

Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Wednesday, December 16, 2015 1:40 PM
To: Edl, Michele
Subject: Warm Springs snow melt
Attachments: photo 1.JPG; ATT00001.txt; photo 2.JPG; ATT00002.txt





Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Thursday, November 05, 2015 1:24 PM
To: Edl, Michele
Subject: Warm springs geo

Hi Michele, I have contacted the people involved in the warm springs lodge project and they told me that the only use for the geo was for snowmelting at the lodge. They could not find any information in their records on flows. Also they were not sure who designed the snowmelt system. How do we need to proceed? I don't think I will be able to find the designer of the system. Can we go off of the current design? Thanks Chris

Sent from my iPhone

Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Thursday, October 29, 2015 9:22 AM
To: Edl, Michele
Subject: Re: Automatic reply: Warm springs geo

Michele I heard back from brockway engineering and they did not find any information on the geo-thermal cistern out at warm springs concerning the original Loyd house project. How do we need to proceed?

Sent from my iPhone

On Oct 27, 2015, at 8:15 AM, "Edl, Michele" <Michele.Edl@idwr.idaho.gov> wrote:

Thank you for your message. I'm out of the office. I expect to return Tues morning Oct 26 and I'll respond to your email as soon as I'm able. If you need assistance from IDWR sooner than my return, please call 208-287-4800.

Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Tuesday, October 27, 2015 8:16 AM
To: Edl, Michele
Subject: Warm springs geo

Hi Michele I have contacted Brockway engineering and they are looking to see if they have their records back to 1992. I will let you know as soon as I get something. Thanks Chris

Sent from my iPhone

Edl, Michele

From: Edl, Michele
Sent: Wednesday, October 07, 2015 10:34 AM
To: cshare@sunvalley.com
Subject: 37-8798 development work

Chris Share,

The backfile of this geothermal permit shows that Brockway Engineering designed and maybe had oversight of the installation of the system. If you have not already contacted them please consider it. They may have the information that I need to issue a license.

Sincerely
Michele Edl

MEMORANDUM

Date: October 2, 2015
To: Water Right File 37-8798
From: Michele Edl
Re: phone conversation log

Chris Share (operator of the snow melt system) returned my call. I explained the problem; that there is no documentation of beneficial use during the development period; that all the information I have is contemporary.

I explained that I needed information from 12/1992 to 12/1994. He stated that that timeframe was outside of the times he had worked at the lodge. He also stated that he would ask long term residents for information about the heating uses.

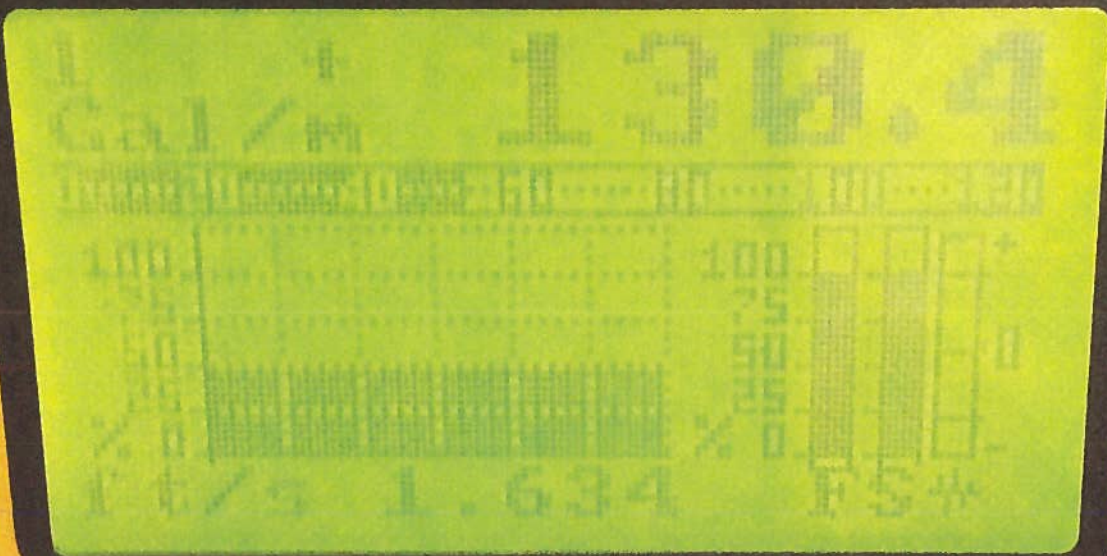
Although I can calculate a heating use to matches the current snow melting system, calculation may not truly represent the heating uses that were in place in the 1990's. For example: Chris Share stated that the Warm Springs Lodge was partially heated by geothermal water back in the day. But the space heating use was discontinued to make the snow melting system work better.

