

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

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 16, 1992	APPLICATION NUMBER G1-26617(A)	PERMIT NUMBER G1-26617(A)P	CERTIFICATE NUMBER
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NAME
City of North Bend

ADDRESS (STREET)
P.O. Box 896

(CITY)
North Bend

(STATE)
Washington

(ZIP CODE)
98045-0896

The applicant is hereby granted a permit to appropriate the following public waters of the State of Washington, subject to existing rights and to the limitations and provisions set herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Well NB-3

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND 2,646	MAXIMUM GALLONS PER MINUTE 2,646	MAXIMUM ACRE FEET PER YEAR 3,094
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PURPOSE OF USE, PERIOD OF USE

Municipal Water Supply Purposes - Year-round, as needed

Water right is subject to WAC 173-507-020 instream flow levels for the following control points unless mitigated:

- Snoqualmie River near Snoqualmie (USGS #12144500)
- Snoqualmie River near Carnation (USGS #12149000)
- Snohomish River near Monroe (USGS #12150800)

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL

LOCATION OF DIVERSION/WITHDRAWAL

NB-3 - 566 feet north and 410 feet west from the south quarter corner of Section 10

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION) SE 1/4 SW 1/4	SECTION 10	TOWNSHIP N. 23N	RANGE, (E. OR W.) W.M. 8E	W.R.I.A. 7	COUNTY King
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LOT	BLOCK	RECORDED PLATTED PROPERTY OF (GIVE NAME OF PLAT OR ADDITION)
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LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The place of use of this water right is the service area described in the Water System Plan approved by the Washington State Department of Health in April 2002 and the North Bend Urban Growth Area described in the King County Growth Management Planning Council's Urban Growth Area Boundary Map (June 2005). Future Water System Plan updates may have the effect of revising the place of use of this water right, so long as the City of North Bend is and remains in compliance with the criteria in RCW 90.03.386.

DESCRIPTION OF PROPOSED WORKS

Well NB-3 was completed in sand and gravel deposits between 153-203 feet below land surface using a 20-inch, stainless steel, telescopic well screen

This system is identified by the Washington State Department of Health by Public Water System ID 60100.

DEVELOPMENT SCHEDULE	
BEGIN PROJECT BY THIS DATE: Started	COMPLETE PROJECT BY THIS DATE: January 1, 2054
WATER PUT TO FULL USE BY THIS DATE: January 1, 2059	

PROVISIONS

PROVISIONS

The following provisions are required as part of this water right approval.

Monitoring

North Bend will monitor water production, return flows from the WWTP, streamflow, and mitigation contributions using remote sensors and data loggers that will be connected to the mitigation and production sources. North Bend will be responsible for monitoring and data collection on a daily basis regardless of whether Well NB-3 was pumped or if instream flows were met. Monitoring must occur on a daily basis because mitigation water, when needed, will be discharged on a daily basis, and the mitigation requirement is based on aggregated impacts from the previous 20 days. The daily (24-hour) time period begins at the onset of each work day (approximately 8:00 AM). The City will input monitoring data into a database at the beginning of each day, and the database will calculate the mitigation requirement for the day.

The City will also collect data on a weekly basis to confirm various daily measurements and obtain supplemental information for their own analyses. The North Bend Operation and Monitoring Plan (Golder, 2007e) describes all of the City's monitoring activities in detail. The remainder of this section describes the monitoring activities required as part of this Report of Examination.

Water Production

Well NB-3 will be monitored with a totalizer meter and daily production volume will be recorded. Pump run times or instantaneous flow from the well will also be recorded electronically by the telemetry system. The telemetry system will monitor a transducer to record water levels during pumping and non-pumping conditions. The following daily data will be transmitted to the Public Works Department telemetrically each morning: volume pumped; hours pumped or average pumping rate; maximum and minimum ground water level.

WWTP Flow Monitoring

Flow from the WWTP to the South Fork Shoqualmie River is measured by a flow meter on the outfall pipe. This flow meter (totalizer) is read daily in the mornings with flows measured to the nearest 10,000 gallons. The readings will be recorded manually and transmitted to the Public Works Department in the morning of each day by e-mail or other reliable means.

