File NR CG2-GWP7439
WR Doc ID 4675966

DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
REPORT OF EXAMINATION
FOR WATER RIGHT CHANGE

Added or Changed Point of Withdrawal/Diversion

PRIORITY DATE
January 20, 1966

WATER RIGHT NUMBER
CG2-GWP7439

MAILING ADDRESS
PUBLIC UTILITY DISTRICT NO. 1 OF CLALLAM COUNTY
2431 EAST HIGHWAY 101
PORT ANGELES WA 98362

SITE ADDRESS (IF DIFFERENT)

Total Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
1350	GPM	187

Total withdrawals or diversions from all sources must not exceed the total quantity authorized for withdrawal or diversion listed above.

Purpose

	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		
PURPOSE	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	PERIOD OF USE (mm/dd)
Municipal Supply	1350		GPM	187		01/01 - 12/31

IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION	
ADDITIVE	NON-ADDITIVE	WATER SYSTEM ID	CONNECTIONS
		432960	

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
CLALLAM	GROUNDWATER		18-ELWHA-DUNGENESS

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Bobcat Hollow Well	053010429040	APT 347	30N	05W	10	NW SE		
Old Olympic Highway Well	053011420000	APT 349	30N	05W	11	SW SE		
Well (to be constructed)	053011511600		30N	05W	11	SW SW		

Well (to be constructed)	053010540900		30N	05W	10	NE SE
Bluffs Well (standby/reserve) Datum: NAD83/WGS84		AHM614	30N	05W	10	SE NW

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

Public Utility District No. 1 of Clallam County (the District) water service area.

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

The place of use (POU) of this water right is the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

Proposed Works

The Old Olympic Highway Well is a 12-inch well drilled to a depth of 331 feet to supply water for municipal water supply customers.

The Bobcat Hollow Well is a 12-inch diameter well drilled to a depth of 461.5 feet to supply water for municipal water supply customers.

The current Bluffs Well is a 8-inch diameter well drilled to a depth of 361 feet to supply water to municipal water supply customers.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	December 31, 2017	December 31, 2020

Measurement of Water Use

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

Provisions

Mitigation

This water right change requires the District to mitigate for impacts to the Dungeness River and eight area creeks located on the Dungeness alluvial fan. The District will do the following mitigation components to address the predicted (modeled) impacts to the surface waters of the area:

1) The District will purchase a quantity of 2.57 acre feet from the Dungeness Water Exchange (DWE) to compensate for the impact at the Dungeness River and the eight area creeks located on the Dungeness alluvial fan. The DWE and the District have agreed to a one-time mitigation fee of $53,370.00 to fulfill the mitigation requirements and offset the modeled impacts from long-term pumping at the Bobcat Hollow Well, Old Olympic Highway Well and up to two additional wells that could be installed in the future to provide water supply to the Fairview water System.

2) The District will infiltrate to the ground, near the Old Olympic Highway Well, treatment system water that is used to maintain filters associated with the well and pump. This infiltration facility will recharge 90 gpd (as an annual average) into the Shallow Aquifer which will then discharge the water as base flow to Siebert Creek.

3) The District will allow the DWE to use its water system, when practical, without adverse effect on customer service, without cost to the District, and when the District is participating in future mitigation efforts to maintain base flows or do aquifer recharge projects with the DWE or Ecology.

4) The District will work with ecosystem restoration organizations working in local watersheds to identify potential benefits to affected streams and to explore District participation.

Wells, Well Logs and Well Construction Standards

All wells constructed in the state must 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 must be decommissioned.

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 must 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 Southwest Regional Office.

Water Level Measurements
In order to maintain a sustainable supply of water, pumping must be managed so that static water levels do not progressively decline from year to year. Static water level is defined as the water level in a well when no pumping is occurring and the water level has fully recovered from previous pumping. Static water levels must be measured and recorded monthly for each of the sources covered under this water right, using a consistent methodology. Data for the previous year must be submitted by January 31 to the Department of Ecology.

Static water level data must be submitted in digital format and must 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
By January 31st of each year, the following information must be submitted in writing to the Department of Ecology.

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

Chloride and conductivity (the chemical analysis must 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 must 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.

Department of Health Requirements
Prior to any new construction or alterations of a public water supply system, the State Board of Health rules require public water supply owners to obtain written approval from the Office of Drinking Water of the Washington State Department of Health. Please contact the Office of Drinking Water at Southwest Drinking Water Operations, 243 Israel Road S.E., PO Box 47823, Tumwater, WA 98504-7823, (360) 236-3030.

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 must 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 water right. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Schedule and Inspections
Department of Ecology personnel, upon presentation of proper credentials, will 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. I find that water is physically and legally available based on mitigation of all predicted (modeled) stream depletions. Furthermore, I find the change of water right as recommended will not be detrimental to existing rights or the public welfare. Finally, the public interest is benefitted by this water right change permit since there will be no adverse impacts to surface waters or instream flows due to the District providing full mitigation of the impacts of pumping at the new wells.

