State of Washington
DRAFT
# REPORT OF EXAMINATION FOR WATER RIGHT APPLICATION

| PRIORITY DATE | WATER RIGHT NUMBER |
|---|---|
| 11/17/2014 | G3-30728 |

| MAILING ADDRESS | SITE ADDRESS (IF DIFFERENT) |
|---|---|
| Ole Sleipness<br>Sleipness Reserve I, LLC<br>1789 Country Club Drive<br>Logan, Utah 84321 | 2788 Hwy 20<br>Colville, Washington 99114 |

## Quantity Authorized for Withdrawal or Diversion

| WITHDRAWAL OR DIVERSION RATE | UNITS | ANNUAL QUANTITY (AF/YR) |
|---|---|---|
| 20 | GPM | 0 |

## Purpose

| PURPOSE | WITHDRAWAL RATE | ANNUAL QUANTITY (AF/YR) | PERIOD OF USE (mm/dd) |
|---|---|---|---|
| Heat Exchange | 20 GPM | 0 | 01/01 - 12/31 |

20 gallons per minute continuously for nonconsumptive heat exchange

## Source Location

| COUNTY | WATERBODY | TRIBUTARY TO | WATER RESOURCE INVENTORY AREA |
|---|---|---|---|
| Stevens | Groundwater | | 59 – Colville River |

| SOURCE FACILITY/DEVICE | PARCEL | WELL TAG | TWP | RNG | SEC | QQ Q | LATITUDE | LONGITUDE |
|---|---|---|---|---|---|---|---|---|
| Well 1 (Source) | 5885101 | BIO142 | 36 N. | 42 E. | 4 | E½ | 48.64745° | -117.50266° |
| Well 2 (Injection) | 5885101 | | 36 N. | 42 E. | 4 | E½ | 48.64767° | -117.50291° |

Datum: WGS84

## Place of Use (See Attached Map)

**PARCELS (NOT LISTED FOR SERVICE AREAS)**

5885101

**LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE**

Within Gov. Lots 5 and 6 less highway and private road easements within Section 4, T. 36 N., R. 42 E.W.M.

## Proposed Works

The heating and cooling plant for the Sleipness home is an open loop geothermal heat pump system. Groundwater will be pumped through a heat exchanger where it will reject or absorb heat from the heat pump system and is then injected into the ground.

## Development Schedule

| BEGIN PROJECT | COMPLETE PROJECT | PUT WATER TO FULL USE |
|---|---|---|
| Started | Completed | December 1, 2015 |

## Measurement of Water Use

| | |
|---|---|
| How often must water use be measured? | Monthly |
| How often must water use data be reported to Ecology? | Upon request by Ecology |
| What rate should be reported? | Annual Peak Rate of Withdrawal (gpm) |

## Provisions

**Wells, Well Logs and Well Construction Standards**

All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction". Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.

All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. If you are required to submit water measuring reports, reference this tag number.

Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

**Measurements, Monitoring, Metering and Reporting**

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", 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.

**Underground Injection Control Program**
The subject infiltration system shall be registered with Ecology's Underground Injection Control Program prior to discharge of any water withdrawn under this authorization.
http://www.ecy.wa.gov/pubs/wac173218.pdf

**Water Use Efficiency**
The water right holder is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

**Schedule and Inspections**
Department of Ecology personnel, upon presentation of proper credentials, shall 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. Furthermore, I concur with the investigator that water is available from the source in question; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G3-30709 subject to existing rights and the provisions specified above.

## 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**<br>Attn: Appeals Processing Desk<br>300 Desmond Drive SE<br>Lacey, WA 98503 | **Department of Ecology**<br>Attn: Appeals Processing Desk<br>PO Box 47608<br>Olympia, WA 98504-7608 |
| **Pollution Control Hearings Board**<br>1111 Israel Road SW<br>Ste 301<br>Tumwater, WA 98501 | **Pollution Control Hearings Board**<br>PO Box 40903<br>Olympia, WA 98504-0903 |

Signed at Spokane, Washington, this day of 2015.

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Keith L. Stoffel, Section Manager

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

Application for Water Right – Ole Sleipness, Sleipness Reserve I, LLC
Water Right Control Number G3-30728
Eastern Regional Office, Department of Ecology

# BACKGROUND

## Description and Purpose of Proposed Application

On November 17, 2014, the Washington State Department of Ecology (Ecology) accepted Water Right Application Number G3-30728 submitted by Ole Sleipness. Attributes of the application are presented below in Table 1. Lands covered by the proposed place of use are owned by Sleipness Reserve I, LLC, Stevens County parcel number 5885101. The points of withdrawal and injection are located on the same land.

The proposed water use is nonconsumptive heat exchange.

