

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-33700

Exam Date: 7/28/2014

1. Current Owner: TRACY COOK
12509 W ABLE DR
STAR ID 83669
(208) 850-3660

And

VICTOR COOK
12509 W ABLE DR
STAR ID 83669
(208) 850-3660

2. Accompanied by: Tracy Cook
Phone No: (208) 850-3660
Address: Same as Above
Relationship to Permit Holder: Permit Holder

3. SOURCE TRIBUTARY
GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None
2. Other water rights with the same point of diversion: None

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER L4 SW1/4SW1/4 Sec. 31, Twp 05N, Rge 01W, B.M. ADA County

Method of Determination: Visual Inspection and GPS**2. PLACE OF USE**PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
05N 01W 31	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	2.1
											1.2	.9					
											L 4						

Total Acres: 2.1

PLACE OF USE: DOMESTIC

Twp Rge Sec	NE				NW				SW				SE				Totals
05N 01W 31	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
											X	X					
											L 4						

PLACE OF USE: STOCKWATER

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	01W	31											X	X					
													L 4						

PLACE OF USE: COMMERCIAL

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	01W	31											X	X					
													L 4						

Method of Determination: Visual Inspection and GIS

3. Yes Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- Yes Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- Yes Aerial Photo Attached (required for irrigation of 10+ acres).
- Yes Photo of Diversion and System Attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0064022	Franklin Electric (3-Phase)	7.5	2366 Series	Goulds	40GS75

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration Date
Not Applicable	x	x	x	x	x	x

2. Measurements: We were not able to measure the well pumping rate at the time of the exam because the pipeline was buried. Because of the system design it would have been difficult to obtain real-time flow measurements. We used a pump curve attained from the pump manufacturer's website and a theoretical calculation.
Per Application Processing Memo No. 51: "Rate of Flow and Volume for Water Rights with Source of Ground Water," for volumetric flow rates less than 0.2 CFS direct measurement is not mandatory.

E. FLOW CALCULATIONS x Additional Computation Sheets Attached

Measured Method:

Theoretical = 0.10 cfs**Pump Curve = 0.10 cfs****Permit Allowed = 0.12 cfs**

License recommended for 0.10 cfs. The pump curve was obtained via the pump manufacturer's website, and the theoretical was an estimation of the efficiency of the system. The pump curve suggests efficiency close to the assumption used in the theoretical calculations, approximately 70%.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = (2.1 \text{ Acres Irrigated}) \times (4.5 \text{ Allowable AF/AC}) = 9.5 \text{ AF}$$

$$V_{D.R.} = [\text{Div. Rate (cfs)}] \times (\text{Irrigation Season Days}) \times 1.9835 = (0.06 \text{ Allowable CFS}) \times (260 \text{ Days}) \times 1.9835 = 32.5 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 9.5 \text{ AF}$$

2. Volume Calculations for Other Uses:

Domestic Use Calculation = Administrative Processing Memo No. 22 allows 0.6 AF.

Stockwater Use Calculation = From the Field Examiner's Handbook, a horse will require 12 gallons of water per day.

$$= (12 \text{ Gal. per Horse per Day}) \times (5 \text{ Max. Horses on site}) \times (365 \text{ Days per Year}) \times (325850 \text{ Gal. per AF}) = 0.1 \text{ AF}$$

Commercial Use Calculation = The Commercial use consisted of riding arena dust suppression, horse washing, and a half bathroom in the barn. (Total 420,450 Annual GAL) x (325,850 Gal. per AF) = 1.3 AF

- *Riding Arena Dust Suppression* = (Estimated 45 GPM) x (15 Min. per Cycle) x (2 Cycles) x (5 Runs per Wk.) x (52 Wks. per Year) = 351,000 Annual GAL
- *Horse Washing* = (Estimated Hose flow 5 CFS) x (Average Wash 15 Min) x (Currently 3 Head of Horses) x (5 Washes per Horse per Wk.) x (52 Wks. per Year) = 58,500 Annual GAL
- *Barn Bathroom* = (Approx. 10 GPD per Patron) x (3 Patrons per Day) x (365 Days per Year) = 10,950 Annual GAL

G. NARRATIVE/REMARKS/COMMENTS**Background**

A Beneficial Use Field Exam was conducted at 12509 W. Able Drive in Star, Idaho on Monday, July 28, 2014. This property is home to owners Victor and Tracy Cook. On the exam date, Tracy Cook gave Dan Nelson and Ashley Newbry a tour of the property—specifically focused on the water system installed for beneficial use, in accordance with WR Permit 63-33700.

System Overview

A new 8" diameter well was drilled on October 4, 2012; this well is located near the center of the property, at the south edge of the front yard, and directly in front of the barn and stables. The well is outfitted with a 7.5-horsepower pump which serves the home, stables, riding arena, and it supplies water for lawn and pasture areas throughout the property.

From the well, the water is pumped to an 82-gallon pressure tank in the garage. The pressure tank operates by using pressure drops below a specified point to activate the pump, which will replenish the water and raise the pressure. From the pressure tank, the water is supplied to each of the following locations: stables, home, lawn, riding arena, vegetable garden and pasture.

The system proposed in the owners' permit application is now covered by finished ground. From our inspection of the property, it appears that the system has been installed as planned. Water is being put to beneficial use in each of these areas.

The house on this property was constructed in 1976. Prior to 2012, a domestic well just north of the house was used to supply the necessary water for the property. Following the drilling of Well D0064022 in 2012, the existing well north of the home was retrofitted as an injection well and connected to a heat exchanger for heating and cooling the house. The heat exchange system is not connected to the distribution system which is currently being used for irrigation, domestic, stockwater, and commercial purposes. In addition, Administrative Memo No. 22 states that a heating/cooling system for a private home cannot be covered under a domestic beneficial use. *I recommend that the Cook's file a new water right application for their heat exchange system. (The information necessary to analyze the heat exchange system has been included in this field examination report.)*

Measurements and Methodology

We were not able to measure the well pumping rate at the time of the exam, because the pipeline was buried. Because of the system layout, it would have been difficult to find a pipe large enough and isolate it for real-time flow measurements. Because of the pressure tank and the number of diversions from the main supply line, direct measurement of the riding arena or pasture sprinkler flow would not have represented the capacity of the well pump. We used a pump curve attained from the pump manufacturer's website and a theoretical calculation.

Overlapping Water Rights

Though there are many water rights found in the same quarter-quarter, there are no active water rights which overlap the Cooks' property.