Therefore, I ORDER the requested change to change the point of withdrawal to the Bobcat Hollow Well and Old Olympic Highway Well from the Bluffs Well under Change Application No. CG2-GWP7439, subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this 24th day of January 2014.

Michael J. Gallagher

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.

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

INVESTIGATOR'S REPORT
Michael J. Gallagher, Department of Ecology
Water Right Control Number CG2-GWP7439
Public Utility District No. 1 of Clallam County

BACKGROUND

This report serves as the written findings of fact concerning Application for Change of Water Right Number CG2-GWP7439.

Description and Purpose of Proposed Application

Public Utility District No. 1 of Clallam County (the District) operates the Fairview Water System, which serves a large area east of Port Angeles. The Fairview Water System currently has approximately 1550 connections. This system has a surface water source on Morse Creek (under water right number S2-00076C) and a groundwater source from the Middle Aquifer at the Bluffs Well facility (under water right number CG2-7439). At the present time, the groundwater source, due to its proximity to the Strait of Juan de Fuca, is vulnerable to seawater intrusion under high production scenarios; the Bluffs Well has a tendency to induce seawater to enter the aquifer. This concern, and the fact that the other water right held by the District to serve the Fairview System is an interruptible surface water right on Morse Creek, is causing the Washington State Department of Health (WDOH) increasing concern.

In 2009, the District and the WDOH entered into a Bilateral Compliance Agreement (BCA). The BCA requires the District to establish a more reliable source of public water supply by October 24, 2014. With a new source serving the lower system, the District will be free to stop using the Morse Creek source to supply the lower system during the low-flow season.

The purpose of this water right change application is to permit additional points of withdrawal, further inland from the Strait, in order to provide the Fairview Water System a reliable and sustainable source of groundwater supply and to allow production of the District's existing water right at these new wells.

The Fairview Water System is located partially within the Dungeness River Management Area, which is subject to the recently adopted Dungeness River Instream Flow Regulation (Chapter 173-518 WAC). This new regulation (the Rule) requires that new consumptive water rights are to be mitigated so that they are "water budget neutral"[1]. The proposed new wells that will be used by the Fairview Water System to replace the existing Bluffs Well are located with the Rule area, and as such, the impacts to the surface water bodies in the rule area will need to be mitigated.

In May, 2010, Ecology issued a preliminary Permit to the District to allow the District to construct up to four test wells and conduct the necessary aquifer tests on each well to ensure that these wells will yield

[1] Chapter 173-518-030 WAC – The Dungeness Instream Flow Rule, Definitions – **"Water budget neutral"** means either placement of other water rights into the trust water right program or stream flow improvement with appropriate assurances that are at least equivalent to the amount of impact to surface water resulting from consumptive use of a proposed project.

a sustainable water supply.

EXISTING Water Right Attributes

Water Right Owner:	**Clallam County PUD 1**
Priority Date:	1/20/1966
Place of Use	Area served by Clallam PUD #1

County	Waterbody	Tributary To	WRIA
Clallam	Groundwater		18-Elwha-Dungeness

Purpose	Rate	Unit	Ac-ft/yr	Begin Season	End Season
Domestic multiple	1350	GPM	187	01/01	12/31

Source Name	Parcel	Well Tag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
Bluffs Well		AHM614	30N	05W	10	SE NW		

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 in NAD83/WGS84.

REQUESTED Water Right Attributes

Applicant Name:	**Clallam County PUD 1**
Date of Application:	4/5/2010
Place of Use	Area served by Clallam PUD #1

County	Waterbody	Tributary To	WRIA
Clallam	Groundwater		18-Elwha-Dungeness

Purpose	Rate	Unit	Acre-feet/yr	Begin Season	End Season
Domestic multiple	1350	GPM	187	01/01	12/31

Source Name	Parcel	Well Tag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
Bobcat Hollow Well	053010429040	AFT 347	30N	05W	10	NW SE		
Old Olympic Highway Well	053011420000	AFT 349	30N	05W	11	SW SE		
Well (to be constructed)	053010540900		30N	05W	10	NE SE		
Well (to be constructed)	053011511600		30N	05W	11	SW SW		
Bluffs Well		AHM614	30N	05W	10	SE NW		

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 in NAD83/WGS84.

Legal Requirements for Requested Change

The following is a list of requirements that must be met prior to authorizing the proposed change in

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 Peninsula Daily News, a daily newspaper with a circulation of over 15,000 copies. The publications commenced on August 20, 2010 and ended on August 27, 2010. No protests were received.

