



State of Washington  
REPORT OF EXAMINATION  
FOR WATER RIGHT APPLICATION

File NR G4-32802  
WR Doc ID 2032518

<b>PRIORITY DATE</b> September 3, 1998	<b>WATER RIGHT NUMBER</b> G4-32802
---	---------------------------------------

<b>MAILING ADDRESS</b> Morning Sun Estates Homeowner's Association 14500 Morning Sun Drive Chelan, WA 98816
--

**Quantity Authorized for Withdrawal or Diversion**

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
50	GPM	34

**Purpose**

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Municipal Supply	50		GPM	34		Year-round

**Source Location**

<b>COUNTY</b>	<b>WATER RESOURCE INVENTORY AREA</b>
Chelan	47-Chelan

SOURCE FACILITY/DEVICE	PARCEL	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well 1	282109712330	28N	21E	8	NESE	-120.216407	47.943993
Well 2	282109712330	28N	21E	8	NESE	-120.216397	47.943839

Datum: NAD83/WGS84

**Place of Use (See Attached Map)**

<b>PARCELS (NOT LISTED FOR SERVICE AREAS)</b>
Plat of Morning Sun Estates being within Sections 8 and 9, T. 28 N., R. 21 E.W.M.

**LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE**

The place of use the Plat of Morning Sun Estates being within Sections 8 and 9, T. 28 N., R. 21 E.W.M. This place of use may be changed via the Water System Planning process as addressed under the provisions of RCW 90.03.386.

**Proposed Works**

Two wells, 80,000 gallon storage tank and distribution system

**Development Schedule**

<b>BEGIN PROJECT</b>	<b>COMPLETE PROJECT</b>	<b>PUT WATER TO FULL USE</b>
Started	Completed	September 1, 2031

## Measurement of Water Use

How often must water use be measured?	Monthly
How often must water use data be reported to Ecology?	Annually (Jan 31)
What volume should be reported?	Monthly and Total Annual Volume
What rate should be reported?	Monthly Peak Rate of Diversion in gpm

## Provisions

### 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, which describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

<http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>.

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

### Water Use Efficiency

Use of water under this authorization shall be contingent upon the water right holder's maintenance of efficient water delivery systems and use of up-to-date water conservation practices consistent with established regulation requirements and facility capabilities.

### Proof of Appropriation

The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

### 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. G4-32802, 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
<b>Department of Ecology</b> Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	<b>Department of Ecology</b> Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
<b>Pollution Control Hearings Board</b> 1111 Israel RD SW Ste 301 Tumwater, WA 98501	<b>Pollution Control Hearings Board</b> PO Box 40903 Olympia, WA 98504-0903

Signed at Yakima, Washington, this \_\_\_\_\_ day of \_\_\_\_\_ 2011

\_\_\_\_\_  
Mark Kemner, Section Manager  
Water Resources Program/CRO

---

## INVESTIGATOR'S REPORT

---

### BACKGROUND

On September 3, 1998 the Morning Sun Estates Homeowner's Association (Morning Sun) filed an Application for a Water Right Permit with the Department of Ecology (Ecology) to authorize use of a well for community domestic supply. The application was accepted for processing and assigned Application No. G4-32802.

#### Project Description

Morning Sun Estates consists of 30 home sites situated on a steep hillside overlooking Lake Chelan. See Figure 1. The project was platted in 1991 and originally supplied water from a spring which the community accessed via a private arrangement with the water right holders. In response to health and safety concerns regarding the use of a surface water source the community constructed wells in 1998 and 1999 and shifted their source of supply accordingly.

#### Quantities Requested for Permit

Morning Sun Estates consists of 30 lots of which 25 service connections are in use. While many of these homes are used only seasonally, they are all full-sized homes suitable for year-round use. Irrigation demands are modest, although as noted during the site visit, some homeowners water outside vegetation to minimize fire threats during the summer and fall.

In 2010, the total water use for 25 connections was 6,445,500 gallons or about 19.78 acre-feet. This equates to about 700 gpd, 0.79 acre-feet, per connection. This figure is comparable to average water demand in the Lake Chelan area which is estimated to be approximately 800 gallons per day per connection, and reflects higher summer usage associated with landscaping.