I promised to share copies of the HE(heat exchanger) specs that we had received but that he did not have.

Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Wednesday, September 30, 2015 2:31 PM
To: Edl, Michele
Subject: Warm Springs Geo-Well
Attachments: photo.JPG; ATT00001.txt

Hi Michele this was as high as it would go. Thanks Chris



 **McCROMETER**



Edl, Michele

From: Edl, Michele
Sent: Monday, September 28, 2015 3:38 PM
To: cshare@sunvalley.com
Subject: permit 37-8793 (snow melt)

Mr. Share,

First, let me apologize for the length of time since our last information exchange. I had been assigned to and have completed some other projects. Now, I have circled back around to the review for this license. I see that you emailed me a message on July 20, 2015 in response to my request for flow rate measurement.

My calculations of the snow melt by this system yields a required flow rate that's a little higher than 120 gpm, the capacity of geothermal water side of the heat exchanger.

From the screen shots you have already provided, the rate for the license would be limited to 88.8 gpm. IDWR does not want to set a rate limit on the license that's too low. If 88.8 gpm is not the maximum rate you have seen, even if the higher rate is short lived, we want the license to reflect the higher instantaneous rate. We don't want Sun Valley to operate in violation of their water right, even for a short time.

I don't seem to have your cell phone number. Please call me 208-287-4946 so we can discuss this license.

Sincerely,
Michele Edl

Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Monday, July 20, 2015 10:12 AM
To: Edl, Michele
Subject: Re: Water meter

Michele we turned on the pump and ran it for a while to make sure the cistern didn't go below our intake. Then we drove down to where the meter is and got those readings for you. Like I said before it fluctuates a little. I have seen it up to 103 gpm but it seem to settle down and stay in that mid 85 to 90 gpm. Let me know if you need anything else. Thanks Chris

Sent from my iPhone

> On Jul 20, 2015, at 9:37 AM, "Edl, Michele" <Michele.Edl@idwr.idaho.gov> wrote:
>
> Thanks Chris, I got these photos and they are excellent quality.
> I can see that you had the system running. Did you run the system and capture the readings at the max? or are these readings more average?
> Michele
> 208-287-4946
>
> -----Original Message-----
> From: Chris Share [<mailto:cshare@sunvalley.com>]
> Sent: Friday, July 17, 2015 7:06 PM
> To: Edl, Michele
> Subject: Water meter
>
>
>

