



State of Washington
DRAFT
 REPORT OF EXAMINATION
 FOR WATER RIGHT APPLICATION

File NR G2-30630
 WR Doc ID 5880841

PRIORITY DATE 6/11/2013	WATER RIGHT NUMBER G2-30630
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MAILING ADDRESS SUNSET BEACH WATER ASSOCIATION PO BOX 123 PORT ORCHARD WA 98366	SITE ADDRESS (IF DIFFERENT) 17062 State Route 106 Belfair, WA 98528
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Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE 200	UNITS GPM	ANNUAL QUANTITY (AF/YR) 29.9
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Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Municipal	200		GPM	7.5	22.4	01/01 - 12/31

REMARKS: This water right has the same service area as G2-00892. Non additive quantities of this water right are associated with G2-00892.

IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION	
ADDITIVE	NON-ADDITIVE	WATER SYSTEM ID	CONNECTIONS
0	0	86040-N	99

Source Location

COUNTY	WATERBODY	TRIBUTARY TO			WATER RESOURCE INVENTORY AREA			
MASON	GROUNDWATER	N/A			14b-KENNEDY-GOLDSBOROUGH			
SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Proposed Well	TBD	N/A	22N	02W	12	SWSW	TBD	TBD
TBD = To Be Determined							Datum: NAD83/WGS84	

Place of Use (See Attached Map)

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE
 Service area of Sunset Beach Water Association (Plats of Sunset Beach #1 and Sunset Beach #2)

Proposed Works

A second well of similar construction to the existing well (8-inch permanent casing to a depth of 190 feet) will be drilled in proximity to the current production site

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
June 1, 2014	June 1, 2016	June 1, 2034

Measurement of Water Use

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

Provisions

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.

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

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.

Water Level Measurements

In order to maintain a sustainable supply of water and ensure that your water source is not impaired by future withdrawals, static water levels should be measured and recorded monthly using a consistent methodology. Static water level is defined as the water level in a well when no pumping is occurring and the water level has fully recovered from previous pumping. Static water level data should include the following elements:

- Unique Well ID Number
- Measurement date and time
- Measurement method (air line, electric tape, pressure transducer, etc.)
- Measurement accuracy (to nearest foot, tenth of foot, etc.)
- Description of the measuring point (top of casing, sounding tube, etc.)

- Measuring point elevation above or below land surface to the nearest 0.1 foot
- Land surface elevation at the well head to the nearest foot.
- Static water level below measuring point to the nearest 0.1 foot.

Chloride Monitoring

Because the proposed new well-site is less than 1,000 feet from Hood Canal and draws water from an aquifer hydraulically connected to marine water, the potential for sea water intrusion is a concern. While it appears the potential is fairly low at the present time, if there are changes in sea level relative pumping water levels in the well, the situation may change. For this reason, Ecology recommends annual chloride sampling. This information will be useful in helping the water right holder manage the system to ensure seawater intrusion does not occur if chloride levels begin to rise.

If the water system manager opts to do chloride sampling, the following methodology needs to be applied for the information to be of value:

- Water samples must be analyzed for both chloride and conductivity and chemical analysis must be performed by a state-accredited laboratory.
- Depth to static water level must be measured (with pump off long enough to allow for stabilization)
- The chloride/conductivity sampling and the static water level measurement must be collected concurrently.

If increasing trends of chlorides are detected, preventative actions may be implemented to ensure levels don't continue to rise. These 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

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.

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. G2-30630, 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 Hearings 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 RD SW Ste 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Signed at Olympia, Washington, this _____ day of _____ 2014.

Michael J. Gallagher, 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 -- Sunset Beach Water Association

Water Right Control Number G2-30630

Mike Gallagher, Department of Ecology

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BACKGROUND

This report serves as the written findings of fact concerning Water Right Application Number G2-30630.

Cost Reimbursement

This application is being processed under a cost-reimbursement agreement between the applicant and the Department of Ecology. This report has been prepared by Robinson Noble, Inc.

