STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
*PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300*

September 11, 2008

Stephen and Karen Gray
3509 Sandridge Road
PO Box 399
Seaview, WA 98644

Re: Water Right No. **S2-28851** and **S2-28852**

Dear Mr. and Mrs. Gray:

We received your *Proof of Appropriation* forms. The next step in the process is an on-site inspection of your projects. Ecology will verify your water use before issuing a *Certificate of Water Right*. It may be some time before this inspection can be scheduled. Your permits will remain in good standing until the inspection is completed. We will contact you to schedule the inspection.

If you have any questions, please contact me at (360) 407-0274 or clat461@ecy.wa.gov.

Sincerely,

Charlotte Lattimore
Water Resources Program
Southwest Regional Office

WASHINGTON STATE DEPARTMENT OF ECOLOGY

# STATE OF WASHINGTON
# DEPARTMENT OF ECOLOGY

## PROOF OF APPROPRIATION OF WATER

RECEIVED
Date Stamp
SEP 05 2008
Washington State Department of Ecology
Reviewed by:

| PERMIT NUMBER | CHANGE APPROVAL NUMBER |
|---|---|
| S-2-28851 | |

NAME OF PERMITTEE Stephen W. GRAY CONTACT NAME (IF DIFFERENT) KAREN GRAY

| MAILING ADDRESS (STREET) | (CITY) | (STATE) | (ZIP CODE) |
|---|---|---|---|
| P.O. Box 399 | SEAVIEW | WASH. | 98644 |
| P.O. BOX 399 | SEAVIEW | WASH | 98644 |

PHONE NUMBER (369 642-2408 FAX NUMBER (360-642-4720

| SOURCE(S) OF WATER | LOCATION OF SOURCE(S) NO. | ¼ | ¼ | SECTION | TOWNSHIP N. | RANGE, (E/W)M | |
|---|---|---|---|---|---|---|---|
| Surface water + some H2O from South main | NW1 | ¼NE¼ | little | 28 | 10 | 11 WWM | Pacific County |

LIST ALL PURPOSES WATER IS USED FOR: CRANBERRY FARM – IRRIGATE + HARVEST

| DATE WATER WAS COMPLETELY APPLIED TO BENEFICIAL USE | TIME OF YEAR WATER IS USED: | IF SEASONALLY, LIST THE START AND END DATE |
|---|---|---|
| | ☐ Continuous/Year round ☒ Seasonal | Start: MARCH End: NOV |

DESCRIBE HOW CONSTRUCTION AND DEVELOPMENT RELATED PROVISIONS (AS REQUIRED BY PERMIT) HAVE BEEN OR ARE TO BE MET (USE ADDITIONAL SHEET OF PAPER IF NECESSARY) ALL water is surface water – most of the year we use the water for irrigation – some frost protection – a little heat protection – in Oct. we flood bogs about 1–2 ft. deep to harvest – Water is released several times at harvest – then returned to surface pond or ditch –

DESCRIPTION OF SPECIFIC AREA ON WHICH WATER IS BENEFICIALLY USED(USE ADDITIONAL SHEET OF PAPER IF NECESSARY)
copy of irrigated Ac. shown on exhibit A map – in Seaview, Wash.

| NO. | ¼ | ¼ | SECTION | TOWNSHIP N. | RANGE, (E/W)M |
|---|---|---|---|---|---|
| | NW¼ | NW¼ | 28 | 10 N | 11 |

## PHYSICAL WITHDRAWAL OR DIVERSION INFORMATION

**For Pump Designed Water System Information:** one 40 HP Pump, one 60 Hp. pump – sit in pump house and draw surface to pump water circulate back + re pumped – all bogs are connected to pond with ling ditches –

TYPE OF PUMP: ☐ Submersible ☐ Turbine ☐ Centrifical ☐ Other

| MAKE | MODEL # | SERIAL # | HORSEPOWER |
|---|---|---|---|
| MOTOR | BHP | SPEED | RPM |
| ☐ Water lubricated ☐ Oil Lubricated | | | |
| BOOSTER PUMP ☐ Yes ☐ No BREAK HORSEPOWER | | PRESSURE | OPEN DISCHARGE ☐ Yes ☐ No |
| PUMP DISCHARGE HEAD PRESSURE psi | DISCHARGE PIPE DIAMETER | | |

