STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

APPROVED
REPORT OF EXAMINATION
To Appropriate Public Waters of the State of Washington

PRIORITY DATE	APPLICATION NO.	PERMIT NO.	CERTIFICATE NO.
February 12, 1996	G1-27705		

NAME		
Eastsound Water Users Association		
MAILING ADDRESS	CITY/STATE	ZIP CODE
P.O. Box 115	Eastsound, WA	98245

PUBLIC WATERS TO BE APPROPRIATED

SOURCE

Greer Well 2

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND (cfs)	MAXIMUM GALLONS PER MINUTE (gpm)	MAXIMUM ACRE FEET PER YEAR (ac-ft/yr)
	47	1.75

TYPE OF USE, PERIOD OF USE

Multiple Domestic Supply – continuously

LOCATION OF DIVERSION

APPROXIMATE LOCATION OF DIVERSION

1555 feet east and 2460 feet south from the northwest corner of Section 36

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
NE1/4 SW1/4	12	37 N	2W	2	San Juan
PARCEL NUMBER					
271254015000					

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by Eastsound Water Users Association (EWUA) as described in their 2004 Water System Plan. Attachment 1 shows the locations of the authorized place of use and point of diversion.

Be aware that some provisions of the 2003 Municipal Water Law were deemed unconstitutional in King County Superior Court in 2008. One of these is the definition of a municipal water supplier. EWUA is no longer defined as a municipal supplier and this water right is issuing as a “multiple domestic” right. Any changes in the place of use of this water right must be authorized by Ecology through the formal change process.

DESCRIPTION OF WATER WORKS

Water will be withdrawn from a 6-inch diameter, 101-foot-deep well and introduced into the Eastsound Water Users Association distribution system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
Begun	May 25, 2012	May 25, 2014

PROVISIONS

WELLS, WELL LOGS AND WELL CONSTRUCTION STANDARDS

1. 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.

2. 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.

3. 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.

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

MEASUREMENTS, MONITORING, METERING AND REPORTING

5. 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. http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html

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

7. 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.

8. WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document titled "Water Measurement Device Installation and Operation Requirements". http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html

SCHEDULE AND INSPECTIONS

9. 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.

10. 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 and confirmed by a proof inspection. Elements of a proof inspection may include, as appropriate, the source, system instantaneous capacity, beneficial use, annual quantity, place of use, and satisfaction of provisions.

FINDINGS OF FACT AND ORDER

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

Therefore, I ORDER approval of Application No. G1-27705, subject to existing rights and the provisions listed above.

You have a right to appeal this ORDER. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your Notice of Appeal.
- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:		Deliver your appeal in person to:
The Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903	OR	The Pollution Control Hearings Board 4224 – 6th Ave SE Rowe Six, Bldg 2 Lacey, WA 98503

2. To serve your appeal on the Department of Ecology

Mail appeal to:		Deliver your appeal in person to:
The Department of Ecology Appeals Coordinator P.O. Box 47608 Olympia, WA 98504-7608	OR	The Department of Ecology Appeals Coordinator 300 Desmond Dr SE Lacey, WA 98503

3. And send a copy of your appeal to:

Andrew B. Dunn
Department of Ecology
3190 160th Ave SE
Bellevue, WA 98008

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

Signed at Bellevue, Washington, this ____ day of _____, 2009.

_____

Andrew B. Dunn, LG, LHG
Section Manager
Water Resources Program
Northwest Regional Office

BACKGROUND

Project Description

On February 12, 1996, Sharon Greer, LeRoy Hart, Nancy Hart, Joseph Grimm, and Carolyn Grimm applied to withdraw ground water from a well (designated as Well 2) in the amount of 75 gallons per minute (gpm) for the purpose of multiple domestic supply for 7 homes, each on 5-acre or larger lots.

In August 2005, all of the owners of the original owners formally assigned the application to Eastsound Water Users Association (EWUA), a privately owned, not-for-profit water association. Concurrently, EWUA installed infrastructure to begin serving the development originally planned to be served by Greer Well 2. EWUA is pursuing this water right application, along with a second application - G1-27704 - for an adjacent development with overlapping ownership, in order to recover the water that will, or potentially could (see "Quantity Requested" section), be served to the development under EWUA's existing water rights. EWUA plans to use the water throughout its service area as needed.

Legal Requirements for Application Processing

Chapter 90.03 and 90.44 RCW authorize appropriation of public ground 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 90.44.060.

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

- **Public Notice**
  Public notice of the application was published in *The Islands' Sounder* on September 28 and October 5, 2005. One protest was filed with Ecology but was received on November 15, 2005, after expiration of the mandatory 30-day protest period. Therefore, no official protests were received.

- **State Environmental Policy Act (SEPA)**
  The subject water right application is categorically exempt under SEPA WAC 197-11-305 and WAC 197-11-800(4) because the instantaneous withdrawal rate is less than 2,250 gallons per minute.

INVESTIGATION

In considering this application, my investigation included, but was not limited to, research and/or review of:

- Information supplied with the application
- The USGS Eastsound (1977) 7.5-minute Quadrangle
- Notes from site visit on October 22, 2008
- Washington Department of Health SENTRY online water-system database
- Ecology's water rights database and records of existing water rights in the vicinity
- San Juan County online zoning map
- EWUA website
- Geologic, Hydrologic, and Hydrogeologic reports pertinent to this investigation, referenced at the end of the investigators report

Site Descriptions

EWUA is located on Orcas Island in the San Juan Archipelago off Washington's northwest coast. The island is part of San Juan County, Washington. Eastsound, WA is an unincorporated community situated in the north-central section of the island in a narrow section (isthmus) connecting the larger east and west portions of the island.

The EWUA service area contains the community of Eastsound as well as all the area north of East Sound (the water body) and a significant portion of the area east of the north end of East Sound. The two proposed Greer Wells (Greer Wells 1 and 2) are located within the EWUA service area near Bartel Road in the northernmost portion of the Island. See Attachment 1.