Consultation with the Department of Fish and Wildlife

Ecology consulted with the Department of Fish and Wildlife (WDFW) in November 2013. WDFW reviewed the District's pending application and pursuant to Chapter 77.57.020 RCW, does not oppose the issuance of a water right permit for this application.

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.

Water Resources Statutes and Case Law

RCW 90.03.380(1) states that a water right that has been put to beneficial use may be changed. The point of diversion, place of use, and purpose of use may be changed if it would not result in harm or injury to other water rights.

The Washington Supreme Court has held that Ecology, when processing an application for change to a water right, is required to make a tentative determination of extent and validity of the claim or right. This is necessary to establish whether the claim or right is eligible for change. *R.D. Merrill v. PCHB* and *Okanogan Wilderness League v. Town of Twisp.*

RCW 90.03.570(1) and (2) state, that if specific conditions are fulfilled, a municipal water supplier is eligible for a change of water right as provided by RCW 90.03.380. This is true even if the right was not put to full beneficial use.

RCW 90.03.386(3) requires a municipal water supplier to apply cost-effective water conservation measures as part of its water system planning. The water supplier must also evaluate the effects of delaying the use of inchoate water rights before it may increase use of those inchoate rights. RCW 90.03.320 requires Ecology to consider the public water supplier's use of conserved water when establishing a surface or ground water right construction schedule.

RCW 90.44.100 allows Ecology to amend a ground water permit to (1) allow the user to construct a replacement or additional well at a new location outside of the location of the original well, or to (2) change the manner or place of use of the water, if:

(a) The additional or replacement well taps the same body of public ground water as the original well. RCW 90.44.100(2)(a),
(b) Where a replacement well is approved, the user must discontinue use of the original well and properly decommission the original well. RCW 90.44.100(2)(b),
(c) Where an additional well is constructed, the user may continue to use the original well, but the combined total withdrawal from all wells shall not enlarge the right conveyed by the original permit or certificate. RCW 90.44.100(2)(c),
(d) Other existing rights shall not be impaired. RCW 90.44.100(2)(d).

When changing or adding points of withdrawal to groundwater rights (RCW 90.44.100), or when consolidating exempt wells with an existing permit or certificate (RCW 90.44.105), the wells must draw from the *same body of public groundwater*. Indicators that wells tap the *same body of public groundwater* include:

(a) Hydraulic connectivity.
(b) Common recharge (catchment) area.
(c) Common flow regime.
(d) Geologic materials that allow for storage and flow, with recognizable boundaries or effective barriers to flow.

Based upon the findings of this investigation, all of the legal requirements for this requested change have been met.

INVESTIGATION

In consideration of this change application, Ecology reviewed available reports relating to the application's site conditions, available and projected water demand, the potential effect on existing water right holders in the immediate area, applicable mitigation as now required by the January 2013 adopted Dungeness Instream Flow Regulation (Chapter 173-518 WAC), the modeled impacts of pumping from the new Bobcat Hollow, Old Olympic Highway and two additional yet to be installed wells, and established minimum instream flows. The review included information submitted by the applicant including well construction and testing reports, hydrogeological impacts analysis, proposed mitigation strategies and pertinent Ecology records and databases, including well logs and water right records. The

review also included reports from multiple investigations characterizing the area hydrogeology, water quality of the Dungeness Watershed, and documents relating to the watershed planning process.

Numerous meetings and telephone conversations were held between Ecology and the District. A site visit to the existing Bluffs Well and the recently installed Bobcat Hollow and Old Olympic Highways wells was conducted on October 2, 2013.

Using this information, Ecology evaluated water availability and potential effects of the proposed appropriation upon existing groundwater and surface water rights, including instream flows, and water quality. Each of the four requirements specified in RCW 90.03.290 were individually examined and findings presented below.

The regional groundwater model represents the best available science for analyzing the effects of groundwater pumping and making water rights decisions for water right requests within the model's boundaries. However, for many of the water bodies evaluated, the predicted effects are very small relative to measured stream flows and/or the groundwater inflow to each water body.

The largest model-predicted surface-water impact is to the main stem of the Dungeness River, where the groundwater model indicates 1,215 gpd would be removed from the river. This is equivalent to 1.36 acre feet of water annually. Given the distance between the wellfield and the Dungeness River, the effects are likely to be reflected as an annual average effect. This makes the projected impact equivalent to 0.00188 cfs. The lowest flows set in WAC 173-180 for the Dungeness River is 180 cfs.

Overall, the District will contribute a quantity of 2.57 acre feet to the Dungeness Water Exchange (DWE) to compensate for the impact at the Dungeness River and other streams. The DWE and the District have agreed to a one-time mitigation fee of $53,370.00 to fulfill the mitigation requirements and offset the modeled impacts from long-term pumping at the Bobcat Hollow Well, Old Olympic Highway Well and up to two additional wells that could be installed in the future to provide water supply to the Fairview water System.