### Attributes of Proposal

**Table 1 Application Summary**

| | |
|---|---|
| **Name** | **Ole Sleipness, Sleipness Reserve I, LLC** |
| **Priority Date** | 11/17/2014 |
| **Instantaneous Rate** | 20 gpm |
| **Annual Quantity** | 0 af/yr |
| **Purpose(s) of Use** | Heat Exchange |
| **Period of Use** | Continuous |
| **Place(s) of Use** | Sleipness Residence, Section 4, T. 36 N., R. 42 E.W.M. |

**Table 2 Geographic Setting**

| County | Waterbody | Tributary To | WRIA |
|---|---|---|---|
| Stevens | Groundwater | | 59 – Colville River |

**Table 3 Proposed Sources of Withdrawal or Diversion**

| Source Name | Parcel | Well Tag | Twp | Rng | Sec | QQ Q | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|
| Well 1 (Source) | 5885101 | BIO-142 | 36 N. | 42 E. | 4 | E½ | 48.64745° | -117.50266° |
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### *Priority Processing*

This application qualifies for priority processing under WAC173-152, allowing it to be processed ahead of competing applications. Normally, new water right applications are acted upon in the order in which they are received, by priority date. Certain new water right applications are afforded priority processing

if they meet specific conditions. With respect to this application, WAC 173-152-050(2) provides that an application may be processed prior to competing applications if the department determines that it:

> "Is for a proposed water use that is nonconsumptive and if approved would substantially enhance or protect the quality of the natural environment." (WAC 173-152-050(2)(c))

Ecology policy 2020, "Priority Processing of Heat Pump Applications" reiterates that an application for withdrawal of water for heat exchange purposes may be given priority processing provided the conditions set forth in WAC 173-152-050(2)(c) are met.

1. Nonconsumptive Use: Ecology Water Resource Program Policy POL-1020 governs determination of consumptive vs. nonconsumptive water use. This policy defines ground water use as nonconsumptive when:

"...there is no diminishment of the source. In order not to diminish the source, the withdrawn water is injected or infiltrated immediately back to the aquifer. The water must be returned in the same quantity and quality (excluding temperature change) at a point in close proximity to the withdrawal wells. An example of this use is a heat pump."

2. Substantially Enhance or Protect the Natural Environment: An open-loop water source exchange system such as that proposed generally provides a considerable improvement in energy efficiency over comparable traditional systems. There is an energy savings over air-source heat pumps, particularly during periods of below-freezing weather, and there is no direct combustion associated with these systems as there would be with coal, oil or natural gas. The energy savings and reduction of greenhouse gases that this type of system provides over conventional heating and cooling systems can be considered as substantially enhancing the natural environment.

The proposed open-loop heat exchange system meets the criteria set forth in WAC 173-152-050(2)(c) and is afforded priority processing. Priority processing was approved by Keith Stoffel, Water Resources Section Manager, Eastern Regional Office, on June 12, 2014.

## Legal Requirements for Approval of Appropriation of Water

RCWs 90.03 and 90.44 authorize the appropriation of public water for beneficial use and describe the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340 and RCW 90.44.050. In accordance with RCW 90.03.290, determinations must be made on the following four criteria in order for an application for water rights 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

This report serves as the written findings of fact concerning all things investigated regarding Water Right Application Number G3-30728.

*Public Notice*

RCW 90.03.280 requires that notice of a water right application be published once a week, for two consecutive weeks, in a newspaper of general circulation in the county or counties where the water is to be stored, diverted and used. Notice of this application was published in the *Statesman Examiner* during the weeks of December 17 and 24, 2014.

## State Environmental Policy Act (SEPA)

A water right application is subject to a SEPA threshold determination (i.e., an evaluation whether there are likely to be significant adverse environmental impacts) if any one of the following conditions are met.

(a) It is a surface water right application for more than 1 cubic foot per second, unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cubic feet per second, so long as that irrigation project will not receive public subsidies;
(b) It is a groundwater right application for more than 2,250 gallons per minute;
(c) It is an application that, in combination with other water right applications for the same project, collectively exceed the amounts above;
(d) It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA);
(e) It is part of a series of exempt actions that, together, trigger the need to do a threshold determination, as defined under WAC 197-11-305.

Because this application does not meet any of these conditions, it is categorically exempt from SEPA relative to the water supply portion of this project and a threshold determination is not required.

## INVESTIGATION

Jeff MacLennan met with Mr. Larry Andrews of Andrews Mechanical, Inc., the lead engineer for the installation of the heat exchange system on December 17, 2014, on the Sleipness' home site. Mr. Andrews is acting as the Sleipness' representative on this project. The site is located on Tiger Pass about 28 miles east of Colville, Washington. The surrounding topography is a slight slope leading down to Lake Leo.

