News-Times on August 25 and September 1, 2007. Ecology received no protests during the public comment period.

- **State Environmental Policy Act (SEPA)**
  The subject water right is not subject to SEPA [WAC 197-11-305 and WAC 197-11-800(4)] because the instantaneous quantity is less than the threshold of 2,250 gallons per minute.

- **Water Resources Statutes and Case Law**
  Chapters 90.03 and 90.44 RCW authorize the appropriation of public water for beneficial use and describe the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.02.250 through 90.03.050.

INVESTIGATION

The investigation included, but was not limited to, the review of:

- The State Water Code, specifically WAC 173 and RCW 90. 03 and 90.44
- Washington State Department of Ecology, 2011, Washington State Well Log Viewer website, <http://apps.ecy.wa.gov/welllog/index.asp> .
- Washington State Department of Ecology, 2011, Water Rights Tracking System (WRTS) website <http://www.ecy.wa.gov/programs/wr/rights/tracking-apps.html> .
- Driscoll, Fletcher G. Groundwater and Wells, 2nd Edition. Johnson Division, St. Paul, Minnesota, 1986.
- Easterbrook, Don J., Henry W. Anderson, and A.S. Van Denburgh. Pleistocene Stratigraphy of Island County (Part I), Ground-Water Resources of Island County (Part II). United States Geological Survey, Water Resources Division, 1968.
- Economic and Engineering Services. Island County Groundwater Management Plan Part A Technical Memorandum. Olympia: Economic and Engineering Services, Inc., 1989.
- Economic and Engineering Services. Island County Coordinated Water System Plan Regional Supplement. Olympia: Economic and Engineering Services, Inc. in association with Hart-Crowser & Associates, 1990.
- Fetter, C.W. Applied Hydrogeology, fourth edition. Prentice Hall, Upper Saddle River, New Jersey, 2001.
- Kelly, Doug. Island County Water Resources Management Plan: Saltwater Intrusion Topic Paper. Coupeville: Island County Department of Health, Environmental Health Division, 2005.
- National Resource Conservation Service. Washington Irrigation Guide. United States Department of Agriculture, National Resource Conservation Service, 2007. Available for download as of May 22, 2008 at: http://www.wa.nrcs.usda.gov/technical/ENG/irrigation_guide/index.html.

The intent of this application is to secure a permit to appropriate water to provide domestic service to 9 homes.

Noel S. Philip and Jerry L. Liszak conducted a field exam and pump test on the well June 28, 2012. The exam included the inspection of the production well and the service area. The groundwater level was 60.99 feet below the top of the casing at 8:54 am. The pump had been depowered two days prior to this measurement, to achieve a fully-recovered, static water level condition. The project is currently supplied by one well, labeled with unique Ecology well tag AKY738. The withdrawal is metered. The meter read 0393790 at the outset of the pump test.

Site Description

General Hydrogeology

The hydrogeology of Central Whidbey Island has been shaped by at least three periods of glaciation, within intervening non-glacial periods. The aquifers tapped in this portion of the island are completed in unconsolidated sediments. The *Island County Ground Water Management Plan, Part A, Technical Memorandum* (GWMP, 2005) describes the groundwater-flow system as a series of discontinuous, permeable, water-bearing sediments (sand and gravel aquifers) surrounded by zones of lower-permeability sediments (silt, clay, and glacial-till aquitards).

The Chapin well is approximately 750 feet from Admiralty Inlet of Puget Sound, on central Whidbey Island (Attachment 1) at Bush Point. Whidbey Drillers (Dennis Faber #0129) completed the well construction September 12, 1997, according to the well report on file. It is unknown whether the well fully penetrates the water-bearing Whidbey Formation at this location, from approximately 70 to 78 feet below ground surface. Lithology data reported by the driller is consistent with those found in Island County Groundwater Management Plan A Technical Supplement (E&E Services, 1990). Easterbrook describes the Whidbey Formation as glacial deposits consisting of horizontally and cross-bedded layers of sand, silt, and clay with two distinct organic (peat) layers. The aquifer is termed Aquifer C, the hydrogeologic unit associated with the Whidbey Formation. The entire unit is not described as one single water-bearing zone; but rather a zone containing many small, separate aquifer zones.

