WR File NR CS2-25864
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DEPARTMENT OF
ECOLOGY
State of Washington

State of Washington
Report of Examination for Water Right Change

PRIORITY DATE
April 2, 1981

WATER RIGHT NUMBER
S2-25864 C

MAILING ADDRESS
Jerry Peterson/Peterson Farms
2530 Dike Road
Woodland WA, 98674

SITE ADDRESS (IF DIFFERENT)

Total Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
2.67	CFS	600

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE ADDITIVE	UNITS	ANNUAL QUANTITY (AF/YR) ADDITIVE	PERIOD OF USE (mm/dd)
Irrigation	2.67 cfs from the Columbia River	CFS	600 acre-ft/yr	05/01-10/1

REMARKS
See source limitations below

IRRIGATED ACRES ADDITIVE		PUBLIC WATER SYSTEM INFORMATION WATER SYSTEM ID	CONNECTIONS
300			

Source Limitations

SOURCE FACILITY/DEVICE	A|S	WITHDRAWAL OR DIVERSION RATE	ANNUAL QUANTITY (AF/YR)	PERIOD OF USE (mm/dd)
Columbia River		2.67 cfs	600	05/01-10/1
Well	A	800 gpm	300	05/01-10/1

A|S: A=Alternate; S=Standby/Reserve

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Cowlitz	Columbia River	NA	27

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well, pump plant	60532	WE12801	5	1W	22	SW	45°53'53"	122°47'42

Datum: NAD83/WGS84

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

See attached

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

See attached

Proposed Works

16-inch diameter casing well, 131 feet deep, screened from 74 to 80 feet and 85.5 to 115.5 feet. The well was completed on May 3, 2011. No pump was in the well yet at the time of the field investigation. The top of the wellhead is approximately 12 feet above the surrounding ground elevation in order to have the wellhead above the projected flood level for the Columbia River, and is approximately 50 feet horizontally and 20 vertically from the Columbia River. It is planned to connect piping from this new well to the existing irrigation mainline which is buried under the Dike Road that has been used from the existing Columbia River pumping plant, which is adjacent to the Columbia River. The existing mainline is a 10-inch diameter pipe which is encased in a 12-inch diameter steel casting. The applicant intends to continue to use the existing surface water pumping facility from the Columbia River as well as utilize the newly constructed well for irrigation.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	January 1, 2013	January 1, 2014

Measurement of Water Use

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

Provisions

Existing provisions:

- The total annual quantity diverted under Surface Water Certificate No. 9566 and any permit issued under this certificate shall not exceed 750 acre-feet per year for the irrigation of 375 acres.
- Diversion intake shall be tightly screened at all times with wire mesh having openings with dimensions not greater than 0.125 (1/8) inch. Water approach velocity to the screen shall be less than 1 foot per second and approaching 0.5 feet per second, as measured one foot in front of the screen.
- This authorization to use public waters of the state is classified as a Family Farm Permit in accordance with Chapter 90.66 RCW. This means the land being irrigated under this authorization shall comply with the following definition: Family Farm-a geographic area including not more than 6,000 acres of irrigated agricultural lands, whether contiguous or noncontiguous, the controlling interest in which is held by a person having a controlling interest in no more than 6,000 acres of irrigated agricultural lands in the State of Washington which are irrigated under water rights acquired after December 8, 1977. Furthermore, the land being irrigated under this authorization must continue to conform to the definition of a family farm.

Measurements, Monitoring, Metering and Reporting
An approved measuring device must 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", WAC 173-173.

WAC 173-173 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.

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

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 Change Application No. CS2-25864, subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this 31ST day of January 2012.

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.

Mailing Addresses	Street Addresses
Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903 **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 **Department of Ecology** Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503

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.

INVESTIGATOR'S REPORT

BACKGROUND

Cost Reimbursement

This application is being processed under a cost reimbursement agreement between the applicant and the Department of Ecology. This report has been prepared by HDR Engineering under a contract and Work Assignment with the Department of Ecology (Ecology). The Work Assignment for this project was authorized by Ecology on July 5, 2011.