According to the Washington Department of Health (DOH) Sentry Database, accessed February 2, 2009, at http://www4.doh.wa.gov/sentryinternet/Intro.aspx , EWUA currently serves a residential population of about 1,900 through 1,044 connections and has DOH approval for 1,266 connections. EWUA's current sources consist of 6 active wells and 1 active surface water diversion.

The proposed well, Greer Well 2, is located within the NE¼ SW¼ of Section 12, Township 37 North, Range 2 West. The parcel containing the well is approximately 2.5 acres and is owned by EWUA. Elevation of the parcel and the wellhead is about 115 feet above mean sea level (MSL). This parcel, along with the adjacent parcel containing Well 1 (situated approximately 175 feet to the northeast), is undeveloped and forested. Topography is gently sloping to the east. See Figure 3, page 10.

Site Visit

A site visit was performed October 22, 2008, by Jay Cook of the Department of Ecology. EWUA's general manager, Paul Kamin, guided the visit. During the visit, the subject well was observed and photos of the well were taken. A GPS reading was taken and gave a latitude of north 48° 42′ 34.67" and a longitude of 122° 53′ 40.09" west. The Department of Ecology well tag number for Well 2 is AGA331.

At the time of the site visit the two adjacent Greer (and associates) developments had 7 occupied homes and one home under construction. It has been noted that the Greer wells did serve the development prior to purchase of the system and service by EWUA. During the visit no active distribution system associated with the wells was observed.

Water Rights Used by EWUA

Table 1: Summary of Existing Water Rights Used by EWUA

Water Right Number	Priority Date	Issued to[1]	Qi (gpm)	Qa (afy)	Associated Well(s)	Annual Quantity Type[2]
GWC 3090	June 21, 1954	ESWD	50	80	1, 1R, 2	Primary
G1-00376C	April 15, 1970	EWUA	25	40	3, 4	Alternate, non-additive to GWC 3090
G1-00438C	July 7, 1970	ESWD	25	40	1, 1R, 2	Alternate, non-additive to GWC 3090 and G1-00376C
G1-21830C	June 21, 1974	EWUA	75	100	5, 6, 7A, 7B, 7C, 9, 12	Additive
G1-23144C	June 9, 1978	EWUA	20	32	8	Alternate, non-additive to GWC 3090, G1-00438C, G1-00376C, and G1-21830C
G1-23903C	August 10, 1981	EWUA	40	43	10	Additive
R1-24196C	November 4, 1982	EWUA	n/a	111.5	n/a	Reservoir Storage Right
S1-24416C	November 28, 1983	EWUA	0.67 cfs[3]	223	n/a	Purdue Lake Surface Right
	Ground Water Total		235	223		
	Grand Total		535.7	446[4]		

[1]Certificates 3090 and G1-00438 were issued to Eastsound Sewer and Water District (ESWD), which is a separate entity from Eastsound Water Users Association (EWUA). Though held by ESWD, these rights historically have been and currently are leased to and used by EWUA.
[2]Several rights issued to EWUA and ESWD allocated an annual quantity that was "supplemental" to existing rights. Ecology, with a goal of consistency, is now using specific language to describe different types of supplemental water rights. Note that all instantaneous quantities allocated are additive to existing rights.
[3]0.67 cfs is equal to 300.7 gallons per minute
[4]Non-additive and Reservoir Storage rights do not count toward this total.

In 2004 Ecology authorized changes to all 6 ground water rights held by EWUA and ESWD. The changes allowed the point of withdrawal for each water right to be the Eastsound Aquifer as defined in the Reports of Examination. This allows the water right holder to construct new wells within the Eastsound Aquifer and use each new well as a point of withdrawal for any water right on condition that proof is given that the new well will not impair others.

Quantity Requested

The original application filed by Ms. Sharon Greer and her associates requested water at a rate of 75 gpm to serve 7 homes. EWUA, in correspondence after taking ownership of the application, has suggested that the well had exempt well capacity to provide for 14 connections and EWUA purchased the system with the understanding that they were purchasing capacity to serve 14 connections (28 total connections including the potential to serve 14 connections with Well 1).

As mentioned above, the original application was filed with the intent of serving 7 connections. While the 75 gpm instantaneous quantity requested could certainly serve more than 7 connections, altering the number of connections at this time would constitute a change in the project and would require a new application with a new priority date. The two Greer (and associates) applications requested water to serve a total of 13 homes, which is the current number of landowners within the originally proposed places of use.

San Juan County zoning maps, accessed February 2, 2009, online at http://www.co.san-juan.wa.us/Planning/OfficialMaps.aspx , show that the two developments fall within an area zoned as Eastsound Rural, which allows 1 unit per 5 acres. Total area of the two developments is 70 acres, suggesting that the maximum number of homes would be 14.

The annual water requirement for the 7 connections within EWUA's service area will be based on typical use of EWUA customers. EWUA's Rates and Fees Schedule accessed February 6, 2009 at http://www.eastsoundwater.org/Membership.html states that "on average only about 10% of our members used more than 5,000 gallons per month in the past year." This suggests that typical use is less than 5,000 gallons per month or about 0.19 acre-feet per year per connection. This annual quantity, which equals about 167 gallons per day, is low and certainly reflects EWUA's efforts to encourage conservation.

To ensure that enough water is authorized to meet the demands of these new connections, the permit will allocate 0.25 acre-feet per year per connection. For the 7 homes proposed in the subject (Greer and associates) application, this equals 1.75 acre-feet per year.

The instantaneous quantity authorized, 47 gpm, is based on the well's instantaneous capacity, discussed later in this report.

General Hydrology and Physiography

Water Resources Inventory Area 2 (WRIA 2, the San Juan Islands Watershed) makes up all of San Juan County, Washington. The WRIA is an archipelago composed of 175 named islands and has a total land area of 172 square miles. The three largest islands are Orcas, San Juan, and Lopez.

