

**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 June 14, 1999	APPLICATION NUMBER G2-29861	PERMIT NUMBER	CERTIFICATE NUMBER
--------------------------------	--------------------------------	---------------	--------------------

NAME Mance & Sons Residential Dev Inc			
ADDRESS (STREET) 5317 St. Charles Dr NE	(CITY) Olympia	(STATE) WA	(ZIP CODE) 98516

PUBLIC WATERS TO BE APPROPRIATED

SOURCE Well (AFS638)		
TRIBUTARY OF (IF SURFACE WATERS)		
MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	100	2
QUANTITY, TYPE OF USE, PERIOD OF USE 2 Acre-feet per year	Multiple domestic supply (4 Connections)	Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
400 feet South and 840 feet East of the center of Section 22.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) NW¼ SE¼	SECTION 22	TOWNSHIP N. 19	RANGE, (E. OR W.) W.M. 1W	W.R.I.A. 13	COUNTY Thurston
--	---------------	-------------------	------------------------------	----------------	--------------------

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The Northwest quarter of the Southwest quarter of Section 22, T. 19 N., R. 1 W.W.M. excepting therefrom the South 455 feet of the West 800 feet and excepting also the West 40 feet for County Road known as Marvin Road, in Thurston County, Washington also known as the proposed Lots 1-8 of the plat of North Pointe.

S

DESCRIPTION OF PROPOSED WORKS

Well is 6" in diameter. A 3 hp pump conveys water to 5 pressure tanks that serve to pressurize the system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE: Started	COMPLETE PROJECT BY THIS DATE: July 1, 2008	WATER PUT TO FULL USE BY THIS DATE: July 1, 2009
--	--	---

REPORT

BACKGROUND:

On June 14, 1999, John Mance, on behalf of Mance & Son Residential Development, Inc., filed an application to withdraw public ground water from one well. The amount requested was 100 gallons per minute (gpm) and 20 acre-feet (ac-ft) for multiple domestic supply for 12 connections for a proposed development. The project site is located in the Deschutes River Watershed in Water Resources Inventory Area (WRIA) 13.

Public notice was published August 31 and September 7, 1999. No letters of protest were received.

Based on the provisions of Chapters 90.03 and 90.44 Revised Code of Washington (RCW), I recommend approval of this application.

INVESTIGATION:

In consideration of this application, a field investigation was conducted on February 26, 2003 by Tammy Hall. Other investigations included a review of recorded water rights, registered claims, water well reports, hydrogeologic information, and information submitted with the application.

The project site is located on the Johnson Point Peninsula on property that looks north eastward towards the Nisqually Reach, within 3/4 mile from marine water. The property is currently forested and slopes gently toward the Nisqually Reach. The area surrounding the Mance property is largely medium density residential housing developments, semi-rural, agricultural, and forestland.

The Johnson Point Peninsula lies between Henderson Inlet to the west and the Nisqually Reach to the east. The Johnson Point Peninsula is approximately 6 miles long and ranges from 4 miles to 1/2 mile in width. The southern portion of the peninsula is broad and wide and gradually narrows to a tip as it reaches Johnson Point. The land surface, for the most part, is relatively flat or gently rolling with a general decrease in elevation northward and towards the Nisqually Reach and Henderson Inlet, where the land surface terminates in steep bluffs to Puget Sound. Elevations range from approximately 300 feet above mean sea level (msl), to sea level at the northern tip of Johnson Point. The area is generally wooded.

The project name is North Pointe. Withdrawals from the subject well (Tag # AFS638) are currently authorized by Groundwater Permit No. G2-27912. The existing 6-inch diameter well is 173 feet in depth and is located in the north eastern portion of the property. In 2001 the developer filed an Application for Change and the Thurston County Conservancy Board approved the addition of a second point of withdrawal to Groundwater Permit No. G2-27912.

The project property consists of a 30-acre parcel that has been subdivided into 8 lots, seven residential lots, averaging 3/4 acre in size, and a resource parcel, approximately 24.5 acres in size. Six of the seven residential lots have been built on and are being served by the well and North Pointe water system. The developer wants to further subdivide Lot 8 into four additional residential lots and a smaller resource parcel, to serve a total of 11 connections at full build out. The intent of this application is to authorize additional withdrawals to serve these remaining 4 connections. He intends to use the same well as authorized under G2-27912. Full build-out is expected by 2008.