Conditions

Conditions 046, 004 and X02 were removed. Condition 121 was changed to Condition 103. Condition 132 was added to show that irrigation of lawn, garden and landscaping associated with the home is authorized under the irrigation component of this 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>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/01 to 11/15	0.060 CFS	9.50 AF
DOMESTIC	01/01 to 12/31	0.040 CFS	0.60 AF
STOCKWATER	01/01 to 12/31	0.010 CFS	0.10 AF
COMMERCIAL	01/01 to 12/31	0.100 CFS	1.30 AF
<u>Totals:</u>		0.100 CFS	11.5 AF

2. Recommended Amendments

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

☐ Change P.U. as reflected above ☒ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Ashley Newbry, Engineer Associate

Field Examiner's Name

Ashley Newbry

Date

2/2/2015

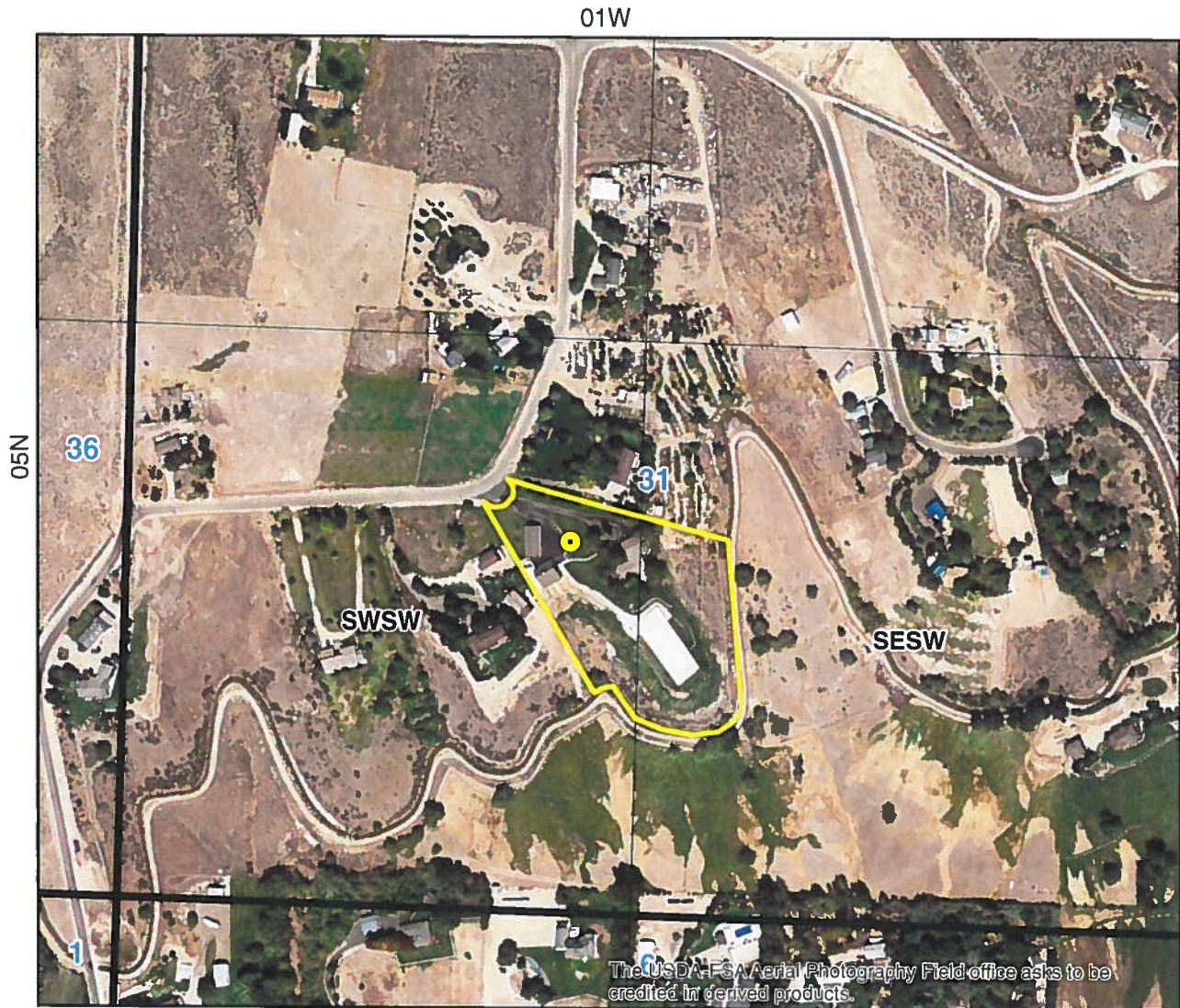
Reviewer

Date

State of Idaho
Department of Water Resources

Field Exam Map for Domestic, Commercial and Stockwater

63-33700



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

0 0.05 0.1 0.2 Miles



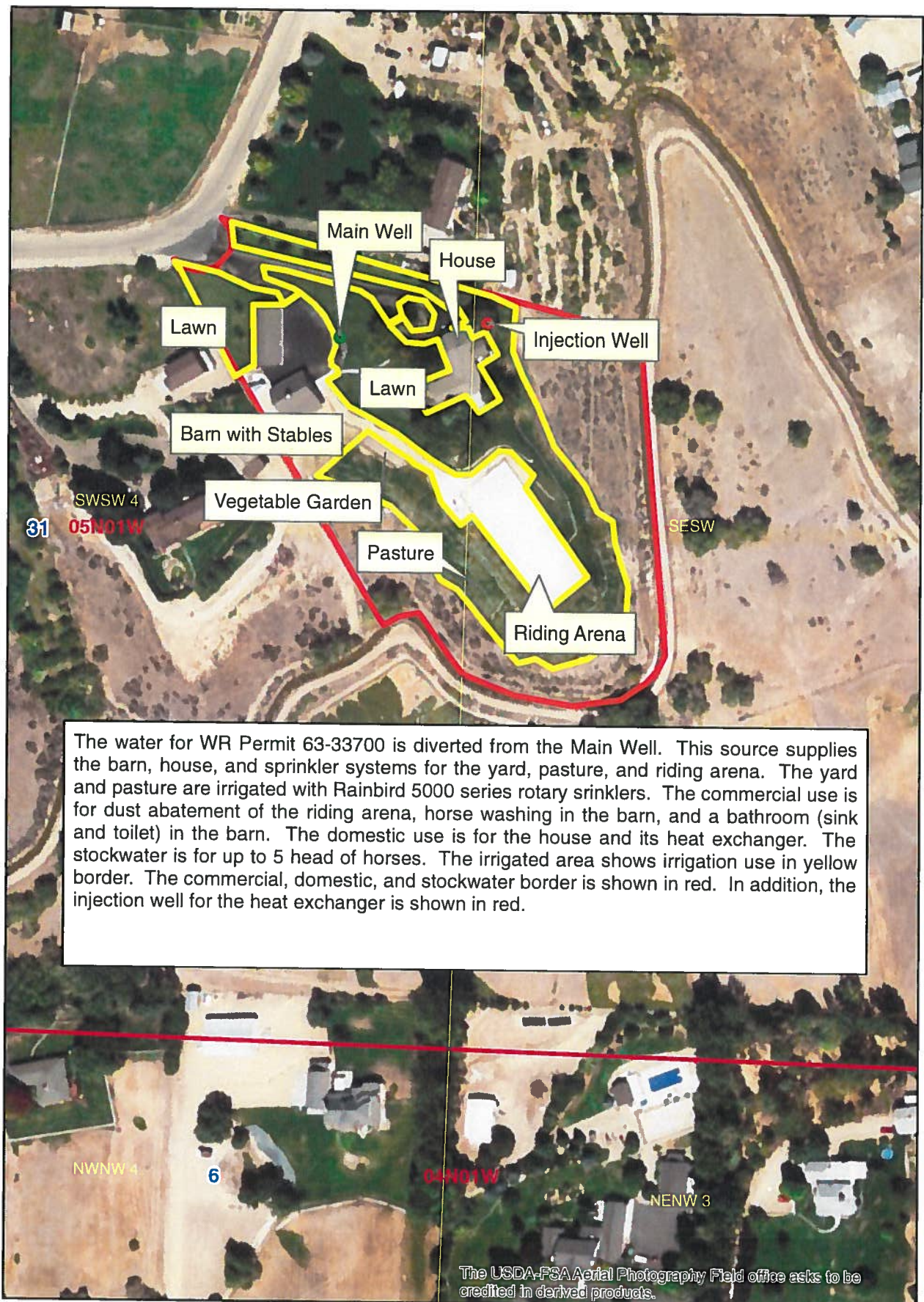
State of Idaho
Department of Water Resources
Field Exam Map for Irrigation
63-33700



