WR File No. CS2-001243CL
WR Doc ID 5358078

DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
REPORT OF EXAMINATION FOR WATER RIGHT CHANGE

Change Point of Diversion/Withdrawal

PRIORITY DATE	WATER RIGHT NUMBER
December 31, 1891	CS2-001243CL

MAILING ADDRESS	SITE ADDRESS (IF DIFFERENT)
City of Orting 110 Train Street P.O. Box 489 Orting, Washington 98360	See below

Total Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
71.8	GPM	116

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Municipal Supply	71.8	-	GPM	116	-	01/01-12/31

IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION	
ADDITIVE	NON-ADDITIVE	WATER SYSTEM ID	CONNECTIONS
-	-	64500	3,009

REMARKS: The withdrawal rate of 71.8 gpm is equal to 0.16 cfs.

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Pierce	Groundwater	Carbon River	10 – Puyallup-White

SOURCE FACILITY/DEVICE	PARCEL	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well No. 2	0519322115	19N	5E	32	SENW	47° 5'23.35"N	122° 12'12.42"W
Well No. 3	7001770850	19N	5E	19	SESW	47° 6'48.27"N	122° 13'27.83"W
Well No. 4	0519301034	19N	5E	30	SWNE	47° 6'24.12"N	122° 12'52.99"W

Datum: NAD83/WGS84

Place of Use

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 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 change is from the existing Boatman Springs point of diversion to the City of Orting existing well field, including Well Nos. 2, 3, and 4. Well construction details include:

Well No. 2 - Completed to a depth of 173 feet below ground surface (bgs) with an 8-inch diameter casing and 30- to 50-slot well screen assembly from 120 to 140 and 163 to 168 feet bgs. Static water level is about 8 feet bgs.

Well No. 3 - Completed to a depth of 250 feet bgs with a 16-inch diameter casing to 250 feet bgs and a 10-inch diameter, 30-slot well screen assembly from 250 to 340 and 375 to 445 feet bgs. Static water level is about 10 feet bgs.

Well No. 4 - Completed with a 16-inch diameter casing to 195 feet bgs and a 60- to 100-slot well screen assembly from 195 to 295 feet bgs. Static water level is about 5 feet *above* ground surface.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	April 1, 2015	April 1, 2020

Measurement of Water Use

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

Provisions

Measurements, Monitoring, Metering and Reporting

An approved measuring device shall be installed and maintained for the source 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.

Ecology is requiring the recording and reporting of meter data as described above to collect seasonal information for water resource planning and compliance.

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

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times to the project location, and will be allowed to inspect, at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems to ensure there is compliance with the law.

Proof of Appropriation

The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of change 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 of change will reflect the extent of the project perfected within the limitations of the change authorization.

Findings of Facts

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated.

Therefore, I ORDER approval of Application No. CS2-001243CL, subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this 8th day of May 2013.

Michael J. Gallagher

Michael J. Gallagher, Section Manager

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearing 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

- Please send a copy of your appeal to:

Michael J. Gallagher, Section Manager
Water Resources Program
Southwest Regional Office
P.O. Box 47775
Olympia WA 98504-7775

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.

BACKGROUND

On August 7, 2012, the City of Orting (City) filed an Application for Change of Water Right No. CS2-001243CL with the Washington State Department of Ecology (Ecology). The application requested a change in Claim No. 1243 authorized point of diversion to the City's existing well field, including Well Nos. 2, 3, and 4. The proposed change would include an instantaneous withdrawal rate (Qi) of 0.16 cubic feet per second, or 71.8 gallons per minute (gpm), and a total annual withdrawal volume (Qa) of 116 acre-feet per year (afy).

With a claimed priority date of December 31, 1891, Water Right Claim No. 1243 was filed for the historic Boatman Springs diversion – an improved spring site adjacent to South Prairie Creek, tributary to the Carbon River, located up basin from the City of Orting, in the Puyallup-White River Basin Water Resource Inventory Area (WRIA) 10.