Table 1 Summary of Requested Water Right

Applicant Name:	Sunset Beach Water Association
Date of Application:	6/11/2013
Place of Use	The place of use (POU) of this water right is the service area of Sunset Beach Water Association, which includes all lots in the plats of Sunset Beach #1 and Sunset Beach #2.

County	Waterbody	Tributary To	WRIA
Mason	Groundwater	N/A	14b-Kennedy-Goldsborough

Purpose	Rate	Unit	Ac-ft/yr	Begin Season	End Season
Municipal	200	GPM	29.9	01/01	12/31

Source Name	Parcel	Well Tag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
Proposed Well	TBD	N/A	22N	02W	12	SW SW	TBD	TBD

TBD = To Be Determined; CFS = Cubic Feet per Second; Ac-ft/yr = Acre-feet per year; Sec. = Section; QQ Q = Quarter-quarter of a section; WRIA = Water Resource Inventory Area; E.W.M. = East of the Willamette Meridian; Datum: NAD83/WGS84.

Legal Requirements for Approval of Appropriation of Water

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 Shelton-Mason County Journal on September 19 and September 26, 2013. No protests or letters of concern were received in response to either notice.

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

Project Description

Sunset Beach Water Association (SBWA) is located on the south shore of Hood Canal (Lynch Cove) in eastern Mason County roughly four miles southwest of Belfair, Washington. SBWA is located in Water Resource Inventory Area (WRIA) 14b (South Shore Lower Hood Canal).

Currently, SBWA has 72 residential connections, with a total of 99 connections anticipated at full build-out. The system is not expanding in size, however two issues have led the applicant to request additional instantaneous and annual quantities. First, the system's reservoir is failing, causing water quality issues that are currently being addressed with a continuous disinfection system. SBWA has been in discussion with the Washington State Department of Health regarding this issue and anticipates replacing the reservoir in the next 15 to 20 years once the necessary funds have been raised. In the interim, SBWA will need to meet system demand without the benefit of storage, necessitating an

increase in instantaneous capacity. The higher capacity will also facilitate maintenance of the newly constructed reservoir, as needed.

Second, when the instantaneous demand to operate the system without storage was being calculated, it was recognized that there was a shortfall in annual capacity to meet projected demand at full build-out. Population growth in the Belfair area has led to a change in demographics in the SBWA service area from a predominantly vacation community to full-time residences, necessitating an increase in annual quantity. Under this application, SBWA proposes to drill a second source well to meet the anticipated instantaneous and annual system demands.

Proposed Use and Basis of Water Demand

SBWA's existing water right certificate G2-00892C allocates 120 gpm and 22.4 acre-ft/year. Table 1 summarizes four years of metered water use (May 1, 2011 through May 6, 2014) for the SBWA. Northwest Water Systems (NWS) estimates that this data reflects the water use of 63 full-time residences or ERUs (equivalent residential units); an additional 9 connections currently supply vacation properties and are presumed to have correspondingly low water use.

Table 1. Current and Projected SBWA water demand

Total metered system water use (5/1/2011 to 5/6/2014)	15,544,658 gallons
Average annual system water use (63 ERU)	5,156,845 gpy (15.8 acre-ft/year)
Average daily system water use (63 ERU)	14,119 gpd
Average daily water use per ERU based on metering data with some seasonal occupancy	224 gpd (0.25 acre-ft/year)
Projected water use per ERU assuming year-round occupancy	269 gpd (0.30 acre-ft/year)
Projected daily water use at full buildout (99 ERUs)	26,631 gpd
Projected annual water use at full buildout (99 ERUs)	9,726,973 gpy (29.9 acre-ft/year)
Current water right allocation (G2-00892C)	22.4 acre-ft/year
Projected water right shortfall at full buildout (99 ERUs)	7.5 acre-ft/year

Based upon monthly source meter records and procedures outlined by the Department of Health, NWS calculated a Maximum Daily Demand for the system of 97,218 gallons per day (982 gpd/ERU x 99 ERUs; equivalent to a continuous production of 67.5 gpm). The calculated Peak Hourly Demand of 200 gpm is anticipated for a duration of 150 minutes.

