

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: 75-14309

Exam Date: 07/21/14

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y N
- Irrigation of 5 acres or less
 - Storage of up to 14.6 AF for stockwater purposes only
 - Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - Other < >

2. Current Owner: Name: Stratton
Owner of Record Correct? X Y N
Address of Record Correct? X Y N
If No: Address

3. Beneficial Use Fees have been paid: X Y N Receipt No: C095391

4. **SOURCE** **TRIBUTARY**

Groundwater

Method of Determination: Info. from permit holder.

Change in Source: Y X N**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: X NO Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: POU is not in a subdivision and has PIN of RP20N21E018402. 74-10447 is for Lot 5 Martin Capps Subdivision. 75-14617 is for fields mostly in NWSE north of POU in RP20N21E017801, 75-27D is for taxlots north and east of POU, RP20N21E018403 & RP20N21E019003. 75-13709 is for fields mostly in SESE east of POU in RP20N21E019003.

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

Water Right No.	Source	Purpose of Use	Basis

Comments: 75-10258 and 75-13709 are Spring rights. 74-10447 is for Lot 5 Martin Capps Subdivision.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.	County
Groundwater			SW	SE	1	20N	21E	Lemhi
								B.M.

Method of Determination: DRG analysis and information provided by permit holder.

Change in POD? Y X N Amendment Required? Y X N

2. **PLACE OF USE:** Use: Irrigation

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
26N	21E	26											0.1			0.9			
		Lot #																	
																Total Acres =		1.0	

Method of Determination: GIS Imagery.

Change in POU? ____Y__X__N Amendment Required? ____Y__X__N

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

Indicate weir size/pipe as applicable.

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

___ 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
		1.5	15 SQE- 290	Grundfos	

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: < _____ >

E. FLOW CALCULATIONS

___ Additional Computation Sheets Attached

Measured Method:

Domestic: Per Field Examiners Handbook, 0.02 cfs is standard for one home, no yard.

Per Application Processing Memo #22, 0.04 cfs for domestic use.

Irrigation:

Per App. Processing Memo #17, up to 0.03 cfs/acre for irrigation up to 5 acres acceptable. 1.0 acres(0.03 cfs) = 0.03 cfs

See theoretical pump calc. sheet**Measurement = 0.02 for irrigation cfs****Permit allowed = 0.02 cfs for irrigation, 0.04 for domestic****License recommend for 0.02 cfs for irrigation, 0.04 cfs for domestic.****F. VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1.0 \times 3.5 = 3.5$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.02 \times 214 \times 1.9835 = 8.49$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 3.5$$

2. Volume Calculations for Other Uses:

Domestic use limited to 13000 gal/day.

G. PURPOSE OF USE

Irrigation ____X__Y ____N # Stock _____ Domestic # of Homes ____1____

Other:

Change in Purpose of Use? ____Y ____N

Method of Determination: Information provided by permit holder.

If Yes: From Use _____ To Use _____ Amount _____ CFS _____ AFA _____

H. NARRATIVE/REMARKS/COMMENTS

- In Wild and Scenic Watershed: Salmon River Excluding Middle Fork
 Season of Use: 04/01-10/31 (214 days)
 Headgate: 3.5
 Cons. Use: 2.5

Not in a water district at this time.

Conditions

- Prior to diversion of water under this right, the right holder shall install a lockable device, subject to the approval of the Department, in a manner that will provide the watermaster suitable control of the diversion. Photos provided by permit holder.
- The right holder shall install or construct a straight length of conduit or ditch suitable for installing a device for measuring the entire flow of water being diverted in connection with this right. If the right holder uses conduit, the straight length of conduit shall be at least ten times the diameter of the conduit and shall be above ground or otherwise easily accessible. Photos provided by permit holder.

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

I. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Irrigation	04/01 to 10/31	0.02 CFS	3.5AF
Domestic	01/01 to 12/31	0.04 CFS	0 AF
<u>Totals:</u>		0.06 CFS	3.5 AF
13000 gal condition on domestic			

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 ☐ None

Other: < >

J. AUTHENTICATION

Field Examiner's Name Danill Torrance Date 9-26-14

Reviewer Daniel A. Melan Date 9-30-14

MEMORANDUM

TO: FILE 75-14309
FROM: DAN NELSON
SUBJECT: PUMP CURVE AND SPRINKLER CALCULATIONS
DATE: SEPTEMBER 5, 2014
CC:

Per 08/25/2004 email from permit holder- using 2-3 sprinklers at 4.4 gpm.