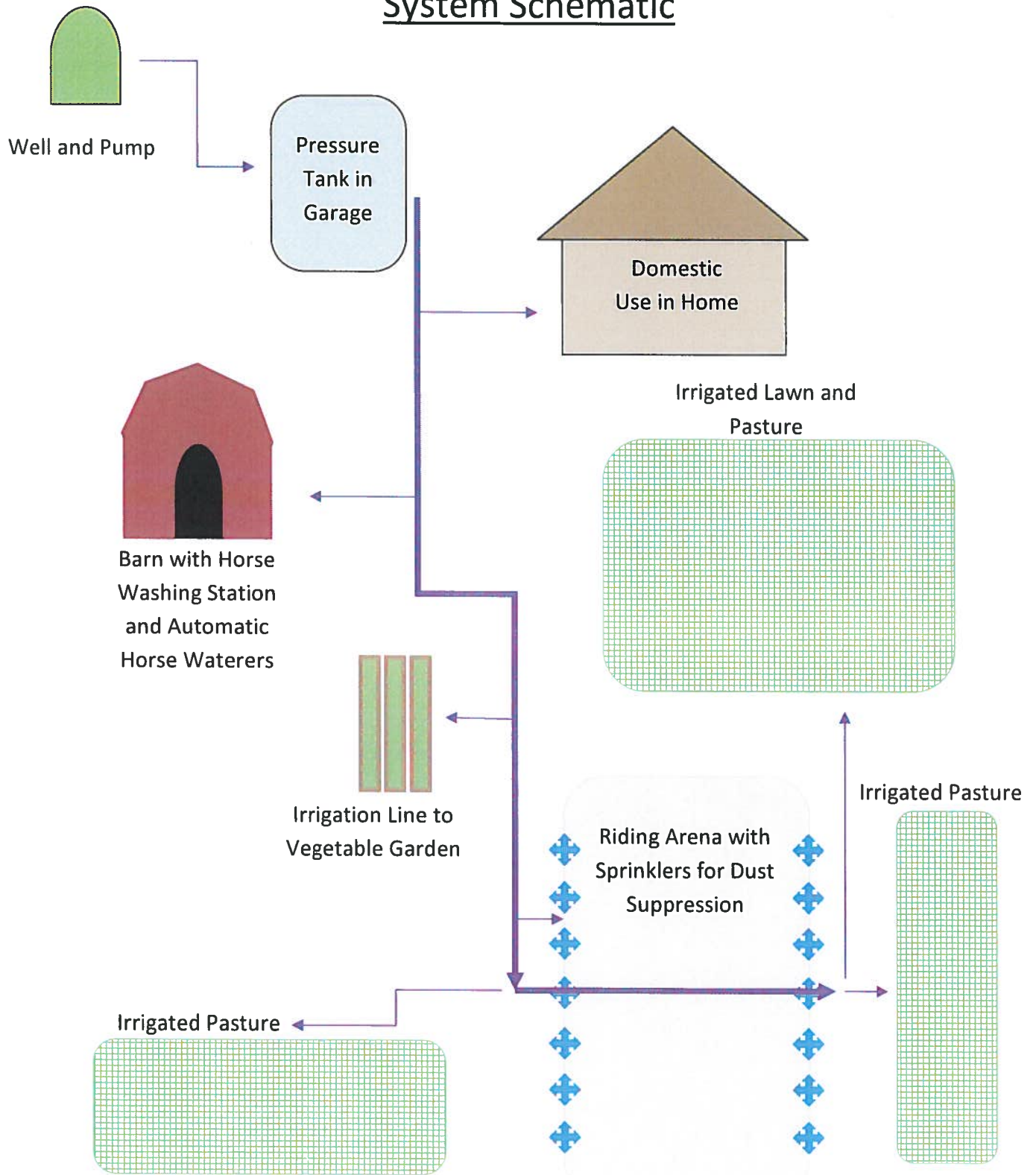
-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.0325 0.065 0.13 Miles





System Schematic



Beneficial Use Calculations: Flow Rates and Volumes

DOMESTIC

Residence - Rural

Field Examiner's Handbook	Gallons per Person per Day (Gal.)	Maximum Residents	Total Gallons per Day	Total CFS
	60	4	240	0.0004
	Total Gallons per Day	Days per Year	Gallons per AF	Annual AF
	240	365	325850	0.27
Administrative Processing Memo No. 22	Total CFS	Annual AF (Irrigation Separate)		
	0.04	0.6		

STOCKWATER

Residence - Rural

Field Examiner's Handbook	Gallons per Horse per Day	Maximum Head of Horses	Total Gallons per Day	Total CFS	
	12	5	60	0.00009	
Field Examiner's Handbook	Gallons per Horse per Day	Maximum Head of Horses	Days per Year	Gallons per AF	Annual AF
	12	5	365	325850	0.067
					0.1

IRRIGATION

Pop-up Sprinkler Head Irrigation
Rainbird 5000 & 5000 Plus Series Rotors

Administrative Processing Memo No.	Acreage Irrigated	Allowable CFS per ac < 5.0	Allowable CFS	
	2.1	0.03	0.06	
Headgate Requirement	Acreage Irrigated	Allowable AF/AC	Annual AF	
	2.1	4.5	9.5	
Irrigation Season Method	Allowable CFS	Irrigation Season (Days)	AF per (1 CFS*1 day)	Annual AF
	0.06	260	1.9835	32.5

