

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9645

Exam Date: 11/20/2018

1. Current Owner:
RESORT WATER CO INC 165 VILLAGE LN STE A SANDPOINT ID 83864
2. Accompanied by: Dave Rowe
Phone No: 208-290-2299
Address: Same as above
Relationship to permit Holder: Permit holder's representative

3. SOURCE: GROUND WATER

Method of Determination: Arcmap and DRG.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
96-7127	SCHWEITZER CREEK	COMMERCIAL	LICENSE
96-8413	SPRING	MUNICIPAL	LICENSE
96-8428	SPRING	MUNICIPAL	LICENSE
96-8725	GROUNDWATER	MUNICIPAL	LICENSE

Comments: 96-7127, 96-8413, 96-8428, and 96-8725 are all licensed water rights owned by Resort Water Co Inc., and have water system infrastructure developed to provide services for commercial and municipal purposes that overlap this permit's POU. The water systems from these four water rights are separate from the groundwater well associated with this permit, and do not have water system co-mingling; as a result, there is not a concern for overlap for this permits groundwater well dedicated to snowmaking for the ski resort. X35 was not utilized in the licensing of this water right.

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER SW¼ NW¼, Sec. 20, Twp 58N, Rge 02W, B.M. BONNER County

Method of Determination: GPS. The POD is located at -116°38.054, 48°22.008 (D0055467).

PLACE OF USE: COMMERCIAL and COMMERCIAL FROM STORAGE

[illegible]

PLACE OF USE: COMMERCIAL STORAGE and FIRE PROTECTION STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
58N	02W	18													X			X	

Method of Determination: Field exam and Arcmap aerial imagery.

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.

X Indicate weir size/pipe as applicable.

Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

X

X Aerial Photo Attached (required for irrigation of 10+ acres).

X

X Photo of Diversion and System Attached

X

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0055467	UNKOWN	15		GRUNDFOS	

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements: Unable to perform flow measurement because system pumped directly into storage with inadequate (buried) pipe lengths available to conduct a measurement.

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method: Applicant's representative, Scott McNee (P.E.), provided pump performance curve documentation for a recently installed pump. The pump was the same size with regard to horsepower as the previously installed pump. The performance curve derives a flow rate of 159 gpm = **0.35 cfs** considering department rounding standards.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$$

2. Volume Calculations for Other Uses:

- See attached pond analysis worksheet
- Commercial beneficial use(s) total annual volume = 5,873,120 gal / 325,850 gal per af = 18.0 af considering department rounding standards. This volume is a combined annual total of the following commercial uses:
 - Commercial annual volume = **4.2 af**
 - Commercial Storage and Commercial from Storage annual volume = 18 af – 4.2 af = **13.8 af**
- Fire Protection annual volume = 13.8 af (pond capacity) + 1.5 af (estimated evaporation loss) = **15.3 af**
- Maximum Diversion Annual Volume = 4.2 af (commercial) + 15.3 af (fire protection storage) = **19.5 af**

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 11/20/2018 with the applicant's designated representative, Dave Rowe, showed a well providing ground water for commercial, commercial storage / from storage, and fire protection storage uses. At the POD, the applicants have a 15hp pump installed in the well, with a small pump station situated about 230 feet from the well. Applicant provided a pump performance curve with data that demonstrates the pump's flow capacity equals 159 gpm, or **0.35 cfs** which is being recommended for licensing purposes. The water diverting system incorporated a much larger, 200 hp booster pump located at the pump station that was used to assist lifting the water up to the storage pond associated with this water right. The booster pump is not representative of the actual well pump and is not recommended for consideration when deriving the diversion rate mentioned above.

During the field exam, the POU(s) were observed as a pond developed for commercial and fire protection storage, and commercial & commercial from storage use in the form of nine (9) snowmaking guns that operated to provide coverage for numerous ski runs at the resort. Photographs were taken during the field exam, but due to warmer temperature conditions during the field exam, it was not conducive to operating the snow making guns. The storage pond POU was traced out on field maps during the exam, and during licensing review Arcmap aerial imagery was used to accurately trace out the surface area of the pond.

The commercial storage and fire protection storage pond was constructed with an impermeable liner. The pond has a surface area of 1.4 acres, a maximum depth of 24.5 feet, average depth of 9.8 af, a pond capacity of 13.8 af, an estimated evaporation loss of 1.5 af, and multiple fill volume for commercial from storage use equal to 13.8 af annually. The total volume required on an annual basis equals **15.3 af** which will be applied as the Fire protection storage annual volume for licensing purposes.

The commercial and commercial from storage beneficial use(s) POU consists of the entirety of the Schweitzer Mountain Ski Resort's ski run operation area. Water from the groundwater well was used from the storage pond and from the main pipeline routed to the pond providing snow making for their ski hill operation. David Rowe, applicant's representative, provided email correspondence with annual volume data for years 2014-2018. Due to the variances in seasonal requirements for snow making, there were large differences in annual volume from year to year. In order to capture the largest year use, year 2018 was used to calculate volume metrics for licensing purposes as the season of operation runs from fall 2017 – spring 2018. The Commercial beneficial use(s) total annual volume = 5,873,120 gal (year 2018) / 325,850

gal per af = 18.0 af considering department rounding standards. This volume is a combined annual total of the following commercial uses, which will be applied to the license:

- Commercial annual volume = **4.2 af**
- Commercial Storage and Commercial from Storage annual volume(s) = 18 af – 4.2 af = **13.8 af**

The applicant's engineer representative, Scott McNee (P.E.), provided email correspondence validating the water usage for snow making from the single groundwater well does not co-mingle with the resorts other right(s) water system. This correspondence was added to the water right file during licensing review.