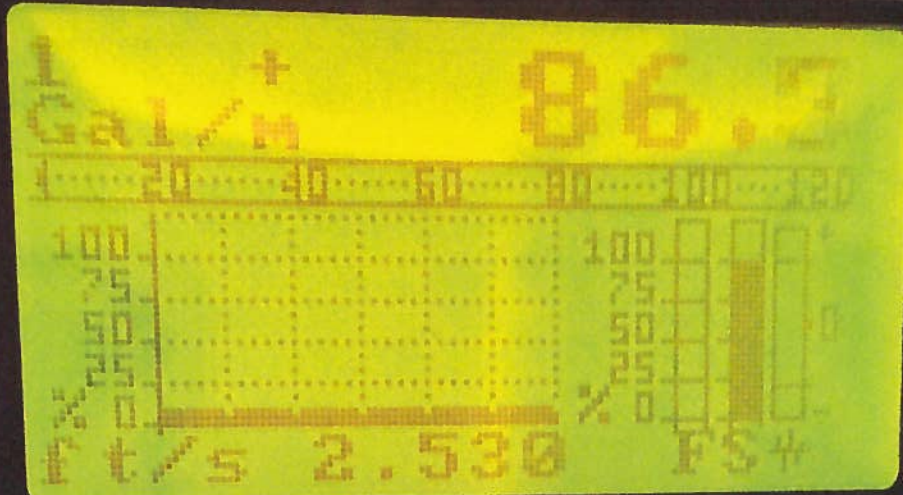
Edl, Michele

To: Edl, Michele
Subject: FW: Water meter
Attachments: photo.JPG; ATT00001.txt

The following photos were sent to me on Friday July 17, 2015 from 7:03 to 7:06 p.m.
Each photo is 2 or 3MB so IDWRs system required they be sent separately.

-----Original Message-----

From: Chris Share [<mailto:cshare@sunvalley.com>]
Sent: Friday, July 17, 2015 7:04 PM
To: Edl, Michele
Subject: Water meter



McCROMETER



☐ SHORT PUSH ☒ LONG PUSH

1 + 88.8
Gal/m

20 40 60 80 100 120



ft/s 2.596 FS+

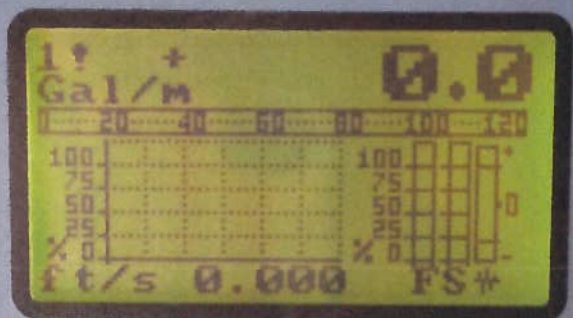


McCROMETER



SHORT PUSH LONG PUSH





 **McCROMETER**



 SHORT PUSH  LONG PUSH

PARTS

DO NOT REMOVE A METER FROM THE PIPELINE WHILE IT IS UNDER PRESSURE. TURN OFF THE FLOW AND DEPRESSURIZE THE LINE. SERIOUS INJURY CAN RESULT FROM REMOVING A METER UNDER PRESSURE.

Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Tuesday, July 14, 2015 2:25 PM
To: Edl, Michele
Cc: Jerry Bugge
Subject: Flow meter

Hi Michele, we finally got the meter installed. The flow is fluctuating in the mid 80's. Low is 80.5 and high is 87.5 gpm. Call me if you have any questions. Thank Chris

Sent from my iPhone

Edl, Michele

From: Chris Share [cshare@sunvalley.com]
Sent: Friday, May 15, 2015 9:34 AM
To: Edl, Michele
Subject: RE: water right permit 37-8798

Michele, I am in the process of getting a flow meter ordered and installed on our geothermal cistern out at warmsprings. That system as it operates puts between 1.5 and 2.0mbtu's/hr into our glycol snowmelt grid. I usually see a 50 to 60 degree delta t on the geo side of the heat exchanger and a 25 degree delta t on grid side. This delta t remains fairly constant under all conditions. Once I get the flow meter on I will be able to answer all your flow questions. I can lock out the power going to the pumps. I will keep in touch concerning flow meter. Thanks Chris

From: Edl, Michele [<mailto:Michele.Edl@idwr.idaho.gov>]
Sent: Tuesday, May 12, 2015 1:33 PM
To: Chris Share
Subject: water right permit 37-8798

Mr. Share,

As you know, I have been assigned to review and assist with the licensing of permit 37-8798. The permit authorizes heating use to melt snow off the pavers around the Sun Valley Ski Resort Lodge. The review has proved challenging.

