STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION FOR CHANGE
Change of: Add Point(s) of Diversion/Withdrawal
WRTS File No. CG2-GWC5927

PRIORITY DATE	CLAIM NO.	PERMIT NO.	CERTIFICATE NO.
05/22/1966			5927-A

NAME		
City of Orting		
ADDRESS/STREET	CITY/STATE	ZIP CODE
110 Train Street S.E. / PO Box 489	Orting, WA	98360

PUBLIC WATERS TO BE APPROPRIATED

SOURCE

Three Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	235	62

QUANTITY, TYPE OF USE, PERIOD OF USE

235 gpm, 62 acre-feet per year for Municipal use, year-round

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL

Well 2: 200 feet North and 1300 feet West from the center of Section 32, T. 19 N., R. 05 E.M.
Well 3: 1004 feet North and 1315 feet East from the Southwest corner of Section 19, T. 19 N., R. 05 E.M.
Well 4: 1300 feet South and 1300 feet West from the Northeast corner of Section 30, T. 19 N., R. 05 E.M.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
Well 2: SW/SW **Well 3:** S½ NW¼ **Well 4:** NE/NE	19 32 30	19 N.	05 E.M.	10	Pierce

PARCEL NUMBER	LATITUDE	LONGITUDE	DATUM
Well 2: 7001770850 **Well 3:** 0519322115 **Well 4:** 0519301034	47.11340 47.08982 47.10670	122.22439 122.20345 122.21472	WGS84

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
[Attachment 1 shows location of the authorized place of use and point(s) of diversion or withdrawal.]

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 City of Orting remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the POU of this water right.

If the criteria in RCW 90.03.386(2) are not met, the place of use of this water right reverts to the last place of use described by Ecology in a water right authorization.

DESCRIPTION OF PROPOSED WORKS

The purpose of the proposed change is to allow this right, Groundwater Certificate 5927-A to produce authorized quantities from Wells 2 and 3 in a wellfield configuration with newly constructed Well 4.

Well 2: Drilled in 1983; 8-inch casing to 120 feet, screen from 121 to 168 (with 23 feet of blank casing); 400 gpm; 19N/05E-32F; site elevation approx. 160 feet.
Well 3: Drilled in 2005; 16-inch casing to 255 feet, screen from 250 to 445 (with 35 feet of blank); 650 gpm;

19N/05E-19N; site elevation approx. 200 feet.
Well 4: Drilled in 2009; 16-inch casing to 195 feet, screen from 195 to 295; 1185 gpm (proposed); 19N/05E-30A site elevation approx. 160 feet.

DEVELOPMENT SCHEDULE		
BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
Started	April 30, 2012	2030

PROVISIONS

This authorization is subject to the following 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.

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.

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, peak monthly flow including units, Department of Health WFI water system number and source number(s), purpose of use, 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. Submit data to: Department of Ecology, SWRO/WR PO Box 47775, Olympia, WA 98504-7775.

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.

Issuance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline 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 specifics certain criteria regarding utilization and management of the waters of the state in the best public interest. 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.

FINDINGS OF FACT AND ORDER

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I find the change of water right as recommended will not be detrimental to existing rights or public interest.

Therefore, I ORDER the requested change be approved under Groundwater Change Application CG2-GWC5927, subject to existing rights and the provisions specified above.

You have a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "**date of receipt**" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "**date of receipt**" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your *Notice of Appeal*.

- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:
The Pollution Control Hearings Board
PO Box 40903
Olympia WA 98504-0903

OR

Deliver your appeal in person to:
The Pollution Control Hearings Board
1111 Israel Road SW Suite 301
Tumwater WA 98501

2. To serve your appeal on the Department of Ecology

Mail appeal to:
The Department of Ecology
Appeals Coordinator
P.O. Box 47608
Olympia WA 98504-7608

OR

Deliver your appeal in person to:
The Department of Ecology
Appeals Coordinator
300 Desmond Dr SE
Lacey WA 98503

3. And send a copy of your appeal to:

Thomas Loranger
Department of Ecology
Southwest Regional Office
PO 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.

Signed at Lacey, Washington, this 16th day of Dec 2010.

Thomas Loranger

Thomas Loranger, Section Manager
Water Resources Program
Southwest Regional Office

INVESTIGATOR'S REPORT

BACKGROUND

On March 18, 2009, Mr. Dean Kaelin, on behalf of the City of Orting, filed five *Applications for Change of Water Rights* with the Washington Department of Ecology. The intent of the filing is to change each of the water rights assigned to the City's Wells 2, and 3 to add new Well 4 as an additional point of withdrawal and allow all three wells to be used in a wellfield configuration. The project site is located in the City of Orting within Water Resource Inventory Area 10, the Puyallup-White River Watershed.