Morning Sun has also agreed to supply water to 4 additional homes\lots that are located outside of the development, two of these homes are currently utilizing the spring for their water supply. The remaining two lots are vacant. In total, 34 connections are being proposed. Morning Sun Estates is considered by the Department of Health to be a non-expanding water system operating under a Small Water System Management Plan (SWSMP) and is approved only for those lots included in the original plat. Therefore in order for Morning Sun Estates to extend water to the additional 4 lots, a new water system planning document will need to be approved. The approval of a revised water system planning document may result in an expanded place of use.

The community has been working since 1998 to resolve the water right issues. They filed an application for a surface new water permit to use the spring (S4-30292), and an *Application for Change* with the Chelan County Water Conservancy Board to modify an existing surface water right to supply the community. Application No. S4-30292 was withdrawn once a determination was made that the spring source was not acceptable to the Department of Health. The Application for Change was voluntarily withdrawn based on the water right's incompatibility; Change No. CS4-28084/CHEL 05-05 is available upon request.

**Table 1:** Summary of Application No. G4-32802

<i>Attributes</i>	<i>Proposed</i>
Applicant	Morning Sun Homeowners Association
Date of Application	September 3, 1998
Instantaneous Quantity	50 gpm
Annual Quantity	34 acre-feet per year
Source	2 Wells
Point of Diversion	Well 1 is 3 ft south and 163 ft west, and Well 2 is 60 ft south and 160 ft west; both from the East Quarter Corner of Section 8, T. 28 N, R. 21 E.W.M.
Purpose of Use	Community Domestic Supply
Period of Use	Continuous
Place of Use	Area served by the Morning Sun Estates Water System as described in a water system planning document approved by the Department of Health

**Legal Requirements for Application Processing**

The following requirements must be met prior to processing a water right application:

- **Public Notice**  
A public notice was published in the Leavenworth Echo, Cashmere Valley Record, and the Lake Chelan Mirror on September 7th and September 14th, 2011. No protests or comments were submitted during the thirty-day protest period which closed on October 14, 2011.
- **State Environmental Policy Act (SEPA)**  
Mountain Sun’s application does not require a SEPA threshold determination (i.e., an evaluation whether there are likely to be significant adverse environmental impacts). It is categorically exempt from SEPA.
- **Water Resources Statutes and Case Law**  
RCW 90.03 authorizes the appropriation of public water for beneficial use and describe the process for obtaining a water right. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340.

Based on the provisions of RCW 43.21A.690 and RCW 90.03.265, this application has been processed by Pacific Groundwater Group (PGG) under Ecology Cost-Reimbursement Work Assignment No. PGG008 (master contract No. C1000192). Applications that are determined not to have direct impacts on other pending requests, or are found to be the oldest application pending for a specific source – such is the case with this filing, may be processed independently of other application.

## INVESTIGATION

### Site Visit

Morning Sun Estates is located on the southern shore of Lake Chelan in Chelan County, WA, approximately 12 miles from the town of Chelan. The development is situated within a steep unnamed drainage that originates at about 4,640 feet elevation, discharging into the lake at 1099 feet (normal pool elevation) and extending about 1.75 miles inland. Most of the watershed falls within the Wenatchee National Forest.

Information for this investigation was obtained during a site visit conducted on August 22, 2011 by Jill Van Hulle of Pacific Groundwater Group and representatives from the home owners association. The group visited the well sites and the location of the spring supply source.

Additional information was obtained from:

- Applicable RCW and WAC chapters
- Ecology records, specifically related to previous permitting effort (CS4-28084/CHEL 05-05)
- Historical aerial photographs and maps
- Geographic Information System (GIS) data
- Support documentation provided by the applicant, including maps and project descriptions
- Reports referenced include Tabor R.W., V. A. Frizzell, Jr., J. T. Whetten, R. B. Waitt, D. A. Swanson, G. R. Byerly, D. B. Booth, M. J. Hetherington, and R. E. Zartman, 1987, *Geologic Map of the Chelan 30-Minute by 60-Minute Quadrangle, Washington*: U.S. Geological Survey Scientific Investigations Map 1-1661, scale 1:100,000; 1 plate.
- Supporting documents for File No. CS4-28084/CHEL 05-05: *Hydrogeologic Setting* submitted by John Vacarro in 2004 and a consultant's report regarding Morning Sun Estates well and spring hydrogeologic setting.
- Phase II Water Quantity Assessment WRIA 47 (Lake Chelan) December 2009 Prepared for Chelan County Natural Resource Department, Wenatchee, WA, RH2 Engineering Inc.