The San Juan Islands are composed of varying thicknesses of glacial deposits overlying bedrock. Many of the islands have erosion-resistant bedrock in their cores and along shorelines, which is responsible for the rockbound coasts that typify the San Juan Islands. Land surface elevations range from sea level to 2,409 feet at the summit of Mount Constitution on Orcas Island. Most of the valleys and lowland areas of the three large islands express a low, rolling topography characteristic of glacially deposited sediments (Russell et al, 1975).

All fresh water, surface and ground, on the San Juan Islands is derived from precipitation. Due to the rainshadow effect from the Olympic Mountains, precipitation varies across the county increasing in the northerly and easterly directions (PGG, 2002). Mean annual precipitation at low to moderate elevations ranges from about 26 inches in the south to about 35 inches in the northern part of the county. Precipitation increases at higher elevations, reaching about 48 inches at Mount Constitution on Orcas Island (Orr et al., 2002). The precipitation station at Olga on Orcas Island has recorded an average of 28.42 inches per year over the past 109 years, with most of the rainfall occurring between October and March (PGG, 2002). Precipitation at Eastsound averages 32 to 34 inches per year (Orr et al., 2002).

Watersheds in WRIA 2 are generally less than 5 square miles in area. As a result, most streams in the WRIA are small and intermittent. There are a few perennial streams found on Orcas and San Juan Islands (PGG, 2002).

Regional Geologic Setting

The geology of the San Juan Islands is very complex, consisting of a series of allochthonous terranes mostly of island arc and shallow marine origin of early Paleozoic to middle Cretaceous age which were accreted onto the North American continent probably prior to subsequent compressional faulting. During the late Cretaceous, imbricate thrust faulting created a series of sub-parallel nappes which generally divide each of the five identified terranes. This faulting also resulted in pervasive high-pressure metamorphism and the creation of intermittent tectonic zones along fault contacts. These units were then tilted to the southeast, probably during the Tertiary period. Subsequent advance and retreat of continental glaciers during the Quaternary Period deposited glacial materials onto the bedrock. The most recent glaciation to cover the Islands, the Fraser Glaciation (ending about 10,000 years ago), likely removed previous glacial deposits and left sequences of intermixed clay, silt, sand and gravel in low lying areas (Russell et al., 1975 and Brandon et al., 1988).

Local Geology

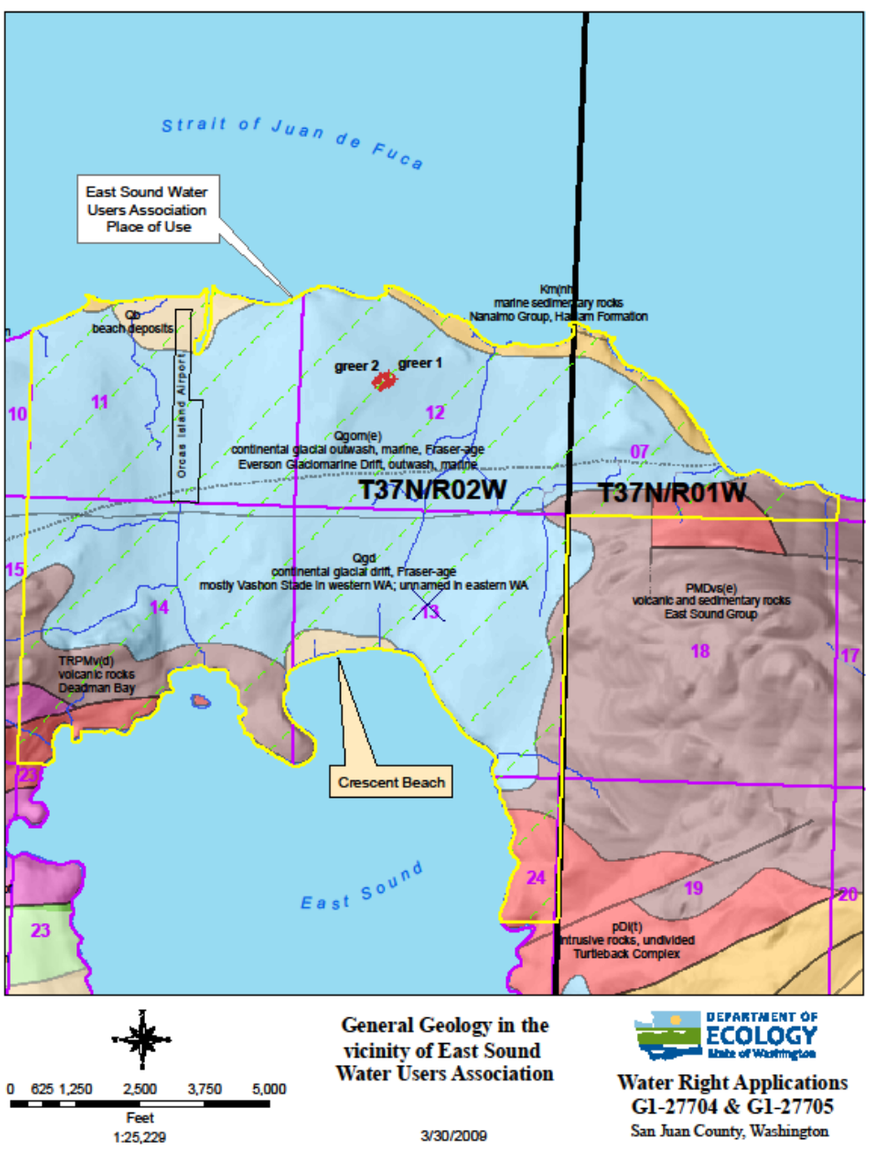
The geology of the Eastsound area in the northern portion of Orcas Island is characterized by Fraser-aged glacial deposits overlying and infilling a complex bedrock basin (Orr et al., 2002 in Swope, 2008). The bedrock basin is bowl shaped reaching depths of at least 150 feet below sea level near its center and exhibiting surface outcrops around the edges. Outcropping bedrock is found to the east at Buck Mountain (1,500 feet in elevation) and at Double Hill (450 feet elevation) to the west. Bedrock is also found to outcrop near sea level at the northern and southern shorelines in the Eastsound area. Along the shorelines the bedrock is not present at the surface at all locations. Current interpretation is that the bedrock bowl has sediment-filled low areas or notches north of the airport and below Crescent Beach where the Eastsound aquifer is likely in direct continuity with seawater. See geologic map, below.