During the exam, the water system operating timelines were discussed regarding pumping season to the pond, storage use in the pond, and withdrawal of water from the pond for snow-making use. In a typical year the pond is emptied in November & December during peak snow-making on the mountain. The pond then remains empty/dormant until spring runoff. At that time the groundwater aquifer recharges, and the pond is pumped full. The lined pond then remains full all summer providing fire protection storage until late in the year when snow-making begins the cycle over depleting the pond. Based on this model, there is variance year to year depending on climate variances. Due to the variances in yearly cycles, both commercial and fire protection uses will maintain a year round season of use. The maximum diversion volume for licensing purposes equals 4.2 af (commercial) + 15.3 af (fire protection storage) = **19.5 af**. Fall seasonal rain serves to recharge the aquifer, and enables well production as direct flow towards early snow making that supports commercial (direct flow) beneficial use. The commercial storage and from storage volumes are accounted for in the fire protection annual volume, which is not utilized in winter months when the pond is depleted.

Condition 046 and a text condition were removed from the permit during licensing review. Condition 219 was replaced with 259 describing storage pond factors and multiple fill volume use. Condition 220 was updated to reflect current pond analysis worksheet data. Condition 221 was added to describe the installed pond liner upkeep requirements. All other conditions on permit will remain on the license. Overlap concerns: 96-7127, 96-8413, 96-8428, and 96-8725 are all licensed water rights owned by Resort Water Co Inc., and have water system infrastructure developed to provide services for commercial and municipal purposes that overlap this permit's POU. The water systems from these four water rights are separate from the groundwater well associated with this permit, and do not have water system co-mingling; as a result, there is not a concern for overlap for this permits groundwater well dedicated to snowmaking for the ski resort. X35 was not utilized in the licensing of this water right. There are no additional overlap concerns for this water right.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
COMMERCIAL	01/01 to 12/31	0.35 CFS	4.2 AF
COMMERCIAL STORAGE	01/01 to 12/31		13.8 AF
COMMERCIAL FROM STORAGE	01/01 to 12/31		13.8 AF
FIRE PROTECTION STORAGE	01/01 to 12/31		15.3 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.35 CFS	

Totals: 0.35 CFS 19.2 AF

2. Recommended Amendments

 Change P.D. as reflected above Add P.D. as reflected above X None

 Change P.U. as reflected above Add P.U. as reflected above X None

I. AUTHENTICATION

Luke Bates - Water Resource Agent

Field Examiner's Name TSB Date 1/24/2021

Reviewer Adrian T. Smith Date 1/22/2021

From: Scott McNee <smcnee@to-engineers.com>
Sent: Thursday, January 14, 2021 4:46 PM
To: Bates, Luke
Cc: Trulock, Tom (ttrulock@schweitzer.com)
Subject: RE: IDWR water permit 96-9645
Attachments: amped 150s150-8.pdf

Hi Luke:

Attached is a copy of the pump information and curve for the snowmaking well. The pump is rated for 159 gpm.

Let me know if you need anything else.

SCOTT MCNEE, P.E. (ID, OR, WA) | *Project Manager*



7950 N. Meadowlark Way | Suite A | Coeur d'Alene, Idaho 83815

O 208-762-3644 | C 208-661-2229

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BUILT ON SOLID GROUND

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From: Bates, Luke <Luke.Bates@idwr.idaho.gov>
Sent: Tuesday, January 5, 2021 12:54 PM
To: Scott McNee <smcnee@to-engineers.com>
Subject: RE: IDWR water permit 96-9645

Perfect, thank you Scott.

v/r - Luke

From: Scott McNee [<mailto:smcnee@to-engineers.com>]
Sent: Tuesday, January 5, 2021 12:50 PM
To: Bates, Luke <Luke.Bates@idwr.idaho.gov>
Subject: RE: IDWR water permit 96-9645

Luke:

I did confirm that the snowmaking well does not have co-mingled use with any other wells.

Thanks.

SCOTT MCNEE, P.E. (ID, OR, WA) | *Project Manager*



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From: Bates, Luke <Luke.Bates@idwr.idaho.gov>

Sent: Tuesday, January 5, 2021 8:15 AM

To: Scott McNee <smcnee@to-engineers.com>

Subject: RE: IDWR water permit 96-9645

Good morning Scott,

You've been a big help with and I appreciate it, with this and other rights I am working through. Adam was promoted to a supervisory position, and I in turn was handed all his files from past exams. Admittedly, this put me a little in the dark regarding many of these I am working with you as I was not present at the field exam.

Thanks,

Luke

From: Scott McNee [<mailto:smcnee@to-engineers.com>]

Sent: Tuesday, January 5, 2021 8:12 AM

To: Bates, Luke <Luke.Bates@idwr.idaho.gov>

Cc: Trulock, Tom (ttrulock@schweitzer.com) <ttrulock@schweitzer.com>

Subject: RE: IDWR water permit 96-9645

Hi Luke:

We are still trying to get this information from the contractor that installed the pump. I just sent him another request. My apologies for the delay.

I don't believe the portions of the snowmaking system that this well feeds co-mingle with any other wells. I will verify and get back to you though.