Water Right Change Application

A water right change application was submitted to Ecology on October 1, 2007 by Jerry Peterson/Peterson Farms (Peterson) of Woodland, WA, to add a point of withdrawal for 800 gpm and 300 acre-feet per year for irrigation, which is a portion of an existing Surface Water Certificate No. S2-25864 C which is for 2.67 cfs (1,200 gpm) and 600 acre-feet per year from the Columbia River for irrigation of 300 acres. The applicant is proposing adding a ground water well to the existing surface water diversion right and is not proposing to change any other attribute of the existing right.

Attributes of the water right as currently documented

Name on certificate, claim, permit: Jerry Peterson **Water right document number:** S2-25864 C **As modified by certificate of change number:** N/A
Priority date, first use: April 2, 1981
Water quantities: Qi: 2.67 cfs Qa: 600 acre ft./ year
Source: Columbia River
Point of diversion/withdrawal: 900 feet north and 800 feet west of the south quarter corner of Section 22, T 5N, R1WWM Latitude 45^0 53' 53" N, Longitude 122^0 47' 42 " W
Purpose of use: Irrigation of 300 acres
Period of use: May 1 to October 1
Place of use: See ATTACHMENT 2

State Environmental Policy Act (SEPA)

The governmental action relating to the subject application is exempt from the "detailed statement" preparation requirements of SEPA (WAC 197-11-800(4). The application neither involves appropriations of one (1) cubic feet per second or more of surface water for irrigation purposes or appropriations of 2,250 gallons per minute or more of ground water for any purpose.

Comments and Protests

Public notice of the application was given in the Daily News, published in Cowlitz County on October 20 and October 27, 2010. There were no comments or protests received during the 30 day protest period following the last date of publication.

INVESTIGATION

Site Visit

The following information was obtained from a site inspection conducted by Alan Wald and Jerry Louthain on July 21, 2011, with the applicant's representative Mr. Matt Peterson. Additional information relating to this applicant was provided by the applicant following the site visit.

Project Description

Peterson Farms is a large scale farming operation located west of Woodland and adjacent to the right bank of the Columbia River, with total land holdings of approximately 1,500 acres. The farming operation is also known as Columbia Fruit, as well as M and J Farms. Two brothers, Marty and Matt Peterson, now manage this business venture, which was formerly managed by their father, Jerry Peterson.

Proposed Project

The intent of this filing is to add a well as an additional point of withdrawal to the original point of diversion from the Columbia River, so that land can be irrigated from either the Columbia River source or the new well. Problems with water levels and water quality have been experienced at some times in using the existing surface water pumping facility, so an additional ground water source is needed so the applicant can access a reliable source of irrigation water.

Other Water Rights Appurtenant to the Proposed Place of Use

Surface Water Certificate No. 9586 is for diversion of 0.75 cfs and 150 acre-feet per year for irrigation of 75 acres from Goerig Slough, a tributary of the Columbia River. This certificate was issued in 1963 with the irrigated area being much of the same property irrigated under Certificate No. S2-25864.

History of Water Use

Water has been used every year for irrigation under Surface Water Certificate No. S2-25864 since the water right certificate was issued in 1985. Peterson Farms also has Surface Water Certificate No. 9586 which is for diversion of 0.75 cfs and 150 acre-feet per year for irrigation of 75 acres from Goerig Slough, a tributary of the Columbia River. This certificate was issued in 1963 with the irrigated area being much of the same property irrigated under Certificate No. S2-25864. Different crops have been grown on the property over the years, so the acreage and the specific types of crops that have been irrigated have varied over the years. The applicant has provided power usage records for the last five years from 2007 through 2011. These records show the kilowatt hours used on a monthly basis for the existing Columbia River pumping plant. These records show that this pumping plant was used during the time period from May through September for each of these years.

Information from the Report of Examination for this certificate shows that the horsepower of the motor for the pump is 125 HP, and that the pump is rated at 1,500 gpm (3.34 cfs), which was the approved pumping

rate on the Report of Examination. Certificate No. S2-25864 was only issued for 2.67 cfs (1,200 gpm), which is likely based on a pump efficiency of 80% (1,500 x 0.8= 1,200 gpm).