$3 * 4.4 = 13.2 \text{ gpm}$	$13.2 * 448 = 0.029 \text{ cfs}$
$2 * 4.4 = 8.8 \text{ gpm}$	$8.8 * 448 = 0.019 \text{ cfs}$

Well Log Information:

Static = 105 ft
Screens are at 200 ft to 260 ft
Water Table at 209 ft

Owner states pump set at 220 ft. This is consistent with the water table being reported at 209 ft.
(Pump set at least 10 ft. below water table.)

Pumping water level is estimated at 210 ft ($220 - 10 = 210$)

Total Dynamic Head (TDH) = Lift + (PSI * 2.31)

Permit holder states he pumps at 40 PSI

$TDH = 210 + (40 * 2.31) = 302.4 \text{ ft}$

Per pump curve, 302 TDH for 15SQE – 290 pump is 16.5 gpm $16.5 * 448 = 0.036 \text{ cfs}$

Domestic Use:

Pump Curve supports 0.04 cfs
Permit for 0.04 cfs

Irrigation Use

Pump Curve supports 0.04 cfs
Sprinkler Output Calculation between 0.03 and 0.02 cfs
Permit for 0.02 cfs

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 94-7570
 Reviewer: D. Favreau
 Date of Review: 6/16/2014

P/D No.:	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	1.5	1.5	1.5
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	220	220	220
DISCHARGE PRESSURE	40	50	60
RATE OF FLOW (cfs)	0.03 13	0.03 12	0.03 12 0.03 12.40

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:

The horspower was supplied by the owner of the system through a picture of the pump. The pressure was estimated by using the standard for pressure tank turn on and shut off of 40 to 60 psi. The lift was given by permit holder. The pump exceeds the maximum allowed by the permit.

75

Office Use Only
 Inspected by: _____
 Twp _____ Rge _____ Sec _____
 _____ 1/4 _____ 1/4 _____ 1/4
 Lat: _____ : _____ : _____ Long: _____ : _____ : _____

11 WELL TESTS:

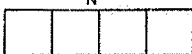
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Flowing Artesian

Yield	Drawdown	Pumping Level	Time
10+			

Water Temp _____ Bottom hole temp _____
Water Quality test or comments: _____

3 LOCATION OF WELL by legal description.

N

 Twp 20 ☒ North ☐ South
 Rge 21 ☒ East ☐ West
 Sec 1
 1/4 SW 1/4 SE 1/4
 10 Acres 40 Acres 160 Acres
 Gov't Lot _____
 County Lemhi
 Lat: : : Long: _____
 Address of Well Site: Williams Creek Road

Address of Well Site: Williams Creek Road
City: Salmon

(Give at least name of Road + Distance to Road or Landmark)

Lot No	A	Blk No	Subd Name:	Capps
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☒ Domestic Thermal ☐ Municipal Injection ☐ Monitor Other ☐ Irrigation _____

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

SEAL/FILTER PACK			AMOUNT	Method
	From	To		
Bentonite	0	58	10 bags / 500 lbs	Annular

Was drive shoe used?	☒ Yes	☐ No	Shoe Depth(s)	-58, -260
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Was drive shoe seal tested?	☒ Yes	☐ No	Shoe Depth(s)	
	☒ Yes	☐ No	How?	Air

Dia.	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8"	+2	-58	0.25	Steel	☒	☐	☒	☐
6"	-40	-260	0.25	Steel	☒	☐	☒	☐
					☐	☐	☐	☐

Length of headpipe: _____ Length of Tailpipe: _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
-200	-260	1/4 X 5	60		Steel	☒	☐
						☐	☐

105 ft below ground Artesian Pressure: lb

Describe access port or control devices:

Bore Dia.	From	To	Remarks: Lithology Water Quality & Temperature	Y	N
12	0	5	Brown Top Soil		X
12	5	14	Pink Clay		X
12	14	20	Large Gravel Boulders		X
10	20	47	Large Gravel Boulders		X
10	47	58	White Clay & Rock mix		X
8	58	131	White Clay & Rock mix		X
8	131	146	Green Clay & Rock mix		X
8	146	157	White Clay & Rock mix		X
8	157	165	Green Clay & Rock mix		X
8	165	209	White Clay & Rock mix		X
8	209	245	Brown Sandstone Fractured	X	
8	245	260	Grey Sandstone Fractured	X	
			RECEIVED		
			MAY 17 2007		
			Department of Water Resources Eastern Region		

Completed Depth: 260 ft

Date Started: 05/04/07

Date Completed: 05/10/07

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm: Independent Drilling KC Firm No. 343

Firm Official: Deen D. Durr Date: 5/11/2007
and _____

Supervisor/Operator: Thelma Date: 5/11/2007

[illegible]

