

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

- Surface Water** (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)
- Ground Water** (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

| | | | |
|-------------------------------|--------------------------------|---------------|--------------------|
| PRIORITY DATE May 16, 2001 | APPLICATION NUMBER G2-29988 | PERMIT NUMBER | CERTIFICATE NUMBER |
|-------------------------------|--------------------------------|---------------|--------------------|

| | | | |
|--------------------------------|-------------------|-----------------------|---------------------|
| NAME Duckabush Water Group | | | |
| ADDRESS (STREET) PO Box 236 | (CITY) Brinnon | (STATE) Washington | (ZIP CODE) 98320 |

PUBLIC WATERS TO BE APPROPRIATED

| |
|----------------------------------|
| SOURCE A well |
| TRIBUTARY OF (IF SURFACE WATERS) |

| | | |
|-------------------------------|----------------------------|----------------------------|
| MAXIMUM CUBIC FEET PER SECOND | MAXIMUM GALLONS PER MINUTE | MAXIMUM ACRE FEET PER YEAR |
| | 10 | 10 |

| | | |
|---|--------------------------|-----------------------|
| QUANTITY, TYPE OF USE, PERIOD OF USE 10 Acre-feet per year | Multiple domestic supply | Year-round, as needed |
|---|--------------------------|-----------------------|

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
2200 feet North and 110 feet West of the Southeast corner of Section 16.

| | | | | | |
|--|---------------|-------------------|------------------------------|----------------|---------------------|
| LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) NE¼ SE¼ | SECTION 16 | TOWNSHIP N. 25 | RANGE, (E. OR W.) W.M. 2W | W.R.I.A. 16 | COUNTY Jefferson |
|--|---------------|-------------------|------------------------------|----------------|---------------------|

RECORDED PLATTED PROPERTY

| | | |
|-----|-------|------------------------------------|
| LOT | BLOCK | OF (GIVE NAME OF PLAT OR ADDITION) |
|-----|-------|------------------------------------|

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the Duckabush Water Group as described in a Department of Health approved water system plan.

DESCRIPTION OF PROPOSED WORKS

???????

DEVELOPMENT SCHEDULE

| | | |
|--|---|---|
| BEGIN PROJECT BY THIS DATE: Started | COMPLETE PROJECT BY THIS DATE: Completed | WATER PUT TO FULL USE BY THIS DATE: December 1, 2012 |
|--|---|---|

REPORT

BACKGROUND:

Under the provisions of Chapters 90.03 and 90.44 Revised Code of Washington (RCW), Daniel Dietz of Duckabush Park Water Group filed an application for a permit to appropriate public ground water in the amount of 10 gallons per minute (gpm) for multiple domestic supply. The application was assigned a priority date of May 16, 2001.

In order to comply with drinking water standards, Duckabush Water Group was required by the State Department of Health to change the source of drinking water from surface water to ground water. This application was filed to receive authorization to use the well which has replaced the surface-water source, and to obtain an additional annual quantity for the community served by the water system. A permit for temporary use of the well was issued on August 30, 2001, under the provisions of 90.03.250 RCW.

Legal notice of the proposed appropriation was published in *The Port Townsend & Jefferson County Leader* on November 13 and 20, 2002. No letters of protest were filed as a result of this notice.

INVESTIGATIONS:

In consideration of this application, Ecology Permit Writer Marie Peter conducted a review and drafted recommendation for this application. This report was finalized by Jill Walsh. Tom Culhane, a licensed hydrogeologist for the Department of Ecology, reviewed and analyzed pumping test data for the Duckabush Park Water Group well, and reviewed area well reports and geological information. The hydrogeological interpretations provided in this report are supported by a May 5, 2003 technical memorandum prepared by Mr. Culhane based on his review of information relevant to this application.

Tom Culhane and Marie Peter conducted a field inspection of the project site on October 3, 2001. The community served by the Duckabush Park Water Group well is located approximately two miles southwest of the community of Brinnon, off of Highway 101, in Jefferson County, within Water Resource Inventory Area (WRIA) 16. The Black Point Peninsula is located across the highway to the east, and the foothills of the Olympic Mountains rise to the west.

The well site is situated approximately 700 feet east of a small stream that flows south to Hood Canal. Although the well is situated west of Highway 101, most of Duckabush Water Group's service area lies southeast of the highway, along the shore of Hood Canal. Duckabush Park currently consists mainly of recreational homes and cabins. The water system currently serves 23 lots of which only three are full-time residences. It is anticipated, however, that many of these lots will eventually be occupied on a full-time basis.