Current Use

Water is currently used for irrigation from the Columbia River pumping plant as authorized under Certificate No. S2-25864, and from Goerig Slough under Certificate No. 9586. Some crop rotation is done each year with some of the irrigated acreage being for the same crop every year. Information provided from Mr. Marty Peterson shows that approximately 180 acres of berries, 200 acres of corn and 60 acres of green beans are irrigated every year. Additional crops that are grown in some years are 30 acres of strawberries, 50 acres of wheat, 150 acres of green peas, and 600 acres of grass seed. Not all of these crops are grown or irrigated every year. Mr. Petersen has provided a listing by County Parcel Number of all of the land that the Peterson family owns and leases from others for agricultural use and irrigation. This listing also shows the number of acres for each Parcel Number. In addition, Mr. Peterson has provided a CD of a map of property in this vicinity, which shows the Parcel Number and ownership of each Parcel. The total acreage owned by the Peterson family which is irrigated is 875 acres, with an additional 360 acres which are leased, for a total of 1,235 acres of irrigated agricultural lands, owned or managed by the Peterson family.

Mr. Marty Peterson was reminded that this property only has a total of 375 acres in authorized water rights, so he has prepared an application for submittal to Ecology for additional water rights to bring the total approved irrigation acreage up to the maximum number of acres that they have irrigated or intend to irrigate in the future.

Extent and Validity

As described above under History of Water Use and Current Use, water has been used on a yearly basis for irrigation under Surface Water Certificate No. S2-25864. The exact number of acres, the types of crops that have been irrigated, and the amount of water that has been used for irrigation on a yearly basis is not known by the applicant and varies each year depending on the particular crop rotation that is being followed in any given year. It is known however that the number of acres irrigated in any given year has been well over 1,000 acres, even though the total authorized irrigated acreage in water rights is only 375 acres under the two irrigation water rights for this place of use. There have been no metering requirements for this water use, so no records have been kept on the amount of water use.

The crops that are irrigated every year as stated above are 180 acres of berries, 200 acres of corn, and 60 acres of green beans, or a total of 440 acres, require the following amounts of irrigation water for this area (Vancouver) using a 10-year return period in the Washington Irrigation Guide (WIG); raspberries=17 inches, corn=13 inches, and green beans=11 inches. The total irrigation water requirement (TIR) for the above acreages of each crop is calculated as follows, using a sprinkler efficiency of 70%.

180 acres of berries=180 x 17/12 x 1/0.70=364 acre-feet per year (afy)

200 acres of corn=200 x 13/12 x 1/0.70=310 afy

60 acres of green beans=60 x 11/12 x 1/0.70=79 afy

The Total Irrigation Requirement for the three crops grown every year = 753 afy. Additionally as shown above, there are other years that there is up to 795 acres that could be irrigated in any given year. From

this it appears that the amount of water used for irrigation on an annual basis would exceed the total amount authorized in existing water rights of 750 afy.

One of the provisions to be included with this water right change will be a metering requirement, which will provide yearly data on the amount of water used for irrigation under this water right. In addition, any new water right to be approved under the new application to be submitted will also have a metering provision so that water use data will be available on a yearly basis for the new water right for additional water and acreage.

Hydrologic/Hydrogeologic Evaluation

The following information related to hydrogeology was taken from a December 20, 2011 hydrogeological analysis report from Alan Wald, Certified Hydrogeologist with Applied Hydrology Northwest, which includes a copy of the Water Well Report for the subject well, showing that the well was completed on May 3, 2011. This report is included with this Report of Examination as ATTACHMENT 1.

The static water level in the well could not be measured at the time of the site visit as the casing extends about 12 feet above land surface because of potential floods and is capped. The applicant reports that water levels in the well during drilling fluctuated with water levels (stage) in the river. The static water level is shown on the well driller's log as being 10 feet below the top of the well casing on May 2, 2011.

Hydrogeology

Geologic materials along the lower Columbia River in this area are principally flood deposits of unconsolidated fine sediments and alluvium over deeper Quaternary (Recent) sediments and debris of fluvial origin. The water well report describes 115 ft of sands and occasional gravel over a thin sequence of clay and fine sand at 115 to 131 ft. The well is screened from 74 to 115.5 ft.