Superseding Groundwater Certificate 5927-A was issued February 24, 2004, authorizing a change to the point of withdrawal, place of use, and purpose of use under Groundwater Certificate 5927-A. The water right certificate was originally held by James A. Whitmarsh providing for the irrigation of 35 acres. The farm property was developed into a residential subdivision to be served by the City. The original well was decommissioned and the certificate transferred to the City. The approved Certificate of Change conveyed a withdrawal of 235 gallons per minute (gpm) and 62 acre-feet per year (afy) for use year-round, as needed for municipal use.

Under RCW 90.44.100, an existing groundwater certificate may be changed after publication of a notice of the application and completion of the same investigations as prescribed in the case of an original application. In evaluating a request to change a water right under RCW 90.44.100 and RCW 90.03.380, Ecology must find that the proposed change does not alter the original finding, i.e. that 1) water is available for appropriation, 2) the appropriation/change is for a beneficial use, 3) the change will not impair existing water rights, and 4) the change will not be detrimental to the public interest.

The examination process was overseen by Philip Crane, Water Resources, Southwest Region, Department of Ecology (Ecology). The consultant firm of Robinson Noble, Inc., under contract to Ecology, reviewed the application and completed this report of examination. Burt G. Clothier, LGH, was the primary investigator and report author for Robinson Noble. All procedural issues that arose during the review of this application were directed to Ecology staff for clarification and direction.

Based on our investigation, and the provisions of RCW 90.03 and RCW 90.44, I recommend that the requested changes to GWC 5927-A be allowed, and that a new Groundwater Certificate be issued once the water has been put to beneficial use.

Description and Purpose of Proposed Change

The City of Orting proposes to add additional points of withdrawal to GWC 5927-A to allow for use of their three main production wells as a wellfield. Currently, the certificate lists only Well 2 as a point of withdrawal. The City desires to jointly use existing Wells 2 and 3 with newly-installed Well 4 (Figure 1) and manage all three wells as a wellfield to provide more reliable service for its municipal supply. Each certificate would include points of withdrawal of the other four groundwater certificates. The application is not requesting new additive quantities for either instantaneous or annual withdrawals. Table 1 below lists the water rights involved in this change.

Table 1: City of Orting water rights requested for change

Certificate	Priority Date	Source	Qi (gpm)	Qa (afy)
5927-A	5/22/1966	Well 2	235	62
1734-A	6/10/1952	Well 2	175	67.5
3404-A	5/6/1959	Well 3	450	94.0 (a)
2252-A	5/13/1954	Well 3	125	24
G2-CV1-2P156	7/1/1943	Well 3	200	94.3 (a)
		Totals:	**1185**	**341.8**

(a) Subject to seasonal restrictions, as shown below on Table 3.

The City of Orting currently withdraws water from three different wells, Wells 1, 2, and 3. All three wells have been determined to draw water from the same aquifer located under the river valley. Based on preliminary hydrogeologic analysis and well testing, Well 4, which is in relative close proximity to Well 3, taps the same aquifer system. All three wells are in the same public body of groundwater.