### Existing Water Rights

There are no water rights associated with Morning Sun's current wells. Prior to initiating use of the wells the community utilized a spring source. Water rights for the spring include surface water certificate S4-28084 issued under the name of King Chelan Orchards for a domestic supply of 5 homes and irrigation of 25 acres of orchard.

Morning Sun Estates maintained a private water use agreement between the developer of the estates and owners of the spring to supply their domestic water. This agreement conveyed an ownership interest in 33% of the spring's capacity (rated at 115 gpm) to the estates. An attempt to formalize the transfer of a portion of these rights from the spring to the well was made via an *Application for Change* (CS4-28084/CHEL 05-05); however, that request was subsequently withdrawn.

### Proposed Use

The wells are currently online and in use by the community with Well 1 used as the primary well, and Well 2 kept online for back-up supply. Both wells are plumbed into the original distribution system which includes the storage needed to address fire flow needs. Well 1 is equipped to produce 35 gallons per minute, and Well 2 is capable of producing 15 gpm for short periods of time, but generally operated at a rate of 7 gpm. Water will be used for ongoing domestic purposes as well as residential landscaping.

While this application requests water for community domestic supply, the intended supply of 15 or more residential connections defines this as a municipal water right subject to RCW 90.03.386. Consistent with that designation the place of use associated by this water right will ultimately be defined by the information provided in water system planning documents and approved by the Department of Health.

### **Hydrologic/Hydrogeologic Evaluation**

This project is located in WRIA 47, containing the Lake Chelan Watershed. The Chelan watershed encompasses 1,047 square miles, of which 924 square miles are considered to be tributary to Lake Chelan and 123 square miles that drain directly to the Columbia River (WRIA 47 Watershed Planning, Phase II Water Quantity Assessment, December 2009, RH2 Engineering Inc).

The main surface water feature of the Chelan watershed is Lake Chelan, which is 50 miles long and nearly 1,500 feet deep. Roughly 75 percent of the inflow to Lake Chelan comes from the Stehekin River and Railroad Creek. Smaller tributaries to the lake include Fish, Prince, and Twenty-Five Mile creeks. Lake Chelan drains to the Columbia River.

The U.S. Geological Survey operates stream gage stations (Stehekin, Chelan, and Railroad Creek) to measure the amount of water flowing into the lake which averages about 1.6 million acre-feet per year. On an annual basis, an average of 2,200 cfs flows into Lake Chelan. Of that inflow, the average annual flow for the Stehekin River is 1,401 cfs and Railroad Creek is 202 cfs. The average annual outflow from Lake Chelan (measured at the Chelan River gage) is 2,042 cfs. Thus the difference between the inflow and the outflow from the Lake amounts to approximately 158 cfs, which is assumed to be consumed by irrigation and domestic uses and by evaporation from the lake surface.

