

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-31969

Exam Date: 6/28/2010

1. Current Owner: STAR SEWER & WATER DISTRICT
PO BOX 400
STAR ID 83669
(208) 286-7431
2. Accompanied by: Hank Day and Justin Walker Relationship to Permit Holder: Water foreman
Phone No: 631-8588 Address: 100 Star Rd Star 83669

3. **SOURCE:** GROUND WATER**B. OVERLAP REVIEW**

- Other water rights with the same place of use: 63-12100 and 63-12370
- Other water rights with the same point of diversion: 63-12100 and 63-12370

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:** Method of Determination: Aerial Imagery and GPS points

GROUND WATER SE1/4SW1/4 Sec. 5, Twp 04N, Rge 01W, B.M. ADA County AKA Well #3 (D00046412)

GROUND WATER SE1/4SW1/4 Sec. 8, Twp 04N, Rge 01W, B.M. ADA County AKA Well #2 (D0000149)

GROUND WATER SW1/4NW1/4 Sec. 8, Twp 04N, Rge 01W, B.M. ADA County AKA Well #1(E0006751)

2. **PLACE OF USE:** MUNICIPAL (Large POU) Method of Determination: CAD file submitted by right holders rep.

Twp	Rge	Sec	MUNICIPAL (Large POU) Method of Determination: CAD file submitted by right holders rep.																Totals
			NE				NW				SW				SE				
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	01W	5									X	X	X				X	X	
04N	01W	6	X L1	X L2				X L5	X	X				X	X	X	X	X	
04N	01W	7	X	X	X	X	X L1	X L2	X	X	X L3				X	X	X	X	
04N	01W	8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
04N	01W	9						X			X		X						
04N	01W	15					X												
04N	01W	16					X	X											
04N	01W	17	X	X	X	X	X	X	X	X	X L4	X L4			X	X			
04N	01W	18	X	X	X	X	X L1	X L2	X						X L7				
04N	02W	1								X	X	X	X				X	X	
04N	02W	2			X	X		X	X	X	X				X	X			
04N	02W	12	X	X			X	X	X	X	X		X				X		
04N	02W	13		X	X		X		X	X			X L3				X L2		
05N	01W	31													X	X	X	X	
05N	01W	32									X	X							

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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.
- ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached

4.

<u>Well or Diversion ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge Size</u>
E0006751	US Electric Motors	125	#BF74 (H0125S2SLGX)	Fairbanks Morse Vertical Turbine	Set @ 70' runs at 78 psi
D0000149	Franklin	30	78.350121	Grundfos	3005300-8 (30hp)
D00046412	1800 RPM 460V 3Ph/60 Hz Motor	250		Goulds DWT 14 RHMC-4 stage	Set @160' runs at 89 psi

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

D. FLOW MEASUREMENTS

1.

Measurement

<u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
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Well #1 equipped with Water Specialties water meter and hp equation and pump curve information was used

Well #2 no physical measurement taken (calculated using pump curve and hp equation)

Well #3 Siemens FM Magflo Mag 5100W 7ME651888114T376

2. Measurements:

Well #1: The flow meter recorded a flow of 2000 gpm or 4.46 cfs

Well #3: The Mag meter reported a flow of 2010 gpm while the telemetry data reflected a capacity of 2150 gpm.

E. FLOW CALCULATIONS☒ Additional Computation Sheets Attached

Measured Method:

Well 1: Head = 200 ft

$$\frac{8.8 \times 0.7 \times 125 \text{ hp}}{200 \text{ ft}} = 3.85 \text{ cfs}$$
 or the pump curve reflects a capacity of 4.46 cfs

Since there is consistency between the flow meter and pump curve figures, I recommend the capacity of Well #1 of 4.46 cfs

Well 2:

$$\frac{8.8 \times 0.7 \times 30 \text{ hp}}{4 + (75 \text{ psi} \times 2.31)} = 1.04 \text{ cfs}$$
 or the pump curve reflects a capacity of 0.90 cfs

I feel comfortable recommending 0.90 cfs as the capacity of this well

Well 3: Head = 310 ft

$$\frac{8.8 \times 0.7 \times 250 \text{ hp}}{310 \text{ ft}} = 4.97 \text{ cfs}$$
 or the pump curve reflect a capacity of 5.57 cfs

The physical reading of the mag meter was 2010 gpm or 4.48 cfs. The flow information is related through telemetry to a computer where the read-out on the computer was ~2150 gpm or 4.79 cfs.