The glacial deposits within the bedrock bowl are derived from periods of advance and retreat during the Fraser Glaciation and are composed of glaciomarine drift deposits, glacial outwash sediments, and glacial till. Lithologies within these deposits, which are over 300 feet thick in places, consist of layers of sand and gravel, silty sand, clay, and till (EWSCC, 2008).

Recent studies performed in the Eastsound area by CR Hydrogeologic Consulting (2003) and PGG (2008) group the glacially derived sediments into two categories – high-permeability sands and gravels and low-permeability silts, clays, silty sands, and till. Both studies generated cross sections using existing boring-log data from Ecology's well log database and both found relatively thick (50+ feet), continuous deposits of each grouping, typically with low-permeability materials at the surface, overlying higher-permeability aquifer materials. In some locations, low-permeability materials were also found below the aquifer materials and above bedrock.

Greer Well 1 is 6 inches in diameter and was drilled to a total depth of 89 feet. Drilling encountered brown clay, silt, sand and gravel to a depth of 38 feet, gray silt from 38 to 82 feet, and gray medium sand and gravel from 82 to 89 feet. This sequence agrees with the grouping above, encountering about 90 feet of low-permeability material overlying aquifer sands and gravels.

Figure 1: Geologic map of Eastsound area (from Washington Department of Natural Resources (2005)).



Local Hydrogeology

Ground water is present and exploitable in both the glacial and bedrock units. The bedrock is generally non-porous and does not transmit water except along fractures. Because of this, well yields from the bedrock are very low.

The Eastsound Water Supply Report and Abbreviated Water System Plan (2008) describes the glacially derived Eastsound Aquifer by stating the aquifer "may actually consist of several separate aquifers that may be interconnected. A water bearing zone occurs in a layer of sand and gravel from zero to 60 feet below sea level. This zone lies beneath various layers of clay, clayey-sand and silty-sand that are as much as 100 feet thick and help to protect the aquifer(s) from contamination." CR Hydrogeologic (2003) suggests the aquifer ranges from just above sea level to -150 feet with an average thickness of about 60 feet. PGG (2008) in the Interim Aquifer Protection Report suggests the upper half of the glacial deposits has relatively lower permeability than the lower half, and that lower-permeability sediments are more common in the northeast portion of the Eastsound area, specifically near the Greer Wells.

The general theme that the shallower sediments are composed of lower-permeability (i.e. aquitard) materials that may or may not be continuous in all locations, suggests the underlying aquifer is partially confined and should exhibit artesian conditions depending on location. This is supported by the observation that most well logs tapping the aquifer show static water levels above the top of the aquifer.

Recharge to the aquifer is derived exclusively from precipitation. The majority of recharge comes from direct precipitation onto the glacial sediment surface. Based on two recharge models, the USGS estimated a recharge rate of 2.5 to 5 inches per year in the Eastsound area (PGG, 2008). PGG (2008) recognizes that significant amounts of water augment the glacial aquifer system by range-front recharge from two bedrock sources, Buck Mountain to the east and the bedrock area southwest of Eastsound.

Recent modeling work performed by PGG (2008) at the request of San Juan County Department of Health and EWUA and funded by Department of Ecology suggests the Eastsound Aquifer is capable of producing the water needed for projected population growth at least until 2040. Running the model at an annual withdrawal based on the predicted 3% annual increase in ground water withdrawals, the modeling report states that the projected pumping demand in 2040 does not appear to exceed the capacity of the aquifer. The model predicts a lowering of the potentiometric surface by approximately 6 feet, suggesting that long-term additional withdrawals will not inhibit current users from using their wells in the future. The report acknowledges that the potential for seawater intrusion was not evaluated.

Proposed Point of Withdrawal

The well proposed for use, Greer Well 2, is situated at an elevation of about 115 feet above MSL. The well encountered mostly aquitard materials from the surface to a depth of 90 feet and encountered aquifer sand and gravel from 90 feet to its total depth of 101 feet. The well is screened over this interval from 91 feet to 101 feet, or about 14 feet to 24 feet MSL. Static water level in the well at the time of drilling was measured to be about 56 feet below ground surface, or about 59 feet MSL, indicating the aquifer is confined at this location.

A 50-hour pumping test was performed on the well in February 1993. Only a small number of water level measurements were taken during the test and no monitoring wells were used, limiting the usefulness of the data. During the first few hours of the test, the well was pumped at a rate of 50 gpm. During the remainder of the test, the well was pumped at 47 gpm. The well responded to the pumping with approximately 21 feet of drawdown in the first few hours followed by little to no drawdown for the remainder of the test. This suggests a recharge boundary of some sort was reached by the cone of depression, or that induced leakage from the overlying aquitard was able to fully offset pumping.

During telephone correspondence with Paul Kamin, general manager of EWUA, on March 26, 2009, it was explained that with the pumping test performed at 47 gpm and minimal data available, granting a new water right for 75 gpm would be difficult. It was explained that 75 gpm could only be granted if a new pumping test were performed showing the well could produce at that rate and gathering enough usable data to determine aquifer properties and potential drawdown at distance. Mr. Kamin stated that EWUA would be satisfied with the 47 gpm that has been pumped from the well.

While there are not enough data to determine aquifer parameters and potential drawdown at distance, a reasonable determination can be made from the pumping test that the aquifer is capable of producing water at the proposed instantaneous rate. The potential annual quantity from the well is 1.75 acre-feet per year, which would allow about 200 hours of pumping at the proposed rate of 47 gpm. The small annual quantity will limit the potential extent of impact from pumping of this well.