**For Ground Water Withdrawal** (if more than one, please include attachment)

Ecology Unique Well Identification Number(s) _____ [Include a copy of the well log(s)]

| PUMP SETTING (DEPTH) | STATIC WATER LEVEL feet below land surface | DYNAMIC (PUMPING) LEVEL feet below land surface |
|---|---|---|
| ACCESS PORT INSTALLED? ☐ Yes | AIRLINE INSTALLED? ☐ Yes | AIRLINE LENGTH Ft. |

**For Non-Pump Designed Water Systems**

| METHOD OF WATER DIVERSION | DESCRIPTION OF WORKS | |
|---|---|---|
| | SCREEN MESH SIZE | METHOD OF CONTROL |

*Ecology is an equal-opportunity employer. If you have special accommodation needs or require this publication in an alternate format, please contact Water Resources Program at (360) 407-6600 or TTY 711 or 1-800-833-6388.*

PARCEL # _____

## USE OF WATER FOR:

1. Irrigation (Please include map of all irrigated lands): map included

| TYPE OF SYSTEM | NUMBER OF SPRINKERS OR EMMITERS | SPRINKLER/EMMITER MAKE | MODEL & RATED DISCHARGE |
|---|---|---|---|
| Irrigation | 647 | RAINBIRD | |

| SIZE NOZZLE/EMMITER OPENINGS | AVERAGE PRESSURE AT SPRINKLER/EMMITER HEADS | NUMBER OF ACRES DEVELOPED | TYPE OF CROP(S) |
|---|---|---|---|
| 1/3 are 1/8" DIA / 2/3 are 7/16 | 60Lb. at Pump | 25,57 A. | CRANBERRIES |

2. Municipal or Domestic Supply

| NUMBER OF DOMESTIC UNITS CURRENTLY SERVED: | NUMBER OF DOMESTIC UNITS TO BE SERVED | POPULATION CURRENTLY SERVED |
|---|---|---|
| | | |

ALSO, provide the following information, if applicable:

- ☐ Department of Health public water system identification number.
- ☐ Map of the delivery system (provide copy if water system is done)
- ☐ Map of present service area and lots presently using water (Non-Municipal Users).
- ☐ If platted property, provide copy of the file plat map or file reference number Non-Municipal Users).
- ☐ Other incidental beneficial uses associated with the domestic supply (Non-Municipal Users).

3. Industrial or Commercial

| TYPE OF INDUSTRY OR COMMERCIAL PROCESS |
|---|
| |

N/A If a waste discharge permit is required for the facility, include a reference to the permit number_____

4. Other Use of Water (describe): _____

## WATER USE AND *MEASUREMENT

| IS A FLOW METER OR MEASURING DEVICE NSTALLED? ☐ Yes ☒ No | LOCATION OF METER(S) OR MEASURING DEVICE(S) | | |
|---|---|---|---|
| MAKE | SERIAL NUMBER | INSTALLATION DATE | INSTALLED BY: |
| METER READING | DATE | | |

This surface water from a sump pond is pumped out + returned + repumped —
*Include copy of meter specifications The same with harvest – once a year the fields are flooded about 1½ feet – then water is shuffled from field to field.

Actual amount withdrawn or diverted from permanent system on an instantaneous and annual basis. Please include meter data or describe method used to estimate annual volume.

| CUBIC FEET PER SECOND | ACRE FEET PER YEAR | GALLONS PER MINUTE | TOTAL GALLONS PER YEAR |
|---|---|---|---|
| CFS - 1.5 | 91 | | |

**If the existing water use as indicated by meter data, etc., is less than you anticipate to be the full extent of the water right which you are reporting through submission of this form, please explain on a separate sheet.**

---

I, Stephen W. GRAY, do certify that I have completed appropriation of water under Water Right Permit or approved water right change number, S-2-28851. This notice and attached documents are true and accurate statements and describe and support my assertion that I have satisfied the terms of the permit/change in compliance with the law.