Planned use of the appropriation is for municipal supply. The City's water system currently serves approximately 3,009 equivalent residential units (ERUs). The City's water system consists of three wells, three spring sources, five storage reservoirs, conveyance, treatment, and booster pump stations. The place of use is consistent with the City of Orting Water System Plan 2009 Update (Parametrix, Inc.) which is within the designated city water service area.

Table 1: Attributes of the Existing Claim and Proposed Change

Attributes	Existing	Proposed
Name	Town of Orting	City of Orting
Priority Date/ Change Application Date	**Priority Date –** December 31, 1891	**Application Date –** August 7, 2012
Instantaneous Quantity	0.16 cfs	71.8 gpm
Annual Quantity	854 afy	116 afy
Purpose of Use	Domestic, Commercial, Industrial Supply	Municipal Supply
Period of Use	Year round	Year round
Place of Use	Town of Orting	Approved City of Orting Water Service Area
Point of Diversion	Boatman Springs	Well Nos. 2, 3, and 4

Legal Requirements for Proposed Change

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

Public Notice
Notice of the proposed change was published in *The News Tribune* of Tacoma, Washington, on September 26 and October 2, 2012. No protests were received by Ecology.

State Environmental Policy Act (SEPA)
The subject application is categorically exempt under SEPA (WAC 197-11-305 and WAC 197-11-800(4)) because the instantaneous quantity is less than the 1.0 cfs threshold.

Water Resources Statutes and Case Law
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.*

A point of diversion for a surface water right may be changed to a groundwater point of withdrawal. The authority is derived from RCW 90.03.380, RCW 90.44.020-030, RCW 90.44.100 and RCW 90.54.020(9). RCW 90.03.380(1) states that a water right that has been put to beneficial use may be changed if it would not result in detriment or injury to other water rights. Additionally, moving the point of diversion to a groundwater withdrawal requires compliance with the groundwater code (RCW 90.44), including a finding that there be no detriment to the public welfare and that the source of the existing diversion and the proposed point of withdrawal be part of the same water body.

Based on the provisions of RCW 43.21A.690 and RCW 90.03.265, this application has been processed by Aspect Consulting, LLC (Aspect Consulting) under Ecology Cost Reimbursement Agreement No. ASP015 (master contract No. C1000185).

Expedited Processing
This application qualifies for expedited processing under WAC 173-152-050(2)(g) whereby water right applications may be processed prior to applications submitted at an earlier date when the proposed water use, if approved, would result in no diminishment of the source. The change application is water budget neutral with respect to the defined source of water.

INVESTIGATION

In consideration of this change application, Aspect Consulting reviewed available documents pertaining to the application's site conditions and the potential effect on existing water right holders and established minimum instream flows. This review included information submitted by the applicant, including well construction and testing reports, water system plan, and water level and water quality data, along with pertinent Ecology records, including well logs and water rights records. The review also included reports from multiple investigations characterizing the hydrogeology of the Puyallup River valley.

A site visit was performed on February 13, 2013. Tyson Carlson of Aspect Consulting met with City of Orting representative Dean Kaelin to discuss the application and visit the existing point of diversion and each of the existing well locations.

Using this information, Aspect Consulting evaluated the extent and validity of the claim and potential effects of the proposed change on existing groundwater and surface water rights, including instream flows. Additional considerations included the effect of the change on public welfare, and that the existing diversion and proposed point(s) of withdrawal are in the same source of water. These findings are presented below.

Project Description

The City submitted the application in support of their Boatman Springs facility – a small improved spring diversion located adjacent to South Prairie Creek, approximately 3,000 feet from the confluence with the Carbon River. The water line from the diversion to the City's main transmission and distribution system was damaged by flooding in 1996. Since that time, the City has attempted repair of the line, but due to both technical and financial challenges, the City has elected to change the point of diversion from the Boatman Spring facility to the City's existing well field (including Well Nos. 2, 3, and 4).

The proposed change is an exchange of an equivalent amount of water (i.e. water budget neutral), and would result in no additional water being authorized to the City's current water right portfolio.

History of Water Use

In order to make a water right change decision, Ecology must make a tentative determination on the extent and validity of the right.