The applicant seeks 200 gpm instantaneous and 29.9 acre-feet (7.5 acre-feet additive, 22.4 acre-feet non-additive) to meet the demands of the Sunset Beach Water Association water system, which will serve up to 99 connections as it reaches full build out over the next 20 years or so. (The original application requested an instantaneous quantity of 250 gpm, but was reduced to 200 gpm in the Phase I evaluation in light of revised system demand calculations. Similarly, the original request for 49.5 acre-ft/year was reduced to 29.9 acre-ft/year as more accurate water meter data was available.) The system requires interim capabilities to serve its demand without storage while new storage is planned and funding for the new storage facility is being acquired. The application is also intended to provide sufficient water to reflect the change in demographics from a rural vacation community to a full-time residential community.

By the definitions provided in Municipal Water Law, this use is considered to be a municipal use and as such constitutes beneficial use of the requested water.

Other Rights Appurtenant to the Place of Use

Sunset Beach Water Association holds one other water right. Water Right Certificate G2-00892C allocates 120 gpm and 22.4 acre-feet/year as of April 13, 1971. The right provides for a community domestic supply continuously throughout the year. The water right is active and appears from the record to be valid as written.

The authorized point of withdrawal under G2-00892C is only about 100 feet from the location of the proposed new well. The new well will be added as an additional point of withdrawal to G2-00892 administratively through a Showing of Compliance once it is drilled.

Geology and Hydrogeologic Setting

As mapped by Derkey and others (2009), the geology of the region is dominated by Vashon-age glacial deposits, with glacial till (Qgt) at surface overlying advance outwash (Qga) and deeper, undifferentiated, pre-Vashon glacial and non-glacial deposits (Qpu, Qpf, Qpt). At Sunset Beach and along Holyoke Creek, the Vashon till (Qgt) has been removed by erosion, and the surface geology generally consists of Holocene and Pleistocene deposits (alluvium, Qa; beach deposits, Qb; and landslide deposits, Qls) overlying glacial and nonglacial deposits of Vashon and pre-Vashon age (Derkey and others, 2009). A small exposure of an older, pre-Vashon till (Qpt) is also proposed to the east of the mouth of Holyoke Creek and south of State Route 106. The nearby Lake Devereaux Study (Sinclair and Peter, 1994) presents a broadly similar geologic sequence: a thin layer of Vashon recessional outwash (Layer A); Vashon till of variable thickness (Layer B); a laterally-dissected Vashon advance outwash unit (Layer C); a thick, low permeability sand/clay unit (Layer D); and a Lower Sea-Level Aquifer (Layer E). As yet deeper units (Layers F and G) are identified below depths of 150 feet below mean sea level (MSL).

According to the construction report for the existing Sunset Beach Water Association (SBWA) well (Tillson, 1971), 169 feet of low-permeability sediments overlie the 11-foot thick aquifer in which the well is completed. The land surface elevation of the well is estimated to be 28 feet above MSL (Northwest Water Systems, 2013), placing the top of the aquifer at 141 feet below sea level; the static water is roughly 7.5 feet above land surface (35.5 feet MSL), indicating the aquifer is highly confined. By elevation, the SBWA well and the proposed source for this water right application target a deep aquifer within the Qpu sediments located well below sea level (Cross-Section B-B' in Derkey and others, 2009). Given the thick sequence of low-permeability, fine-grained sediments observed in the SBWA well, this deep system may correlate with the Lower Sea-Level Aquifer (Layer E; Sinclair and Peter, 1994).