So it appears that we have a range from 4.48 cfs to 5.57 cfs. I think that the actual measurement that was related to the computer is going to be the most reliable measurement.

I feel comfortable recommending 4.79 cfs as the capacity of this well

The total capacity of the system is 10.15 cfs. The license will be limited to the rate that the permit limits or the additional increment of use found, whichever is less.

F. VOLUME CALCULATIONS: NA

G. NARRATIVE/REMARKS/COMMENTS: See the attached average daily flow and peak flow data for the district. I calculated the average usage in cfs and got a maximum diversion of 1.06 cfs between Wells #1 and #3. To determine the maximum diversion rate I used the peak flow figures for the month of July as this month consistently has been the biggest water usage month. I added the rate for both wells. This assumes that the wells encounter the peak at the same time which is possible and at this point we're unlikely to find data to the contrary, so we'll give the right holder the benefit of the doubt. The maximum diversion rate at any given time for the Star Sewer and Water District was 3.24 cfs.

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>
MUNICIPAL	01/01 to 12/31	3.24 CFS
<u>Totals:</u>		3.24 CFS

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

Field Examiner's Name: Aaron Marshall and field exam written by CPadilla Date 11/22/2010

From: Justin Walker [jwalker@Kellerassociates.com]
Sent: Thursday, November 18, 2010 3:05 PM
To: Padilla, Cherie; Lester, Steve
Cc: Justin Walker; floyd day; hankdaysswd@cableone.net
Subject: IDWR-Star Sewer and Water District Permit 63-31969
Attachments: Well One Pump Curve.pdf; 2007_2010 Peak_Avg.xls; SSWD Pump Curve 3.pdf

Cherie,

Please find below (in red text) and attached the information you have requested for the SSWD water right permit. Please call with any questions or additional information.

Justin Walker, P.E.
Keller Associates, Inc.
Office (208) 288-1992

From: Justin Walker [mailto:jwalker@Kellerassociates.com]
Sent: Friday, November 05, 2010 2:38 PM
To: floyd day; Ken Vose; hankdaysswd@cableone.net
Cc: Justin Walker
Subject: FW: IDWR-Star Sewer and Water District Permit 63-31969

Hank, Ken,

The Dept of Water Resources is asking for more information to license the water right permit for Well No. 3 (see email below). I provided her some of the information, but wondered if you could help me track down some of the other information. Thanks.

Well #1:

- Type and model # of the pump Fairbanks Morse Vertical Turbine
- Pump curve Please see attachment
- Level that the pump is set 70 ft.
- Flow meter brand, model #, and make Water Specialties Propeller Meter 951501-8"

Well #3:

- Type and model # of the pump Gould DWT
- Pump curve See attached
- Level that the pump is set 160 ft.
- Operating pressure for the pump 89 psi
- **Section 15142 Turbine Well Pump**
- Quantity (1) Gould's 14 RHMC-4 stage
- -Rated for 2500 gpm at 310' of head
- -CA12-125# Discharge Head
- -Cone Strainer
- -Sub Base
- -Dynamically Balanced Impeller
- -250 Hp, 1800 RPM, 480V/3Ph/60Hz Motor
- -175' of 12" Column & Shafting
- -175' of Sounder Tube
- -Pressure Transducer
- -Installation

Water System:

- Average day and peak day water demands for 2007-2010. If you have totalizer readings in a spreadsheet, you can just send us a spreadsheet. Please see attachment

I could come out and help track the information down if you would like. We have some of the information for Well #3, but it has been archived into a remote storage shed because it is so old. It would take us a couple hours to track it down. If you have it in a O&M manual handy, it would save a lot of time. If not, we can track it down in the storage shed.

Thanks for your help.