Thank you.

SCOTT MCNEE, P.E. (ID, OR, WA) | *Project Manager*



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From: Bates, Luke <Luke.Bates@idwr.idaho.gov>

Sent: Monday, January 4, 2021 3:23 PM

To: Scott McNee <smcnee@to-engineers.com>

Cc: Trulock, Tom (<ttrulock@schweitzer.com>) <ttrulock@schweitzer.com>

Subject: RE: IDWR water permit 96-9645

Good afternoon Mr. McNee.

I hope you and your family had an enjoyable New Years!

I wanted to follow up on IDWRs request for the pump information pertaining to the snow making well for permit No. 96-9645.

Additionally, do you know whether water from the snow making well co-mingles with the other wells used by the ski hill uses? If the water co-mingles, it may change how we approach overlapping water right conditions for licensing purposes on 96-9645.

Thank you for any feedback you may be able to provide.

v/r,

Luke Bates

Water Resource Agent

Idaho Dept. of Water Resources

Northern Regional Office

P: (208) 762-2800

F: (208) 762-2819

Luke.bates@idwr.idaho.gov

From: Scott McNee [<mailto:smcnee@to-engineers.com>]

Sent: Tuesday, December 1, 2020 12:23 PM

To: Bates, Luke <Luke.Bates@idwr.idaho.gov>

Cc: Frederick, Adam <Adam.Frederick@idwr.idaho.gov>; Trulock, Tom (<ttrulock@schweitzer.com>) <ttrulock@schweitzer.com>

Subject: RE: IDWR water permit 96-9645

Hello Luke:

The well pump was recently replaced, so I will try to get ahold of the new pump information and pass it along to you.

Thanks.

Frederick, Adam

From: McNee, Scott <smcnee@to-engineers.com>
Sent: Wednesday, December 05, 2018 3:44 PM
To: Frederick, Adam
Cc: Trulock, Tom (ttrulock@schweitzer.com)
Subject: Resort Water Co. Permit No. 9645
Attachments: Snowmaking Quantities_2014-2018.pdf; 96-9645_proof-of-beneficial-use.pdf

Adam:

We have searched high and low for information on the well pump and cannot find any. The installer has since gone out of business, so we can't even contact them. As mentioned in our Statement of Completion Letter (attached), the booster pump matches the output of the well pump. Information on the booster pump was included.

I am also attaching snowmaking quantities information provided by Schweitzer from 2014 through 2018.

Let me know if you have any questions or need any additional information.

Thank you.

SCOTT McNEE, PE | *Project Manager*



T·O ENGINEERS

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Tom Trulock

From: David Rowe
Sent: Tuesday, December 04, 2018 12:35 PM
To: Tom Trulock
Subject: RE: Snowmaking Well Water Rights

The numbers show all guns regardless of the location of the gun. 60% of the total water is from the Snowmaking well, so I have subtracted 40% from the total to account for the water used the chair 2 system from the MUC wells.

2014

of Snowmaking guns = 8
Average output per gun = 45 GPM
Hours of operation = 1245
Total season usage = 2,016,900

2015

of Snowmaking Guns = 9
Average output per gun = 45 GPM
Hours of operation = 2793
Total season usage = 4,476,060

2016

of Guns = 9
Average output = 45 GPM
Hours of operation = 1544
Total seasonal usage = 2,501,280

2017

of Guns = 9
Average output = 45 GPM
Hours of operation = 1329
Total season usage = 2,152,980