General Area Hydrogeology

The following geologic/ hydrogeologic information was extracted from a Department of Ecology Memorandum prepared by Tammy Hall, hydrogeologist at Department of Ecology's Southwest Regional Office, dated April 22, 2003.

The presented geologic/ hydrogeologic information was compiled from the following references:

- Drost, B.W., Turney, G.L., Dion, N.P., and Jones, M.A., 1999, *Conceptual Model and Numerical Simulation of the Ground-Water-Flow System in the Unconsolidated Sediments of Thurston County, Washington*: US Geological Survey Water Resources Investigations Report 99-4165.
- Drost, B.W., Turney, G.L., Dion, N.P., and Jones, M.A., 1998, *Hydrology and Quality of Ground Water in Northern Thurston County, Washington*: US Geological Survey Water-Resources Investigations Report 92-4109 (revised).
- Sinclair, Kirk and Pitz, Charles, 1999, *Estimated Baseflow Characteristics of Selected Washington Rivers and Streams*: Washington Department of Ecology Water Supply Bulletin No. 60.

A series of glacial advances and retreats is largely responsible for the resulting landscape in the Puget Sound area. These episodes of glaciation have been marked by layers of unconsolidated deposits more than 2,000 feet deep in some areas of Thurston County.

The deposits are referred to as "geohydrologic" units because they were identified using a combination of geologic (primarily grain size and sorting) and hydrologic (hydraulic conductivity and hydraulic continuity) properties. These unconsolidated deposits may be glacial or non-glacial in origin. Glacial aquifers may be composed predominately of sand and (or) gravel, but may also contain relatively thin and discontinuous lenses of clay and (or) silt. In addition, confining layers composed predominately of silt and (or) clay may also contain local lenses of coarse sand or gravel. Glacial deposits described as tills or hardpan was deposited directly by the glacier. The non-glacial

Report Continued

deposits were left by streams carrying meltwater or by water that was impounded behind masses of ice. Recessional outwash, deposited by streams emanating from the melting and receding glacier, consists of poorly to moderately well-sorted sand and gravel.

Because of lithologic similarities, Vashon recessional outwash and Holocene alluvium are generally referred to as a single geohydrologic unit (Qvr). The Qvr is the hydrologic unit exposed at the ground surface in the project site area. This unit is the most widely exposed at the surface in Thurston County. Locally, perched groundwater may exist in this unit because of the low vertical permeability of the underlying glacial till. This unit is generally between 10 and 50 feet in thickness, but locally may be as thick as 150 feet.

Underlying the Qvr is the Qvt hydrologic unit. The Qvt is composed of Vashon-age till, and possibly some older tills. The unit Qvt is generally considered a poor source of water. Qvt is generally between 25 and 50 feet in thickness but locally may be as thick as 150 feet.

Vashon advance outwash, represented as geohydrologic unit Qva underlies the Qvr but in the Johnson Point Peninsula area, the unit is relatively thin or absent. Where it is present, Qva is generally between 15 and 35 feet thick. The top of the Qva generally occurs between 50 and 200 feet above sea level.

Underlying the Qvr, is the Kitsap Formation (Qf). The Qf is composed of predominately poorly permeable materials, but thin lenses of sand and gravel can yield relatively small quantities of water suitable for domestic use. It is also effective in retarding the downward percolation of groundwater into the underlying units and has the ability to act as a confining layer to those materials lying below it. Qf is generally between 15 and 75 feet thick.

Underlying the Qf are coarse-grained Salmon Springs Drift, penultimate deposits, and other deposits (Qc). The Qc unit is one of the most widely used aquifers in Northern Thurston County. Groundwater in this unit generally occurs under confined conditions, and where the entire thickness of Qc has been penetrated, the formation is generally about 30 feet thick. The Qc is commonly referred to as the "sea level aquifer."