[illegible]

Water Right	75-7324	N	ABBOTT JR, LEWIS Z; ABBOTT, BRENDA K	GROUND WATER	POU		9.0			9
Water Right	75-7324	N	ABBOTT JR, LEWIS Z; ABBOTT, BRENDA K	GROUND WATER	POU		X			0
Water Permit	75-7385	N	HENRY, ALMA A	GROUND WATER	POD	X				0
Water Permit	75-7385	N	HENRY, ALMA A	GROUND WATER	POU	3.0				3
Water Right	75-7424	N	BROSTROM, JODY K	GROUND WATER	POD		X			0
Water Right	75-7424	N	BROSTROM, JODY K	GROUND WATER	POU		4.0			4
Water Right	75-7424	N	BROSTROM, JODY K	GROUND WATER	POU		X			0
Water Right	75-7548	N	KRASOWSKI, DENNIS J; KRASOWSKI, MARY A	GROUND WATER	POD		X			0
Water Right	75-7548	N	KRASOWSKI, DENNIS J; KRASOWSKI, MARY A	GROUND WATER	POU		4.0			4
Water Right	75-7594	Y	TOLMAN, EDWARD REX	SALMON RIVER	POU		0.3			0.3

Favreau, Danielle

From: Lynn Stratton [oldstratcat@centurylink.net]
Sent: Monday, August 25, 2014 2:32 PM
To: Favreau, Danielle
Subject: Info for Permit 75-14309
Attachments: 001.JPG; 002.JPG; 003.JPG; Sprinkler Nozzle GPM.pdf; Watered Areas.jpg

Danielle,

Sorry for not getting this to you earlier, but I had a death in the family. I will have a friend obtain a GPS coordinate for the well in the next couple days.

Per your letter of 7/23/2014 you requested the following information.

Query 1. Point of diversion information including a photograph and GPS location.

Response. Photos of the well casing is attached. Location is included on a map also attached.

Query 2. Make, model, serial number.

Response. The pump make is Grundfos, model SQE 15-290. Serial number is unavailable at this time. The pump is 220 feet down the well shaft.

Query 3. Sprinkler information.

Response. Water line is 1-1/4". I use up to three RainBird nozzles model 25PDJA that use 4.4 gallons per minute at 40 psi. RainBird nozzle date is attached.

Query 4. Photo of straight conduit section.

Response. Attached photo file.

Query 5. Photo of lockable control.

Response. Photo attached.