The well was pump tested at 1,387 gpm with 39 ft of drawdown after 24 hours, for a specific capacity of 36 gpm/ft. The pump test showed sufficient yield for the proposed use.

Pumping the well at proposed rates is expected to induce recharge from the Columbia River since the static water level in the well is approximately river stage and less than 50 ft from the river. The specific capacity test data was analyzed using the method described in Bradbury and Rothschild (1985) to obtain the aquifer hydraulic parameters necessary to compute the drawdown under the river from pumping the well. The analysis assumed an aquifer thickness of about 110 feet and a specific yield ranging from 0.15 to 0.20 resulting in a calculated transmissivity of 16,000 to 17,000 ft^2/day and a hydraulic conductivity of 150 to 160 ft/day. Solution of the Theis equation for a transmissivity, T of 16,600 ft^2/day and storage coefficient, S of 0.2 at a pumping rate of 800 gpm for 30 days results in a conceptual drawdown of 5.7 feet at a radius of 50 feet from the well. This drawdown is consistent with the pump test at the time of well construction and clearly within the zone of influence of the river.

Impairment Considerations

The record of water rights within 1/2 mile of the proposed well includes three groundwater right claims (G2-08306CL, G2-067930CL, and G2-067931CL) and two surface water rights (S2-27726GWRIS, and S2-20043CWRIS). The groundwater right claims are for domestic and stock water use and the surface water rights are for irrigation from an unnamed slough, and Goerig Slough, respectively. The nearest

water right is more than 1,600 feet landward of the proposed withdrawal. Drawdown in existing wells due to the proposed withdrawal would be less than 1 foot.

Based on the above hydrogeologic analysis, these rights would not be impaired by the proposed change in point of diversion/withdrawal. In addition, no additional withdrawal is proposed under this application so there would not be any additional impairment to the surface water rights from Goerig Slough.

Because this application addresses a change of an existing water right, it represents no net increase in water quantity. Due to the proximity of this newly constructed well to the Columbia River with water levels in the well reflecting the water levels of the Columbia River, the proposed additional ground water source is essentially Columbia River water and would not result in any additional impairment to surrounding water users.

Beneficial Use

The use of water for irrigation purposes is defined in statute as a beneficial use of water (RCW 90.54.020(1)). The stated purpose of use for the Peterson well qualifies as a beneficial use.

Public Interest Considerations

Public notice of the application was given in the Daily News, published in Cowlitz County on October 20 and October 27, 2010. There were no protests received during the 30 day protest period following the last date of publication.

The attached hydrogeological analysis by Alan Wald also reviews the State requirements for instream flows and discusses current practice for water right reviews in this area including a consultation with Steve Boessow, the Washington State Department of Fish and Wildlife Instream Flow Biologist. Based on this review, it was concluded there are no instream flow requirements on the Columbia River downstream of Bonneville Dam.

There were no protests filed or objections made to the approval of this application, and approval of this application is not considered to be detrimental to the public interest.

Consideration of Protests and Comments

No protests were filed against this application.

CONCLUSIONS

In conclusion, approval of this application for the recommended quantities meets the following four criteria that must be met for a water right to be approved:

- Water must be available
- There must be no impairment of existing rights
- The water use must be beneficial
- The water use must not be detrimental to the public interest

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and within the limitations and provisions listed below.

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:

2.67 cfs (1,200 gpm) and 600 acre-ft/yr from the Columbia River and 800 gpm (1.78 cfs) and 300 acre-ft/yr from a well, limited to a total of 2.67 cfs (1,200 gpm) and 600 acre-ft/yr for irrigation of 300 acres from both sources.

Point of Withdrawal: SW¼, Section 22, Township 5 North, Range 1W.W.M.

Place of Use: As referenced on Page 1 of this Report of Examination and described in ATTACHMENT 2.

Report by:

Jerry Louthain, P.E. Date: December 21, 2011
HDR Engineering Inc.

Licensed Engineer 11771

Reviewed by: Phil Crane 1/31/2012
Phil Crane Date
Ecology Water Resources Program

ATTACHMENT 1- December 20, 2011 Hydrogeology Report, Applied Hydrology Northwest

ATTACHMENT 2-Place of Use for Change Application on S2-25864 C