Horizontal flow directions of groundwater within aquifers is generally from areas of higher head to areas of lower head. Groundwater generally moves toward marine water bodies and surface water drainages. Beneath the upland areas on the peninsulas, water levels in Qva are generally higher than Qc, indicating that water flows vertically downward, passing through Qf (where present) and discharging to underlying units and either to salt water or surface water drainages.

Hydrologic Analysis

The Mance property is located west of Tolmie State Park. The property slopes northeasterly towards Nisqually Reach, surface elevations ranging from 165 to 120 feet above mean sea level (msl). The surface elevation at the well site is approximately 140 feet above msl.

The North Pointe well is 6 inches in diameter and was drilled in December 2000. The well has a completed depth of 173 feet below ground surface (bgs). The well log reports intercepting a water bearing zone at an approximate depth of 92 feet bgs that extends to the total completed depth of the well. The well is screened from 147 to 173 feet bgs and has a static water level of 78 feet bgs (62 feet above msl), indicating the aquifer is confined. Utilizing information in Drost (1998), the North Pointe well is likely drawing water from the Qc geohydrologic unit.

A 7-hour pump test was conducted on the North Pointe well on December 20, 2000. The well test began at a pumping rate of 16 gpm. After 2 hours, the pumping rate was increased to 42.8 gpm, where it remained for the rest of the test. The water level dropped from the static water level of 78 feet bgs to 96 feet bgs when pumping began, then steadily dropped to 121 feet bgs where it stabilized for the last 4 hours of the test. Recovery data collected indicated that it took approximately ½ hour for the well to completely recover to the pre-pumping water level. Aquifer characteristics calculated using pump test data indicate a specific capacity of 1.01 gpm per foot of drawdown (gpm/ft) and a hydraulic conductivity of 23.14 feet per day. Currently, the pumping capacity of the well is identified as being 42.8 gpm. The Department of Health has approved this water system for a pumping rate of 31 gpm.

Information regarding seawater intrusion in coastal areas in Thurston County indicates chloride levels are relatively low, with the exception of some localized areas (Dion, N.P and Sumioka, S.S., 1984, *Seawater Intrusion into Coastal Aquifer in Washington, 1978*, US Geologic Survey Water-Supply Bulletin 56) (Drost, 1998). Nearshore wells in the general area of the proposed withdrawal have relatively low chloride concentrations.

The withdrawal location is approximately ¼ mile from the Nisqually Reach, to the east. The reported static water level of the North Pointe well is approximately 62 feet above msl. Drawdown data collected during the pump test indicates that the water level stabilized at approximately 19 feet above msl while pumping at a maximum rate of 42.8 gpm. Although seawater intrusion at this location may be a potential concern, because nearshore wells in the area report relatively low chloride concentrations and withdrawals from this well are expected to be relatively minimal, the risk of seawater intrusion at this location can be considered fairly low.

Neighboring Water Use

The Deerfield Park and North Pointe water systems, owned by Mance and Sons, are the nearest permits and certificates issued. Following is a summary of these Water Right Certificates and Permits.

Water Right #	Status/Priority Date	System Name	Qi gpm	Qa Ac-ft/yr Primary	Qa acre-feet/year Supplemental
G2-26707C	Certificate 9/13/91 (Deerfield Park 1)	Deerfield Park	65	20	
G2-27912P	Permit 8/3/92 (Deerfield Park 2 and North Pointe)	Deerfield Park North Pointe	100	40	
G2-28990P	Permit 8/9/99 (Deerfield Park 1, 2, & 3)	Deerfield Park	250	30	40



In addition to the above, the following ground and surface water certificates, permits, claims, and wells are on file with the Department of Ecology within one-mile of the North Pointe well.