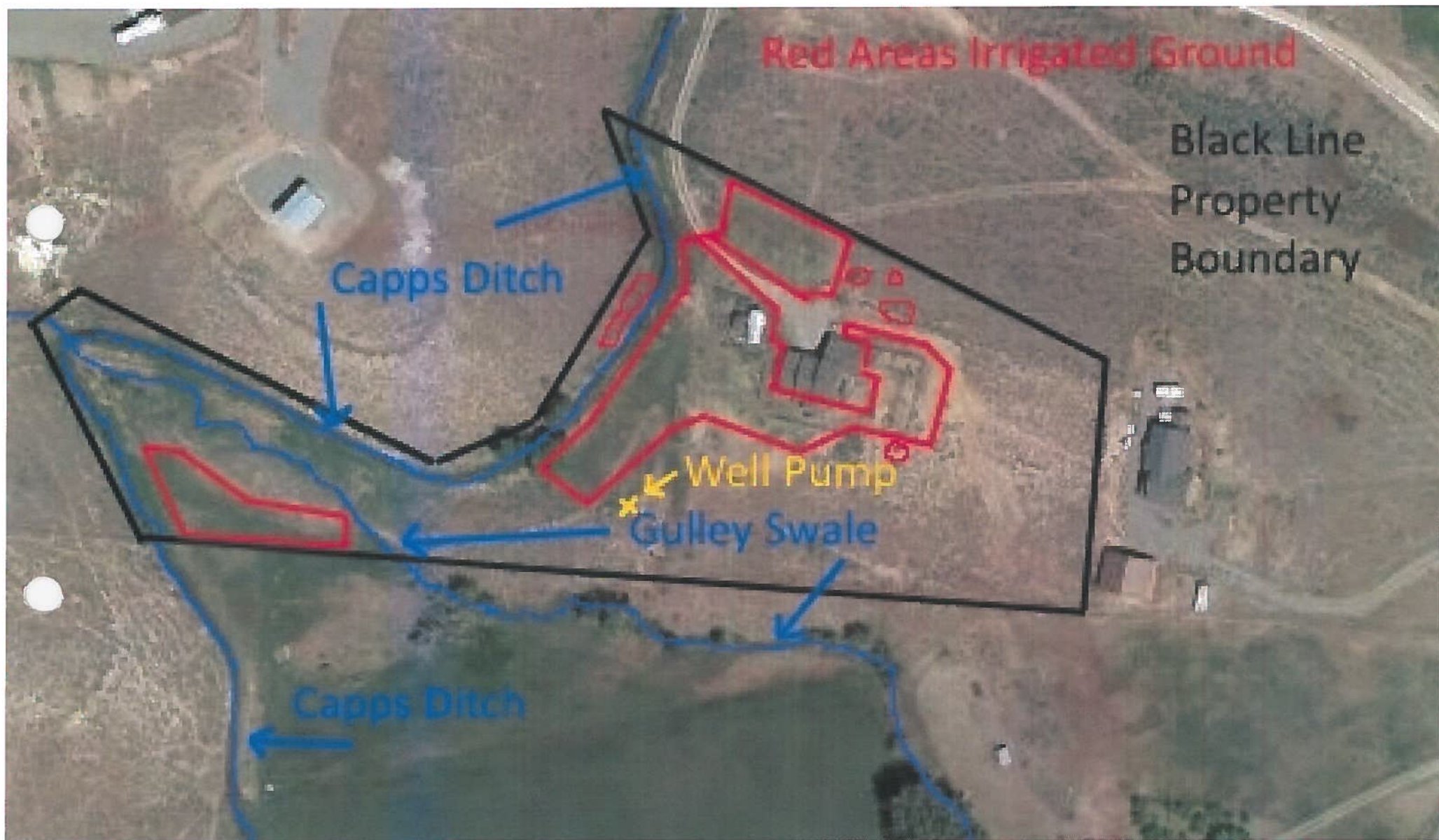
The pump data, such as the performance curves is available in a .pdf file. The Grundfos SQE Model 15-290 pump info is also available online at <http://us.grundfos.com/content/dam/GPU/Products/DME/sq-sqe-sgene-cu331sp.pdf>. I will send you the .pdf in a separate e-mail as it is about 5 mb. The info for the specific pump model is on pages 16 and 20. The charts indicate at the well head the pump can only deliver a bit more than 8 gallons per minute. Based upon the well output, I do not have sufficient water available to operate more than three nozzles at a time. The actual land under irrigation is likely less than the 1.5 acres identified in the original application. Once the well casing storage is depleted the well will produce just enough to run two of the three RainBird 25PDJA sprinkler heads. Much of the area you depicted in the map you sent is actually the Capps Ditch and/or natural drainage swale. I revised and submitted a new map. The white body shown in the map west of the house is a travel trailer that can be moved about from time to time. There are two straight conduit sections of pipe accessible for a future measuring device, one is horizontal and one is vertical. Both are 50+ times the diameter of the pipe. The Backflow preventer valves located at the head of the system have the capability to be chained and locked as required. A friend will come in the next few days and take a GPS reading at my well head. I will submit that info as soon as I can. I believe this is all you need, but feel free to contact me if there is something else you need.

Lynn Stratton
24 Summerhill Road
Salmon, Idaho 83467

208-768-7053

oldstratcat@centurylink.net











Impact Performance

Well will support three impact sprinkler nozzles for 6 hours before cavitation. Will accommodate two for twelve hours.

AG-5 Maxi Paw Performance

Pressure psi	Nozzle	Radius ft.	Flow GPM	Precip in/h	Precip in/h
25	06	-	-	-	-
	07	32	2.2	0.41	0.48
	08	35	2.8	0.44	0.51
	10	38	4.2	0.56	0.65
35	12	39	5.5	0.70	0.80
	06	37	2.0	0.28	0.32
	07	37	2.7	0.38	0.44
	08	38	3.3	0.44	0.51
45	10	41	4.8	0.55	0.64
	12	42	6.3	0.69	0.79
55	06	38	2.3	0.31	0.35
	07	39	3.0	0.38	0.44
	08	40	3.7	0.45	0.51
	10	42	5.4	0.59	0.68
60	12	44	7.1	0.71	0.82
	06	38	2.5	0.33	0.39
	07	41	3.3	0.38	0.44
	08	41	4.1	0.47	0.54
60	10	43	6.0	0.62	0.72
	12	45	7.9	0.75	0.87
60	06	38	2.6	0.35	0.40
	07	41	3.5	0.40	0.46
	08	42	4.2	0.46	0.53
	10	44	6.4	0.64	0.74
60	12	45	8.4	0.80	0.92