History of Water Use

The District operates the Fairview Water System, which serves 1550 connections in a large area east of Port Angeles in Clallam County. The system is a conjunctive-use system that has a surface water source on Morse Creek (S2-00076C) and a groundwater source that currently withdraws from the Middle Aquifer at the Bluff Well facility (GWP-7439).
Permit No. CG2-GWP7439 is an inchoate municipal water supply permit in good standing. This water right is in use and will continue to be used to accomplish the original intent of the Permit. The purpose of this change is to enable the District to develop more reliable wells to withdraw the allocated quantities and avoid saltwater intrusion. Thus, 1350 gpm and 187 acre-feet per year are eligible for change, as requested.

Proposed Use

The District has requested a change in points of withdrawal for its water right permit number GWP-7439 (aka as the Bluffs Well water right) in order to authorize new points of withdrawal and development of

additional wells to increase the reliability of the PUD's water supply in the Fairview Water System. The Bluffs Well is located approximately 500 feet from the shoreline and is at risk of sea water intrusion into the well from sea water from the Straits of Juan de Fuca.

The District's intent is to move their point of withdrawal further inland from the Bluffs well location to the Bobcat Hallow well, Old Olympic Highway well and two other future locations. These wells are located approximately 3,500 (Bobcat Hollow Well) and 5,500 (Old Olympic Highway Well) feet inland from the shoreline of the Straits of Juan de Fuca.

The Bobcat Hollow Well point of withdrawal is located in the NW1/4 SE1/4 of Section 10 in Township 30 North, Range 5 West (of the) Willamette Meridian. The Bobcat Hollow Well was completed in July 2011 to a depth of 461.5 feet below ground surface (bgs). The well has a 12-inch diameter casing from +2.3 to 384 feet bgs and an 8-inch diameter Riser from 354 to 384 feet bgs. Below the riser is an 8-inch diameter stainless steel well screen, which extends from 384 to 454 feet bgs. The well is located at an approximate elevation of 331 feet above sea level. Depth to static water level is approximately 313 feet bgs.

The Old Olympic Highway Well point of withdrawal is located in the SW1/4 SE1/4 of Section 11 in Township 30 North, Range 5 West (of the) Willamette Meridian. The Old Olympic Highway Well was completed in July 2012 to a depth of 361 feet bgs. The well has a 12-inch diameter casing from +2.0 to 361 feet bgs and a 10-inch diameter Riser from 297 to 300 feet bgs. Below the riser is a 10-inch diameter stainless steel well screen, which extends from 300 to 326 feet bgs. The well is located at an approximate elevation of 230 feet above sea level. Depth to static water level is approximately 225 feet bgs.

Other Rights Appurtenant to the Place of Use

The District's current water right portfolio includes a total of 716 acre-feet per year (afy) in primary water rights from three sources, the Bluffs well under GWP-7439, Morse Creek under S2-00076C, and the Bluffs Water Company Well under G2-10012C. In addition, two wells, the Township Line Road Wells, were developed under Water Right Application G2-28757. These wells were last covered under Short-term Permit No. G2-30607, which expired November 1, 2013. A summary of the Fairview Water System Water Rights is provided in Table 1 (below).

Table 1. Fairview Water System Water Rights

Source	Water Right Number	Priority Date	Qi in gpm	Qa in afy
Morse Creek	S2-00076C	2/16/1972	673	379
Bluffs Well	GWP-7439	1/20/1966	1,350	187
Township Line Road Wells No. 1 & 2	No active authorization			
Bluffs Water Company Well	G2-10012C	2/10/1969	100	150
Totals			2,123	716

Hydrologic/Hydrogeologic Evaluation

The hydrogeology of the Dungeness alluvial fan area of WRIA 18 is described in several peer-reviewed documents, including:

- Water Supply Bulletin No. 11, *A Preliminary Report on the Geology and Ground-Water Resources of the Sequim-Dungeness Area, Clallam County, Washington*, by John B. Noble (1960).
- *Hydrogeologic Assessment of the Sequim-Dungeness Area, Clallam County, Washington*, USGS Water-Resources Investigations Report 99-40-48, by Thomas, et. al (1999).
- USGS Water-Resources Investigations Report 83-4227 by B.W. Drost (1983).
- *Water Resources of Clallam County, Washington* (which lists well and water data for the entire county).
- *Ground Water Studies—McDonald Creek Deep Aquifer,* by Robinson & Noble (1985). This report evaluated in more detail the aquifers west of Siebert Creek and east of McDonald Creek.
- 2008 Dungeness Groundwater Flow Model – Design, Construction, Calibration and Results (2009). Pacific Groundwater Group (Peter Schwartzman)

Additionally, a three-dimensional numerical model was developed recently for the Dungeness alluvial fan area using the USGS MODFLOW code. The model, which was developed by Pacific Groundwater Group as a consultant to the Department of Ecology, was modified from earlier work by the USGS and Tetra Tech. This model is now the basis for groundwater management in the region as codified in WAC 173-518.