Andrews Mechanical was brought into the project after it was completed due to issues arising with the heat exchange system. The heat exchange system did not perform as expected, at least one well was illegally constructed in the drive way, and the injection well would not receive return water at a fast enough rate. Also, an application for a water right permit for the source well had not been submitted and the injection well had not been registered with the Underground Injection Control Program. All these issues have since been addressed. A second source well meeting set-back requirements was drilled prior to the submission of the water right permit application. The injection well was improved to meet system requirements by deepening. Mr. Andrews had Mr. Sleipness submit an application for a water right permit upon becoming involved in this project.

## Proposed Use and Basis of Water Demand

The heat exchange process calls for pumping water out of a source well, passing it through a heat pump exchange unit for the purpose of forced air ventilation, and then injecting it back into the ground through a well located approximately 100 feet northwest of the source well.

The intent of an open-loop heat exchange system is to have the full discharge from the heat exchange system return to the source aquifer within a short time of being withdrawn. By doing this, the purpose is considered a nonconsumptive use. Also, no chemicals can be added to the water and except for a change in temperature, the quality of the water cannot be changed.

Mr. Andrews has installed several such systems within eastern Washington and is familiar with the requirement to return the water to the same location from which it was withdrawn without any changes to its chemical content. Mr. Andrews is also aware the injection well must be registered with the Underground Injection Control Program.

## Impairment Considerations

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right. An adequately constructed groundwater withdrawal facility is one that (a) is constructed in compliance with well construction requirements and (b) fully penetrates the saturated zone of an aquifer or withdraws water from a reasonable and feasible pumping lift.
- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.
- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows.
- Degrade the water quality of the source to the point that the water is unsuitable for beneficial use by existing users (e.g., via sea water intrusion).

There are no other water rights within a quarter mile of the source or injection wells. It is unlikely either will lead to impairment of current water users.

## Water Availability

For water to be available for appropriation, it must be both physically and legally available.

### *Physical availability*

For water to be physically available for appropriation there must be ground or surface water present in quantities and quality and on a sufficiently frequent basis to provide a reasonably reliable source for the requested beneficial use or uses. In addition, the following factors are considered:

- Volume of water represented by senior water rights, including federal or tribal reserved rights or claims;
- Water right claims registered under Chapter 90.14 RCW
- Ground water uses established in accordance with Chapter 90.44 RCW, including those that are exempt from the requirement to obtain a permit; and
- Potential riparian water rights, including non-diversionary stock water.
- Lack of data indicating water usage can also be a consideration in determining water availability, if the department cannot ascertain the extent to which existing rights are consistently utilized and cannot affirmatively find that water is available for further appropriation.

According to the well log, the source well is capable of producing in excess of 80 gpm. Therefore, water in the quantities necessary to meet this project's needs is physically available.

***Legal availability***

To determine whether water to be legally available for appropriation, the following factors are considered:

- Regional water management plans – which may specifically close certain water bodies to further appropriation.
- Existing rights – which may already appropriate physically available water.
- Fisheries and other instream uses (e.g., recreation and navigation). Instream needs, including instream and base flows set by regulation. Water is not available for out of stream uses where further reducing the flow level of surface water would be detrimental to existing fishery resources.
- The Department may deny an application for a new appropriation in drainages where adjudicated rights exceed the average low flow supply, even if the prior rights are not presently being exercised. Water would not become available for appropriation until existing rights are relinquished for non-use by state proceedings.

## Beneficial Use

The use of water for heat exchange purposes is defined in statute as a beneficial use (RCW 90.54.020(1)).

## Public Interest Considerations

*Consideration of Protests and Comments*

No letters of concern were filed against this application.

The proposed withdrawal of water is considered a nonconsumptive appropriation. Approval of this application would result in an overall benefit to the natural environment by increasing the energy efficiency of the heating and cooling system of this building. There has been no public expression of protest or concern regarding the subject proposal, and no findings through this investigation indicating that there would be any detrimental impact to the public welfare through issuance of the water right. With that, this use is considered to be in the public interest.

## Conclusions

In conclusion, water is available for appropriation, and the proposed use would be a beneficial use, would not impair existing water rights, and would not be detrimental to the public welfare. This examiner finds that water is available for appropriation for nonconsumptive continuous heat exchange in the amount of 20 gallons per minute.

# 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 listed below and subject to the provisions listed above.

## 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:

20 gpm
0 acre-feet per year
Heat Exchange

Point of Withdrawal

Well: in the E½SE¼, 1360 feet north and 680 feet west from the SE corner of Section 4, Township 36 North, Range 42 E.W.M.

Place of Use

As described on Page 2 of this Report of Examination.

*Jeff MacLennan, Report Writer* *Date*

*If you need this publication in an alternate format, please call the 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.*