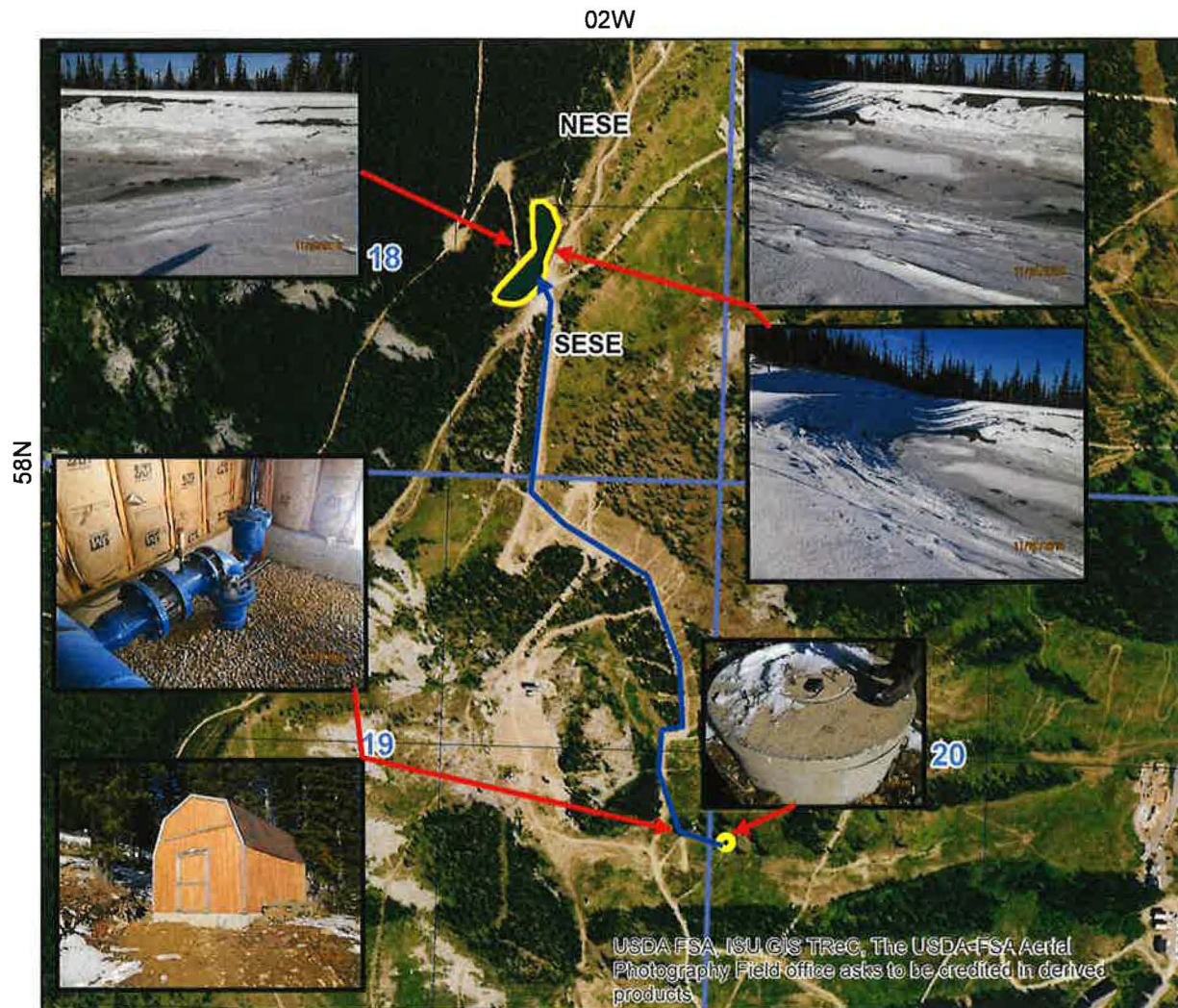
2018

of Guns = 9
Average output = 45 GPM
Hours of operation = 3626
Total season usage = 5,873,120

Dave Rowe
Special projects and
Snow Surface Manager
(Grooming and Snowmaking)
208-290-2299
drowe@schweitzer.com

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9645

COMMERCIAL STORAGE and FIRE PROTECTION STORAGE system diagram.



- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

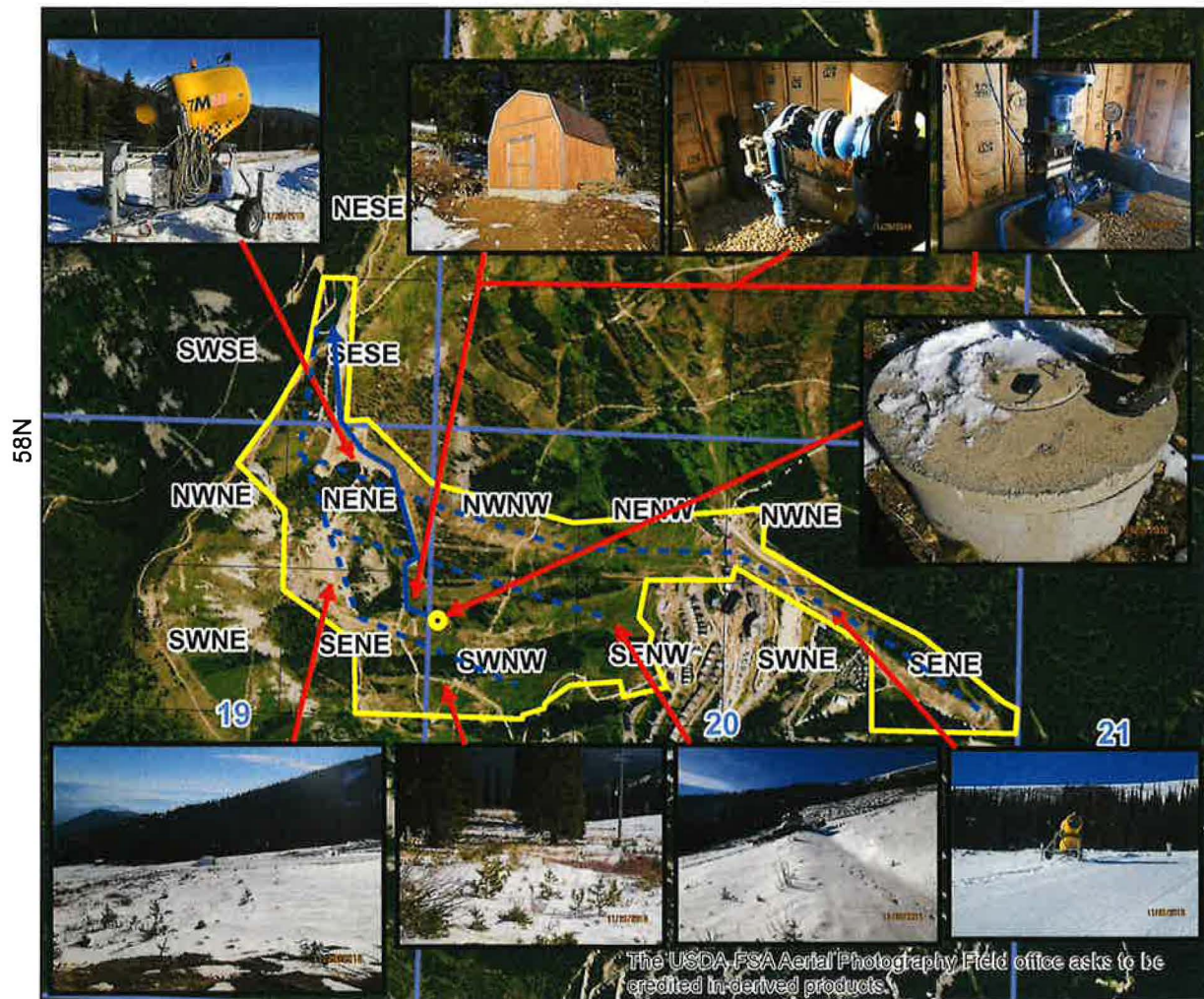
0 0.1 0.2 0.4 Miles



State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9645

COMMERCIAL and COMMERCIAL FROM STORAGE system diagram.

02W

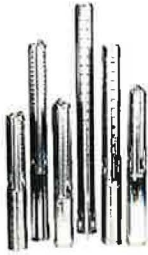


- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.2 0.4 0.8 Miles



PROJECT: _____	UNIT TAG: _____	QUANTITY: _____
REPRESENTATIVE: _____	TYPE OF SERVICE: _____	DATE: _____
ENGINEER: _____	SUBMITTED BY: _____	DATE: _____
CONTRACTOR: _____	APPROVED BY: _____	DATE: _____
	ORDER NO.: _____	DATE: _____

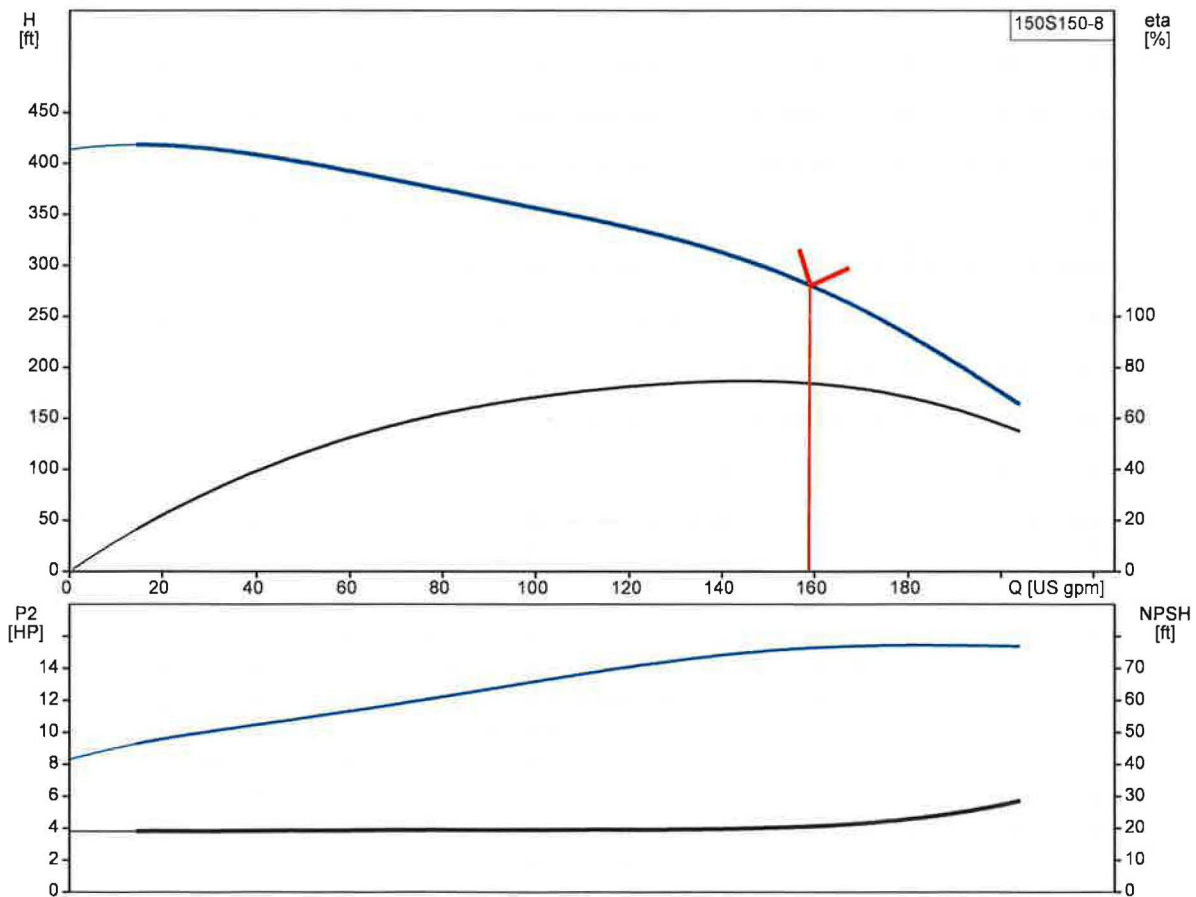


150S150-8

Submersible pumps in stainless steel. EN 1.4301 (AISI 304). EN 1.4401 (AISI 316). EN 1.4539 (AISI 904L). Typical application: Ground water, Irrigation, Mining, Fountain, Off-shore etc.