The water withdrawal for the water system is authorized under an existing surface water right: Certificate #S2-00753C, issued for .05 cubic feet per second (cfs) and 2 acre-feet per year for community domestic supply. The surface-water point of diversion under this water right was located approximately 3,000 feet upstream (north) of the mouth of a small unnamed stream that empties into an extensive mud flat on Hood Canal. The delta that the stream empties into also receives water from another small stream, Pierce Creek, to the west and the Duckabush River to the southwest.

Duckabush Water Group Well Information

Well elevation: Approximately 210 feet above mean sea level (msl)
 Well depth: 327 feet (approximately 117 feet below msl)
 Casing diameter: 6 inches
 Static water level: 203 feet (approx. 7 feet above msl) on 2/2/2001

The Duckabush Water Group well was completed on February 2, 2001. It is completed approximately 117 feet below mean sea level in a water-bearing zone consisting of sand and gravel.

During the pumping test conducted in March, 2001, the pumping rate was reduced several times and increased once due to generator complications and air in the lines. However, the pumping rate remained at a constant 10 gpm for the last 3 hours and 50 minutes of the test. The water level stabilized at a depth of approximately 294 feet. Analysis of samples for chloride concentration taken at the conclusion of this event, showed a level of less than 5 mg/l. Based on the pump test and other information, it appears that the subject well is marginally able to produce the requested 10 gpm.

Potential Effects on Existing Rights

There are four wells with water right certificates, one well under permit, and one well under a senior application within a half-mile radius of the Duckabush Park Association well. The total annual quantity allocated under the water right permit and certificates is 95 acre-feet per year.

| <u>Water Right Number</u> | <u>Name of Holder</u> | <u>QA</u> | <u>QI</u> |
|---------------------------|-----------------------|--------------------|------------------|
| Cert. #G2-21134C | Black Point Water Co | 60 acre-feet/year | 40 gpm |
| Cert. #G2-24359C | Robert E. Reilly | 3.0 acre-feet/year | 60 gpm |
| Cert. #G2-24339C | Robert Phillips | 7.0 acre-feet/year | 26 gpm |
| Cert. #G2-23623C | Black Point Water Co | 60 acre-feet/year* | 45 gpm |
| Permit #G2-27964P | Pleasant Harbor Beach | 25 acre-feet/year | 215 gpm |
| Appl. #G2-29065A | Linda Tudor | | 46 gpm requested |

Report Continued

* Annual quantity supplemental to Certificate #G2-21134

Well reports on file at Ecology indicate that there are over 30 wells situated within a half mile of the Duckabush Park well. Wells range in depth from 28 to 440 feet (well elevations vary considerably due to hilly topography). Most are completed in unconsolidated glacial materials, while others penetrate bedrock and derive water from fractures.

The nearest water rights are for two wells serving Pleasant Harbor Water System under Certificate #G2-23623C and Permit #G2-27964P, which are situated approximately ¼ mile northeast of the Duckabush Park well. The Pleasant Harbor wells are completed in unconsolidated glacial deposits, at depths of approximately 70 and 85 feet below sea level.

Potential Effect on Nearby Streams

Duckabush Park is requesting additional water to meet its projected demand. Pumping the system's well could produce a small effect on the lowest reaches of the nearby unnamed creek. This is not much of a concern, however, due to the proximity of this well to the mouth of the creek. Furthermore, the applicant is offering as mitigation discontinuance of its #S2-00753 surface-water right which diverts .05 cfs (and 2.0 acre-feet per year) from the creek. This diversion produced a direct effect on the creek even during low flow times. As the old point of diversion is located roughly 1/3 mile up the drainage, the lesser attenuated effects of ground water pumping should be offset by the relinquishment of the older right.

Risk of Seawater Intrusion

Many wells in the area appear to have high hydraulic heads provided by steep gradients associated with the Olympic Mountains. In general this should provide some protection against the risk of seawater intrusion. Additionally, the steep terrain west of the subject wells will likely limit future development and the ground-water withdrawals associated with development, and this should help minimize the risk of seawater intrusion. The USGS conducted two seawater intrusion surveys in coastal Washington that included sampling in the Duckabush vicinity. The USGS published WSB 32 in 1971 and WSB 56 in 1984. A search of data in these reports did not point to any wells that produced water with chlorides greater than 100 mg/l. within one mile of either of the subject wells. A chloride level of 172 mg/liter was recorded for a sample of water from the Pleasant Harbor Water System's in the 1994 Eastern Jefferson County Groundwater Characterization Study by EES. Use of this well, however, is currently limited to emergency use only.