Water leaking through the till layer of the upland south of Hood Canal is the source of water for the aquifers of the area. The recharge area for the advance outwash (Qga) aquifer is likely to coincide roughly with the divide defining the boundary between WRIAs 14a (Kennedy-Goldsborough) and 14b (South Shore Lower Hood Canal). The area defined as 14b, now incorporated into the WRIA 16 planning and management efforts, is the regulatory area for this assessment. However, since the deep aquifer targeted by the SBWA wells is highly confined by the thick sequence of fine-grained sediments, the deep aquifer's recharge area could extend southward beyond the WRIA 14a/14b boundary.

The regional aquifer system generally discharges northward to Lynch Cove or northwestward toward the deeper water of Lynch Cove or Hood Canal. Projecting the aquifer elevation from the SBWA well

horizontally toward the mapped bathymetry of Lynch Cove (Finlayson, 2005), it is clear that the elevation at which this deep aquifer could become directly exposed is significantly west of the Sunset Beach area and could be as far west as The Narrows at Sisters Points. If, for the purpose of potential impact analysis, the nearest point of discharge for the aquifer is presumed to be off shore near the center of Lynch Cove, a gradient of around 35 feet/mile is implied. At this location, water would discharge upward to Lynch Cove through some thickness of the low-permeability deposits (Layer D; Sinclair and Peter, 1994) which are, themselves, draped with low-permeability sediments deposited on the bottom of Lynch Cove. As such, it is likely that the aquifer maintains some appreciable positive head at this location in order to drive water vertically upwards. For the sake of this assessment, an estimated gradient of 20 feet per mile is used.

The Department of Ecology's Washington State Well Log Viewer (<http://apps.ecy.wa.gov/welllog/>) yielded 77 records of wells in Mason County located in Sections 11 through 14, Township 22 North, Range 2 West, W.M. As noted in the Phase I report (Northwest Water Systems, 2013), a number of the wells returned by this search have poor, incomplete, or inaccurate location information and were not plotted. Wells that could be associated with parcels in the available Mason County GIS Parcels data layer (<http://www.co.mason.wa.us/gis/data.php>) were placed on the map at the approximate center of their parcels (Attachment 1). Where parcel numbers could not be identified, street addresses provided for the wells on the Water Well Report were used. If a sketch of the well location within the quarter-quarter section was provided (e.g., on Washington Department of Conservation and Development well logs), it was used to guide well placement; otherwise, wells were mapped at the center of the quarter-quarter sections indicated on their Water Well Report. Well numbers reflect the section number and quarter-quarter-section location as mapped.

With the wells located, approximate elevations could be assigned to each well and a coarse evaluation was accomplished to identify wells that might be completed in the same deep aquifer as the SBWA well (12N1). Only three such wells (14B1, 14B2, and 14B3) were identified within one-half mile of the SBWA well. Attachment 1 shows the SBWA service area (proposed place of use, POU), the SBWA well (12N1), nearby wells of record, and the results of analytical modeling.

Site Visit

A site visit was conducted on March 7, 2014 by James Hay, LHG (Senior Hydrogeologist with Robinson Noble, Inc.). The SBWA System Manager, Richard Brown, provided a tour of the system, which currently consists of a single well (Unique Well ID ABR135), pumps, pumphouse, reservoir, and distribution system comprised of 8-, 6-, 2-, and 1-inch lines. The system currently serves 72 connections.

During the site visit, the existing well was observed to have a non-pumping, shut-in pressure of 56 inches of water (2.02 psi) above the top of casing, reflecting a water level of 7.66 feet above ground (35.66 feet MSL). The well, located on Mason County Parcel No. 22212-33-00100, is located outside the pumphouse and approximately 40 feet northeast of the closest approach of Holyoke Creek. The pumphouse contains the backup pump, electrical panel, chlorination system, and water meter. The location for the proposed well has not been sited, but Mr. Brown speculated that it would be located within one hundred feet of close the existing well in order to be near existing infrastructure and simplify easement/ownership issues. The reservoir is located approximately 375 feet to the northeast (Mason County Parcel No. 22212-33-90011).