Claim No. 1243 has a priority date of December 31, 1891. Since that time, the City (or its predecessor) has put up to 0.16 cfs to continuous beneficial use, as documented through water system planning documents (Parametrix, Inc. 2009). Continuous use of 0.16 cfs is approximately equal to an annual diversion volume of 116 afy, not the original 854 afy specified on claim documents.

Use of Boatman Springs was reduced when the transmission line was damaged in November 1996. Since that time, the diversion has only been used to serve three local connections. Nonuse of the claim is exempt from relinquishment, per RCW 90.14.140(2)(d).

The City will provide a replacement water supply for the three local connections via a new permit exempt-supply well per RCW 90.44.050.

Site and New Source Description

The Boatman Springs authorized point of diversion is located in the southwest quarter of the northeast quarter of Section 27 in Township 19 North, Range 5 East Willamette Meridian (WM). The Boatman Springs facility consists of an underground network of perforated collection pipes, which converge to a common header, conveying water a short distance to the 57,300-gallon on site reservoir.

The Boatman Spring diversion is located directly upgradient of a wetland complex which drains toward South Prairie Creek. South Prairie Creek then flows approximately 3,000 feet downstream to the confluence with the Carbon River. The City of Orting town center is located adjacent to the Carbon River, approximately 3.4 miles down from the South Prairie Creek confluence. The Carbon River then continues approximately 2.6 miles to the confluence with the mainstem Puyallup River.

The City's existing well field is located within a 1.5-mile radius of town center. Well No. 2, located approximately 0.5 miles to the south, was completed in 1983 to a depth of 173 feet bgs with an 8-inch diameter casing and a 30- to 50-slot well screen assembly from 120 to 140 and 163 to 168 feet bgs. Static water level is about 8 feet bgs (elevation 198 feet above sea level). Well No. 2 is completed in the alluvium located immediately below the mudflow deposits and is primarily used during periods of high demand or drought. Well No. 2 is currently equipped with a 20 horsepower pump capable of 350 gpm.

Well No. 3 is located 1.4 miles northwest of town center. Completed in 2005, the 16-inch casing was advanced to 250 feet bgs with a 10-inch diameter, 30-slot screen assembly from 250 to 340 and 375 to 445 feet bgs. Static water level is about 10 feet bgs (approximately 153 feet above sea level). Well No. 3 is equipped with a 100 hp pump capable of 650 gpm.

Located approximately 0.8 miles northwest of town center, Well No. 4 was recently (2009) completed with a 16-inch diameter casing to 195 feet bgs and a 60- to 100-slot screen assembly from 195 to 295 feet bgs. Static water level is about 5 feet *above* ground surface (approximately 167 feet above sea level). Based on testing results, Well No. 4 is rated for a long-term production capacity of 1,185 gpm. Well Nos. 3 and 4 are both completed in deeper glacial sediment, or the Sea Level Aquifer.

Proposed Use

The authorized purpose of use will remain unchanged as municipal supply within the City's designated water service area.

Other Rights Appurtenant to the Place of Use

The City's current municipal water right portfolio includes 1,377.80 acre-feet (af) in primary (additive) water rights from 10 claims or certificates. The City also has one certificate for irrigation purposes, totaling 9.3 af. Table 2 is a summary of the City's existing water rights portfolio.

Table 2 – City of Orting's Water Right Portfolio

Source	Water Right Number	Priority Date	Qi in gpm	Qa in afy Additive	Qa in afy Non-Additive
Wingate Spring	1959	11/14/1941	269	434	-
Well No. 1	1613A	5/20/1953	500	370	-
Well No. 2	G2-26441	11/17/1983	400	-	319
Well Nos. 2, 3, and 4	5927A	5/22/1966	235	62	-
Well Nos. 2, 3, and 4	1734A	6/10/1952	175	67.5	-
Cemetery Well[a]	G2-00294	12/9/1969	100	9.3	-
Well Nos. 2, 3, and 4	3404A	5/6/1959	450	94.0[b]	-
Well Nos. 2, 3, and 4	2252-A	5/13/1954	125	24	-
Lower and Upper Harman Springs	1242	10/10/1910	71.8	116[c]	
Boatman Springs	1243	12/31/1891	71.8	116[c]	
Well Nos. 2, 3, and 4	115531	11/14/1974	200	94.3[d]	-
Total		**Municipal** **Irrigation**	**2,098** **100**	**1,377.8** **9.3**	**319**

Notes:

(a) Irrigation only.