Stephen W. Gray
Permittee(s) Signature

9-3-08
Date

*State of Washington*
*County of* PACIFIC

*Signed and sworn to (or affirmed) before me on* 9/3/08 *by* Shephen W. Gray

Seal or Stamp

LAURA L. OSBORNE NOTARY PUBLIC COMMISSION EXP. APR. 14, 2010 STATE OF WASHINGTON

Laura L. Osborne
(Signature)

Notary
(Title)

My appointment expires 4/14/2010

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
*PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300*

August 4, 2008

Steve and Karen Gray
3509 Sandridge Road
PO Box 399
Seaview, WA 98644

Re: Water Right No. **S2-28851 and S2-28852**

Dear Mr. and Mrs. Gray:

Your development schedule required you to submit a *Proof of Appropriation* by May 1, 2008 for both permits. If you have fully developed your projects, please fill out the *Proof of Appropriation*, for the quantity of water used, and return it within **30 days**.

If you have not fully developed your projects, you must obtain an extension or your permits may be cancelled. **Your request must be in writing and include the following information:**

- A description of the efforts you have made to put the water to full use and what remains to be done.
- A schedule for fully developing the project.
- Reasons why the project has not been fully developed.
- Any additional information that will assist us in evaluating your request for an extension.
- A **non-refundable fee of $50.00 per extension request**.

If requesting an extension, mail your request together with your check or money order to:

Department of Ecology
Cashiering Section
PO Box 47611
Olympia, WA 98504-7611

If you have any questions, please call me at (360) 407-0274 or e-mail clat461@ecy.wa.gov.

Sincerely,

Charlotte Lattimore
Water Resources Program

Enclosures: *Proof of Appropriation* (2)
*Extensions for Water Right Permits*

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
*PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300*

March 2, 2007

Steve Gray
PO Box 399
Seaview WA 98644-0399

Re: Surface Water Right S2-28852 & Source Water Measuring

Dear Mr. Gray:

I have enclosed the following documents regarding source metering for your review:

- Frequently asked questions about Water Rights in Washington
- Instructions and Application for a Water Right
- Requirements for Measuring and Reporting Water Use
- Instructions and Application for Cost-Share
- Meter Vendors and Installers
- Pressurized Pipe Systems

Ecology can help you pay for the source meters and installation through cost share. Also, we can allow some flexibility in terms of timing of installation of metering devices.

If you have questions after you review the enclosures, please give me a call at (360) 407-6643.

Sincerely,

Eva Richards

Eva Richards, Metering Compliance
Department of Ecology

ER:th
Enclosures


CSI
Pump #1

Steve GRAY – 2007

Pump House – Blue Heron CRANBERRIES——

. Don't see spot for measuring Deuise—!

**General Hydrogeology**

The Long Beach Peninsula is about 27 miles long and an average width of about 1.5 miles wide. The peninsula is bordered by seawater, with the Pacific Ocean on the west and Willapa Bay on the east. The USGS produced WRIR 95-4026 entitled, "Ground-Water Flow and Water Quality in the Sand Aquifer of Long Beach Peninsula, Washington" (Thomas, 1995). That study indicates that water supplies are derived mostly from a water-table aquifer comprised mainly of sand, with some lenses of silt and clay that act as confining beds. Data are lacking or inconsistent to define a confining bed that extends the length of the peninsula. According to the Thomas report there does not appear to have been any long-term water table decline of the sand aquifer from 1975 to 1992. Static water levels (SWL) measured at three east-west cross sections in 1974-75 were about the same as water levels measured in 1992.

Thomas suggests that no appreciable amount of seawater has intruded into the primary sand aquifer. The report further maintains that small ground water withdrawal rates and high recharge produced by abundant average annual precipitation combine to maintain a thick freshwater lens that tends to prevent seawater intrusion.