First, there are conditions on the permit which state that measuring devices and lockable controlling works are required. I just got off the phone with the B37 watermaster. He has no knowledge of this use and he has not granted a waiver of the measuring device requirement. So those conditions are the most important issue to resolve before a license can be issued.

Second, the field examiner visited the property in summer-time and found no actual beneficial heating use occurring. She found that a system for snow melting use was in place and she recommended rate and volume for heating use. However, her recommendations were based on a possible flow rate from the source spring rather than on what the snow melting system was capable of using.

So, I am trying to confirm a beneficial use for snow making is possible with this system by modeling the use mathematically. I am using a series of equations to calculate the heating requirements in a snow melting system such as the one at the Sun Valley Ski Resort Lodge. I am finding that the field examiner's estimated/recommended rates and volumes don't align well with the calculations.

Therefore, to assist me with my calculations, please answer the following questions:

- 1) Please confirm the temperature drop across the heat exchanger on the water side. According to the notes I have from our earlier conversation, the delta T can be 50 degree F. Do you remember the outside conditions when that reading occurred? Blizzard or cold and clear?
- 2) The heat exchanger appears to be able to operate on flows up to 120 gpm. To your knowledge, has it ever used as much as that?
- 3) If not 120 gpm, at what flow rate is the heat exchanger set? Notes in the file indicate a 5 hp pump is in place. Flow estimates based on the general capabilities of a 5Hp pump give a flow of 117.1 gpm. Based on our conversations, the flow rate to the heat exchanger may be set for less than that.
- 4) How much time can the system operate before the water drops too low at the source cistern? 2 hours... 2 minutes?
- 5) What flow rate do you use when the system is idling in preparation for a snow? 40 gpm? Less than 40 gpm?

You may not be able provide the answers to all of these. Just let me know and I will move forward with other arrangements. IDWR may need to schedule a follow-up exam.

Again, it is very important that the lack of measuring device(s) and the lack of lockable controlling works on this installation be addressed. Without them Sun Valley Oil Corp DBA Sun Valley Company is not in compliance with the conditions of the permit.

You may wish to forward my concerns about the status of this permit to Sun Valley Company's legal counsel.

Sincerely,
Michele Edl

MEMORANDUM

TO: File 37-8793

FROM: Daniel Nelson – Staff Hydrologist

DATE: April 16, 2015

SUBJECT: Telephone Conversation with Owner's Representative

Chris Share is the maintenance operator for the owner of the above permit. Mr. Share called to ensure I received the fax he sent me earlier. Mr. Share told me that he estimated the water temperature of this system to be approximately 145 degrees. He has measured it with an infrared gun and gets between 140 to 143 degrees. This reading is taken on the pipe, so the water temperature would be slightly higher. The 145 degrees seems reasonable.

Mr. Share also told me that he has to valve the pump back or else he will run the well dry. This is an artesian well, but they have a 5 Hp pump in the well that sends water to the heat exchanger. Mr. Share told me the intake for the well was approximately 5.5 feet from the top of the well, so I am assuming the lift would be 5.5 feet. Mr. Share estimated the flows to be around 90 gpm. The theoretical calculation I performed using Mr. Share's numbers shows an average diversion rate of 117 gpm or 0.26 cfs. The theoretical calculation seems to be very close to Mr. Share's estimate. The system was designed for 120 gpm or 0.27 cfs, so I think we are very close to a flow rate for this system.

Nelson, Dan

From: Hedley, Lana
Sent: Tuesday, April 07, 2015 11:52 AM
To: Nelson, Dan
Subject: FW: Incoming Fax Message
Attachments: Fax001.pdf

-----Original Message-----

From: idwr.fax@idwr.idaho.gov [mailto:idwr.fax@idwr.idaho.gov]
Sent: Tuesday, April 07, 2015 10:15 AM
To: IDWR Fax
Subject: Incoming Fax Message

Please open the attached document. It contains a copy of a Received Fax.