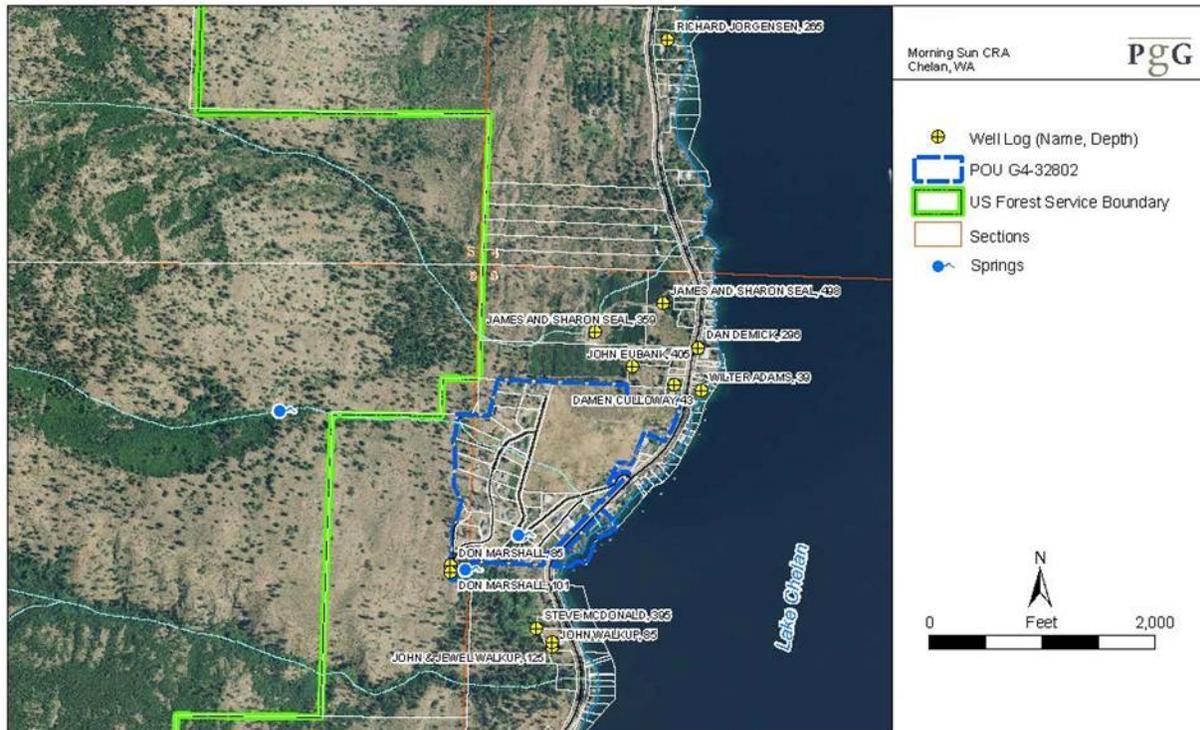
Lake Chelan is a regulated reservoir under a FERC license that was re-authorized on November 6, 2006. Nearly the entire outflow from Lake Chelan is diverted by Chelan PUD for power generation. Discharge from the power plant is controlled to keep the lake full during the peak recreational season (June through September). The water level may drop by up to 21 feet during the winter before spring runoff begins. Discharge from the lake is generally held at a constant 2,000 cfs. During spring runoff the average lake outflow rises to approximately 4,000 cfs and in dry years the flow can drop to below 200 cfs during winter.

### **Geological Setting**

Morning Sun Estates lies in the glacier-carved Lake Chelan Basin, and is located about 15 miles above the outlet of the lake on the south shore. An evaluation of the hydrogeological and physical setting of the subject wells was prepared on behalf of the applicant by hydrogeologist John Vaccaro, and reviewed by Jeff Parker, licensed hydrogeologist with Pacific Groundwater Group.

The regional geologic framework for the area was largely developed by Tabor and others (1987), which is the basis of the hydrogeologic investigation and interpretations presented by Vaccaro (2004) for the proposed wells and spring (Figure 1).

**Figure 1:** Proposed place of use and points of diversion



There are three main geologic units that make up the bedrock in the area of interest:

- *Kcmi* - heterogeneous migmatite, essentially a mix of tonalites, which is present across the uppermost portion of the watershed at the ridgeline.
- *Kca* - amphibole and hornblende migmatite, similar to *Kcmi* unit, which is present across the middle portion of the watershed.
- *Kct* - tonalite, which is present in the lower watershed and at the area of interest.

A thin veneer of glacially derived fine-grained sediment overlies a small area of the *Kct* in the lower watershed. This sediment is found at the proposed wells and continues down to the lake.

### Hydraulic Properties of Production Wells

There are two wells that have been constructed at Morning Sun. The first well constructed at this site is referred to as Well 1 (designated by the DOH as SO2), and found to have limited production capacity. Well 1 was drilled to a depth of 85 feet and tested only in a preliminary manner. This well is used mainly for back-up supply. The second well constructed at the site is the primary production well and referred to in this ROE as Well 2 (designated by the DOH as SO3). This well is completed in fractured bedrock (logged as broken black granite) and screened from 80 to 101 feet. Well No. 2 was tested for 1.26 hours at 33 gpm resulting in 4 inches (0.3 feet) of drawdown, a specific capacity of 99 gpm/foot. Vaccaro estimates the transmissivity to range between 20,000 to 133,230 ft<sup>2</sup>/day and a storage coefficient between 0.01 to 0.02 (but as estimated by Vaccaro may be as high as 0.1 to 0.2), and aquifer thickness from 21 to 150 feet. The hydraulic conductivity is estimated to range between about 800 to 1,300 ft/day. The typical hydraulic conductivity of granitic aquifers is on the order of 2 ft/day (Freeze and Cherry, 1979).