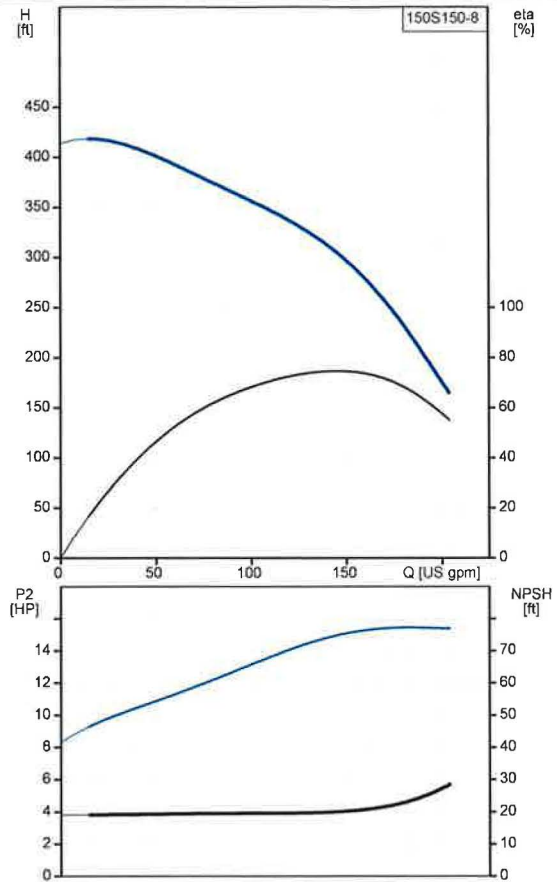
Product photo could vary from the actual product.

Conditions of Service	Pump Data	Motor Data
Efficiency: _____	Maximum liquid temperature: 140 °F	Main frequency: 60 Hz
Liquid: Water	Product number: 13B60008	
Temperature: 68 °F		
NPSH required: ft		
Specific Gravity: 1.000		



Count	Description
1	150S150-8  Product No.: 13B60008 Multi-stage submersible pump for raw water supply, groundwater lowering and pressure boosting. The pump is suitable for pumping clean, thin, non-aggressive liquids without solid particles or fibers. Pump: The pump is made entirely of Stainless steel DIN W.-Nr. EN 1.4301 and suitable for horizontal and vertical installation. The pump is fitted with a built-in non-return valve. Liquid: Pumped liquid: Water Maximum liquid temperature: 140 °F Selected liquid temperature: 68 °F Density: 62.29 lb/ft³ Technical: Pump speed on which pump data is based: 3450 rpm Rated flow: 159 US gpm Rated head: 282.2 ft Actual impeller diameter: 3.52 in Curve tolerance: ISO9906:2012 3B Materials: Pump: Stainless steel EN 1.4301 AISI AISI 304 Impeller: Stainless steel EN 1.4301 AISI AISI 304 Installation: Pump outlet: 3"NPT Motor diameter: 6 inch Electrical data: Rated power - P2: 15 HP Power (P2) required by pump: 15 HP Start, method: direct-on-line Others: DOE Pump Energy Index CL: 0.91 ErP status: EuP Standalone/Prod. Net weight: 43.2 lb Gross weight: 53.1 lb Shipping volume: 1.84 ft³ Country of origin: US

Description	Value
General information:	
Product name:	150S150-8
Product No.:	13B60008
EAN:	5700391424021
Price:	
Technical:	
Pump speed on which pump data is based:	3450 rpm
Rated flow:	159 US gpm
Rated head:	282.2 ft
Actual impeller diameter:	3.52 in
Stages:	8
Impeller reduc.:	NONE
Curve tolerance:	ISO9906:2012 3B
Model:	B
Valve:	YES
Materials:	
Pump:	Stainless steel
Pump:	EN 1.4301
Pump:	AISI AISI 304
Impeller:	Stainless steel
Impeller:	EN 1.4301
Impeller:	AISI AISI 304
Installation:	
Pump outlet:	3"NPT
Motor diameter:	6 inch
Liquid:	
Pumped liquid:	Water
Maximum liquid temperature:	140 °F
Selected liquid temperature:	68 °F
Density:	62.29 lb/ft³
Electrical data:	
Applic. motor:	GRUNDFOS
Rated power - P2:	15 HP
Power (P2) required by pump:	15 HP
Start. method:	direct-on-line
Others:	
DOE Pump Energy Index CL:	0.91
ErP status:	EuP Standalone/Prod.
Net weight:	43.2 lb
Gross weight:	53.1 lb
Shipping volume:	1.84 ft³
Sales region:	Namreg
Country of origin:	US
Custom tariff no.:	8413.70.2004