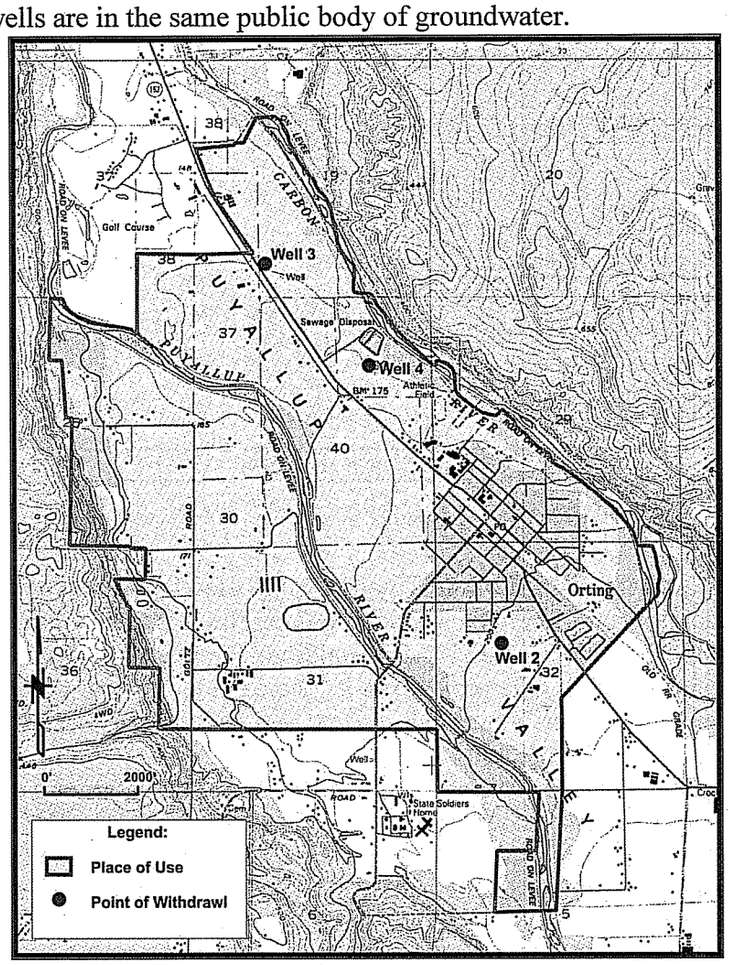

Figure 1: Locations of Wells 2, 3, and 4 with associated Place of Use

Based on information provided by the City at the time of application, the points of withdrawal involved in this change are as follows:

<u>Well 2</u>

Well 2 is located in east central Orting on Icey Street. This well was drilled in 1983 and has an 8-inch diameter casing with a 6-inch screen. The screen is approximately 120 to 180 feet deep. Well 2 is primarily used during periods of high demand or drought, which have become more common in recent years. Well 2 is authorized as the point of withdrawal for three certificated groundwater rights, two of which are additive rights that were transferred to this source after their acquisition by the City (this certificate and GWC 1734-A), and one of which is a non-additive right/supplemental point of withdrawal associated with Well 1 (G2-26441). This latter right is not a subject of this application for change.

Well 3

Well 3 is located approximately 1.4 miles north of downtown Orting, northeast of the intersection of SR-162 and Williams Blvd N.E. This well was drilled in 2005 with a 16-inch diameter casing to a depth of 450 feet. The well screen includes two sections of 10-inch diameter screen with lengths of 70 feet (between depths of 372 and 443 feet) and 90 feet (between depths of 249 and 340 feet). Well 3 was developed to enable the City make beneficial use of the (irrigation) water rights it acquired and thereafter changed to municipal purposes to enhance its water supply portfolio and production capacity.

Well 3 is authorized as the point of withdrawal for two additive certificated groundwater rights (GWC 3404-A and GWC 2252-A) and one groundwater claim (Certificate of Change Volume 1-2 Page 156). These three water rights were transferred to Well 3 after their acquisition by the City. The total Qi of these rights is 775 gpm and the total Qa is 212.3 afy.

Well 4 (Additional Point of Withdrawal)

Well 4 is located north of downtown Orting east of SR-162 and off Rocky Road N.E. The well lies between the Puyallup and Carbon Rivers. The well was constructed with 16-inch casing to a depth of 195 feet, with screens placed from 195 feet to 295 feet. Well testing indicated a long-term production capacity of 1,185 gpm.

Attributes of the Certificate and Proposed Change

Table 2: Summary of Proposed Changes to Groundwater Certificate 5927-A

Attributes	*Existing*	*Proposed*
Name	City of Orting	City of Orting
Dates	Priority Date: 05/22/1966	Date of Application for Change: 03/18/2009
Instantaneous Quantity	235 gpm	235 gpm
Annual Quantity	62 afy	62 afy
Source	Groundwater	Groundwater
Point of Diversion/Withdrawal	Well 2	Wells 2, 3, and 4
Purpose of Use	Municipal	Municipal
Period of Use	Year-round	Year-round
Place of Use	City of Orting	City of Orting

Legal Requirements for Proposed Change

The following is a list of requirements that must be met prior to authorizing the proposed change in Point(s) of Diversion/Withdrawal.

- **Public Notice**
  Public Notice was published in the *Orting News* on December 14 and 21, 2009.
  No protests were filed with Ecology.
- **State Environmental Policy Act (SEPA)**
  Exempt under SEPA WAC 197-11-305 and WAC 197-11-800(4)

INVESTIGATION

History of Water Use
According to the City's Water System Plan (as updated in 2009), the City served a population of approximately 5,560 as of 2006. City staff report that the current population is 6,135, a change of over 10% in four years (but less than the growth projected by the water system plan). While growth is not expected to be that high in future years, using the City's long-term growth rate of 3.5% per year (Table 3-8 in the Water System Plan), the population is projected to reach 8,654 by 2020.