Attachment File Type: pdf

multifunction device Location: 5th Floor Across from Kitchen
Device Name: 507 - 8E237

Daniel Nelson here is the information you requested on water right permit # 37-8798.

1. Bell and Gossett
2. Model- GPX P21-59-TKTM-51, Serial#- GPX 118533-01, BY540900079700, 5-409-23-060-011, 185548
3. We use Hercules glycol on the snow melt side mixed with water
4. Chris Share; 208-309-5244; email- cshare@sunvalley.com

Let me know if there is anything else you need to move this forward. Thanks Chris

ATTN: Dan Nelson

Specification Sheet for 12/19/2008 9:18:07 AM

Page 1 of 1

Bell & Gossett Plate and Frame Heat Exchanger Specification Sheet

www.bellgossett.com

Quotation No.: 001
Model: P21

Item No.: 01

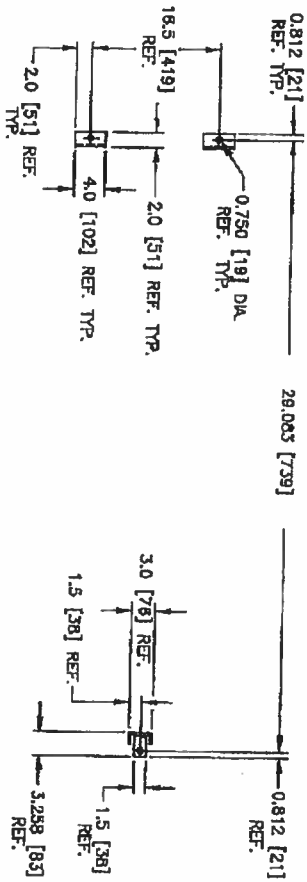
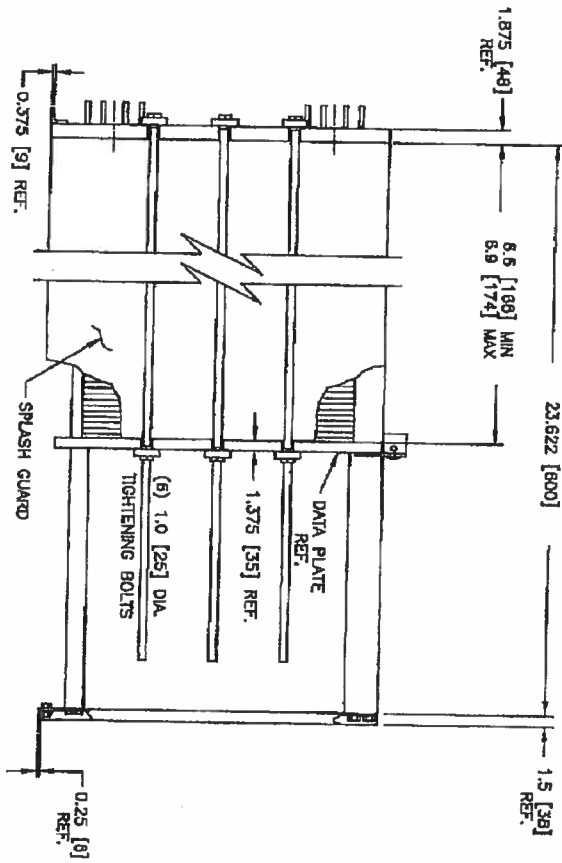
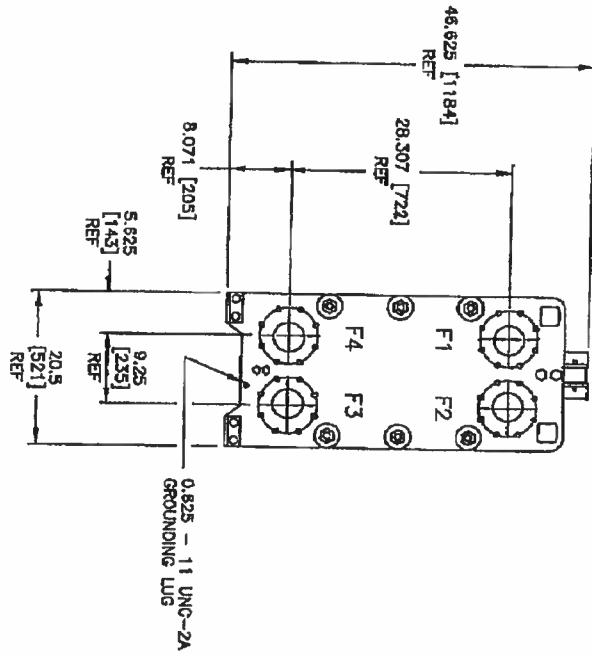
Date: 12/19/2008 9:18:07 AM
Version: 1.0.0.87