Thomas and others (1999) describe the three aquifers found in the Dungeness alluvial fan area as the "Shallow", "Middle", and "Lower" or "Deep" aquifers. The Shallow Aquifer is usually found within 100 feet of the surface and is unconfined to semi-confined. In the Bluffs Well area, the shallow system is reflected as local perched zones (where it occurs) near land surface. The Middle Aquifer is described by Thomas as generally found from about 50 feet above to 150 feet below sea level.

The regional hydrogeology of the Sequim-Dungeness area consists of a stratified system of geographically extensive aquifers and aquitards consisting of the following six hydrostratigraphic units:

1. Shallow Aquifer
2. Upper Confining Aquitard,
3. Confined Middle Aquifer,
4. Lower Confining Aquitard,
5. Confined Lower Aquifer,
6. Deeper Undifferentiated Sediments.

Over most of the area, all or some of these six hydrostratigraphic units overlie Tertiary bedrock of sedimentary and volcanic origin. The total thickness of unconsolidated sediments beneath the Sequim-Dungeness area ranges from zero feet in the south (where bedrock is exposed on the land surface) to as much as 2,500 feet in the northeast.

Shallow Aquifer

The Shallow Aquifer is composed of a variety of more recently deposited geologic materials, including: stream alluvium, glacial outwash, ice contact deposits, glaciomarine sediments and glacial till. The alluvium was deposited by the current Dungeness River along its current floodplain and by the ancestral Dungeness River as a floodplain terrace predominantly east of the existing river channel. The glacial and glaciomarine sediments are associated with the most recent continental glaciation (Vashon stade of the Frasier glaciation), which ended approximately 13,000 years ago. Given the range of geologic materials present, the texture of the Shallow Aquifer can vary from fine-grained to coarse-grained, and can be highly heterogeneous (locally variable). Water-bearing zones can be separated by lower permeability zones which restrict groundwater flow, and lower permeability zones can cause perched groundwater conditions. The thickness of the Shallow Aquifer generally ranges from 50 to 200 feet, although greater and smaller thicknesses have been observed. The aquifer is generally unconfined but can exhibit some local confinement with the occurrence of fine-grained, low-permeability deposits. Groundwater flow directions tend to "fan out" radially beneath the Dungeness Peninsula.

Upper Confining Aquitard

The underlying Upper Confining Aquitard is typically 30 to 110 feet thick, and is mainly composed of pre-Vashon age silts and clays with locally discontinuous lenses of water bearing sand and gravel.

Confined Middle Aquifer

Beneath the Upper Confining Aquitard, the Middle Aquifer is typically about 10 to 70 feet thick, and contains pre-Vashon glacial outwash deposits of sand and gravel and coarse-grained interglacial deposits. Groundwater in the Middle Aquifer occurs under confined conditions. Groundwater flow in the Middle Aquifer tends to be from south to north from the base of the bedrock Olympic Range uplands to eventual discharge into the Straits of Juan de Fuca. This aquifer is recharged by precipitation and filtration via the shallow aquifer and from overland runoff from the bedrock Olympic Range uplands.

The Middle Aquifer is believed to be continuous along the coast eastward from the Bluffs Well to beyond the Agnew area. However, in the Bluffs Well area there is likely specific aquifer characteristics that may not be applicable to other areas where the Middle Aquifer exists. For example, during the construction of the Bobcat Hollow and Old Olympic Highway wells it was determined that the Middle Aquifer is at a lower elevation than the Middle Aquifer at the Bluffs Well. This exhibits the complexity and variability of the Middle Aquifer at its western edge. The table below provides a summary of the characteristics of the three pertinent District wells.

Lower Confining Aquitard

The Middle Aquifer is underlain by the Lower Confining Aquitard, which is composed of till and interbedded clay, silt and fine-grained sand with possible discontinuous lenses of water-bearing sand. Since few wells penetrate this confining unit, there is a broad range of thickness assigned to this unit by the USGS of 10 to 300 feet with a "typical" thickness of 100 feet.

Lower Aquifer

The underlying Lower Aquifer is composed of sand with thin lenses of sand and gravel, silt and clay. Information on the Lower Aquifer is limited due to few well completions. The aquifer is present in the northern and eastern portions of the Sequim-Dungeness area, and absent in the southern and western portions where bedrock occurs closer to the land surface. Its thickness is believed to range from 10 to 180 feet, with a typical value of about 90 feet. Groundwater in the Lower Aquifer occurs under confined conditions. Groundwater flow in the Lower Aquifer also tends to be from south north from the base of the bedrock Olympic Range uplands to eventual discharge into the Straits of Juan de Fuca. The Lower is recharged by precipitation and filtration via the Shallow Aquifer and Middle Aquifer and from overland runoff from the bedrock Olympic Range uplands.