The City currently has 2,826 service connections and calculates a total equivalent residential unit (ERU) value of 2,414. Their current average day production from all sources is about 665,000 gallons per day. Maximum day production was 1.63 million gallons per day for 2009.

The City has provided information adequate to establish that the current sources under consideration. Wells 2 and 3 have been in use since the previous water rights review conducted by Ecology in 2006 (for GWC 2252-A).

Other Rights Appurtenant to the Place of Use

The City's water sources consist of four wells and four springs, with one of the wells providing irrigation water only for use at the cemetery from May through October. The City holds both pre-code water rights claims and water rights certificates for these sources. The rights are summarized in Table 3. Since the City's water rights rely, in part, on unadjudicated pre-code water claims, it is not possible to make a final summation of the extent of the City's rights. The Superior Court makes findings on claimed rights based on several factors including the extent of the beneficial use, time used to develop the beneficial use, and historical intent.

Table 3: Water Rights Summary for the City of Orting

Number	Priority Date	Source	Primary or non-additive	Qi (gpm)	Qa (afy)
Certificate					
1959	11/14/1941	Wingate Spring	Primary	269	434
1613-A	5/20/1953	Well 1	Primary	500	370
G2-26441	11/17/1983	Well 2	Non-additive	400	319
5927-A	5/22/1966	Well 2	Primary	235	62
1734-A	6/10/1952	Well 2	Primary	175	67.5
G2-00294	12/9/1969	Cemetery Well	Primary (irrigation only)	100	9.3
3404-A	5/6/1959	Well 3	Primary	450	94.0 (a)
2252-A	5/13/1954	Well 3	Primary	125	24
Claims					
115531 (G2-CV1-2P156)	7/1/1943	Well 3	Primary	200	94.3 (b)
1243	1881	Boatman Springs	Primary	72 (0.16 cfs)	116 (c)
1242	10/10/1910	Upper and Lower Harman Springs	Primary	72 (0.16 cfs)	116 (c)
		Total		**2,098** (d)	**1,377.8** (d)
		Irrigation Only Total		**100**	**9.3**

(a) 80 afy for use between April 15 and October 15, plus an additional 14 afy, as needed throughout the year.
(b) 92 ac-ft for use between April 15 and October 15, plus an additional 2.3 ac-ft as needed throughout the year.
(c) The water right claims for both Boatman and Harman Springs cite a Qa of 854 ac-ft/yr. Continuous use at the Qi rate of 72 gpm for a full year equals only 116 ac-ft/yr.
(d) Total instantaneous and annual water rights do not include non-additive rights.

Place of Use

There is no change proposed for the place of use under this change application.

Hydrologic/Hydrogeologic Evaluation

The City of Orting is situated on the flood plain of the Puyallup and Carbon Rivers. The valley floor topography is generally flat, with elevations that range from about 110 feet above MSL near the confluence of the two rivers up to approximately 240 feet where the two river valleys diverge southeast of the City. The area is developed with a mix of rural properties, farm land, riparian corridors, suburban developments, and the City itself.

Three types of sediment occur in the valley: alluvium (river deposits), lahar (or mudflow) deposits, and older glacially-derived sediments (drift).

The most recent sediments deposited in the Puyallup Valley are shallow alluvial flood deposits derived from the Puyallup and Carbon Rivers. Near Orting, shallow alluvium can be found at the surface along the river beds and to depths up to 200 feet depending on location. The alluvial deposits often represent the shallowest viable groundwater source in the valley, mainly providing irrigation water for farming activities.

There have been two recent lahars (mudflows) from Mount Rainier that affect the hydrogeology of the Puyallup Valley: the Electron and the Osceola mudflows. Lahar sediments are composed of unsorted mixtures of volcanic boulders and pebbles in a silty, fine-grained matrix. According to Walters and Kimmel (1968), these beds can be distinguished from glacial till by the larger rocks and boulders that are concentrated toward the bottom of the bed. Combined, these mudflows can be as thick as 100 feet, but are more commonly around 75 feet thick according to the well logs in the area. The permeability of lahar deposits is lower than glacial till, and they probably serves as a barrier to direct recharge to deeper aquifers.