Ecology personnel conducted a pump test on the well June 28, 2012, from 8:54 am to 11:45 am at which time the pump was turned off and recovery data collected until 3:26 pm. The pump test data are summarized below:

Date	June 28, 2012
Duration	171 minutes
Pump Rate	~11 gpm
Top of casing elevation	86.3 feet MSL
Static Water Level	23.3 feet MSL (60.99 feet below top of casing)
Pumping Water Level	19.5 feet MSL
Drawdown	3.82 feet
Stabilization Time	100 minutes
Available Head During Pumping	7.19 feet
Recovery Level	61.09 feet below top of casing
Recovery Time	221 minutes
Approximate volume pumped	1881 gal

The static water level elevation of the Chapin well is about 85.3 feet MSL (the top of the casing sticks up above land surface approximately one foot). Drawdown fluctuated and stabilized about 120 minutes into the test. The well recovered to pre-pumping levels within four hours. During the test, 18.3 feet of working head remained above the top of the screened interval, where the pump intake is traditionally set. The pump location in the well could not be verified in the field. The screened interval spans five feet from 7.3 to 12.3 feet MSL. The available head shows the remote likelihood pumping the well at the

tested rate will draw the water level down to the top of the screen. These data show the well produced 2.9 gpm/ft. The published pump rate will stress the aquifer less than the tested rate. The results of the pump test confirm the aquifer is capable of supplying water at the rate of 5 gpm from the Chapin well.

Annual water allocation, for Multiple Domestic use, required by the applicant is calculated using the number of anticipated connections and water use per connection. Residential water use is based on historical and current data from similar water systems on Whidbey Island. Presently, these systems indicate average use per connection is approximately one-third (0.3) acre-foot per year (afy). At this rate, the annual water quantity required by the applicant to serve 9 residential connections is 2.7 afy.

The total permitted annual groundwater withdrawal should be 2.7 afy.

Potential for Seawater Intrusion

One of the greatest threats to groundwater in Island County is seawater intrusion. The potential for seawater intrusion relates to the elevation of the groundwater (or potentiometric surface) relative to sea level. Aquifers having little or no groundwater head above sea level are susceptible to intrusion. Other factors such as recharge rate, pumping rate, aquifer transmissivity, hydraulic gradient, seasonal variation, and the geometry of the aquifer can influence the distribution and magnitude of seawater intrusion resulting from any particular withdrawal. Increasing concentrations of chloride in groundwater can be an indication of seawater intrusion. Unaffected groundwater in Island County generally contains a chloride concentration between 10-20 mg/L. Concentrations of 100 mg/L or greater provide evidence of seawater intrusion unless other sources of chloride are present such as naturally occurring hard groundwater.

Maps used by Island County to aid policy decisions show a majority of Bush Point classified as very high risk for seawater intrusion, however the Island County Health Department ranking system classifies the area of withdrawal as low for seawater intrusion based on two criteria: the elevation of groundwater (19.5 feet MSL pumping water level), combined with the chloride concentration in the well. The most recent chloride data from samples collected during the pump test showed chlorides ranging from 15-20 mg/L. The most recent data reported 39 mg/L Cl^-, and 560 mhos conductivity. Regular, diligent monitoring and reporting will alert administrators of possible degradation of the aquifer. While the subject well shows no sign of seawater intrusion, long term pumping (decades) may encourage the advancement of the saltwater-freshwater interface throughout the lifetime of the permit, or after the appropriated amount of water is certificated. Such an event could impair the use of wells along the coast.

Four Statutory Tests

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

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

Beneficial Use

Domestic water supply is considered beneficial use of water.

Availability

Water is physically available for appropriation. The well is capable of sustaining withdrawal at its published pumping rate (5 gpm) and the increased annual water use in the area is not anticipated to impact other water users.

Potential for Impairment

Other Groundwater Users

Groundwater wells at greatest risk of potential impairment are those which are completed in the same aquifer zone as the subject well, located in close proximity to the subject well, and also located hydrogeologically down-gradient from the subject well. As water in the aquifer travels toward wells located down-gradient from the subject well, the subject well may potentially capture this water and impair the production of down-gradient wells. Surface water diversions located within a close proximity of the subject well may be impacted by the groundwater withdrawal, depending upon physical aquifer characteristics. An arbitrarily, yet conservatively chosen radius of one-half mile (1/2-mile) is used to define "close proximity." This value is justified experimentally based on current and historical pump test data showing negligible drawdown at distances of 1000 feet, less than half the distance defined as close proximity. Using this standard, impairment to wells or surface water diversions induced by groundwater withdrawal outside the area in most cases is unlikely. Furthermore, it is widely understood the aquifer systems in Island County are not laterally continuous, suggesting further barriers to impairment.