Specific Aquifer Characteristics at Each of the Wells

The Middle Aquifer is encountered a few feet above sea level at the Bluffs Well and the portion used for production extends to about 40 feet below sea level where a lower permeability clay-rich sedimentary unit was encountered and the well was bottomed. In contrast, the Bobcat Hollow and Old Olympic Highway wells encountered the upper sedimentary unit at 28 feet and 70 feet below sea level for these wells, respectively. Both wells do not fully penetrate the aquifer since interbedded layers of sand and gravel and silty clay reduced the production potential sufficiently to make additional drilling not cost-effective. The Bobcat Hollow Well was bottomed at an elevation 130 feet below sea level and the Old Olympic Highway Well was bottomed 96 feet below sea level. The 26-foot production zone in the Old Olympic Highway Well has a much higher transmissivity and production potential than the production zone at Bobcat Hollow.

The aquifer at the Bluffs Well is unconfined, with the static water level at the same elevation as the top of the aquifer. In contrast, the two inland wells tap a confined portion of the aquifer as exhibited by the fact that both static water levels rise more than 50 feet above the top of the aquifer material. Test data from the Old Olympic Highway Well test indicate a storage coefficient of 0.001, a confined value. More specific characteristics for each well are provided in Table 2 (below).

It is likely the Middle Aquifer is unconfined as much as a quarter mile inland from the coast. The aquifer appears to deepen southward until the sediments encounter the bedrock at some point south of Olympic Highway (Highway 101). The aquifer sediments disappear to the southwest where the bedrock is shallower, intercepting the sediments near the coast and ultimately rising above sea level. In contrast, bedrock becomes deeper to the north and east. Several well logs in the greater study area indicate the Bluffs Aquifer is bounded on the bottom by clay sediments.

Table 2.
Summary Table of District Well Characteristics
(Elevations referenced to NAVD 88 and all depths given in feet and referenced to measuring point - top of casing.)

Parameter	Bluffs Well	Bobcat Hollow Well	Old Olympic Highway Well
elevation of measuring point (mp)	185.21	319.3	231.9
drilled depth (below mp)	221	463	363
elevation of bottom hole	-35.29	-143.7	-131.1

static water level (SWL) (7/18/12)	180.95	314.57	226.09
elevation of SWL	4.26	4.73	5.81
top of overlying confining unit	83	365	282
elevation top of confining unit	102.21	-45.7	-50.1
bottom overlying confining unit	178	385	302
elevation bottom of confining unit	7.21	-65.7	-70.1
top of source aquifer	178	385	302
elevation of aquifer top	7.21	-65.7	-70.1
bottom of aquifer	221	463	328
elevation of bottom aquifer (lower than for all 3 wells	-35.79	-143.7	-96.1

Nearby Surface Water Conditions

The nearest freshwater surface water body to the new wells that are the subject of this change application is Siebert Creek.

Siebert Creek
Siebert Creek, which is located about one-half mile SE and E of the Old Olympic Highway Well, is 12.4 miles long and drains 19.5 square miles of area, extending from the northwest flank of Blue Mountain the Straits of Juan de Fuca near Green Point. It is a significant independent drainage to salt water on the western portion of the Sequim-Dungeness area. Overall, the Siebert Creek watershed includes 31.2 miles of mainstem stream and tributaries, much of which is well incised, with its upper watershed reaching an elevation of 3,800'. It is the westernmost stream influenced directly by Dungeness area irrigation flows and was closed to new appropriations in 1973.

Fish and Habitat of Siebert Creek
Siebert Creek historically supported coho and chum salmon, steelhead, cutthroat and rainbow trout, and Dolly Varden. The PSCRBT (1991) characterizes Siebert Creek as having ideal fish habitat throughout, except in the East Fork. With the construction of a bridge for eastbound Highway 101 in 1999, a maintained fishway provides passage through the culvert under westbound Highway 101, which would otherwise be impassable. The fishway has not always been sufficiently maintained to allow unhindered fish passage (Randy Johnson, WDFW).

Mitigation

This water right change requires the District to mitigate for impacts to the Dungeness River and eight area creeks located on the Dungeness alluvial fan. The District will do the following mitigation components to address the predicted (modeled) impacts to the surface waters of the area:

1) The District will purchase a quantity of 2.57 acre feet from the Dungeness Water Exchange (DWE) to compensate for the impacts at the Dungeness River and the eight area creeks located on the Dungeness alluvial fan. The DWE and the District have agreed to a one-time mitigation fee of $53,370.00 to fulfill the mitigation requirements and offset the modeled impacts from long-term pumping at the Bobcat Hollow Well, Old Olympic Highway Well and up to two additional wells that could be installed in the future to provide water supply to the Fairview water System. The District will provide Ecology evidence

of payment of the above one-time mitigation fee to confirm the District's satisfaction of this mitigation component.