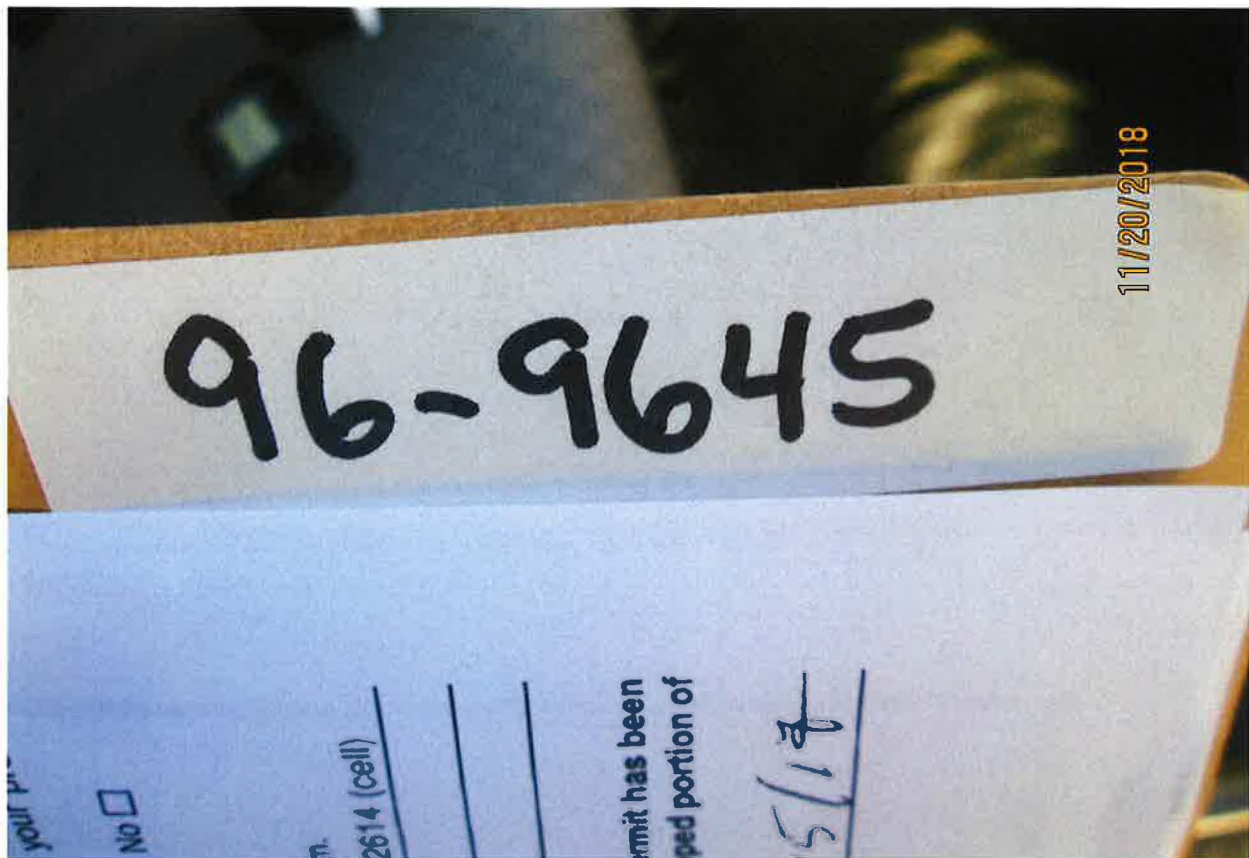
Total Storage Calculations

FILE NUMBER	96-9645
REVIEWER	Luke Bates
DATE	12/1/2020

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	1.4	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	9.8	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook suggests multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that seems reasonable to attain average depth.
Pond Capacity (AF)	13.8	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	0	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: if a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	0.0	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	1.5	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	15.3	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.



POD – WELL A0020030 (ENCASED WITH CONCRETE FOR PROTECTION)