Savoca and others (2010) define the valley hydrogeology as consisting of an undifferentiated, post-glacial valley alluvium unit (Aquifer AL, which includes the mudflow deposits and non-glacial alluvium found above and below)

followed by up to five alternating aquifer and confining (non-aquifer) units (Aquifers C, E, and G; Confining Units D and F). Groundwater is found in these sediments from 150 feet to more than 600 feet below the valley level. These sediments are underlain by bedrock, which is predicted to be at depths of approximately 600 feet near the City of Orting and as deep as 900 feet deep near the McAlder School site (Jones, 1999).

In the vicinity of Orting, few wells penetrate below Aquifer C (which immediately underlies Aquifer AL), mainly because the shallower aquifer systems are sufficiently water bearing to meet individual well needs such that deeper drilling is not warranted. The City's wells are all completed in the lower portions of Aquifer AL or in Aquifer C. These layers are roughly equivalent to the alluvium and glacial drift layers described by Kleinfelder in their Phase I investigation for the City (2009). Generally, these two layers are hydraulically connected. Based on previous investigations for City water rights and this investigation, all of the City's wells are in the same body of public groundwater.

Recharge to all of the aquifers in the valley is from precipitation, either directly or precipitation-driven runoff/spring flow/stream flow emanating from the upland areas above the valley floor. Groundwater flow directions are down-valley paralleling river flow.

Water Availability

Previous investigations for each of the City's current water rights found that water was available for use. Review of the available hydrogeologic information did not indicate that aquifer conditions are significantly different from that described in the previous investigations (2001 and 2006). As no additional (additive) water withdrawals are authorized by this change, water is available for this proposed change.

Impairment Considerations

Effects to Neighboring Water Users

The proposed change only concerns additional points of withdrawal and does not increase the City's allocated rights. Since there will be no net change in the allocated amount of water used by the City as a result of the change, impairment of neighboring rights is not expected. To investigate potential impacts to other groundwater users, groundwater rights in the near vicinity of the City's wells were identified from the Ecology WRATS database. Only 12 groundwater rights that do not belong to the City were found in sections 29 through 32. All but one of these rights are served by wells that are 100 feet or less deep. The one deeper well is logged to 151 feet. It is probable that all of these wells are tapping water resources from Aquifer AL (as defined by Savoca and others, 2010). The shallowest of these may be completed in the alluvium above the mudflow deposits (where present). Therefore, with the possible exception of the 151-foot well, these other wells are tapping water resources shallower that those used by the City wells.

Ecology's Well Log database indicates approximately 46 water wells have been drilled in Sections 19, 29, 30, 31, and 32 (de-watering and resource protection wells excluded), including a couple of wells that have been acquired by the City. The wells range in depth from 9 feet to 450 feet (with an average depth of 145 feet). Most of these wells serve domestic and/or irrigation needs and draw water from the shallow alluvial deposits. Since the area surrounding the proposed change is primarily served by water purveyors, few exempt well should be in use since municipal water is available. It is likely that the majority of the exempt wells still in use are located at distances far enough away from the proposed change that the effects will be relatively minor and properly equipped wells should have sufficient capability to accommodate small fluctuations in water levels.

While the valley aquifers are likely in continuity with one another, the vertical separation will help to diminish direct impacts to other water users that might result from the City's new production patterns. Regardless, given the aquifer characteristics and general distances involved, any impacts are expected to be small and not result in impairment. Further, given that the requested changes will not enlarge the City's instantaneous or annual withdrawals, use of the three wells in a wellfield configuration is expected to result in no net change to the resource.

Effects to Surface Water

Instream flows have been established for the Puyallup and Carbon Rivers in WAC 173-510. Minimum flow values are specified for the 1st and 15th of each month of the year. The USGS gage at Alderton (station 12096500) is the control for the stream measurement for the upper Puyallup Valley. The minimum flow value set for this location is 500 cfs between September 15 and November 1 each year. From the USGS record (27 years over the periods 1915-26, 1944-56, and 2008-present), the average discharge is 1,617 cubic feet per second (cfs). Recorded extremes were a maximum discharge of 53,600 cfs (2009) and a minimum of 150 cfs (1952).

Similar to the groundwater users, surface water users are expected to be unimpaired because the change will not result in an increase in withdrawals. The use of the deeper groundwater systems attenuates any effects to surface water bodies in both time and location. At the regional or valley-wide scale, if no new withdrawals are authorized, then the effects to the total resource are unchanged.