Other Water Rights Near the Proposed Point of Withdrawal

Considering the relatively small amount of drawdown at the pumping well during the pumping test and the very small annual quantity of the proposed water right, it is very unlikely any existing water rights beyond a ½-mile radius will be impaired by the proposed withdrawal. Thus, a ½-mile radius was chosen to investigate potential impairment of senior water rights. Note that a small amount of drawdown interference in a neighboring well does not constitute impairment; a well must be physically unable to withdraw water in a manner consistent with historic practices to be considered impaired.

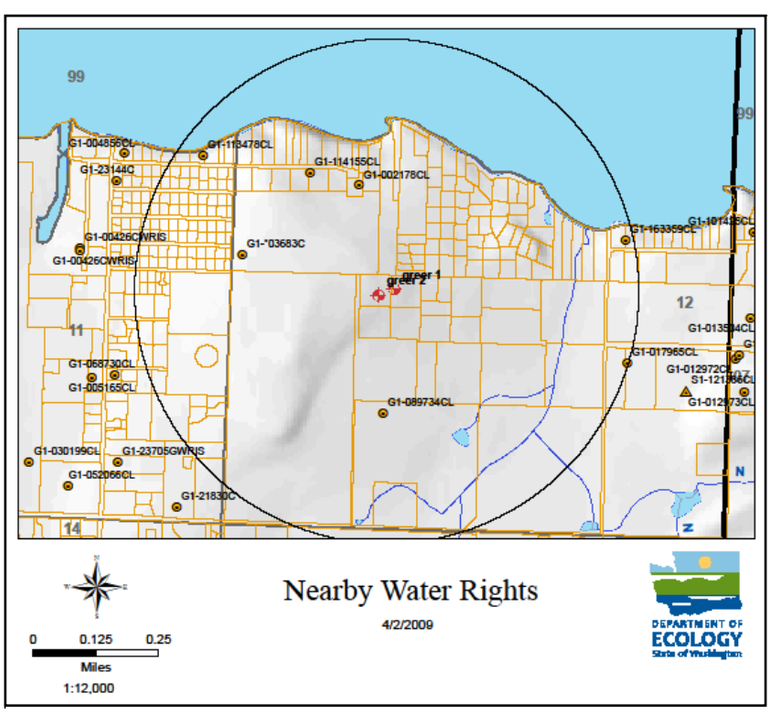
A map search of state-issued water rights and claims found 7 potential documented water rights (not owned by EWUA) within ½ mile of Greer Well 2 (see Figure 2). Six are ground water claims and 1 is a state-issued ground water certificate. Of the 6 claims, two are short-form claims and basically the equivalent of an exempt well, serving single domestic purposes with irrigation of a lawn and garden. The other 4 are for single domestic use and minor irrigation of less than 2 acres. The state-issued right authorizes use of ground water for municipal purposes.

Table 2: Nearby water rights and claims

Water Right Number	Priority Date	Short form or Long form	Instantaneous Quantity	Annual Quantity	Purpose(s) of Use	Name	Comments
G1-113478CL	NA	Short	NA	NA	General Domestic	Guilford	Similar to exempt well
G1-163359CL	June 1940	Long	10 gpm	1 afy	General Domestic	Todd	
G1-114155CL	May 1971	Long	10 gpm	1afy	General Domestic	Le Compte	
G1-089734CL	NA	Short	NA	NA	General Domestic and Irrigation	Weber	Similar to exempt well
G1-017965CL	June 1963	Long	4.5 gpm	2 afy	General Domestic and Irrigation	Laplante	
G1-002178CL	Spring 1955	Long	10 gpm	2	General Domestic	Harrison	
G1-*03683C (Cert. 3090)	June 21, 1954	NA	50 gpm	80 afy	Municipal	Eastsound Sewer and Water Dist.	Currently Leased to EWUA

At a distance of about 1,200 feet, the well used under the Harrison claim is the nearest to Greer Well 2. Ecology has no construction details of the Harrison well, thus the aquifer zone tapped by the well is uncertain. A search of Ecology's well log database found no exempt wells closer to the proposed withdrawal than the Harrison claim. Hydrogeologic principles suggest that in nearly all cases, impacts from pumping decrease with distance, and a well farther from the Greer well will likely not be impaired if the Harrison well is not impaired.