The air tests for Wells 1 and 2 produced 12 and 29 gpm, respectively, indicating they have penetrated areas of much larger production capacities in comparison to other granitic wells not hydraulically connected to the lake. Both wells are completed in zones of fractures that are described as broken or shattered granite and appear capable of producing relatively large quantities of water. Based on the specific capacity of 99 gpm/foot, these wells could be expected to pump 50 gpm with less than one foot of drawdown. While barrier boundaries likely occur in the area, they were not encountered during the pumping test. Vaccaro reports that the spring was monitored during the pump test and no diminishment in flow was detected.

### **Domestic Wells**

There are domestic wells north and south of MSE, but no other water rights for groundwater wells in the vicinity (Figure 1 and Table 2 and 3). These wells can be divided into four types (after Vaccaro, 2004): 1) shallow alluvial aquifer influenced by the lake; 2) fractured granite aquifer wells; 3) typical granite wells; and 4) granite wells influenced by the lake.

Wells completed in either granite or alluvium that have yields that are influenced by the lake are unlikely to be impacted by pumping at Well 2. The nearest of these shallow alluvial wells is the Culloway well. This well is also the only other well that appears to be constructed in the same immediate surface water drainage as the Morning Sun wells. The Culloway Well is roughly 1,200 feet down-gradient from Morning Sun, near the lake (see Figure 1). A second shallow well is the McDonald well which is located about 1000 feet to the southeast. This well was drilled to a depth of 43 feet, likely completed in alluvial deposits.

Typical granite wells generally have low yields 1-10 gpm, greater drawdown, and low specific capacity. In this area, these wells are also generally deeper than well in other aquifer types. The Torgerson, McDonald, and the two Seal wells have yields of typical granite wells. Generally in bedrock, well yields decrease with depth due to tighter fractures (Vaccaro, 2004).

The nearest deep well, McDonald, is located ~1000 ft southeast from the two wells, is reported to be completed to 395 ft, with a yield of 5 gpm, static water-level of 118 feet, and 277 feet of water-column. Pumping at the proposed wells is projected to result in a small amount (<1 foot) of drawdown in the McDonald well. The small amount of drawdown that would result from withdrawals from the wells is unlikely to result in measurable drawdown at the nearest typical granite well, and therefore no impairment.

**Table 2: Domestic Wells near Morning Sun Estates**

Tag #	Casing	Depth	Date	Owner	Vacarro _ID	Yield	Location	QTR	QTR
AKL513	6	85	10/7/2004	JOHN WALKUP			9/28/21E	SW	
ACL193	8	365	5/2/1997	ROBERT TORGERSON			4/28/21E		
ALF298	6	296	5/26/2005	DAN DEMICK			9/28/21E	NW	NE
AFH726	8	405	9/12/2000	JOHN EUBANK	9D1	4	9/28/21E	NW	NW
AKM221	8	125	1/24/2005	JOHN WALKUP			9/28/21E	SW	SW
ACX253	8	39	10/20/1997	WILTER ADAMS	9D2	20	9/28/21E	NW	NW
ACT697	8	85	10/14/1997	DON MARSHALL	8H2		9/28/21E	NE	SE
AAJ599	6	395	7/14/1995	STEVE MCDONALD	9M1	5	9/28/21E	SW	NW
	6	265	9/21/1990	RICHARD JORGENSEN	4F1	30	4/28/21E	NW	SE
	8	101	3/17/1998	DON MARSHALL	8H1		9/28/21E	NE	SE
	6	43	9/15/1984	DAMEN CULLOWAY	9E1	10	9/28/21E	NW	SW
AKJ611	6	498	3/23/2004	JAMES SEAL			9/28/21E	NW	NW
AKJ610	6	359	3/19/2004	JAMES SEAL			9/28/21E	NW	NW

**Conceptual Model of Groundwater Flow**

Vaccaro presents a conceptual model for ground water flow based on well log interpretation, observations, and hydrogeologic settings. His model suggests that a fault or structural related flow barrier along the Kct/Kca contact results in groundwater moving vertically upward to area of the spring. He concludes that large-scale fracturing provides a conduit for groundwater flow.