Streamflow Monitoring

Monitoring streamflow at the three instream flow control points (USGS gages 12144500, 12149000 and 12150800) is required to perform the mitigation algorithm. The minimum measurement during the previous 24 hours will be compared to the minimum instream flow requirement for that day at each site to determine if the instream flow requirement was met. The City telemetry system will access the three gages to obtain the real-time streamflow data. If the telemetry system malfunctions, then the City staff would download the data available online. The USGS gage data that will be used is provisional and subject to revision. However, it is the best available source of data at that time and will be used to determine mitigation triggers. Mitigation will not be subject to revised data.

The mitigation plan requires that flows are monitored at three instream flow control points downstream of North Bend. Specifically, the USGS currently monitors flow at Carnation, Monroe, and Snoqualmie Falls. If the USGS were ever to discontinue monitoring at all of these three gauges, the City would be responsible for monitoring flow at the nearest control point (Shoqualmie Falls) in a manner similar to the USGS protocol.

Hobo Springs Monitoring

Water levels behind the existing weir will continue to be monitored using a pressure transducer to determine flow rates over the weir. The water level at the weir will be translated into a flow rate using a weir equation developed from previous analyses of Hobo Springs data. The transducer will take measurements at a preset time increment of 60 minutes and the data will be transmitted via telemetry. The telemetry system will be used to record average, minimum and maximum daily flow.

Mitigation Water Monitoring

The City will monitor the flow through the outfall pipe into Boxley Creek using a totalizer that will be read at least weekly. In addition, the instantaneous flow through the mitigation transmission pipeline at Hobo Springs and the intertie with Sallal will be monitored via telemetry. Daily mitigation volumes will be calculated by summing the instantaneous flow data. The amount of time per day that mitigation water is delivered will be tracked for each source. Field inspections will be completed at least monthly to identify potential maintenance issues.

Mitigation

Mitigation shall be performed in accordance with the procedures outlined in the Mitigation Operations and Monitoring Plan (Golder, 2007e) and the provisions outlined in this Permit.

To the extent practical, the City must attempt to deliver mitigation flows uniformly over the course of the "mitigation day". This may not be possible when the mitigation requirement is less than the minimum daily delivery capacity of either mitigation source. However, when

either of the mitigation sources can be controlled in such a manner to provide uniform delivery of mitigation water over the mitigation day, this approach shall be employed. The City shall monitor and report the timing of mitigation deliveries to show compliance with this provision.

Reporting

Reporting will be required to summarize the monitoring data, evaluate the performance of the mitigation system, and assess the capacity of the mitigation system relative to current and future demand. Various reports will be generated, including initial system reports, annual system reports, and event reports. In addition, reporting includes periodic update of the Mitigation Operation and Monitoring Plan as new information becomes available, new approaches to managing the mitigation system developed, and/or new water-supply or mitigation sources are placed on line.

Initial System Reports

Quarterly reports will be generated for the first two years of operation. Quarterly reports will coincide with the quarter-periods of the calendar year, and the first quarterly report will be issued only after at least six weeks of data collection (otherwise data will be reported in the next quarter). Reporting will be on an annual basis after the first two years. Reports will be sent to Ecology, the Tulalip Tribes, the Snoqualmie Tribe, and made available to other interested parties upon request.

Initial system reports will contain summary information about the mitigation operations on a daily and annual basis. The summary information will include a table detailing daily and year-to-date cumulative values of: 1) water produced from Well NB-3; 2) assumed WWTP return flow; 3) the net stream depletion (i.e. mitigation requirement) of the volume of water produced from Well NB-3; 4) the number of days that mitigation water was required; 5) the volume of mitigation delivered from each mitigation source; 6) the timing (hours per day) of mitigation water delivered from each mitigation source; 7) the difference between the volume of mitigation required and the volume delivered; and 8) total Hobo Springs flow captured by the collection box. In addition, the report should discuss any planned improvements to mitigation sources, additional evaluation of mitigation capacity as Qi (instantaneous quantity) and Qa (annual quantity) limitations approach, the status of the availability of the mitigation sources, and any update to the mitigation algorithm (as approved by Ecology).

Initial system reports will also be generated quarterly during the first two years operation of any new water supply or mitigation source. These reports will be sent within 30 days of the end of the quarter.