The Department of Ecology Water Rights Application Tracking System (WRATS) shows 6 groundwater right certificates of within close proximity of the Chapin well. None of the places of use include those parcels proposed for service by the Chapin well. No impairment has been reported in the area, and typical domestic use by the addition of those homes served by the Chapin well will not likely impair existing users in the immediate future.

Washington water law does not consider drawdown to be an impairment of existing water rights, unless the affected wells fully penetrate the aquifer and can no longer produce adequate water to meet the demands for which they were intended. The aquifer shows adequate capability to produce water in the amount requested without impairment to neighboring wells.

Surface Water Bodies

Minimum instream flows have not been established for WRIA 6. There are no significant surface streams within 1 mile of the Chapin well.

Public Welfare

RCW 90.03.290 requires that a proposed appropriation not be detrimental to the public interest.

The 1971 Water Resources Act provides the most comprehensive list of legislative policies that guide the consideration of public interest in the allocation of water. These policies generally require a balancing of the state's natural resources and values with the state's economic well-being. Specifically, the policies require allocation of water in a manner that preserves instream resources, protects the quality of the water, provides adequate and safe supplies of water to serve public need, and makes water available to support the economic well-being of the state and its citizens.

The withdrawal of 2.7 acre-feet of water year-round at an instantaneous rate of up to 5 gpm for multiple domestic supply is consistent with state policy without adversely impacting instream flows or other public needs and values.

CONCLUSIONS

The conclusions based on the above investigation are as follows:

1. The proposed appropriation for multiple domestic supply is a beneficial use of water;
2. The 5 gpm and 2.7 acre-feet per year is available for appropriation;
3. The new appropriation will not impair senior water rights; and
4. The new appropriation will not be detrimental to the public interest.

RECOMMENDATION

Based on the information presented above, the author recommends that the request to appropriate 5 gpm and 2.7 acre-feet per year be approved in the amounts described, limited, and provisioned on page 1 through 3 of this report.

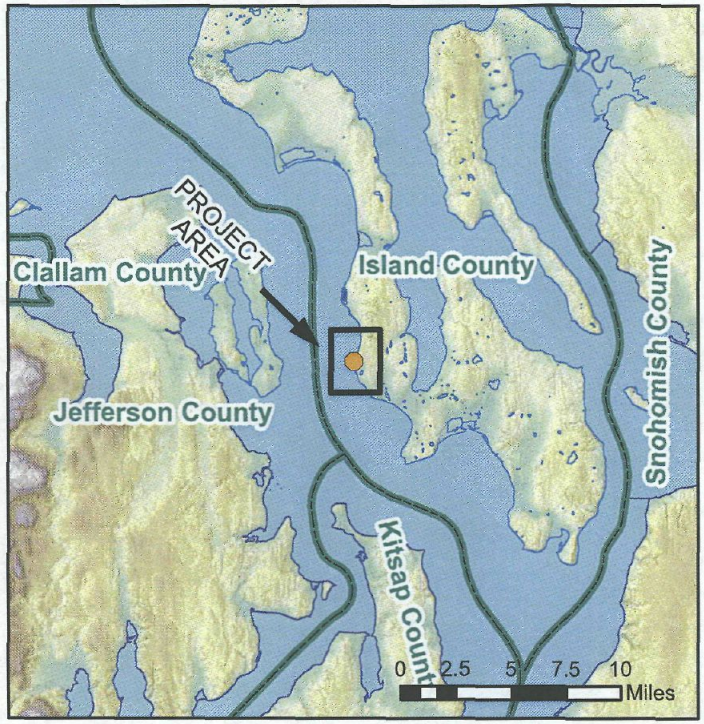
Report by: _____ 07/17/2013
Noel S. Philip, LHG, Water Resources Program — Date

Reviewed by: _____ 7/17/2013
Jerry L. Liszak, LHG, Water Resources Program — Date

State of Washington
Hydrogeologist
834
Licensed Geologist
JERRY LEE LISZAK

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.

Richard Chapin
Water Right Number G1-28427
Section 6 T29N R02E W.M.
WRIA 6 - Island County



Legend

- Authorized Place of Use
- Authorized Point of Withdrawal
- County Boundary
- Water Body
- Parcels
- Townships
- Sections

0 100 200 400 600 800 Feet

DEPARTMENT OF ECOLOGY State of Washington

Map Date: 6/4/2013

Place of use and point(s) of diversion/withdrawal are as defined on the cover sheet under the headings,'LOCATION OF DIVERSION/WITHDRAWAL'and 'LEGALDESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED.'

ATTACHMENT 1