The proposed wells are located uphill from the spring, and are completed in the fractured water-table aquifer that feeds the spring. Based on the overall hardness of the water, the spring source appears to be primarily recharged in the uplands with lesser amounts of recharge contributed by the lower portions of the watershed. Some of this groundwater discharges at the springs, flows overland into the lake, with most of the groundwater ultimately discharging to Lake Chelan.

The small amount of drawdown at Well No. 2 observed during testing, suggests that the total groundwater flow is large relative to the proposed withdrawal rate. A 50 gpm withdrawal – which could occur if both wells were operated at the same time, would not likely produce a measurable impact on the spring-flow or impair existing wells. There was no observable change in spring flow noted when the wells were tested.

**Other Water Right Holders**

**Table 3** Existing ground water rights within a one mile radius of the proposed wells.

File #	Name	Priority Date	Purpose	GPM	Ac-ft/yr	TRS	QQ/Q	Distance to proposed wells
G4-078771CL	Walter Asklund	5/1/1970	DG	3		28.0N 21.0E 04	SESW	2000 feet
G4-200138CL	Elizabeth Mack	9/10/1985	IR	30		28.0N 21.0E 08	NE	1,500 feet
G4-32338	Kellys Resort	8/9/1995	DM	25	10	28.0N 21.0E 16	NW/SW	2,225 feet

### **Impairment Considerations**

In evaluating this application PGG found no evidence that other water users would be impacted by use of the proposed wells. As previously stated, drawdown at the well site is less than one foot and interference drawdown at other neighboring wells would be correspondingly less; therefore existing groundwater users should not be adversely affected by operation of the Morning Sun wells.

Routine operation of these wells has not resulted in any claims of impairment by other water users to date. Based on observations by community members, flow at the spring remains constant and has not diminished despite the use of the upgradient wells. The few remaining users of the spring enjoy continuous flow that is no longer used for orchard irrigation.

There are no neighboring groundwater users that are located near enough to the pumping wells to be physically affected by Morning Sun's water use. The nearest well in Ecology's database is the Culloway well which is situated approximately 1400 feet down gradient towards the lake. This well is only 43 feet deep and more likely to be influenced by Lake Chelan levels than pumping at MSE.

Surface water certificate S4-28084 authorizing use of the spring formerly used by the community represents the nearest permitted water right that could potentially be impacted by these wells. As previously noted there is no indication that spring discharge has been reduced, nor are other water right holders located downstream of the discharge point along the spring-fed creek that would be affected were discharge being reduced. The two homes that remain connected to the spring system have ample supply based on the configuration of the spring collector which continues to capture the same amount of water as was the case when the entire community used the source. Furthermore, Morning Sun has entered into a legal agreement with the original water right holder that entitles them to 33% of the total spring projection, thus even if the wells did slightly reduce the amount of water discharged by the springs, this quantity would need to exceed 40 gpm before an argument could be made that the level of impact wasn't covered by the ownership arrangement.<sup>1</sup>

### **Water Availability**

Water is physically available based on pump test results, source approval granted by the Department of Health, and continuous use since 1998. Water is legally available based on establishment of the reserve managed by agreement between Ecology and Chelan County PUD No. 1.

### **Beneficial Use**

The proposed appropriation of water for municipal supply is considered to be a beneficial use under RCW 90.54.020(1).

### **Public Welfare**

Use of these wells is an improvement over the communities' prior use of a surface water source. This application, and previously filed *Applications for Change* were identified by the Dept. of Health as a public health and safety priority.

### **Consideration of Protests and Comments**

No protests were received in response to the public notice.

---

<sup>1</sup> Measurement of spring production has indicated that it produces between 116 and 120 gallons per minute with 115 gpm being used as a baseline for the sale of 33% of discharge to Morning Sun. The source is currently being used for the domestic supply of two homes with limited irrigating of lawn and garden.