HEATING/COOLING

Heating/Cooling of House (Heat Exg. Well)

Water Heating/Cooling Spreadsheet	Heating (Gal per Year)	Cooling (Gal per Year)	Total (Gal per Year)	Total (Cubic Ft per Year)	Annual AF
	2101950	210195	2312145	309110	7.10
	Heating CFS	Cooling CFS	Max CFS		
	0.05	0.03	0.05		

63-33700

COMMERCIAL

Riding Arena Dust Suppression
Aqualink Impact Rotor w/ 3/16" Nozzle

Pressure Nozzle (PSI)	Flow/Sprinkler (GPM)	Total # of Sprinklers	# of Zones	Sprinklers/Zone	Total GPM	Total CFS
40	6.64	14	2	7	46.48	0.10
45	7.03	14	2	7	49.21	0.11
50	7.41	14	2	7	51.87	0.12

*Zones are not run simultaneously

Estimated GPM	Minutes per Cycle	Cycles	Runs per Week	Weeks per Year	Annual GAL
45	15	2	5	52	351000

Horse Washing

Current Head of Horses	Washes per Horse per Week	Total Washes per Week	Average Wash Time (Min.)	100 ft. - 1/2" Hose Flow Rate (GPM)	Total Gal./Week	Total CFS
3	5	15	15	5	1125	0.01

*40 PSI

100 ft. - 1/2" Hose Flow Rate (GPM)	Average Wash Time (Min.)	Current Head of Horses	Washes per Horse per Week	Weeks per Year	Annual GAL
5	15	3	5	52	58500

*40 PSI

Barn Bathroom

Field Examiner's Handbook	Toilet GPM	Sink GPM	Total GPM	Total CFS
	4.5	3	7.5	0.02

Field Examiner's Handbook	GPD/Patron	Patrons/Day	Days per Year	Annual GAL
	10	3	365	10950

Total Commercial

Riding Arena GAL	Horse Washing GAL	Barn Bathroom GAL	Sum Commercial GAL	Gallons per AF	Annual AF
351000	58500	10950	420450	325850	1.3

System Diversion Capacity

Estimated PSI (from pump curve and theoretical calcs)	Sprinklers per Cycle	Flow/Sprinkler (GPM)	Total GPM	Total CFS
40	7	6.64	46.48	0.10

Total CFS	Days per Year	AF per (1 CFS*1 day)	Annual AF
0.1	365	1.9835	72.4

63-33700

Heating, Water Heating and Cooling Energy, Cost and Carbon Dioxide Estimator

Heating Cost Estimator

Fuel Type	Cost/Unit	Units	¢/kBtu (site)										
Electric	12	¢/kWh	3.52	FloorArea	3114	ft ²	Read Me	GPMpTonH	2.25	Gal/min			
Natural Gas	\$1.60	\$/therm	1.55	HeatLoss		kBtu/h		GPMpTonC	2.25	Gal/min			
Propane	\$2.50	\$/gal	2.74	HeatSqFt	40	kBtu/h-ft ² →		Heating	1,751,625	Gal/year			
Heating Oil	\$3.00	\$/gal	2.14	HeatReqd	124.6	kBtu/h		Cooling	175,163	Gal/year			
Wood	\$200.00	\$/cord	1.00	HeatHours	1250	Hours/year		Total	1926788	Gal/year			
FYI - Unit Energy Cost Comparison to Gasoline													
Gasoline	\$3.00	\$/gal	=	2.46					257592	Cu.Ft./year			
									5.913	AcreFt./year			

HeatHours Estimates			
Region		Low	High
South	House	600	800
	School	200	400
	Office	200	700
Mid-USA	House	800	1000
	School	300	500
	Office	700	900
North	House	1000	1500
	School	500	600
	Office	900	1100

HeatSqFt Estimates (kBtu/h per 1000 ft ² of Floor Area)					
Region		Poor Quality	Std. Quality	Hi. Quality	Super Eff.
South	House	30	20	15	10
	School	30	22	15	10
	Office	22	18	14	11
Mid-USA	House	40	32	25	16
	School	35	27	20	13
	Office	25	22	15	12
North	House	50	40	30	20
	School	40	30	25	15
	Office	30	24	18	13

Water Heating Cost Estimator

				Standby Loss	Distrib. Loss	AFUE/COP	kWh/Fuel Use	Annual Cost				
ColdWtrTin	60	°F	Electric	10%	10%	1	3882	\$504.61				
HotWtrTout	120	°F	Nat Gas	10%	10%	65%	204	\$326.01				
GalperDay	60	Gal/day	Propane	10%	10%	65%	223	\$558.54				
kBtuPerDay	30.0	kBtu/Day	Heating Oil	10%	10%	65%	146	\$436.62				
			HeatPump WH	10%	10%	2	1941	\$252.31				
A.K.A Desuperheater → ElectricWithHeatRecovery								4.49	865	\$112.50		
										CoolMonths	HeatMonths	HeatPumpType
										6	6	Air Source
										HitUnitCOP		1.61

Cooling Cost Estimator

Cooling Electric Rate	Cost/Unit	Units	HeatGain									
ElectricSum	14	¢/kWh	CoolSqFt	20	kBtu/h-ft ² →							
			CoolReqd	62.3	kBtu/h							
			CoolHours	250	Hours/year							

CoolHours Estimates			
Region		Low	High
South	House	1100	1600
	School	600	1000
	Office	1200	1800
Mid-USA	House	800	1000
	School	400	550
	Office	700	1100
North	House	200	300
	School	200	300
	Office	300	600

CoolSqFt Estimates (kBtu/h per 1000 ft ² of Floor Area)					
Region		Poor Quality	Std. Quality	Hi. Quality	Super Eff.
South	House	32	25	17	10
	School	65	53	36	31
	Office	35	28	20	15
Mid-USA	House	30	22	15	9
	School	60	48	38	28
	Office	30	25	17	14
North	House	28	20	14	8
	School	50	42	30	26
	Office	28	22	16	12

Annual Total	Select Heating, Wtr Heat, Cooling Types			Pounds Carbon Dioxide Produced			ElectCO ₂ kWh
Heating, Cooling & Water Heating Cost	GroundHeat	Elect&HtRec	GroundHeatPump	Annual Heating, Cooling & Water Heating CO ₂	Heat GroundHeatF	Water Heat Elect&HtRec	Cool GroundHeatPump
\$2,075	\$1,776	\$113	\$187	22,950	19,980	1,168	1,802