**Seawater Intrusion/Chloride Concentrations**

Ecology's Seawater Intrusion Policy provides guidance on how to deal with seawater intrusion with respect to pending ground water applications. The policy specifies that seawater intrusion will be prevented rather than mitigated and that wells producing water with 100 mg/l or greater of chloride are in medium to high risk of experiencing seawater intrusion. Additionally, the policy approaches seawater intrusion from a ground water basin perspective such that, unless there is hydrogeologic evidence to the contrary, wells within one half mile radius of each other are assumed to lie within the same basin.

*Chloride concentrations of 100 mg/l or greater are accepted as a first cut indicator of coastal* Washington wells that may be experiencing seawater intrusion. Thomas indicates that shallow ground water samples collected on the peninsula in July 1992 had a chloride concentration median of 15 mg/L and a maximum of 52 mg/L. As 100 mg/l is well above background levels for these wells, 100 mg/l can be considered a conservative indicator of this area's seawater intruded wells.

Beyond the Thomas report, the USGS has conducted two previous seawater intrusion investigations which included sampling of Long Beach Peninsula wells. In 1971 the USGS published WSB 32 entitled, "Reconnaissance of Seawater Intrusion Along Coastal Washington, 1966-68" by Walters. In 1984 the USGS published WSB 56 entitled, "Seawater Intrusion into Coastal Aquifer in Washington, 1978" by Dion and Sumioka. These studies, as well as the Thomas report, provide considerable chloride data for the Long Beach Peninsula.

There is evidence presented in the USGS reports that deeper aquifers beneath the peninsula are experiencing seawater intrusion. All totaled, this data indicates that nine wells have produced water which contained nearly or greater than 100 mg/l of chloride. Those wells are as follows:

| | | |
|---|---|---|
| 10/11W-9N1 | 94 | 8/9/68 Walters |
| 10/11W-9N2 | 124 | 8/9/68 Walters |
| | 125 | 8/15/78 Dion and Sumioka |
| 10/11W-29J1 | 149 | 8/6/68 Walters |
| 11/11W-4E1 | 108 | 8/22/68 Walters |
| 11/11W-5J1 | 48 | 9/22/68 Walters |

| | | |
|---|---|---|
| | 115 | 8/17/78 Dion and Sumioka |
| 11/11W-34P1 | 566 | 9/12/68 Walters |
| 11/11W-34P2 | 290 | 7/29/92 Thomas |
| 12/11W-3N2 | 135 | 9/4/68 Walters |
| 12/11W-21N1 | 210 | 8/29/68 Walters |
| | 148 | 8/21/78 Dion and Sumioka |

Most samples described by Thomas were collected from within 15 feet of the water table and did not show signs of seawater intrusion. The lone exception is high chloride well 11N/11W-34P2, which is 235 feet deep and is completed in a locally confined aquifer. The report notes that this well may not represent average deep aquifer conditions, however, since prior to sampling it was pumped continuously at 80 gpm for about three weeks.

In addition to the USGS data, the Pacific County Department of Community Development (PCDCD) has sampled chlorides on the Long Beach Peninsula. This effort has periodically revisited 24 of the original 42 wells sampled by the USGS in 1992. The results suggests that some wells produce water with significant chloride fluctuations. Well 11N/11W-04M03 (called well 57 by the USGS - see graph below), produced water with a chloride concentration of 7.5 mg/l on 9/17/98, then 99.2 mg/l on 3/4/00, then 31 mg/l on 9/28/00. Although no further information was provided, it is possible that the 99.2 mg/l spike was the result of heavy pumping prior to sampling. If so, this is surprising since the spike occurred in March, a time not normally associated with high levels of pumping. The 99.2 mg/l was also the highest recorded chloride concentrations for all wells which the PCDCD sampled.