With no net change to the total resource, the next concern then is whether changing the location of withdrawals will have an impact on near-by stream reaches. The Well 4 is location is likely to produce the bulk of the City's

water during the year as it is the most productive (highest aquifer transmissivity) and is located nearest to the City's planned new storage reservoir and treatment plant. Each of the three wells concerned in this change are within 2,000 feet or less of either the Puyallup or Carbon Rivers, with Well 4 being closest at approximately 1,000 feet from the Carbon River. All three of the wells produce water under confined aquifer conditions, so direct continuity with the river systems does not appear to be the case. Effects to the rivers system would then result mainly from leakage through the local confining layers. Given the hydrogeologic setting and the diffuse effects of withdrawals from the deeper Aquifer C, the leakage effects are expected to be very similar regardless of the well-use configuration. Kleinfelder (2009) reports that the water level records from all three wells indicated no influence from the rivers. Based on available information, no effects greater than experienced under current use are expected.

Beneficial Use

Municipal use is a beneficial use of water.

Public Interest Considerations

No new additive withdrawals are requested by this change. The existing rights have previously met the public interest criteria and the proposed use of the City's wells in a wellfield configuration does not introduce new public interest considerations.

Consideration of Protests and Comments

No protests were received during the public comment period.

Representatives of the Muckleshoot Indian Tribe and the Puyallup Indian Tribe were contacted regarding the proposed changes and were given copies of the draft ROEs. No comments have been received from the Tribes.

CONCLUSIONS

- Applications for change of ground water rights are governed by RCW 90.44.100, which states, in part, that the holder of a valid right to withdraw public ground waters may, without losing his priority of right, change the manner or the place of use of the water. Such amendment shall be issued by Ecology only on the condition that the change will not enlarge the quantity of water used or impair other rights. It is my conclusion that these criteria are satisfied, and this change will not be detrimental to the public welfare.
- This site is located within the Puyallup-White River Watershed, (Instream Resources Protection Program – Water Resource Inventory Area – WRIA 10). Under the provisions of WAC 173-510, instream flow regulations have been established for surface water of the basin. Allowing this proposed change will not impair instream flows.
- No new additive instantaneous or annual allocations are requested by this change. Based on previous investigations and a review of the hydrogeologic setting, water is available for this use and has already been allocated.
- This requested change is for a beneficial use, and will not impair existing rights or be detrimental to the public welfare.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that the request for change to Groundwater Certificate 5927-A be authorized, in the amounts and within the limitations listed below and subject to the provisions beginning on Page 2.

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.

- 235 gallons per minute
- 62 acre-feet per year, year-round, as needed.

Points of Withdrawal

As described on Page 1 of this Report of Examination.

Place of Use

As described on Pages 1 and 2 of this Report of Examination.

<u>References and Selected Sources:</u>

Borden, R.K. and Troost, K.G., 2001, *Late Pleistocene Stratigraphy in the South-Central Puget Lowland, Pierce County, Washington,* Washington Division of Geology and Earth Resources, Report of Investigations 33.

Jones, M.A., Orr, L.A., Ebbert, L.C. and Sumoika, S.S., 1999, *Ground-water Hydrology of the Tacoma-Puyallup Area, Pierce County, Washington,* USGS Water-Resources Investigations Report 99-4103.

Kleinfleder, December 18, 2009, *Hydrogeology Pertaining to City of Orting Well Field*, report prepared for Washington Department of Ecology on behalf of City of Orting, 11 p., 2 figures.

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Parametrix, Inc., June 2009, *Water System Plan Update*, prepared for the City of Orting, 11 chapters, 15 appendices.

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Robinson and Noble, Inc., April 2003, *Groundwater Resource Investigation, Village Crest Well 3 Project,* prepared for City of Orting, 10 p., 4 figures, appendix.

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Savoca, M.E., Welch, W.B. and others, 2010, *Hydrogeologic framework, groundwater movement, and water budget in the Chambers-Clover Creek Watershed and vicinity, Pierce County, Washington:* U.S. Geological Survey Scientific Investigations Report 2010-5055, 46 p., 2 plates.

Sumioka, S.S., 2004, *Trends in streamflow and comparisons with instream flows in the Lower Puyallup River Basin, Washington:* U.S. Geological Survey Scientific Investigations Report 2004–5016, 46 p.

SLR International Corp, *July 15, 205, City of Orting Well #3 Design, Installation and Evaluation, Orting, Washington.*

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Reviewed by: Phil Crane — Date 12/14/2010

Phil Crane, Water Resources Program

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