LG-3 Mini Paw Performance

Pressure psi	Nozzle	Radius ft.	Flow GPM	Precip in/h	Precip in/h
25	35	2.8	0.44	0.51	
35	38	3.3	0.44	0.51	
45	40	3.7	0.45	0.51	
55	41	4.1	0.47	0.54	
60	42	4.2	0.46	0.53	

25PJDA C Performance Chart

Pressure PSI	Radius Feet	Output GPM	Pressure Bars	Radius(m) Meters	m ³ /h
25	38	3.4	2.0	11.5	0.69
30	39	3.8	2.5	11.7	0.78
40	40	4.4	3.0	11.9	0.85
50	41	5.0	3.5	12.2	0.92

PSR Performance Chart

Pressure PSI	Radius Feet	Output GPM	Pressure Bars	Radius(m) Meters	m ³ /h
25	35	2.8	2.0	11.0	0.68
35	38	3.3	2.5	11.7	0.78
45	40	3.7	3.0	12.1	0.83
55	41	4.1	3.5	12.5	0.89

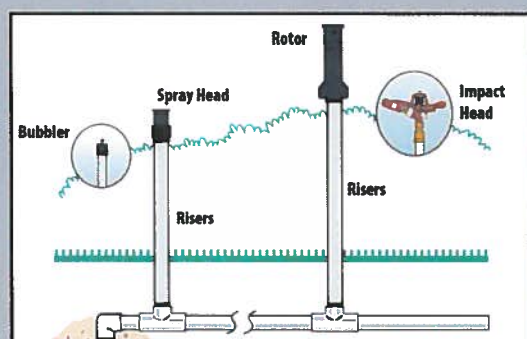
PSR+ Performance Chart

Pressure PSI	Nozzle	Radius Feet	Output GPM	Pressure Bars	Radius(m) Meters	m ³ /h
25	06	-	-	1.7	-	-
	07	32	2.2	1.7	9.7	0.50
	08	35	2.8	1.7	10.7	0.64
	10	38	4.2	1.7	11.6	0.95
35	12	39	5.5	1.7	11.9	1.25
	06	37	2.0	2.4	11.3	0.45
	07	37	2.7	2.4	11.3	0.61
	08	38	3.3	2.4	11.6	0.75
45	10	41	4.8	2.4	12.5	1.09
	12	42	6.3	2.4	12.8	1.43
45	06	38	2.3	3.1	11.6	0.52
	07	39	3.0	3.1	11.9	0.68
	08	40	3.7	3.1	12.2	0.84
	10	42	5.4	3.1	12.8	1.23
60	12	44	7.1	3.1	13.4	1.61

Precipitation Rates based on half-circle operation.
Performance best at pressures of 40 psi or higher.
Optimum water distribution achieved at 40 to 50 psi.
Performance data collected in zero wind conditions.

? System Tips Using a Riser

A riser is a threaded pipe used to connect a sprinkler head or nozzle directly to the pipe. Risers are used to position a sprinkler head above obstructions. They are especially helpful when watering above the shrub line, or watering hillsides and sloping landscapes. Impacts with their long throw are particularly useful for large areas.