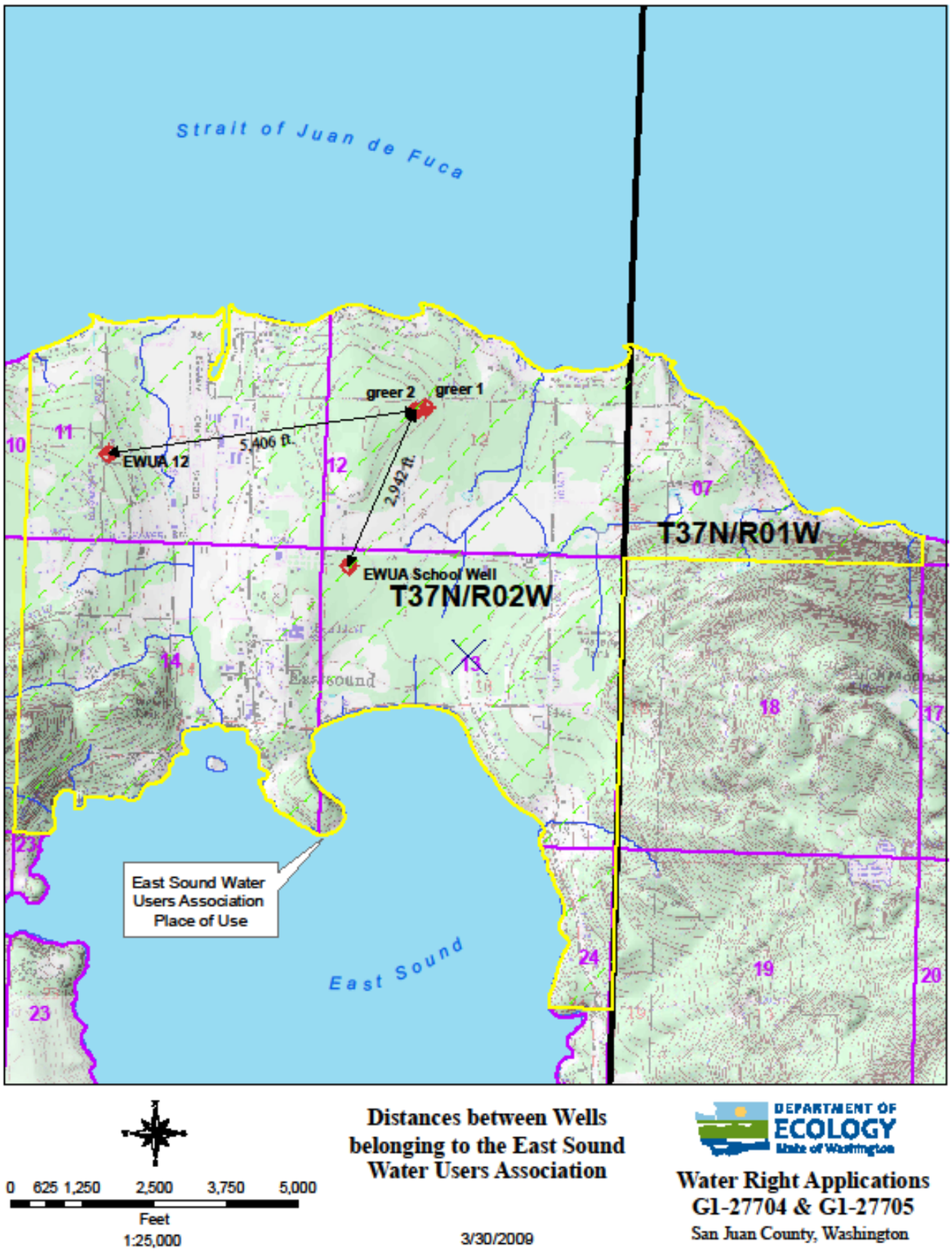
Figure 2 – Map showing nearby water rights



*Note that water right G1-*03683C (Certificate 3090) is held by Eastsound Sewer and Water District and is leased to EWUA.

With very little data collected, no aquifer parameters were calculated from the pumping test performed on the Greer well. It is known that the well pumped 47 gpm for 50 hours with about 20 feet of drawdown. Other pumping tests have been performed in the area where aquifer parameters were calculated. These include tests for EWUA's Well 12 (AGI, 1998) located over a mile to the west and EWUA's School Well (CR Hydrogeologic, 2005) located about 2,700 feet to the south. See map, below. Calculations from these pumping tests found aquifer transmissivities ranging from about 10,000 to about 19,000 gallons per day per foot (gpd/ft), respectively, and storativities ranging from 0.0001 and 0.005, respectively. It should be noted that after 24 hours of pumping at 100 gpm, Well 12 caused 8 feet of drawdown interference at a well located 141 feet away. The School well, pumping at 73 gpm, caused approximately 0.15 feet of drawdown at a distance of about 1,400 feet.

Figure 3: Map showing topography and relative locations of nearby pumping tests



The recent model of the Eastsound aquifer by PGG (2008) specifically notes that in the area of the Greer wells, the aquifer has lower storativity and transmissivity values than the aquifer system as a whole. This assessment appears to be based on model calibration using static water level data. Inconsistent with this finding is the 50-hour pumping test described earlier that showed the pumping water level was stable from about 3 hours through the end of the test, suggesting a high transmissivity.

Although reliable aquifer properties near the Greer well are not available, the very small drawdown experienced in the School well test by CR Hydrogeologic (2005) and the fact that the well will operate at a maximum of 200 hours per year suggest the proposed withdrawal will not impair any wells, considering the nearest is greater than 1,000 feet away.

References

AGI Technologies, 1998, Production Well 12 Construction and Testing Report: prepared for Eastsound Water Users Association.

Brandon, M.T., Cowan, D.S., and Vance, J.A., The Late Cretaceous San Juan Thrust System, San Juan Islands, Washington: Special Paper 221, The Geological Society of America, 81 p.

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DETERMINATIONS

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

Water Availability

Legal Availability
There are no regulatory closures or legal restrictions affecting water availability within the Eastsound basin.

Physical Availability
With the small annual quantity to be authorized, the well will be utilized sparingly, less than 3% of the time. Pumping test information, including stabilization of the pumping water level after a few hours, suggests the aquifer is capable of physically producing 47 gpm and 1.75 afy.

Greer Well 1 is located very close to the subject well and taps the same aquifer zone. For long-term well maintenance, it is recommended that the applicant operate the wells in a manner that minimizes or prevents concurrent operation of the wells.

Impairment

The closest well is approximately 1,200 feet from the proposed point of withdrawal. The short maximum duration of pumping, along with data from the proposed well's 50-hour pumping test and aquifer parameters from nearby pumping tests suggest the proposed withdrawal of 47 gpm and 1.75 afy will not impair this well or any water rights.

Beneficial Use

Multiple domestic supply is considered to be a beneficial use under RCW 90.54.020(1). The rate of water requested (47 gallons per minute) is reasonable for the proposed purpose of use.

Public Interest

The proposed withdrawal is from an aquifer that is situated above and below sea level and is likely in continuity with seawater. The proposed well is screened above sea level and is not at risk of seawater intrusion. However, every new withdrawal from the aquifer lowers its potentiometric surface (water level) and over time the cumulative impacts of the withdrawals could make the aquifer vulnerable to large-scale, lateral seawater intrusion.

Recent work by PGG (2008) and Russell (2006) suggests that aquifer levels in the Eastsound Aquifer are stable, and PGGs's 2008 model suggests that at predicted growth rates, the aquifer should remain stable for decades. Although the subject withdrawal is not directly considered by PGG, the growth supported by the proposed withdrawal is contained within the projections by PGG and makes up a portion of the cumulative impacts that were modeled.