(b) 80 afy (April 15 to October 15); and 14 afy (year round).
(c) Qa limited to the continuous diversion of the authorized Qi (0.16 cfs or 71.8 gpm).
(d) 92 afy (April 15 to October 15); and 2.3 afy (year round).

The place of use is consistent with the current City of Orting's Water System Plan which is the designated city water service area. The current water system plan (Parametrix, Inc.) was approved by the Department of Health in 2009.

Hydrologic/Hydrogeologic Evaluation

The hydrogeology of the Puyallup and Carbon River valley is dominated by alluvium and mudflow deposits, overlying older glacial and non-glacial sediments. These units are described in multiple reports, including well construction and testing reports (RN 1983, 2003; Kleinfelder 2009), Boatman Springs Water Right Change – Phase I Water Rights Assessment (RN 2012), City of Orting Water System Plan (Parametrix, Inc. 2009), and in the regional studies of neighboring watersheds by the USGS (Savoca, et al. 2010). Information from these documents is summarized below.

The alluvial valley aquifer is comprised of both recent alluvium and the lahars of the Osceola and Electron Mudflows, which originated from Mt. Rainer. The alluvial aquifer supports shallow water table lakes and wetlands, and contributes to perennial base flow to creeks and rivers. The alluvium generally overlies the mudflow deposits – extending up to 250 feet thick, but some older alluvium is noted in several area boring logs. Well No. 2 is completed in the pre-mudflow alluvial deposits.

Below the alluvial valley aquifer is an alternating sequence of glacial and non-glacial sediments, including the Sea Level Aquifer, which is capable of supporting high yielding wells, including several of the City's production wells (Nos. 3 and 4). The Sea Level Aquifer consists of pre-Olympia aged glacial drift deposits consisting of saturated sand and gravels with minor lenses of silt, clay, and till. Testing of these sediments indicate an aquifer transmissivity of 13,400 to 33,500 ft^2/day. Static groundwater elevation in the Sea Level aquifer is often several feet above adjacent elevation of surface water (i.e., Carbon River), indicating a net upward gradient toward surface water.

Underlying the Sea Level Aquifer is the non-glacial Intermediate Confining Unit, primarily composed alluvial and lacustrine sand, silt, and clay. Limited local information is available for this and deeper units, including the Intermediate Aquifer and non-glacial Deep Confining Unit.

Bedrock is locally encountered at a depth of 600 to 900 feet bgs.

Minimum Instream Flows – WRIA 15

A state instream resources protection program with specified minimum instream flows and closures is outlined as Washington Administrative Code (WAC) Chapter 173-510. With a priority date of March 21, 1980, the program effectively limits and in some cases prohibits, the further issuance of consumptive water rights that could affect specified instream flows in WRIA 10.

Most applicable to the subject change application, both the Puyallup and Carbon Rivers have specified minimum instream flow for all months of the year. In addition, South Prairie Creek and all tributaries are closed to further consumptive appropriation year round.

Source of Water Proposed for Change

The applicant seeks to change the Boatman Springs point of diversion to groundwater withdrawal from three wells (Well Nos. 2, 3, and 4) which comprise the City's existing well field.

Although the source aquifer(s) for the City's well field may not be in direct hydraulic communication with nearby surface water, drawdown effects from pumping may reduce upward vertical leakage which may reduce baseflow contribution to regulated surface water bodies. Therefore, the City's well field is considered to be in hydraulic continuity and competing for water with the Puyallup and Carbon Rivers. Discharge emanating from Boatman Spring directly supports baseflow in the Carbon River; therefore, Boatman Springs and the City's existing well field are considered to be in the same source of water.

Impairment Considerations

By abandoning the Boatman Springs facility, surface water will be left instream supporting baseflow in the adjacent wetland complex, South Prairie Creek, and the Carbon River. This will directly benefit instream flows for up to 4.0+ miles.