- A total of 7 surface water rights certificates have been issued authorizing a combined instantaneous diversion rate of 1.23 cubic feet per second (cfs). Water use is from springs and streams. Water is used for multiple domestic supply, irrigation, recreation, and fish propagation.
- A total of 4 ground water certificates have been issued authorizing a combined instantaneous amount of 237 gpm and 34.5 ac-ft per year. Water is used for multiple domestic supply.
- Two groundwater permits have issued authorizing a combined withdrawal of 240 gpm and 82 ac-ft per year. Water is used for multiple domestic supply.
- A search of Ecology's well log data base identified 154 water wells may be as far as 1½ miles from this withdrawal. The wells range from 42 to 415 feet deep, approximately 97 wells being less than 100 feet in depth and drawing water from the shallower aquifers, primarily the Qva. Since the exact location of many of these wells is not evident from the water well report, an unspecified number of these wells lie within the Woodland Creek drainage, a different sub watershed in WRIA 13.
- Ecology records list approximately 129 water right claims have been filed for wells in the area. As was the case with the water well reports, an unspecified number of these claims lie within the Woodland Creek drainage. Additionally, it is not known how many of these claims are valid.

I do not anticipate the additional withdrawal from the North Pointe well to impair area users, since most users lie cross-gradient from the North Pointe well. This application does not represent a significant increase in the annual quantity that is being currently withdrawn from this well and is not expected to cause adverse impacts to area users.

Effects to Surface Water

The subject well is completed in an aquifer approximately 20 feet below msl. The Mance well intercepts water that would otherwise discharge to the Nisqually Reach of Puget Sound, and therefore is not expected to affect flow in surface waters in the Deschutes River watershed.

WATER DEMAND:

The water requirements for community domestic supply of this type should not exceed a daily average of 450 gallons of water per day. For 4 residences, this is approximately 2.0 acre-feet per year. This is based on an approximation of 0.5 acre-feet per year per residence.

This application (G2-29861) requested a withdrawal rate of 100 gpm; however, the pumping capacity of this well is only 42.8 gpm. This well should produce an adequate amount of water to serve the additional 4 connections and 2.0 ac-ft per year that would be authorized under this application for a total of 11 connections served by this water system.

Currently the North Pointe well is permitted under G2-27912. Permit No. G2-27912 allocates a combined withdrawal rate of 100 gpm, and 20 acre-feet per year from 2 wells, the North Pointe well and a second well located in Deerfield Park subdivision. Water is used for multiple domestic supply for 40 connections, 7 in North Pointe and 33 in Deerfield Park.

FINDINGS AND CONCLUSIONS:

- Based on the hydrogeology of the area, the well's completed depth, and the proximity of the well to the Nisqually Reach of Puget Sound, this well is drawing water from an aquifer directly discharging to marine water. As such, this withdrawal will not impair surface water flows in the Deschutes River Watershed.
- The water will be put to beneficial use for multiple domestic supply.
- The issuance of this water right will not be detrimental or impair any senior water right holders.

RECOMMENDATIONS:

Based on the provisions of 90.03 and 90.44, I find that water is available for appropriation from the source in question and that the appropriation would not impair existing rights. I recommend the issuance of a Ground Water Permit in the amount of 42.8 gpm and 2 ac-ft per year for multiple domestic supply for 4 homes. The time of use is year-round as needed.

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.

A certificate of water right will not be issued until a final investigation is made.

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.

Water use data shall be recorded weekly. The maximum monthly rate of diversion/withdrawal and the monthly total volume shall be submitted to Ecology by January 31st of each calendar year. Ecology is requiring submittal of monthly meter readings to collect seasonal information for water resource planning, management and compliance.

Report Continued

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, monthly meter readings including units, Department of Health WFI water system number and source number(s), well tag number 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.

The subject well has been tagged with a well identification number. This unique well number shall remain attached to the well, please reference this number when submitting data.

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.

The applicant is advised that notice of Proof of Appropriation of water (under which the final certificate of water right is issued) should not be filed until the permanent distribution system has been constructed and that quantity of water allocated by the permit to the extent water is required, has been put to full beneficial use.

REPORTED BY:  Date: August 15, 2003

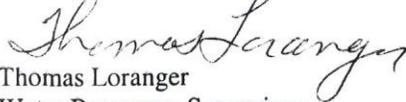
The statutory permit fee for this application is \$10.00.

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 G2-29861, 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 15th day of August, 2003.


Thomas Loranger
Water Resources Supervisor
Southwest Regional Office