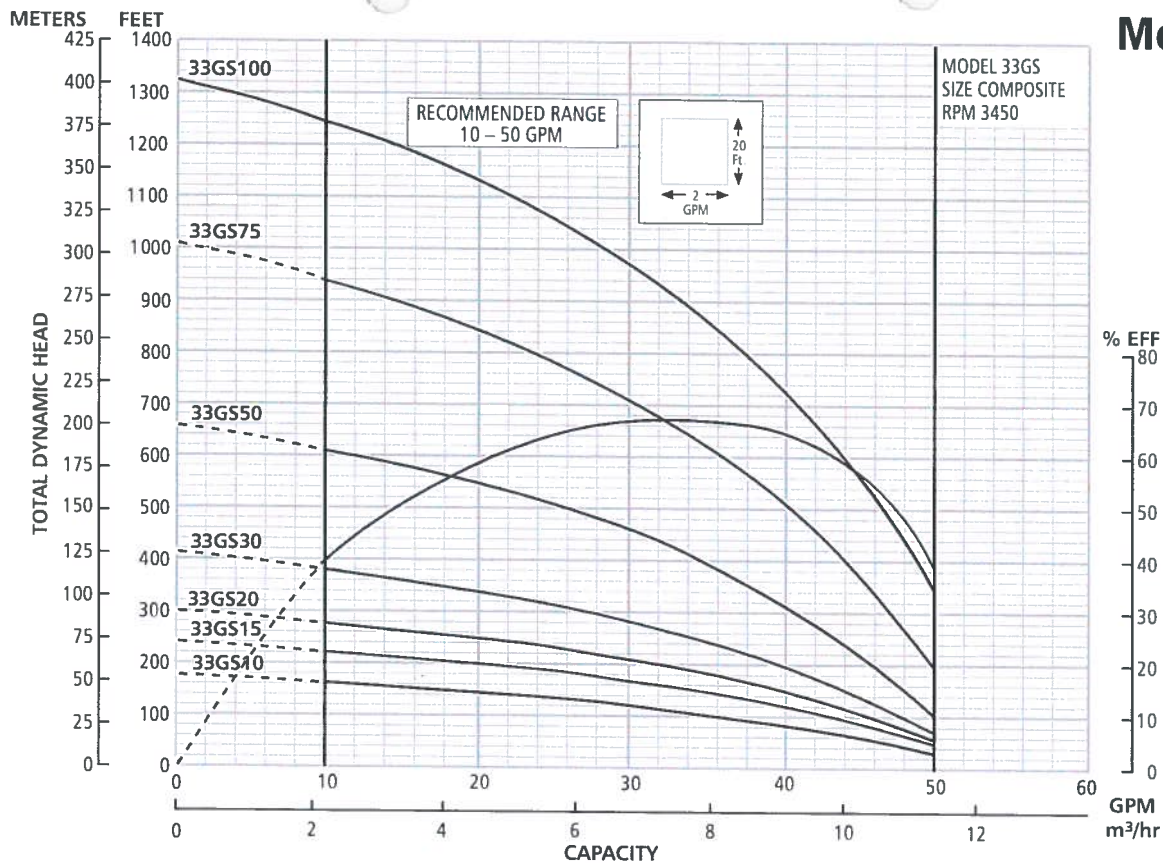
1. The value of Average EER for Air-Source Air-Conditioners and Heat Pumps is used rather than the Seasonal Energy Efficiency Ratio. SEER is based on an indoor temperature of 80°F, an outdoor temperature of 82°F, insufficient fan power requirement, and insufficient moisture removal capability in most climates. These conditions substantially over-predict cooling efficiency. (See "Climatic Impacts on HSPF and SEER for Air-Source Heat Pumps", Fahey, et. al., ASHRAE Transactions, Vol. 110, Part 2, 2004.)
2. The value of Average EER for Ground Source Heat Pumps is used rather than the Ground Loop Heat Pump (GLHP) Energy Efficiency Ratio. GLHP-EER is based on an indoor temperature of 80.6°F, a ground loop temperature of 77°F, and insufficient fan power requirement. These conditions over-predict cooling efficiency especially in southern climates or when ground loops are poorly installed or under-sized.
3. The capacity and electrical demand of chillers does not include the power use of auxiliary equipment and the corresponding heat deduction for distribution of the chilled water and air. This computation includes the power input of the supply fans, chilled water pumps and condenser pumps. It also includes a correction to account for the heat introduced into the system by the supply air handler and chilled water pump. It does not include any penalties if return air fans or fan powered VAV terminals. This can be estimated by adding the total static pressure (TSP) to the supply fan TSP.

GPMpTonH	2.25	Gal/min
GPMpTonC	2.25	Gal/min
Heating	1,751,625	Gal/year
Cooling	175,163	Gal/year
Total	1,926,788	Gal/year
	257,592	Cu.Ft./year
	5.913	AcreFt/year

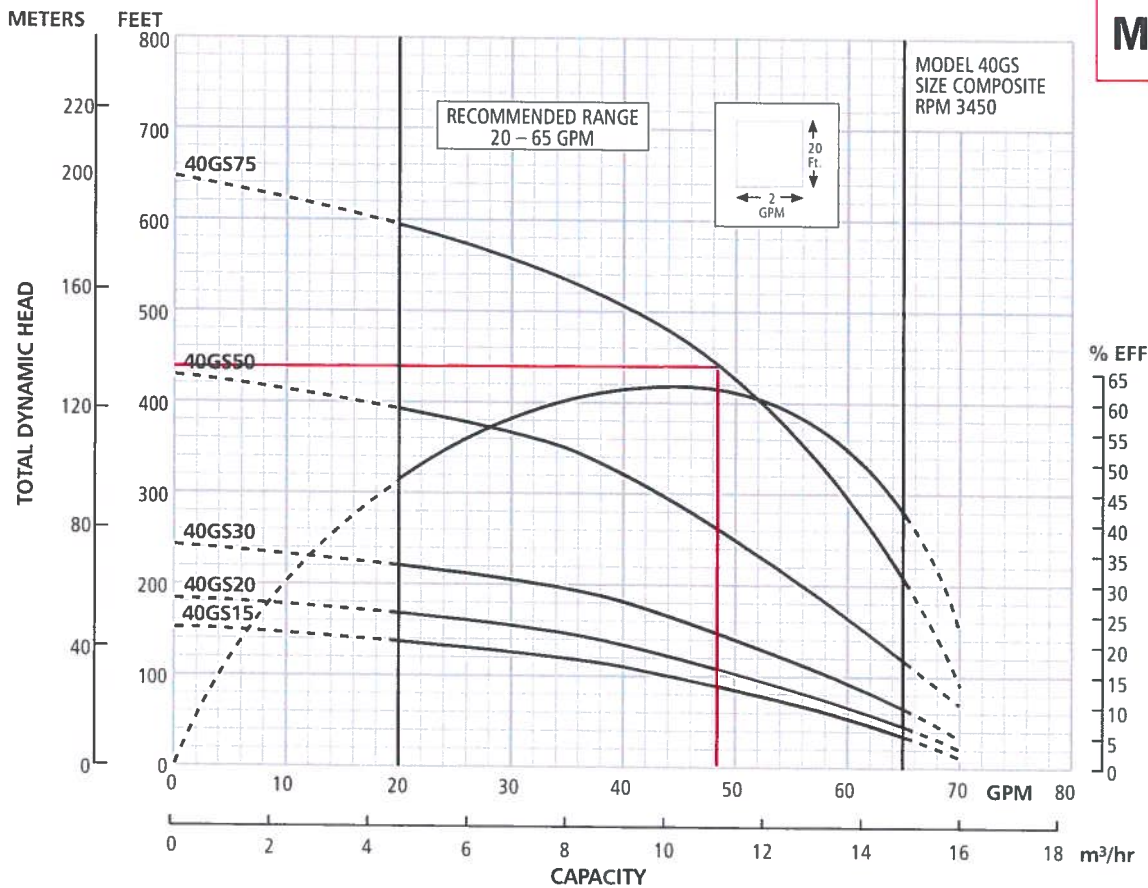
Heating	1250	hours/year
Cooling	250	hours/year