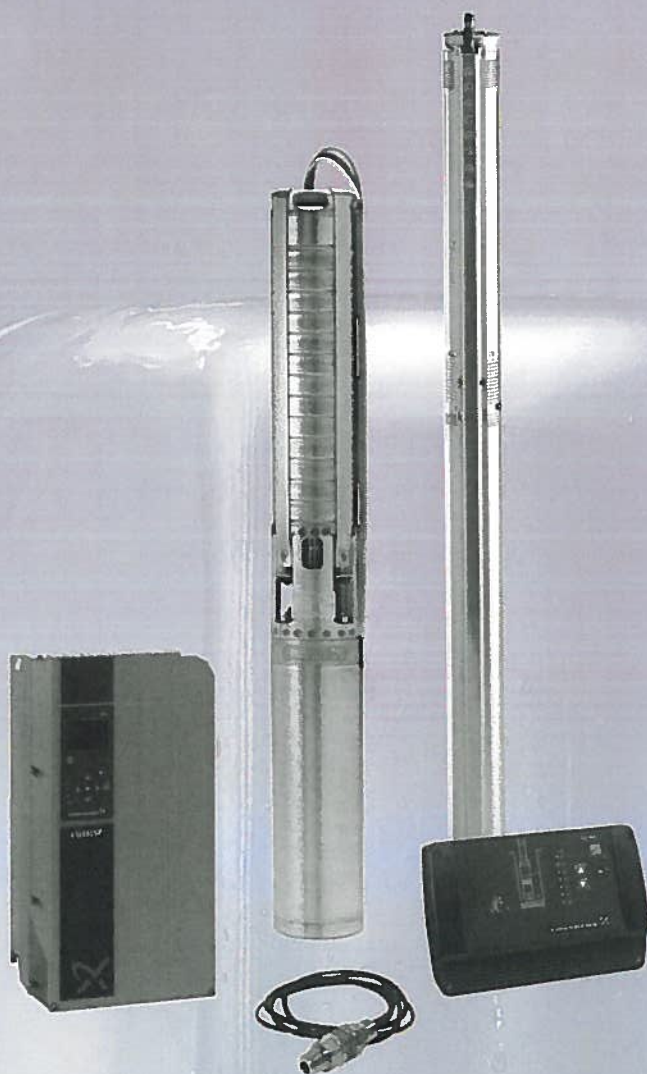


Favreau, Danielle

From: Lynn Stratton [oldstratcat@centurylink.net]
Sent: Monday, August 25, 2014 2:43 PM
To: Favreau, Danielle
Subject: Grundfos Pump Performance Data

The web address for this .pdf file is <http://us.grundfos.com/content/dam/GPU/Products/DME/sq-sqe-sgene-cu331sp.pdf>. The pertinent information can be found on pages 16 and 20. The pump is set at 220 feet depth.

SQ, SQE, SQE-NE, CU331SP



be
think
innovate

GRUNDFOS 

5. Sizing and selection

System sizing guide

Step 1

Calculate minimum head requirements at no flow conditions:

$$H_{\max} (\text{required}) = \text{dynamic head} + \text{system pressure (in feet)} + \text{above grade elevation} + \text{friction loss}$$

Step 2

Select pump from chart as follows:

- Choose model family based on the desired flow rate (i.e. 15SQE for a flow rate of 15 gpm)
- Select the first model with a value in Column 2 greater than the $H_{\max}$ calculated in Step 1 (For example: the choice for a 22 gpm model with an $H_{\max}$ of 140 ft would be the 22SQE-160).
- Double check your selection in the performance curves; see 7. *SQ curve charts* on p. 18.

System sizing matrix		
Pump type Model B	Column 1	Column 2
	Shutoff head (0 gpm) @ 3000 rpm min. speed	Head @ rated gpm @ 10700 rpm max. speed
	TDH [feet]	TDH [feet]
5SQE-90	11	86
5SQE-140	17	131
5SQE-180	22	177
5SQE-230	28	222
5SQE-270	34	270
5SQE-320	39	315
5SQE-360	45	360
5SQE-410	51	405
5SQE-450	56	450
10SQE-110	12	105
10SQE-160	17	164
10SQE-200	23	215
10SQE-240	29	267
10SQE-290	34	328
10SQE-330	40	390
15SQE-70	10	75
15SQE-110	14	123
15SQE-150	19	164
15SQE-180	24	205
15SQE-220	29	246
15SQE-250	33	287
15SQE-290	38	328
22SQE-40	5	36
22SQE-80	9	77
22SQE-120	14	117
22SQE-160	18	159
22SQE-190	23	200
22SQE-220	27	240
30SQE-40	5	33
30SQE-90	11	82
30SQE-130	16	126

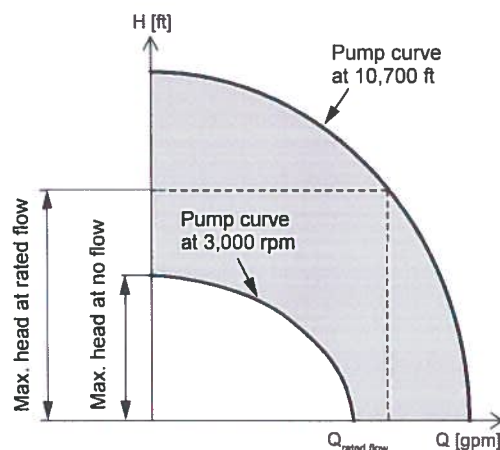


Fig. 14 Recommended sizing

Note: All calculated head requirements must lie between the selected pump models minimum and maximum speed curves.