Eastsound Water Users Association, through county planning efforts, has been tasked by San Juan County with serving new connections in the Eastsound Urban Growth Area. RCW 90.54.020(7) states that development of water supply systems, which provide water to the public generally in regional areas within the state, shall be encouraged. The proposed withdrawal will aid EWUA in achieving these goals.

No potential detriment to the public interest could be identified during the investigation of this application.

Letter of Concern

One protest against the subject application was received from Leslie Seaman. The subject application (G1-27704) was one of 5 applications protested by Ms. Seaman. The protest was <u>not</u> received by Ecology within the mandatory 30-day protest period, therefore Ecology is not obligated to formally respond to the protest.

Since the protest letter was not timely received, it will be treated as a letter of concern and some of the points of concern will be addressed here as a courtesy. The concern is given in italics with the response immediately following.

1. *I feel that it is a very interesting practice that the "public" waters of this community can be "given" away to a for profit "private" entity without compensation to the "public" whom the water belongs.*
   It is correct that all water in the state is owned by the citizens of Washington. Water rights allocating the use of these public waters have been issued to entities, both public and private, since the water code was enacted in 1917 and none of them have had to compensate the public with anything more than an application fee. All uses of water in Washington require a water right, and the water used in your household comes from a source that has a water right, whether you receive water from a personal well (exempt from the application process, but still a water right) or from a purveyor. Also, please note that Eastsound Water Users Association, while privately owned, is a non-profit organization.

2. *These are large water rights that are being asked for by the Eastsound Water Users Association. The impact on future generations is not being considered.*
   All water rights requests, whether large or small, must pass a 4-part test before a new water right is authorized. The 4-part test is listed in the "Determinations" section above, and Ecology has found the proposed withdrawal meets the requirements.

   To respond to your concern regarding future generations, the term must be defined. If by "future generations" you mean future users of existing water rights, then, in fact, future generations are being considered. The "no impairment to existing rights" test protects water rights that exist when a new water right is requested. A determination has been made in this investigation that the proposed withdrawal will not impair existing rights. Considering Washington's prior appropriation system (first in time, first in right), if the new withdrawal ever impairs an existing withdrawal, the new withdrawal must curtail its use.

If by "future generations" you mean people who may come to the island and need water in the future, we do not "reserve" water for undefined future development. If a proposal can be pursued in a timely fashion and water is available without impairing existing rights or the public interest, then we are to issue water rights for the proposal.

3. *Scientist Russel Barsh is studying many of the water sheds on Orcas Island and has told me that several more years of research must be done before we can have a truer picture of the way water sheds work in this county.*
   Pacific Groundwater Group (PGG) has recently (2008) produced a modeling report showing the Eastsound Aquifer to be fully capable of producing water for future demands of EWUA. This includes the water right being authorized in this report. Ecology's interpretation is that PGG's model is reasonable. No data have been found during this investigation to suggest that the Eastsound Aquifer is not capable of producing water for existing rights and for additional withdrawals.

4. *The consequences of our actions today will have huge impacts on the environment.*
   Ecology's Water Resources Program is tasked with determining if a proposed water right passes the 4-part test. We only consider the impacts on the environment that the actual withdrawal and use of water will have, and we do this under the public interest test. We do not consider land-use impacts. In the public interest test, Ecology considers long-term impacts to the source of water, such as its ability to sustain the proposed withdrawal. We also consider potential impacts to wetlands and streams. In this case, the proposed annual withdrawals are very small, and a determination has been made that the withdrawals will not detrimentally affect the aquifer and will have little impact on the environment.

5. *I am aware that the water being requested is because the county is looking at the issue of growth and Eastsound Water Users Association wants to supply a safe water supply, but is the rest of the island supposed to support this growth or should we be trying to live in balance with the environment giving to future generations the ability to enjoy a beautiful, healthy place to live like we are today.*
   Ecology recognizes and appreciates the desire to live in balance with the environment, and you, as a citizen of San Juan County, certainly do not have to support growth, but EWUA, through formal county coordinated water system plan processes, has been tasked with supplying water to growth within the Eastsound Urban Growth Area. In making a water rights decision Ecology's Water Resources Program does not consider impacts of growth (land use); we only consider impacts of water withdrawals. For the proposed withdrawals we have found that no existing rights will be harmed, that water is available for use, and that the public interest will be preserved.

RECOMMENDATION

Based on the above investigation and determinations, I recommend the subject application be approved, within the limitations listed below, and subject to the provisions 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:

- 47 gallons per minute
- 1.75 acre-feet per year
- For multiple domestic use, year round

Point of Diversion

NE¼ SW¼, Section 12, Township 37 North, Range 2 West, W.M.

Place of Use

As described on page 1 and as shown in Attachment 1.

Discussion

Please be aware the definitions of "municipal water supplier", "municipal water supply purposes", and the inchoate water right "in good standing" provision in the Municipal Water Law of 2003 have been deemed unconstitutional by King County Superior Court. Ecology has appealed this decision to the Washington State Supreme Court. A final decision on the appeal to the Supreme Court may not be issued for some time. As a result, Eastsound Water Users Association is no longer defined as a municipal water supplier and this water right is being issued for "multiple domestic" supply. Multiple domestic rights do not enjoy the same benefits as municipal rights and it is recommended

that EWUA be familiar with the differences. If the Municipal Water Law is reinstated on appeal, this multiple domestic right will automatically be for municipal water supply by operation of law and will enjoy the benefits of that designation. From that time forward, EWUA would have the choice of requesting Ecology conform your document by having the words "multiple domestic" changed to "municipal water supply."