The Pleasant Tides water system has two wells located approximately one quarter mile north of Duckabush Park's wells, and the small head above MSL in these wells creates some risk of seawater intrusion. Nonetheless, the extensive history of low chlorides in these wells (all less than 5 mg/l) and their cross-gradient locations all suggests that the risk of impairment as a result of Duckabush Park's pumping is slight.

A sample of water collected from the Duckabush Water Group well on March 21, 2001 yielded a chloride level of 5 mg/liter and a conductivity value of 133 micromhos/cm.

The Duckabush Park well is situated approximately 1,650 feet from Hood Canal. Although limited ground-water development and high hydraulic head reduce the likelihood of seawater intrusion, the well is at risk as it is completed below sea level. I therefore recommend that chloride levels be monitored semi-annually. If chloride levels show an increasing trend or exceed 100 mg/l, the pumping rate and/or annual quantity shall be reduced.

Water Demand

This system currently supplies water to 23 modest homes, and it is possible that a few more homes that are currently supplied by private wells may elect to be served by the public water system. Based on an average daily demand of 355 gallons per day per connection for 25 homes, a total of 10 acre-feet per year should be allocated.

FINDINGS AND CONCLUSION:

In accordance with Chapters 90.03 and 90.44 RCW, I find that water is available from the requested source. The proposed appropriation, as recommended, will not impair existing rights or in-stream flows and will not be detrimental to the public welfare.

RECOMMENDATIONS:

I recommend approval of this application and issuance of a permit to allow appropriation of ground water in the amount of 10 gallons per minute, 10 acre-feet per year for multiple domestic supply. The period of use shall be year-round, as needed.

This permit is subject to all applicable State laws and regulations and the following provisions:

"Water Right Certificate #S2-00753 shall be relinquished prior to issuance of a permit under this filing."

PROVISIONS:

The water appropriated under this application will be used for public water supply. The State Board of Health rules require public water supply owners to obtain written approval from the Office of Water Supply, Department of Health, 1112 SE Quince Street, PO Box 47890, Olympia, Washington 98504-7890, prior to any new construction or alterations of a public water supply system.

Installation and maintenance of an access port as described in Chapter 173-160 is required. An air line and gauge may be installed in addition to the access port.

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", Chapter 173-173 WAC.

Report Continued

Water-use data shall be recorded monthly. The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year.

The following information shall be included with each submittal of water use data: owner, contact name if different, mailing address, daytime phone number, WRIA, Permit/Certificate/Claim No., source name, annual quantity used including units, maximum rate of diversion including units, and period of use. In the future, Ecology may require additional parameters to be reported or more frequent reporting. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Permittee or certificate holder, and its successor(s) shall provide data on chloride concentrations for the well authorized by this permit or certificate with analysis performed by a state accredited laboratory. Accreditation information may be obtained from Ecology's Quality Assurance Program at (360) 895-4649. Sampling shall occur in April and August of each year, with a copy of the laboratory results for both sampling events submitted by January 31 of the following year, to the Department of Ecology, Southwest Regional Office, Olympia, Washington.

If pumping of the well authorized by this permit or certificate causes chloride concentrations to exceed 100 milligrams per liter, immediate action shall be required to prevent concentrations from increasing (such as reducing the instantaneous withdrawal rate (gpm) of the well). If corrective measures fail to prevent chloride concentrations from exceeding said level in the future, permittee or certificate holder shall relinquish the option to perfect additional allocated quantities regardless of the stage of development.

Issuance of this water right may be subject to implementation of the minimum requirements established in the Conservation Planning Requirements, Guidelines and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the State's water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

The Water Resources Act of 1971, Chapter 90.54 RCW specifies certain criteria regarding utilization and management of the waters of the State in the best public interest. Favorable consideration of this application has been based on sufficient waters available, at least during portions of the year. However, it is pointed out to the applicant that this use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

REPORTED BY: Jill E Walsh Date: June 10, 2004

The statutory permit fee for this application is \$20.00.

FINDINGS OF FACT AND DECISION

Upon reviewing the above report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I find water is available for appropriation and the appropriation as recommended is a beneficial use and will not be detrimental to existing-rights or the public welfare.

Therefore, I ORDER a permit be issued under Ground Water Application Number G2-29988, subject to existing rights and indicated provisions, to allow appropriation of public ground water for the amount and uses specified in the foregoing report.

Signed at Olympia, Washington, this 10th day of June, 2004.

Thomas Loranger
Thomas Loranger
Water Resources Section Manager
Southwest Regional Office