	Side 1		Side 2	
Fluid Name	Water		Water	
Total Flow	120.00 (g.p.m.)		345.00 (g.p.m.)	
Inlet Temperature	165.00 (°F)		102.43 (°F)	
Outlet Temperature	114.17 (°F)		120.00 (°F)	
Pressure Drop, (calc)	0.68 (PSI)		5.04 (PSI)	
Density	61.37 (Lb/Ft³)		61.81 (Lb/Ft³)	
Mean Viscosity	0.49 (cP)		0.62 (cP)	
Wall Viscosity	0.62 (cP)		0.49 (cP)	
Specific Heat	1.00 (Btu/Lb°F)		1.00 (Btu/Lb°F)	
Thermal Conductivity	0.38 (Btu/h·Ft²·F)		0.37 (Btu/h·Ft²·F)	
HTC Clean/Service	808.94 (Btu/Ft²)		808.94 (Btu/Ft²)	
Total Heat Exchanged	3,000,000.00 (Btu/h)			
LMTD	24.75 (°F)			

Plate Arrangement	1 x 20	1 x 30
Number of Plates (Total/Max)	60	70
Pressure Design/Test	150.00 (PSI)	195.00 (PSI)
Design Temperature	257 (°F)	257 (°F)
Est. Weight (Empty/Operating)	1024 LBS	1096 LBS
Side-1 Inlet Connection	(F1) 4 inch Unlined studded port, 150# ANSI	
Side-1 Outlet Connection	(F4) 4 inch Unlined studded port, 150# ANSI	
Side-2 Inlet Connection	(F3) 4 inch Unlined studded port, 150# ANSI	
Side-2 Outlet Connection	(F2) 4 inch Unlined studded port, 150# ANSI	
Frame Size	600 mm	
Total Heat Transfer Surface Area	149.83 (Ft²)	
Total Internal Volume	1.25 (Ft³)	
Plate Material/Thickness	AISI304 / 0.4 mm	
Plate Mix	TKTM - 51	
Gasket Material	NITRILE LOCK (S)	

Approvals: ASME w/ 'U' Stamp

Quantity: 1 Ship Date: 01-15-2009
 PART NUMBER: 118533-01 NOTE: 1. DIMENSIONS IN INCHES AND [mm].