TM01 8547 0400

6. Cable sizing

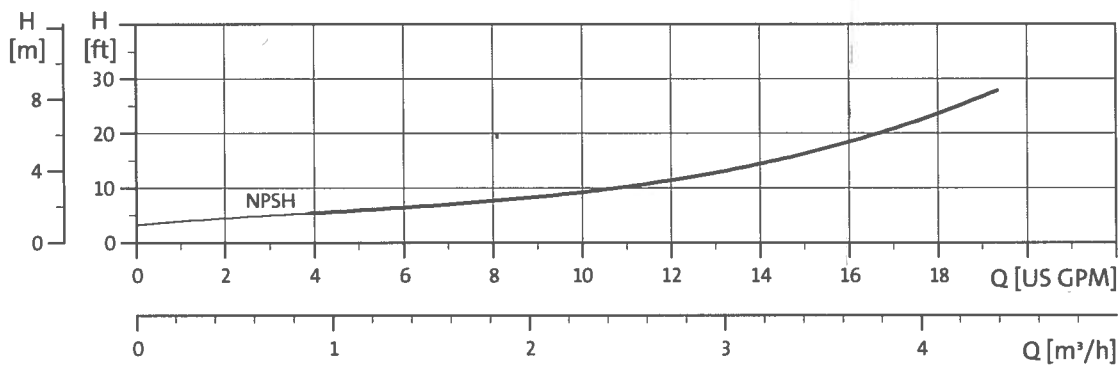
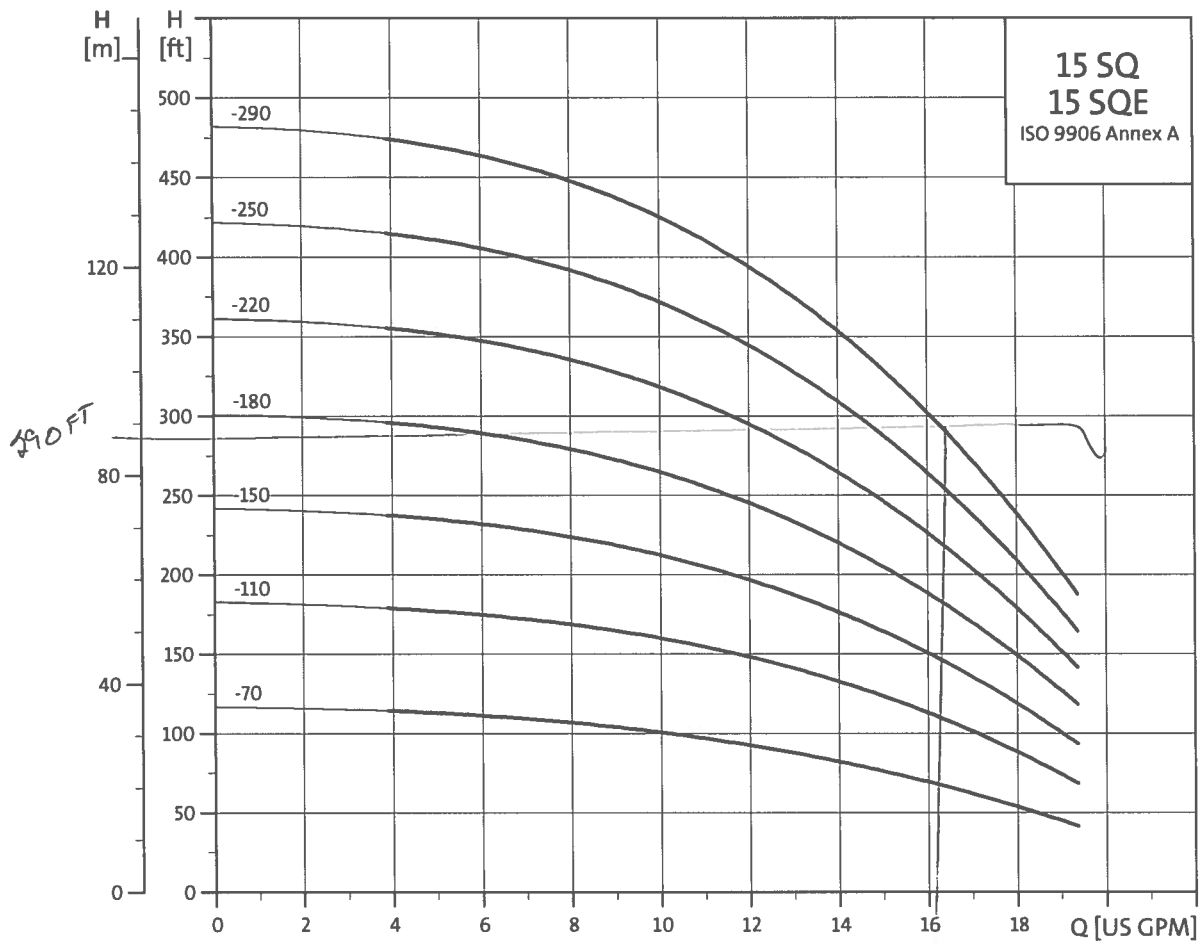
Cable sizing chart

Motor rating			Copper wire size (AWG)						
Volts	Hp	Amps	14	12	10	8	6	4	2
115	0.5	12	140	220	360	550	880	1390	2260
230	0.5	5.2	640	1000	1680	2250	4060	—	—
230	0.75	8.4	400	620	1030	1580	2510	3970	—
230	1	11.2	300	460	770	1190	1890	2980	4850
230	1.5	12	280	430	720	1110	1760	2780	4530

Cable length in feet.