DivRateH	0.39 CFS	heating
DivRateC	0.19 CFS	cooling

Model 33GS



Model 40GS



THEORETICAL HORSEPOWER EQUATION WORKSHEET

Water Right No.: 63-33700
 Reviewer: Ashley Newbry
 Date of Review: 7/28/2014

P/D No.:	Scenario 1	Scenario 2	Scenario 3	
PUMP HORSEPOWER (HP)	7.5	7.5	7.5	
BOOSTER HORSEPOWER (HP)	0	0	0	
PUMPING LEVEL (FT)	312	340	347	
DISCHARGE PRESSURE (PSI)	40	40	40	
RATE OF FLOW (CFS)	0.114	0.107	0.105	AVG 0.11
RATE OF FLOW (GPM)	51.3	48.0	47.2	48.81
TOTAL DYNAMIC HEAD (FT)	404.4	432.4	439.4	425.4

The above calculates the formula =

$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

We estimated the lift distances based on well log. At pump test, drawdown was significant. Therefore we estimated the pump to be set close to the well screens. Discharge pressure is estimated at 40 psi because this value bings us closest to the GPM and TDH values on the manufacturer's pump curve.
 *Well discharges into a pressure tank.

Note: Though there are many water rights found in the same quarter-quarter, there are no active water rights which overlap the Cooks' property.

Process	Basin Sequence	Draft	Owner	Source	POD/POU	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	Total Acres
Water Right	63-11030	N	WISDOM, GREG W	GROUND WATER	POD											X						0
Water Right	63-11030	N	WISDOM, GREG W	GROUND WATER	POU											X						0
Water Right	63-11056	N	MINER, CLARICE L	GROUND WATER	POD									X								0
Water Right	63-11056	N	MINER, CLARICE L	GROUND WATER	POU									2.2								2.2
Water Right	63-11407	N	HOFFER, RICHARD	GROUND WATER	POD												X					0
Water Right	63-11407	N	HOFFER, RICHARD	GROUND WATER	POU												X					0
Water Right	63-11407	N	HOFFER, RICHARD	GROUND WATER	POU									2.0								2
Water Right	63-11589	N	MORRISON, BARBARA J, MORRISON, ROBERT D	GROUND WATER	POD															X		0
Water Right	63-11589	N	MORRISON, BARBARA J, MORRISON, ROBERT D	GROUND WATER	POU															0.9		0.9
Water Right	63-12005	N	ODIORNE, CANDACE G; ODIORNE, DONALD D	GROUND WATER	POD												X					0
Water Right	63-12005	N	ODIORNE, CANDACE G; ODIORNE, DONALD D	GROUND WATER	POU												2.4					2.4
Water Right	63-120G	N	FARMERS UNION DITCH CO LTD	BOISE RIVER	POU									X		X	X	X	X	X	X	0
Water Permit	63-12129	N	CADOTTE, DON	GROUND WATER	POD											X						0
Water Permit	63-12129	N	CADOTTE, DON	GROUND WATER	POU											4.8						4.8
Water Right	63-12130	N	HARSHMAN, KENNETH C	GROUND WATER	POD											X						0
Water Right	63-12130	N	HARSHMAN, KENNETH C	GROUND WATER	POU											2.7						2.7
Water Right	63-12130	N	HARSHMAN, KENNETH C	GROUND WATER	POU											X						0
Water Right	63-12372	N	DRAYTON, SCOTT, DRAYTON, SUSAN	GROUND WATER	POD											X						0
Water Right	63-12372	N	DRAYTON, SCOTT, DRAYTON, SUSAN	GROUND WATER	POU											2.0						2
Water Right	63-123C	N	FARMERS UNION DITCH CO LTD	BOISE RIVER	POU									X		X	X	X	X	X	X	0
Water Right	63-124Q	N	FARMERS UNION DITCH CO LTD	BOISE RIVER	POU									X		X	X	X	X	X	X	0
Water Right	63-125J	N	FARMERS UNION DITCH CO LTD	BOISE RIVER	POU									X		X	X	X	X	X	X	0
Water Right	63-126F	N	FARMERS UNION DITCH CO LTD	BOISE RIVER	POU									X		X	X	X	X	X	X	0
Water Right	63-165M	N	FARMERS UNION DITCH CO LTD	BOISE RIVER	POU									X		X	X	X	X	X	X	0
Water Right	63-17167	N	ASHLEY, DON; ASHLEY, KATIE	GROUND WATER	POD										X							0
Water Right	63-17167	N	ASHLEY, DON; ASHLEY, KATIE	GROUND WATER	POU										X							0
Water Right	63-18338	N	PECKHAM, GLEN LEE	GROUND WATER	POD											X						0
Water Right	63-18338	N	PECKHAM, GLEN LEE	GROUND WATER	POU											X						0
Water Right	63-18741	N	PAYNE, ELEANORE A, PAYNE, G RICHARD	GROUND WATER	POD												X					0