**High Chloride wells and the Pending Ground Water Applications**

I plotted well locations for the high chloride wells discussed above. (see map below) For my analysis I then looked at those applications on the Long Beach Peninsula which fall within one-half mile of these high chloride wells. Based on my plot, one application, G2-29246, clearly falls within one half mile. That applicant, Oysterville Utility, appears to have a well located about 0.3 miles from high chloride well 12N/11W-3N2. Another well, that associated with G2-29648, is located near Kilspan Beach and belongs to Leland Harris. That well is roughly 0.5 mile away from both 11N/11W-4E1 and 11N/11W-4M3. A third well, 11N/11W-5J1, appears to be just beyond 0.5 mile from the G2-29648 well. As the location information in Ecology's files is contradictory for these applications, these sites should be visited to verify their locations. The existing information on the Oysterville cluster of high chloride wells is as follows:

| | G2-29246 | 12N/11W-3N2 |
|---|---|---|
| Site Surface Elevation | 10 to 25* | 10 |
| Well Depth | 87 | 18 |
| Completion Elevation | -77 to -62 | -8 |
| SWL Depth | 25 | 8 |
| SWL Elevation | -15 to 0 | 2 |

* Elevation estimated off a USGS topographic map

Note: Clarifying the G2-29246 well location is important, since one location listed in our files would place the well within 1/2 mile of a high chloride well and the other over one mile away. If the well is located at the former location, the well head elevation would also be much lower. If this is true, the static water level would be lower, and it is more likely that seawater intrusion would occur.

Information on the Kilspan Beach cluster of high chloride wells is as follows:

| | G2-29648 | 11N/11W-4E1 | 11N11W-5J1 | 11N/11W-04M03 |
|---|---|---|---|---|
| Site Surface Elevation | Unknown | 20 | 15 | 21 |
| Well Depth | Unknown | 34 | 24 | 23 |
| Completion Elevation | Unknown | -14 | -9 | -2 |
| SWL Depth | Unknown | Unknown | Unknown | Unknown |
| SWL Elevation | Unknown | Unknown | Unknown | 8 to 13 |

* Elevation estimated off a USGS topographic map

Note: There is confusion regarding the location of the G2-29648 well also. Part of the application implies the well is located in the SW quarter of Section 4, while other information seems to contradict this. This is important, as one location would place the well near high chloride wells and the other, on the fringe of one half mile away.

A long-term chloride record can provide an additional basis upon which to assess seawater intrusion. Such data can indicate how chlorides have changed over time, but little such history exists. As indicated above, USGS well 57 (11N/11W-4M3) demonstrated significant chloride concentration fluctuations and experienced a spike in March which is not easily explained. Wells in the Oysterville vicinity with multiple recent measurements, include the wells designated Wells 10 and 11 by the USGS. These wells, located near the center of the Long Beach Peninsula, have produced water with fairly stable chloride concentrations over time. I was unable to find any wells in the vicinity of the Kilspan Beach which have had multiple recent chloride measurements over time.

**Water levels and the Pending Ground Water Applications**

Seawater intrusion is, in part, a function of the water level in a particular aquifer. The Ghyben-Herzberg relationship indicates that the interface between fresh water and salt water occurs not at sea level, but at a depth below sea level equal to about 40 times the height of the fresh water. This 40:1 relationship applies to the midpoint in the zone of diffusion. As such, one tool for detecting seawater intrusion can be to look at changes in static water levels over time. For the Long Beach Peninsula, the only long-term static water level data available is either that collected by the Department of Ecology and that collected by the County. A check of our data base indicates that Ecology has not monitored any wells in the high chloride vicinities identified above. As for the County, Well 57 is the only well with multiple water-level measurements within the high chloride areas identified above. Water levels in that well are indicated on the graph below and suggest a correlation between dropping water levels and elevated chlorides which is inverse to what would be expected.

In addition static water level changes over time, another clue to potential areas of seawater intrusion is the lack of significant freshwater head above sea level. If the static water level in a well is near or below sea level, then little freshwater is available to keep the zone of diffusion at bay. Based upon Figure 17 in Thomas, there is nothing unusual about the high chloride areas identified above. These areas, like most on the peninsula, have January heads which reach about 13 feet above MSL in the center of the peninsula, then drop to zero along the shore.