Annual System Report

Annual reports will contain summary information about the mitigation operations on a daily and annual basis. The annual reports will contain the same information as the initial system reports; however, they will present all the data collected over a complete calendar year of operation. The annual system report will replace the initial system report that occurs on the fourth quarter of the calendar year. These reports will be sent to Ecology, the Tulalip Tribes, and the Snoqualmie Tribe within 30 days of the end of the year. Annual System Reports will be made available to other interested parties by Ecology upon request.

Event Reports

Event reports will be generated when the City misses a mitigation day, supplies insufficient mitigation volume, or has a water system failure. If the City misses a mitigation day or supplies insufficient mitigation volume, then the City will add that volume of water to the total mitigation volume required for the next day. A water system failure is any problem that compromises the ability to compute the mitigation algorithm. If the total volume of water produced in the preceding 24 hours is unknown (i.e., the totalizer number is unknown), then the City would mitigate using the highest level of pumping in the last three days. A report explaining the details of the event, the actions taken to ensure that mitigation was implemented, and how the City can prevent this problem in the future will be sent to Ecology, the Tulalip Tribes, and the Snoqualmie Tribe within 30 days of the event. Event reports will be made available to other interested parties by Ecology upon request.

Mitigation Operations and Monitoring Plan Update

The mitigation operations plan will be updated after the first two years of operation. All of the water monitoring and operations data from the mitigation supply system will be used to update the mitigation operations plan. The update may include revision of the streamflow depletion functions used by the mitigation algorithm if additional aquifer testing revises existing values of aquifer properties (see Special Provisions below). The update may also include revised assumptions regarding the fraction of annual pumpage returned to the Snoqualmie River as WWTP return flow (f_{wwtp} , as described in Section 2.4.2 of the Report of Examination).

After the initial 2-year update, the mitigation operations plan will be updated once every six years to coincide with other water system plan updates. Optimization of the mitigation system will occur as more data are collected during operation, especially during the first 5 years.

Adaptive Management Amendments

Adaptive management includes adding production sources NB-1 and NB-2 to this water right, adding the Tolt pipeline as a mitigation source, and modifying elements of the mitigation approach (These include updating aquifer properties at NB-3 to be used in the IGARF model of streamflow depletion and updating the wastewater treatment plant return flow function).

For each adaptive management amendment, North Bend shall submit the required documents to Ecology, the Tulalip Tribes, the Snoqualmie Tribe, and other interested parties who have requested notification. Ecology shall review the reports along with any comments received, and determine whether or not the proposed amendment meets the conditions of this Permit.

If Ecology determines that the proposed amendment does not comply with the conditions of this Permit, it shall give notice in writing to North Bend, with a copy to interested parties, of the factors causing the non-compliance and allow North Bend to resubmit the documents with the appropriate corrections.

Ecology's determination regarding any adaptive management amendments to this water right shall be in the form of an order to North Bend and shall be delivered with a notice to the Tulalip Tribes, Snoqualmie Tribe, and all other parties of interest (who have requested notification) of the right to appeal the order to the Pollution Control Hearings Board as prescribed by chapters 34.05 and 43.21B RCW.

After the appeal period of the order has passed, Ecology will issue an amended permit containing the new information.

Adding Production Sources

This permit authorizes use of Well NB-3 for municipal water supply purposes. However, the city ultimately wishes to add production sources NB-1 and NB-2. This section details the process needed to include NB-1 and NB-2 as approved points of withdrawal.

The City's future municipal production wells can generally be placed into one of two groups:

- (1) Withdrawals far from the river(s) that will result in multiple days of surface water depletion; and
- (2) Withdrawals close to the river(s) that will cause effectively instantaneous surface water depletion.

Well NB-1 falls in the first category, as does Well NB-3. Well NB-2 most likely falls in the second category. Well NB-1 is already constructed but requires additional testing, and Well NB-2 has not yet been constructed. To add either Well NB-1 or NB-2 as an approved source of supply under water right G1-26617(A), the following process must be followed:

North Bend must request a preliminary permit from Ecology before any future drilling or testing of NB-1 or NB-2. This is to insure that all parties agree with what should be tested and monitored.

It is anticipated that North Bend will be required to submit two reports to Ecology, the Tulalip Tribes, and the Snoqualmie Tribe: a "New Source Report" and an update to the Mitigation Operations and Monitoring Plan. The New Source Report must include the following:

- Description of well drilling and well construction (for NB-2 only);
- Description of well testing, estimated well yield, and estimated aquifer properties, aquifer boundaries, and additional characterization of local streambed conductivity;
- Analysis of potential for impairment of nearby wells,
- Estimation of the schedule of maximum daily stream depletion resulting from new source withdrawal; and,
- Description of how this new source will be operated along with other sources authorized by this permit such that the overall quantities allocated by this permit are not exceeded.