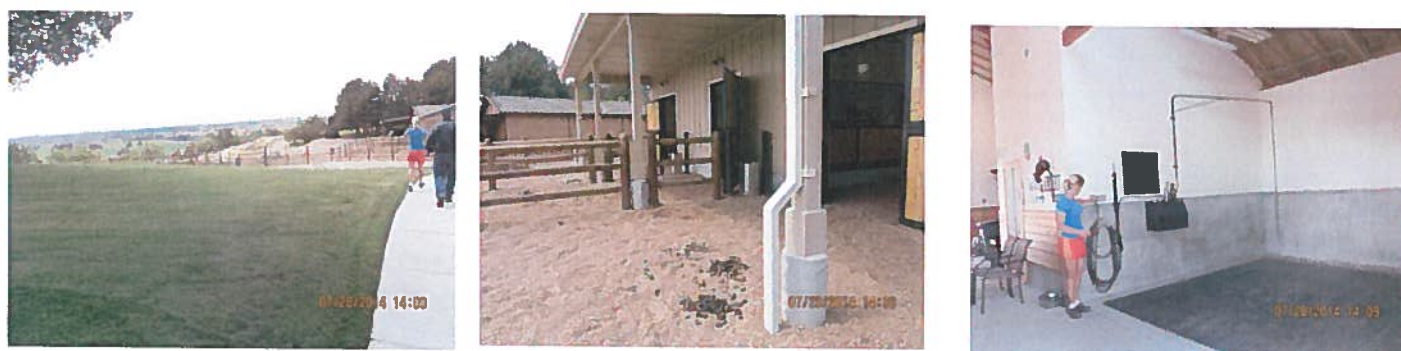
63-33700

PHOTOGRAPHER AND DATE OF PHOTOS ASHLEY NEWBRY • July 28, 2014

FILE NUMBER 63-33700



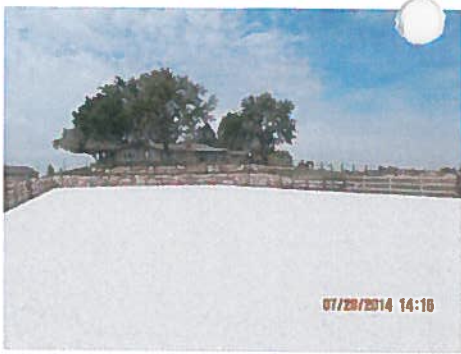
The photos show the newly drilled supply well outfitted with a Goulds 40GS75 submersible pump (left), a quick shot of the pressure tank and its specifications (center), as well as the well pump control area (right). Well controls include: Flexcon Industries Flex 2 pressure tank, Franklin Control Systems – Cerius Industrial P-Series variable frequency drive, and TCI VIK motor protection filter.



These photos show the irrigated lawn approach to the barn and stables (left), the horse stables outside the barn which are outfitted with automatic horse watering stations (center), and the horse washing station inside the barn (right).



An irrigated vegetable garden (above) lies between the barn and the riding arena.



The riding arena (left) is irrigated with Aqualink Impact Rotor sprinklers (center). It also has one automatic horse watering station (right).



This property has some irrigated (center) and non-irrigated areas (right) of the pasture. The irrigated areas are outfitted with pop-up Rainbird 5000 Plus Series rotors (left).



The old domestic well (left) has been retrofitted to operate as an injection well, with a heat exchanger (right) inside the home. This system cools and heats the home on a seasonal basis.

Edl, Michele

From: Bud Michael [BMichael@heatcontroller.com]
Sent: Tuesday, September 09, 2014 12:20 PM
To: Edl, Michele
Cc: Climatemaster
Subject: Re: Fw: Heat Controller, Inc.: Comfort-Air water use

Hi Michelle,

We typically set units using ground water, or open loops to **2.25 gpm per ton**. This being a 6 ton unit, we would set it up for 13.5 or 14 gpm. I don't have a good answer for what percentage of run time we might have, but I am forwarding this to someone that might be able to help us.

Have a great day!

HEAT CONTROLLER

A **WATS** Company

Bud Michael
Heat Controller
1900 Wellworth Avenue
Jackson, Michigan 49203
Telephone: 517-787-2100
Direct: 517-780-3208
Fax: 517-787-9341
bmichael@heatcontroller.com

From: Customer Support/HCI
To: Bud Michael/HCI@HCI
Date: 09/09/2014 08:21 AM
Subject: Fw: Heat Controller, Inc.: Comfort-Air water use
Sent by: MJ Jacobs

Customer Service

HEAT CONTROLLER

A **WATS** Company

1900 Wellworth Avenue, Jackson, MI 49203
517-787-2100-Phone
517-787-9341-Fax
customerservice@heatcontroller.com

----- Forwarded by MJ Jacobs/HCI on 09/09/2014 08:24 AM -----

From: Michele Edl <Michele.Edl@idwr.idaho.gov>
To: webmaster@heatcontroller.com
Date: 09/08/2014 06:09 PM
Subject: Heat Controller, Inc.: Comfort-Air water use

This is an enquiry e-mail via <http://www.heatcontroller.com/> from:
Michele Edl <Michele.Edl@idwr.idaho.gov>

I work for the Idaho Department of Water Resources. I have been assigned to issue a water right license for several uses including a ground water sourced heat pump Model: HTD070A1C01JRN Serial P15096408. The license requires a volume of water used. So I need to be able to estimate the annual volume of water used by this unit. The home was constructed in 1976 is approx. 3110 sq ft (including garage) and is located in Star Idaho (near Boise Idaho). I understood that the installer may have set the flow rate at 15 gpm. I am trained as a Civil Engineer so I have a lot to learn for HVAC systems. Can you help me out?

Confidentiality Notice: The information contained in this e-mail and any attachments may be legally privileged and confidential. If you are not an intended recipient, you are hereby notified that any dissemination, distribution or copying of this e-mail is strictly prohibited. If you have received this e-mail in error, please notify the sender and permanently delete the e-mail or any attachments immediately. You should not retain, copy or use this e-mail or any attachment for any purpose, nor disclose all or any part of its contents to any other person.

Nelson, Dan

From: Victor and Tracy COOK [tracygcook@msn.com]
Sent: Tuesday, July 29, 2014 9:26 AM
To: Nelson, Dan; Newbry, Ashley
Subject: water to air heat pump

I spoke with Aaron, Paramount Heating and A/C and he stated that 15 gal/min is what our heat pump uses. He was out on a call and did not have his books in front of him, so if that number seems wrong let me know and I will try to do more research with the model number.

Thank You, and please let me know if you need any further information.

Tracy Cook
863-9110

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12509 W Able Dr

Star, ID 83669



Street View Map

Share on:

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Overview

Schools & Neighborhood

Property History

Sold Price Not Available

Status	Not For Sale
Beds	3 Bed
Baths	3 Full Bath
House Size	3,114 Sq Ft
Lot Size	4.85 Acres
Year Built	1976

Estimated Values



\$371,528	Est
\$314,904	Low
\$429,144	High

Get Professional Advice

Free agent analysis



Message (optional)

I would like to be contacted with regards to a FREE agent analysis of my home's value.

I'm planning to...

☐ Sell ☐ Buy

First Name

Last Name

Email

 Phone Number
(optional)

Request analysis

Serviced by a Real Estate Professional. Privacy Policy

Public Records

Property Information from local public records.

Beds	4 Bed	Baths	-
House Size	3,114 Sq Ft	Lot Size	1.01 Acres
Year Built	1976	Price	-
Property Type	Single Family Home	Stories	1
Style	Not Available	Garage	Attached Garage
Units	1	Cooling	-
Pool	-	Construction	-
Heating	-	Year Renovated-	
Rooms	-	Roofing	Other (Not Classified)
Fireplace	Yes		

Location

Street View Map

Show Nearby Listings

Nearby Homes for Sale



3146 N Cherry Laurel Way, Star, ID 83...

\$296,900

3 Bd | 3 Ba | 2,421 Sq Ft | 8,276 Sq Ft Lot

Feedback

HEAT CONTROLLER, INC.