UNIT CONSTRUCTION - ASME		DESIGN CONDITIONS	
THERMAL PLATES	0.4mm / AISI304	DESIGN PRESS. (PSI)	SIDE 1 SIDE 2
GASKET TYPE	NERHT - LOOK	TEST PRESS. (PSI)	150 150
PLATE MIXTURE	TKM-51	DESIGN TEMP. (°F)	195 195
MIX (SIDE 1)	1 X 28	MIN. TEMP. (°F)	257 257
MIX (SIDE 2)	1 X 30		32 32
PLATE QTY.	60 / 70 MAX		
CARRY BAR	600mm / ALUM		
TIGHTENING BOLTS	STEEL (ZINC PLATED)		
SPLASH GUARD	ALUMINUM		
WEIGHT DRY/FULL	1032 / 1107 (LBS)		

PORT LOCATION CONNECTIONS

TYPE AND DESCRIPTION

PORT	LOCATION	TYPE AND DESCRIPTION
F1	STEEL UNLINED FOR 4" PORT - 150#	AISI FLANGE
F4	STEEL UNLINED FOR 4" PORT - 150#	AISI FLANGE
F3	STEEL UNLINED FOR 4" PORT - 150#	AISI FLANGE
F2	STEEL UNLINED FOR 4" PORT - 150#	AISI FLANGE

The drawings are for reference only. The actual dimensions of the unit may vary due to manufacturing tolerances. The dimensions shown are for the unit as shown in the drawings. The dimensions shown are for the unit as shown in the drawings.

TITLE: **Ball & Gosssett**
 MODEL: **P21**
 PART NUMBER: **5-408-23-080-011**
 C



State of Idaho

DEPARTMENT OF WATER RESOURCES

322 East Front Street • P.O. Box 83720 • Boise, Idaho 83720-0098

Phone: (208) 287-4800 • Fax: (208) 287-6700 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

March 19, 2015

SINCLAIR OIL CORP
DBA SUN VALLEY CO
PO BOX 10
SUN VALLEY ID 83353

RE: Water right permit 37-8798.

Ladies and Gentlemen:

In June of 2012, Sandy Hemenway performed a licensing examination on water right 37-8798. She worked with Chris Share from your organization. Ms. Hemenway retired from our organization and was unable to follow this permit through to licensing. I have been asked to complete the licensing process for this permit. Ms. Hemenway states that permit 37-8798 is used to deliver water from a hot spring to a heat exchanger that then heats a chemical that is run under the pavers of the sidewalks and driveways for the Sun Valley Lodge to remove snow and ice from those areas.

During Ms. Hemenway's field exam, she was unable to gather some significant information needed to complete the licensing process. In order to complete the licensing of this permit, we will need to gain some additional information on the heat exchanger used for this permit. I would appreciate it if you could send me the following information:

- 1.) We will need the make and model of the heat exchanger.
- 2.) We will need a copy of the specification sheet for the heat exchanger.
- 3.) We will need a flow design for this system for both water and chemical.
- 4.) Type of chemical used in the heat exchange.
- 5.) A telephone number and/or email address of a contact from your organization that knows how to operate this system.

We need to make some determinations concerning this system based on what is needed to properly operate this heat exchanger. Without that information, we cannot proceed with licensing of this permit. I would appreciate it if you could send me this information by April 20, 2015. If we don't receive the information by that time, it could be cause to void or cancel a portion or all of this permit, so it is important that we receive this information.

Respectfully,

Daniel Nelson

Staff Hydrologist
Idaho Department of Water Resources
Telephone (208) 287-4856
Fax (208) 287-6700 (attn: Dan Nelson)

Nelson, Dan

From: Nelson, Dan
Sent: Wednesday, March 18, 2015 2:55 PM
To: 'Kevin Lakey'
Subject: Permit 37-8798

Hello Kevin,

I am working on licensing water right permit 37-8798. This permit is for a hot spring tributary to the Warm Springs Creek. They only divert during the winter months, so I am not sure if you would have any records for them or not. The spring is located in the NWSWNW of Section 14, Township 4 North Range 17 East. The measurements in the field exam are a little bit shaky, so I wanted to check and see if you happened to have measured this diversion? If you have any records, I would appreciate any help you could send my way.

Thank you so much.

Daniel Nelson
Staff Hydrologist
Idaho Department of Water Resources
Telephone (208) 287-4856
Fax (208) 287-6700 (attn: Dan Nelson)