Recent alluvium, consisting of sand and gravel deposits, was observed along the banks of Holyoke Creek near its mouth as it crosses State Route 106 and both upstream and downstream in proximity to the SBWA well. However, the surficial geology of the area is generally obscured by a combination of heavy vegetation, buildings, roads, and a concrete seawall.

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).

Analytical Modeling

Based upon the construction of the existing SBWA well and aquifer characteristics, an analytical model was constructed to evaluate the steady-state drawdown imposed on the confined sea-level aquifer by the proposed well. Based on an aquifer transmissivity value of 40,000 gallons/day/foot and an aquifer thickness of 11 feet (Tillson, 1971), the aquifer was assigned a hydraulic conductivity of 3,636 gallons/day/square foot. Well production was modeled at a continuous 18.5 gpm (equivalent to the requested annual allocation of 29.9 acre-ft/year). The recharge rate to this deep system is not known and no recharge was applied to the model, providing a conservatively larger estimate of impact. Under these conditions, there is 1.06 feet of drawdown at the well and 0.25 feet of drawdown at a distance of 670 feet from the well (Attachment1).

The closest well identified as potentially completed in the deep sediments tapped by the SBWA well is 14B2, approximately 2,240 feet away. At this distance, 14B2 would see 0.12 feet of interference drawdown in the modeled, steady-state condition; wells in this system located further away from the proposed well will have even less drawdown. To assess the transient drawdown of the peak demand scenario at well 14B2, the Theis well function was used. Since the storage coefficient of this system is unknown, typical confined aquifer storage values of 0.001 and 0.00001 (Heath, 1983) were used to bracket the anticipated impact. At the Peak Hourly Demand of 200 gpm, the drawdown at well 14B2 is projected to be between 0.02 and 1.86 feet, respectively, at the end of the 150-minute peak-demand period. Well 14B2 has approximately 100 feet of available drawdown and other wells completed in this system are expected to be similar. Since Well 14B2 has many times more available drawdown than is needed to exercise a domestic water right and the proposed withdrawal by the applicant will not significantly diminish the available drawdown, withdrawal of the requested amounts will not impair other groundwater users.

While some recent water quality monitoring has been accomplished on Holyoke Creek, no flow monitoring data is available (Herrera Environmental Consultants and Aspect Consulting, 2010). The primary baseflow source for the creek is the shallow Qva/Qpu sediments through which the channel cuts on its way to Lynch Cove.

The proposed well will be no closer to Holyoke Creek than the existing SBWA well, which is itself approximately 40 feet from the creek. The minor amount of drawdown within a small area of the deep aquifer—reflected vertically upwards through 169 feet of fine-grained, low permeability sediments—would result in an even smaller impact to Holyoke Creek. As no surface water rights were identified in the immediate area and Holyoke Creek is not administratively closed, the proposed withdrawal will not interrupt or interfere with surface water rights or water allocated by rule, water rights, or instream flows.

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 water requested under this application will be produced from a second well in proximity to the existing source well for the system. The current well was drilled and tested in 1971 and has successfully met the system demand with minimal drawdown since that time. The reported specific capacity of 19.5 gpm/foot of drawdown (Tillson, 1971) is relatively high and suggests a productive aquifer. Using an estimated aquifer width of three miles, a gradient of 20 feet per mile (0.0038), and an aquifer transmissivity of 40,000 gpd/ft, the calculated aquifer through flow is 1,667 gpm (2,690 acre feet per year). The requested annual allocation of 29.9 ac-ft/year is roughly 1.1% of this flow and relatively few other wells appear to tap this deep aquifer system, further suggesting that water is physically available for allocation.

Legal availability

To determine whether water to be 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.

There are no closures or instream flows set that would preclude allocation from this deep confined aquifer. Though some slight theoretical reflection of this allocation in surface water basins draining the coastline is possible, it does not rise to the level of impacting either habitat or flow. The existence of senior water rights through formal water rights, water rights acquired through the groundwater exemption (90.44.050 RCW), or by water right claims under Chapter 90.14 RCW does not present sufficient cumulative withdrawal to cause concern of overdraft of the subject aquifer or impairment of individual rights.