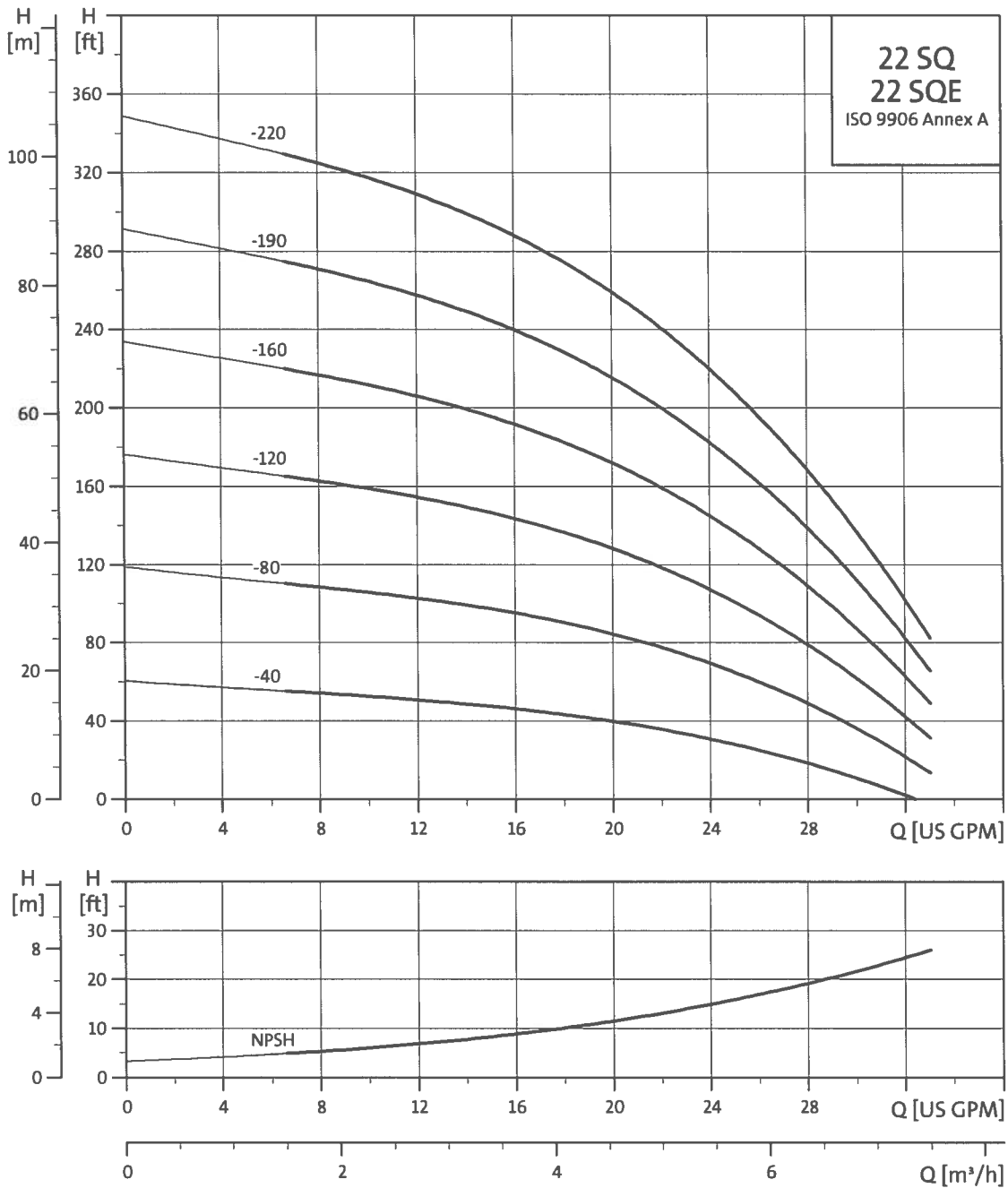
Note: shaded values do not apply when using a CU 301 as its max. recommended cable length is 650 ft.

15 SQ, SQE



TM04 7465 2010

22 SQ, SQE



TM04 7466 2010