The proposed change requests an equivalent volume of groundwater to be withdrawn from aquifer(s) separated from the Carbon and Puyallup Rivers by low-permeability mudflow deposits. The City's well field, including Wells Nos. 2, 3, and 4, will either withdraw water from aquifer storage, or capture upward leakage over a larger area, likely having a more diffuse impact on surface water than a direct surface water diversion.

Using the reported range of aquifer parameters for Well Nos. 3 and 4 (RN 2012), including an assumed storage coefficient of $1x10^{-4}$ (-), the governing Theis equation (Theis 1935) was used to estimate the interference drawdown from an increase in pumping at a distance (100 feet) approximately equal to the City-owned sanitary control area (SCA) for each well. Based on this analysis, the interference drawdown from continuously pumping one well at an increased rate of 71.8 gpm (116 afy) is estimated to be a negligible 0.6 to 1.3 feet. No documented water right or permit-exempt water supply well is located within or directly adjacent to the City-owned SCA for Well Nos. 2, 3, or 4.

Therefore, based on the collective information summarized above, we conclude that no impairment of adjacent groundwater wells or instream flows will occur.

Public Interest Considerations

No detriment to the public welfare was identified.

It is noted that vertical groundwater leakage provides baseflow and cold water upwelling areas to local rivers and streams. Although the effect of this change is expected to be small, and offset by leaving an equivalent amount of water instream at Boatman Springs, it has not been quantified.

Consideration of Protests and Comments

During the early stages of the applications process, Ecology conducted consultation with local Native American Tribes, including the Muckleshoot Indian Tribe. On October 26, 2012, several comments were received and incorporated into the investigation described above.

No protests were received for consideration.

CONCLUSIONS

In accordance with Chapter 90.38 RCW, the author makes a tentative determination that Claim No. 1243 represents a valid right to divert water from Boatman Springs up to 0.16 cfs (71.8 gpm) and 116 acre-feet for municipal supply, year round.

Approval of this water right change request as provisioned will not impair existing water rights, including instream flows. The existing diversion and proposed point(s) of withdrawal are in the same source of water and no determine to the public welfare was identified.

RECOMMENDATIONS

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:

71.8 gpm (0.16 cfs)
116 acre-feet per year, year round
Municipal Supply

Points of Withdrawal
Well No. 2 - SE¼, NW¼, Section 32, Township 19 North, Range 5 East WM
Well No. 3 - SE¼, SW¼, Section 19, Township 19 North, Range 5 East WM
Well No. 4 - SW¼, NE¼, Section 30, Township 19 North, Range 5 East WM

Place of Use
City of Orting's designated water service area.

Report by Tyson D. Carlson, LHG, Aspect Consulting, LLC *Date*

Michael J Gallagher May 8, 2013
Reviewed by Mike Gallagher, Water Resources, SWRO *Date*

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

REFERENCES

Kleinfleder 2009. Construction, Testing and Evaluation, Orting Well No. 4. Prepared for Parametric, Inc. December 17, 2009.

Robinson & Noble 1983. Construction of Test Well for City of Orting. September 1983.

Robinson & Noble 2003. Groundwater Resource Investigation, Village Crest Well 3 Project. April 2003.

Robinson & Noble 2012. City of Orting, Boatman Springs Water Right Change, Phase 1 Water Right Assessment. July 2012.

Parametrix, Inc. 2009. City of Orting, Water System Plan Update. Updated June 2009.

Savoca, M.E., Welch, W.B., Johnson, K.H., Lane, J.R.C., Clothier, B.G. and Fasser, E.T. 2010. Hydrogeologic Framework, Groundwater Movement, and Water Budget in the Chambers-Clover Creek Watershed and Vicinity, Pierce County, Washington. U.S. Geological Survey Scientific Investigation Report 2010-5055.

Theis, C.V. 1935. The relation between the lowering of piezometric surface and the rate and duration of discharge of a well using groundwater storage. Trans. Amer. Geophys. Union, 2, pp. 519-524.