The updated Operations and Monitoring Plan must include an updated system description, monitoring requirements, mitigation operations and algorithm, other operational considerations and reporting requirements.

Ecology will process the request for additional source wells (NB-1 and NB-2) consistent with the requirements of RCW 90.44 in effect at the time the sources are requested to be added.

Adding Mitigation Sources

This permit authorizes the use of Hobo Springs and the Sallal wells for sources of mitigation. However, the city may ultimately seek to add the Tolt pipeline source to its mitigation options. To add the Tolt pipeline as an approved source of mitigation under water right G1-26617(A), the following process must be followed:

North Bend must submit two reports to Ecology, the Tulalip Tribes, and the Snoqualmie Tribe: a "New Mitigation Source Report" and an update to the Mitigation Operations and Monitoring Plan. The New Mitigation Source Report must include description of the following:

- Design, construction and SEPA permitting of the Tolt pipeline mitigation source;
- The location of discharge to the Snoqualmie River system;
- The transmitting capacity of the Tolt mitigation pipeline; and,
- Travel times between the control valve and the point of discharge.

The updated Operations and Monitoring Plan must include an updated system description, monitoring requirements, mitigation operations and algorithm, other operational considerations and reporting requirements.

Modifying the Mitigation Algorithm

In addition to regular updates of the Mitigation Operations and Monitoring Plan (see Reporting Provision), the City may desire to update the plan based on new information or development or development of more optimized mitigation routines. In this instance, the City shall submit a draft version of the modified Mitigation Operations and Monitoring Plan to Ecology, the Tulalip Tribes, the Snoqualmie Tribe, and interested parties who have requested notification. Ecology shall review the updated Operations and Monitoring Plan, along with any comments received and determine whether or not the new updated plan meets the conditions of this Permit.

Special Provisions

Mitigation Contracts

Once the final contracts for supply of mitigation water from the City of Seattle and the Sallal Water Association have been approved, copies of those contracts must be submitted to Ecology.

Future NB-3 Aquifer Test

The City will conduct a 72-hour constant rate pump test within the first two years of setting Well NB-3 into operation and implementing the mitigation system. During the pump test, Well NB-3 will be pumped at the maximum safe capacity that can be received by the water system and all of the pumped water will be discharged to a closed water system or outside the radius of influence of the well. The pump test data will be analyzed to update estimated transmissivity and storativity and will be reported to Ecology, the Tulalip Tribes, and the Snoqualmie Tribe. Future testing will use a similar monitoring system to previous Well NB-3 testing authorized under the preliminary permit issued on September 16, 2004. Results will be used to update transmissivity and storativity, reported to Ecology, the Tulalip Tribes, and the Snoqualmie Tribe, and if necessary used to update the mitigation algorithm and mitigation functions.

Conservation Planning Requirements

The water right holder must comply with the water use efficiency requirements as defined in Washington Department of Health WAC 246-290 for this size Group A public water system.

Health

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 Department of Health's Office of Drinking Water Supply, prior to any new construction or alterations of a public water supply system.

The benefits and requirements of this water right authorization shall be reflected in future water system plan updates.

Hydraulic Project Approval

Contact the Washington Department of Fish and Wildlife to obtain hydraulic project approval for construction of the discharge point in Boxley Creek.

Tribal Rights

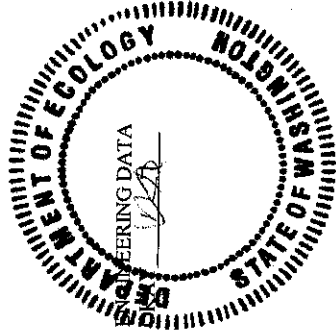
This authorization to make use of public waters of the state is subject to existing tribal rights, including any existing rights held by the United States for the benefit of Indian tribes under treaty, reservation, or settlement.

Certificate

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.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Bellevue, Washington, this 10th day of April, 2008.



Department of Ecology

By Buck Smith
Buck Smith, Interim Section Supervisor, Water Resources