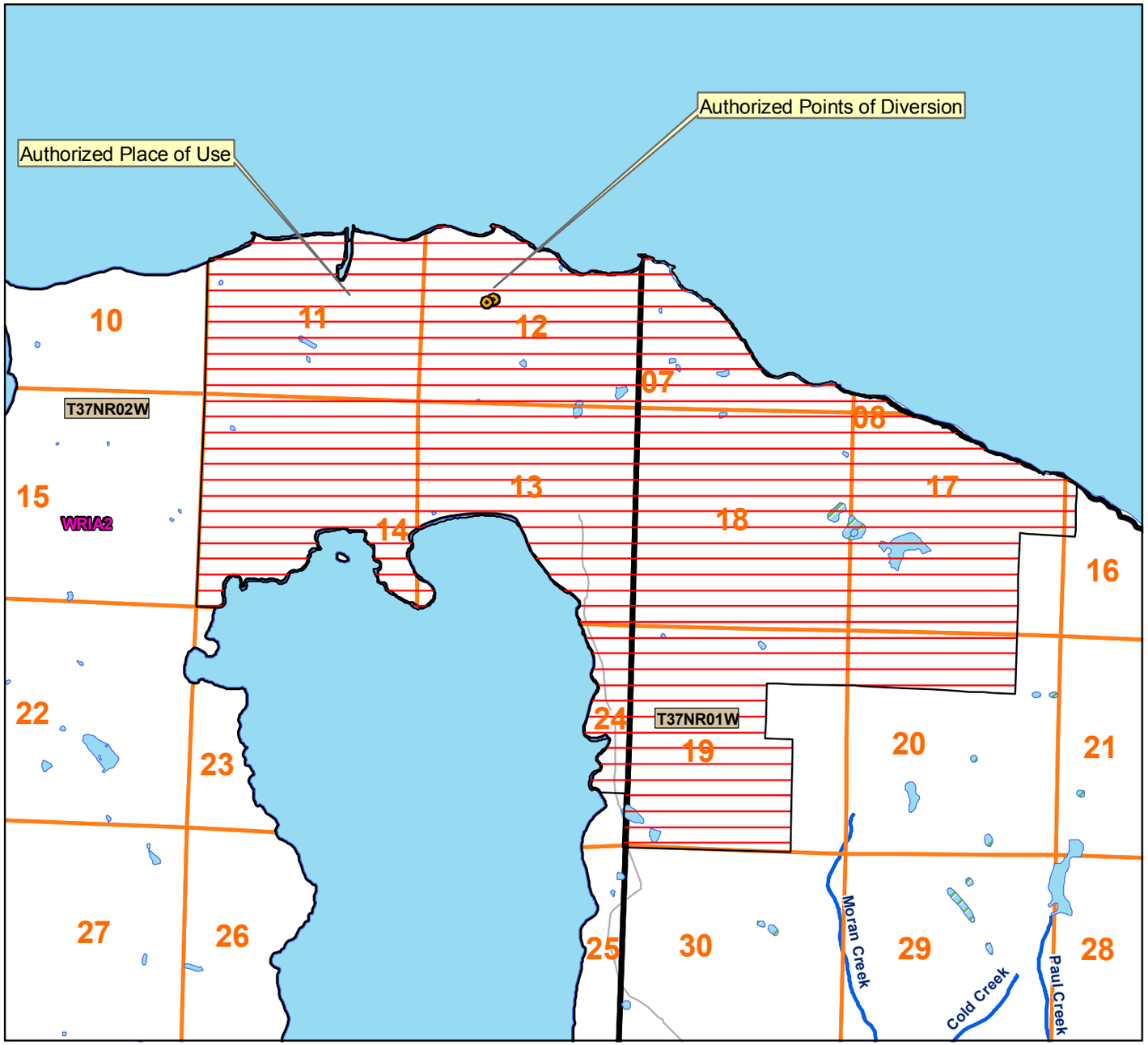
Report by: _____
Jay Cook

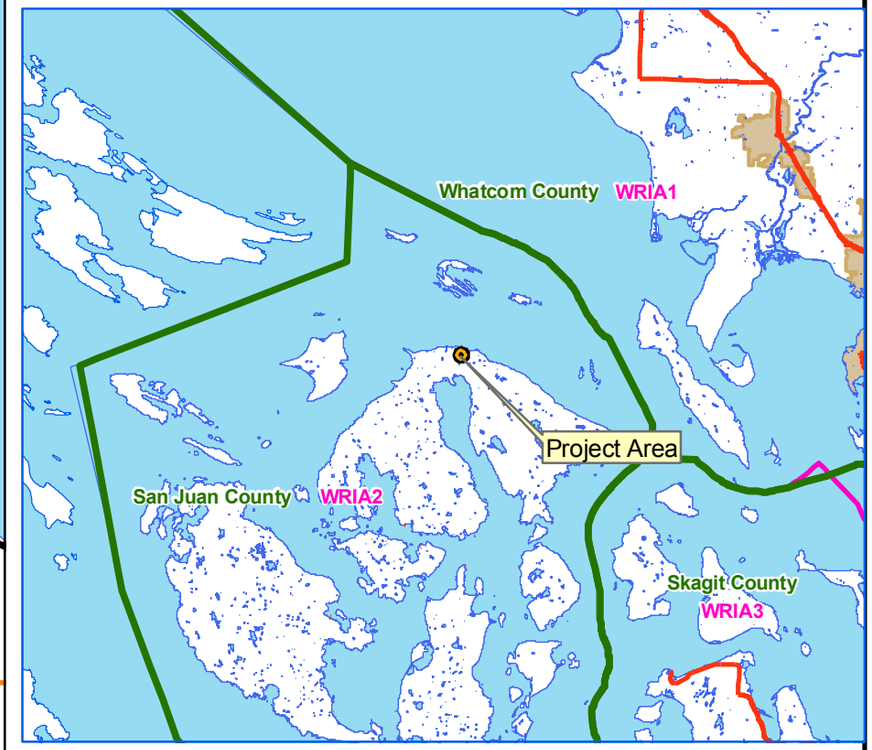
_____
Date

If you need this publication in an alternate format, please call the Water Resources Program at (425) 649-7000. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

East Sound Water Users Association
Water Right Number G1-27705
Sec.12 T 37N R 02W W.M.
WRIA 2 - San Juan County

DEPARTMENT OF ECOLOGY
State of Washington





Legend

- County
- WRIA
- Highways
- Townships
- cities
- Sections
- Authorized Point of Withdrawal
- Authorized Place of Use

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

Attachment 1