Jackson, Michigan 49203

The equipment complies with the 1999-2004 requirements of ASHRAE standard 90.1



Model

HTD070A1C01JRN

Serial

P15096408

Electrical Service

208/230	V
60	Hz
1	Ph
157	Min V

Current(Amps)

Min CKT Ampacity	45.4A
Branch CKT Selection Current	NA
Total Amps	NA

Fuse/Circuit Breaker Size

Max Time Delay Fuse	70A
Max HACR CKT. BKR.-UL	70A
Max CKT. BKR.-CSA	70A

Factory Charged

Refrigerant	R410A
156	oz/CKT

Max Outlet Air Temp NA

Unit Pump Max 4.0A

Elec Heater kW

NA

Compressors(EA)

RLA	27.2
LRA	150.0
QTY	1

Blower Motor(EA)

HP	1
FLA	7.0
QTY	1

ISO Capacity Ratings

Cooling

A27-W30NW15/B25	
20/23/21	kW

Heating

A20-W20NW10/B0	
26/21/16	kW

Min Distance to Combustible Surfaces(in.)

NA

Design Pressure PSC

Max Ext Static Pressure, (in. water)

0.75

High

500

Low

250



9000376
Certified to UL STD 195
Certified to CAN/CSA
STD C22.2 NO 250-05



07/28/2014 14:31

HEAT CONTROLLER, INC.

Jackson, Michigan 49203



Model

HTD070A1C01JRN

Serial

P15096408

CK Box	Heater Model	Supply Circuit	kW 208/240V	Min CKT AMP	Max Fuse/BKR
	HGL4	SINGLE	2.9/3.8	17.4/19.8	20/20
	HGL10	SINGLE	7.2/9.6	43.4/50	45/50
	HGL15	SINGLE	10.8/14.4	64.9/75.0	70/80
		Dual L1/L3	7.2/9.6	43.3/50.0	45/50
		Dual L2/L4	3.6/4.8	21.6/25.0	25/25
	HGL20	SINGLE	14.4/19.2	86.5/100.0	90/100
		Dual L1/L3	7.2/9.6	43.3/50.0	45/50
		Dual L2/L4	7.2/9.6	43.3/50.0	45/50

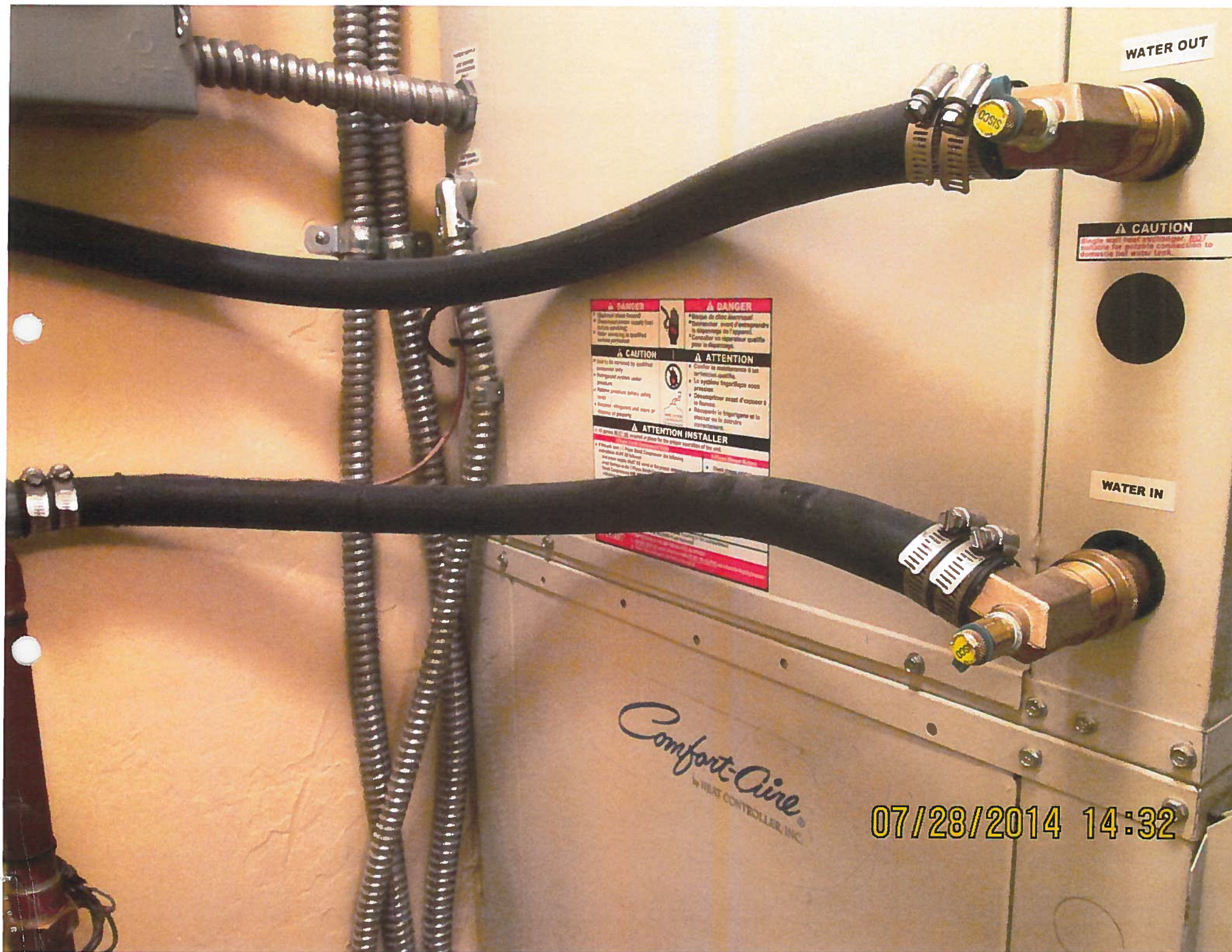
Combustible
Clearance (IN)
Unit 0 & Duct 0
For FT 0

Max Ext. Static
Pres.(in. water)
.6



DEALER: Check Installed Heater with an 'X' in check box Max Outlet Air Tmp : 200 F

07/28/2014 14:31



WATER OUT

CAUTION

Single wall heat exchanger, **NOT** suitable for potable connection to domestic hot water tank.

⚠ DANGER • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades.	⚠ DANGER • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades.
⚠ CAUTION • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades.	⚠ ATTENTION • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades.
⚠ ATTENTION INSTALLER • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades. • Do not touch the fan blades.	

WATER IN

Comfort-Aire
by HEAT CONTROLLER, INC.

07/28/2014 14:32