As noted in the Phase I report (Northwest Water Systems, 2013), the Watershed Management Plan (WMP) for WRIA 16/14b (Skokomish-Dosewallips/South Shore Lower Hood Canal) was completed in 2006. The stream closest to the subject withdrawal, Holyoke Creek (also called Sunset Beach Creek in the WRIA 16/14b WMP and Roanoke Creek on older maps) is part of the WRIA 14 management area. This area is covered by WAC 173-514, which was adopted in January 1984. Though several streams are either subject to specific instream flows or closures within the rule, there is no mention of Holyoke (or Roanoke) Creek. Of all of the small streams discharging to the portion of Hood Canal east of Tahuya, only Twanoh Creek is discussed. This short coastal stream drainage (approximately 1 square mile) is 3.5 miles west of the subject application and is not relevant to this processing effort. There are no surface water limitations in the general area of the proposed groundwater withdrawal and water is, therefore, available for allocation without discussion of surface water mitigation. Allocation is consistent with the WRIA rule.

Beneficial Use

The proposed use of water, municipal water supply, is defined in statute as a beneficial use (RCW 90.54.020(1)).

Public Interest Considerations

Nothing in this investigation indicated aspects that would be considered as contrary to the public interest.

Consideration of Protests and Comments

No protests were filed against this application.

Sea Water Intrusion Evaluation

Analytical modeling predicated on the test data and the theoretical maximum withdrawal of 320 gpm from the existing water right (120 gpm) and the pending water right associated with this application (200 gpm) suggests a steady-state pumping water level from sustained production of approximately 17 feet MSL (11 feet below ground surface). As a steady-state calculation, this scenario substantially overestimates the actual impact of the peak withdrawal scenario, which was determined by NWS to be 200 gpm for 2.5 hours. Because this steady-state scenario makes it unlikely to cause pumping water levels to fall below sea level, the potential for seawater intrusion at the proposed new well site is considered low. Subsurface geology suggests groundwater discharges to marine water farther west than

central Lynch Cove, likely further off-shore.

During testing, water levels in the existing SBWA well exhibited approximately 0.7-feet of tidal fluctuation (Tillson, 1971). Water quality tests in 2012 measured a chloride level in the existing well of 4.03 ppm; prior tests between 1982 and 2009 had a detection limit of 20 ppm and did not detect chloride (Jester Purtteman, personal communication). Dion and Sumioka (1984) reported chloride values of similar magnitude (1.1 ppm, 1968; 1.3 ppm, 1978) from a coastal well of unreported depth at Sunset Beach. Because the proposed new well-site is less than 1,000 feet from Hood Canal and draws water from an aquifer hydraulically connected to marine water, the potential for sea water intrusion is a concern. While it appears the potential is fairly low at the present time, if there are changes in sea level relative pumping water levels in the well, the situation may change. For this reason, Ecology recommends annual chloride sampling.

Conclusions

The requested allocation represents a beneficial use of water that is physically and legally available for allocation. The issuance of the water right will not impair senior water rights or impact the surface waters in proximity to the point of withdrawal. There is no potential to induce seawater intrusion in the aquifer as long as pumping water levels remain above sea level. Further, nothing in this investigation identified aspects that would be contrary to the public interest. It is therefore the conclusion of this investigation that the requested right be issued.

RECOMMENDATIONS

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

Purpose of Use and Authorized Quantities

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

200 gpm
29.9 acre-feet per year
Municipal Supply

Proposed Point of withdrawal
SW $\frac{1}{4}$, SW $\frac{1}{4}$, Section 12, Township 22 North, Range 02 West W.M.

Place of Use
Per Municipal Water Law, the place of use will be the service area of Sunset Beach Water Association (Plats of Sunset Beach #1 and Sunset Beach #2).

Report Writer

Date

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

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