Given the dispersed nature of the impact associated with the point of withdrawal change, it is more effective for applicants such as the District to contribute to regionally significant mitigation projects planned by the Dungeness Water Exchange created by WAC 173-518 than it would to be to mitigate for each individual creek.

2) As part of the operation of the Old Olympic Highway Well, there will be a need to treat the water. The treatment system requires the use of water to maintain the filters. The District has developed a system design that will infiltrate the operation return flow into the Shallow Aquifer immediately west of Siebert Creek. The infiltration facility will recharge 90 gpd (as an annual average) into the Shallow Aquifer which will then discharge the water as base flow to Siebert Creek. Since the Shallow Aquifer discharge will occur farther upstream than the effects predicted for the pumping of the Middle Aquifer which would occur at the mouth of Siebert Creek, this infiltration will be effective toward mitigating the predicted impact to Siebert Creek. The identified impact for Siebert Creek is 241 gpd. When the 90 gpd of infiltration water is considered, this leaves 151 gpd that must be addressed through the arrangements with the DWE.

3) The District will allow the DWE to use its water system, when practical, without adverse affect on customer service, without cost to the District, and when the District is participating in future mitigation efforts to maintain base flows or do aquifer recharge projects with the DWE or Ecology.

4) The District will work with ecosystem restoration organizations working in local watersheds to identify potential benefits to affected streams and to explore District participation. For example, the District at times has the chance to participate in highway or other infrastructure projects in its service area that present opportunities to mitigate impacts to habitat conditions and ecological functions such as water temperature, channel geomorphology, and fish passage.

The intent of the District's mitigation plan, and of the overall operation of the District's water systems, is to protect waters of the region in order to advance the environmental (i.e. instream flows in the watershed) and economic functions of water in the watershed. For the overall mitigation for this water right change, the District is expected to actively participate in Dungeness watershed related water resource management planning activities.

APPLICATION EVALUATION

This Report of Examination (ROE) evaluates the application based on the information presented above and listed in the References section at the end of this ROE. To approve this application for change of an existing groundwater right, Ecology must determine that each of the following four requirements has been satisfied:

(1) Beneficial Use: the water will be put to a beneficial use;
(2) Availability: water is physically and legally available;

(3) Impairment: the proposed change will not impair existing water rights; and
(4) Public Interest: the proposed change will not be detrimental to the public interest.

To approve a change of the point of withdrawal of a groundwater right, the following additional requirements must also be met:

(1) The additional wells must tap the same body of public groundwater as the original well,
(2) The change will not result in enlargement of the underlying right.

Water Availability and Impairment Considerations

Surface Water Impacts

The assessment of the potential for impact to surface water features was accomplished by application of the Ecology numerical model by using the Mitigation Calculator associated with the recently adopted WAC 173-518. The results from the Ecology Mitigation Calculator indicate there is potential for the change to increase the impact to streams in the management area. The total -calculated impact that would result from the requested water right change is 2,383 gallons per day (a total of less than 0.0037 cfs). This total impact is distributed over the Dungeness River and eight different area creeks located on the Dungeness alluvial fan. The bulk of the predicted impact occurs in the Dungeness River and Bagley, Seibert, and McDonald Creeks. These four streams incur 92% of the predicted impact. The predicted level of impact for each of the affected streams is summarized in Table 3 in the *Phase 1 Water Right Assessment* (2013), which is incorporated by reference.

Impairment of Minimum Instream Flow Water Rights

The term "instream flow"[2] is used to identify a specific stream flow (typically measured in cubic feet per second, or cfs) at a specific location for a defined time, and typically following seasonal variations. Instream flows are usually defined as the stream flows needed to protect and preserve instream resources and values, such as fish, wildlife and recreation. Instream flows are most often described and established in a formal legal document, typically an adopted state rule.

Once established, a minimum flow constitutes an appropriation with a priority date as of the effective date of the rule establishing the minimum flow (RCW 90.03.345). Thus, a minimum flow set by rule is an existing right which may not be impaired (RCW 90.03.345; RCW 90.44.030). Chapter 173-518 WAC in becoming effective on January 2, 2013 requires that instream flows in the Dungeness Watershed must be protected from impairment through full mitigation.

This water right change requires the District to mitigate for impacts to the Dungeness River and eight area creeks located on the Dungeness alluvial fan. The District will do the mitigation components outlined above to address the predicted (modeled) impacts to the surface waters of the Dungeness alluvial fan area.