**Future Field Work to be Done Relative to the Pending Applications**

The key to understanding seawater intrusion relative to the pending ground water applications, is to determine the precise locations of the applicant's wells. Once these are known, they can be compared with those for wells which historically have produced water with greater than 100

mg/l of chloride. While in the field we should analyze the chloride concentrations in samples from all wells visited (using a Hach field test kit). Typically in western Washington, it is best to sample wells for chlorides in late summer, but in the case of the Long Beach Peninsula wells, summer sampling may be less important. When in the field, we should also attempt to gather any additional existing static water level, chloride, and well log information.

# Water Right Document

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| File # | S2-28851 | WR Class | S | Document | Permit | QC Caution Flag | ☐ |
| App # | | Target | NA | Priority Date | 05/21/1993 | Image | ☐ |
| Permit # | | Status | Active | Counties | PACIFIC | In Trust | ☐ |
| Cert # | | Purposes | FP,IR | Region | SWRO | In Metering | ☐ |
| WR Doc ID | 2221897 | Stage | Proof of Appropriation Notice | WRIA's | 24 | | |
| Cons. Board Ctrl # | | | | | | | |

QC | ADD CHILD APP | REPORT/EXPORT

## Primary Parties

| Last Name | First Name | M |
|---|---|---|
| GRAY | STEVE | |

SAVE | DELETE WR DOC | BACK

At A Glance | Uses | Images | Life Cycle | Associations

## Events

ADD

| Status | Event | Disposition | Reason | Due Date | Completed Date | Comment | | |
|---|---|---|---|---|---|---|---|---|
| Closed | ROE-Dec appeal Period | | | 01/18/2007 | 02/18/2007 | | EDIT | DELETE |
| Closed | Permit Issued | | | 01/26/2007 | 01/26/2007 | | EDIT | DELETE |
| Closed | ROE-Dec Issued | Full | | 12/19/2006 | 12/19/2006 | | EDIT | DELETE |
| Open | Proof of Appropriation | | | 05/01/2008 | | | EDIT | DELETE |
| Closed | Affidavit of Publication | | | | 09/27/1993 | | EDIT | DELETE |

**Change Application Intent**

Chg Purpose ☐ | Chg Point D/W ☐ | Chg Place of Use ☐ | Add Purpose ☐ | Add Point D/W ☐ | Consolidation ☐

Other ☐ Comment

## Alternate Document Number

ADD

| Doc # Type | Doc # | | |
|---|---|---|---|
| Old WRATS SAID Number | 219941928045231 | EDIT | DELETE |

SAVE | DELETE WR DOC | BACK

Called 7-2-07, @ 3:30
360-642-2408

S

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
*PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300*

January 26, 2007

Steve and Karen Gray
3509 Sandridge Road
PO Box 399
Seaview WA 98644

Dear Mr. & Mrs. Gray:

RE: Permit No. **S2-28851**

Enclosed is your permit No. **S2-28851**, which includes your Development Schedule.

***Proof of Appropriation form***
Our information indicates that your water project is completed. The next step toward securing a water right certificate is to put the water to full beneficial use on or before **May 1, 2008**. Once this is done, complete the enclosed "Proof of Appropriation of Water" form. This form must be **notarized** and returned to the Water Resources Program at Ecology's Southwest Regional Office. Because this permit is being issued only for the duration of the Elwha River Ecosystem and Fisheries Restoration project or until salmon populations are self-sustaining, final certificate will not be issued.

Please submit the **parcel number** for the point of diversion/withdrawal for where your project is located (and the place of use, if different). Parcel numbers can be found on property tax statements.

Upon receipt of your completed "Proof of Appropriation of Water" form, we will review the information and may come out to inspect your project.

***Read your permit***
Please read through your entire permit, along with the enclosed water right information sheet, to be sure you fully understand the terms and responsibilities associated with your permit.

If we can provide any further assistance, please contact our office at (360) 407-6300.

Sincerely,

Thomas Loranger
Water Resources Section Manager
Southwest Regional Office

TL:th

Enclosures: Permit #**S2-28851**
"Proof of Appropriation of Water" form
"Important Information Regarding Your Water Right"