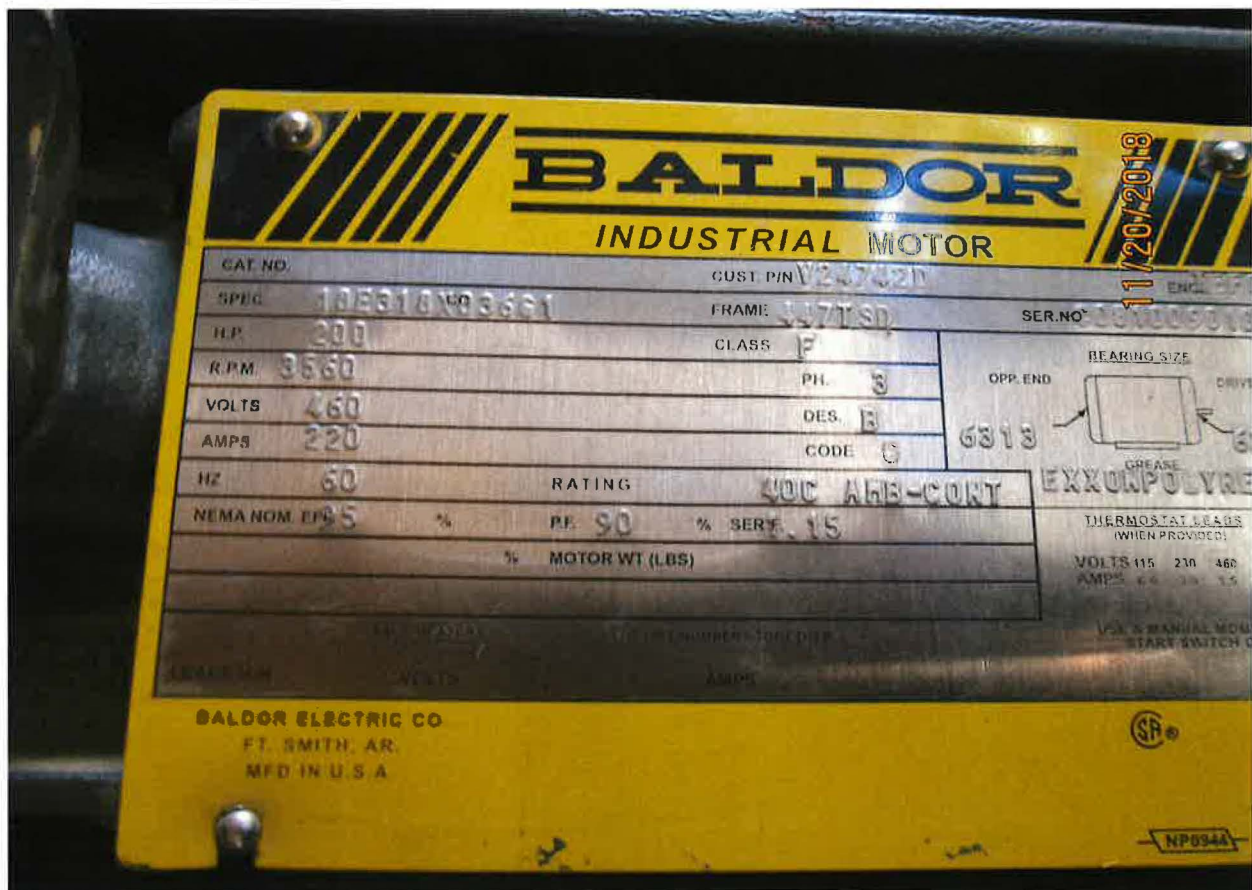
PUMP HOUSE



WATER CONVEYANCE SYSTEM



200 HP BALDOR MOTOR – BOOSTER PUMP





WATER CONVEYANCE SYSTEM PIPES



FLOWMETER INSTALLED ON MAINLINE



COMMERCIAL STORAGE & FIRE PROTECTION STORAGE POU



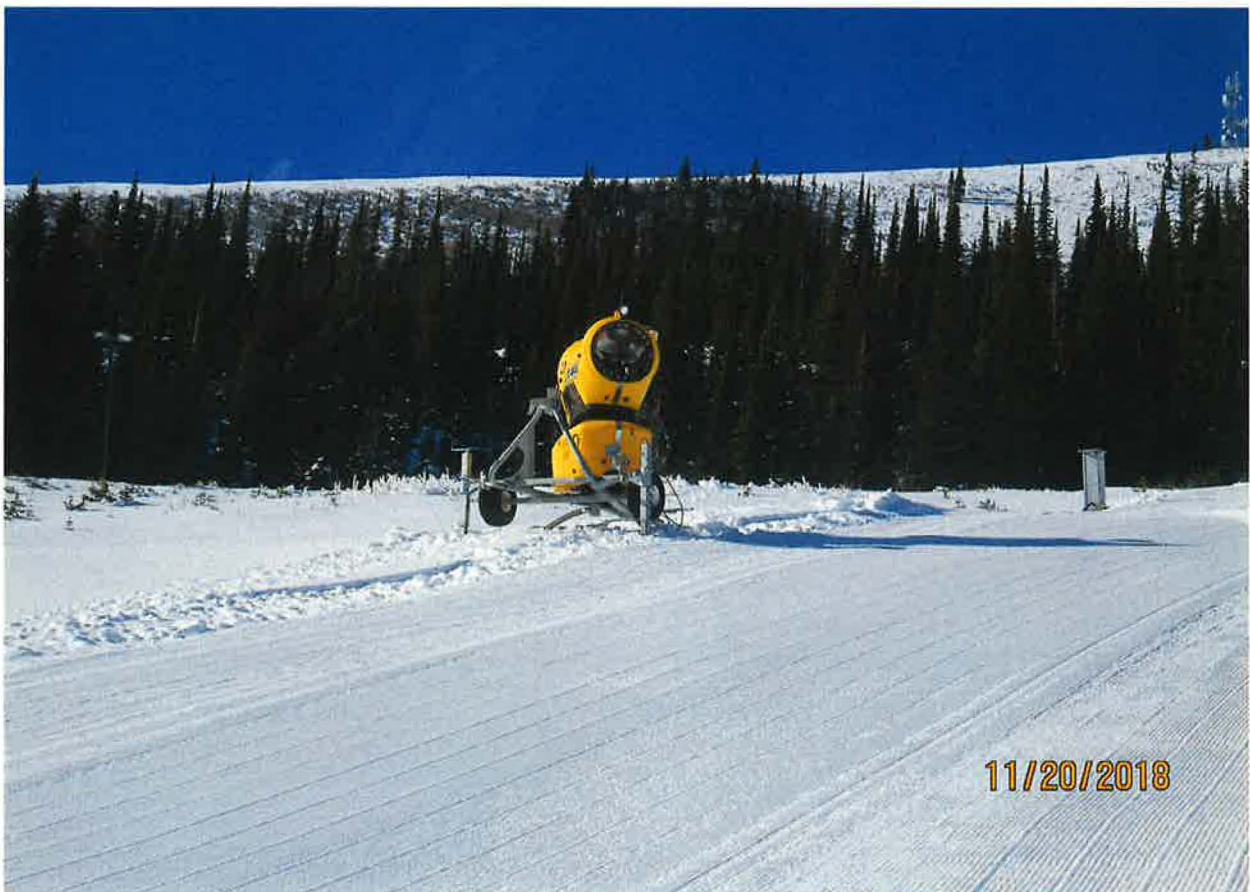


COMMERCIAL POU





COMMERCIAL & COMMERCIAL FROM STORAGE POU





COMMERCIAL & COMMERCIAL FROM STORAGE POU