[2] Chapter 173-518-030 WAC – The Dungeness Instream Flow Rule, Definitions – **"Instream flow"** means a stream flow level set in rule to protect and preserve fish, wildlife, scenic, aesthetic, recreational, water quality, and other environmental values; and navigational values. The term "instream flow" means "base flow" under Chapter 90.54.RCW, "minimum flow" under Chapters 90.03 and 90.22 RCW, and "minimum instream flow" under Chapter 90.82 RCW.

Impairment, Qualifying Ground Water Withdrawal Facilities, and Well Interference

The requested additional points of withdrawal are completed in the Middle Aquifer as defined above. The additional points represent withdrawal from the same body of public groundwater as originally provided in G2-GWP 7439 (Robinson & Noble, 2013). Because this is a change of water rights, there is no proposed increase in either the instantaneous or the annual quantities to be withdrawn from the Middle Aquifer.

In an approximately one-mile radius around the proposed points of withdrawal at the Old Olympic Highway Well and the Bobcat Hollow Well there are 20 Water Right Claims, 1 Water Right Certificate, and 1 Superseding Water Right Permit. This number was determined by conducting a search of Ecology's Water Rights Database for Sections 2, 3, 10 and 11 in T30N, R5W, WM.

All of these water right claims are for both general domestic and irrigation purposes and three of the claims include stockwatering purposes as well. Most serve one or two homes or irrigate small areas. Impacts to wells completed in the Middle Aquifer are expected to be minor due to the prolific nature of the aquifer. In such circumstances, the amount of drawdown required for a well to produce its allocated water is small. The imposed drawdown from the operation of the proposed wellfield is relatively small compared to the available drawdown, leaving more than sufficient available drawdown for the existing water rights to be satisfied. There is no indication that any existing water rights will be impaired as a result of the requested water right change.

The largest certificated use in this area is for an annual withdrawal (Qa) of 150 acre-feet/year for multiple domestic purposes from the Bluffs Water Company (G2-*10012CWRIS). This water right is property of the District and the District has no concern about impairment of this right.

This water right change will authorize additional points of withdrawal referred to as the Old Olympic Highway Well and the Bobcat Hollow Well, plus two additional wells to be constructed at a later date. This change will not enlarge this water right and this water right will maintain the same annual quantity of 187 acre-feet per year.

Based on these findings, water is physically and legally available to fulfill this change application.

Public Interest Considerations

The final test pertaining to the granting of a water right change is the requirement that the appropriation not be detrimental to the public interest. Moving the District's water source from the Bluffs wells location, where there is high potential for sea water intrusion into the Bluffs well (and subsequent elevated chloride levels in the District's water supply for the Fairview Water System) to the Bobcat Hollow and Old Olympic Highway wells clearly serves the public interest since this new water source will not have the high sea water intrusion potential.

Secondly, the Middle Aquifer in the vicinity of the Bluffs Well is further protected from sea-water intrusion since this water right change permits the District to withdraw groundwater much further inland and this eliminates the pumping stress on the Middle Aquifer in the vicinity of the Bluffs Well.

Finally, the public interest is benefitted by this water right change permit since there will be no adverse impacts to surface waters or instream flows due to the District providing full mitigation of the impacts of pumping at the new wells.

Consideration of Protests and Comments

No protests were filed against this application.

CONCLUSIONS

I find that:

- Water is available for appropriation, as requested.
- Municipal supply is a beneficial use.
- Existing water rights will not be impaired as a result of adding the requested points of withdrawal. The mitigation provided by the District will offset impacts to streamflow in the Dungeness alluvial fan, as required under WAC 173-518.
- The proposed change, as recommended, will not be detrimental to the public welfare.
- The Old Olympic Highway Well and the Bobcat Hollow well taps the same body of public groundwater as the existing Bluffs Well. The additional proposed wells will also tap the same body of groundwater.
- Approval of the requested change will not enlarge the right conveyed by the original authorization.

Based upon the findings of this investigation, all of the legal requirements for this requested change application have been met.

RECOMMENDATIONS

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:

1350 gpm
187 acre-feet per year
Municipal Supply
Year round, as needed

Authorized Point of Withdrawal Locations

NW¼, SE¼, Section 10, Township 30 North, Range 5 W - WM
SW¼, SE¼, Section 11, Township 30 North, Range 5 W – WM
NE¼, SE¼, Section 10, Township 30 North, Range 5 W – WM (proposed)
SW¼, SW¼, Section 11, Township 30 North, Range 5 W – WM (proposed)
SE¼, NW¼, Section 11, Township 30 North, Range 5 W – WM

Place of Use

As described on Page 1 of this Report of Examination.

Michael J. Gallagher 1/24/14

Michael J. Gallagher, LHG *Date*

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Washington State Department of Conservation, Division of Water Resources. Water Supply Bulletin No. 11, *A Preliminary Report on the Geology and Ground-Water Resources of the Sequim-Dungeness Area, Clallam County, Washington*, by John B. Noble (1960).

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