Justin Walker, P.E.
Keller Associates, Inc.
Office (208) 288-1992

From: Padilla, Cherie [mailto:Cherie.Padilla@idwr.idaho.gov]
Sent: Tuesday, October 26, 2010 12:00 PM
To: Justin Walker
Cc: Lester, Steve
Subject: IDWR-Star Sewer and Water District Permit 63-31969

Hi Justin,

I wanted to send this email to follow-up on my phone message I just left you. Aaron Marshall is no longer with the department so I am tasked with picking up where he left off...good thing he left me good notes, but there are still some areas where more information could help me out in licensing this permit. I thought I would provide you with an itemized list of what kind of information I need. Steve Lester told me that you would be the best contact for the district but if I need to be in touch with someone else, please let me know.

Well #1: I understand this well has been upgraded from a 75 hp pump to a 125 hp pump. The last time we did a field exam (several years ago), the capacity of the system was based on the old pump information. Aaron did collect some information this summer at the new field exam, but I need more concrete numbers through a pump curve or hp equation. Can you provide me information on the operating psi, type and model of pump, what level is the pump set, and any other information about the well would be great! For me, the more information, the better.

Well #2: Again, this well has been inspected in the past and I want to confirm that this is still good information for this well. According to the old field examiner there is a Grundfos Model 300S, 30 HP pump in the well. The estimated capacity from that well is 405 GPM or 0.90 cfs. Is this information still correct? Per Justin Yes

Well #3: I don't have much on this well. Aaron's notes show a range of 2000-2500 gpm. While this gives me a good idea of what to expect, I need to have that narrowed down. Can you provide me the same information I requested for well #1?

Lastly, I need information regarding the water usage in the district. Even though the wells may be able to produce a certain amount of water, I need to know how much of that water has been put to beneficial use in the authorized development period (2004-2009). A report prepared in 2/2006 partially answers this question, but I don't want to limit the license if there is more up-to-date information available.

I really appreciate any help that you can offer and please let me know if you have any questions for me.

Sincerely,

2008

Data Provided by Justin Walker
See email dated 11/18/10

Well #1	January	February	March	April	May	June	July	August	September	October	November	December
Average Daily Flow	287	312	286	408	473	519	688	547	379	No	243	273
Peak Flow	455	570	498	694	1074	1000	1174	968	508	Data	307	341

5 or 1.82 cfs

Well #3	January	February	March	April	May	June	July	August	September	October	November	December
Average Daily Flow	280	190	219	312	348	462	454	517	454	No	203	207
Peak Flow	495	345	461	672	628	989	916	802	830	Data	237	312

NOTE: All flows are x 1,000

Well #1 x 1,000

Jan 287 x 31 = 8897
Feb 312 x 28 = 8736
March 286 x 31 = 8866
April 408 x 30 = 12,240
May 473 x 31 = 14,663
June 519 x 30 = 15,570
July 688 x 31 = 21,328
Aug 547 x 31 = 16,957
Sept 379 x 30 = 11,370
Oct 243 x 30 = 7,290
Nov 273 x 31 = 8,463

134,380 or
134,380,000 gallons for 11 months (334 days)
or 402,335.3 gallons/day
or 279.4 gpm or 0.62 cfs

Well #2

x 1,000

280 x 31 = 8680
190 x 28 = 5320
219 x 31 = 6789
312 x 30 = 9360
348 x 31 = 10,788
462 x 30 = 13,860
454 x 31 = 14,074
517 x 31 = 16,027
454 x 30 = 13,620
203 x 30 = 6,090
207 x 31 = 6,417

94,998 or
949,980,000 gallons for 11 months or
284,425.1 gallons/day or
197.5 gpm or 0.44 cfs

2009

Well #1	January	February	March	April	May	June	July	August	September	October	November	December
Average Daily Flow	274	244	250	429	462	379	558	470	369	288	274	267
Peak Flow	374	321	390	1235	860	883	830	563	544	497	486	374

→ or 1.71 cfs

Well #3	January	February	March	April	May	June	July	August	September	October	November	December
Average Daily Flow	199	176	196	22	338	296	497	505	359	216	194	243
Peak Flow	299	353	318	8	552	508	1023	1006	704	399	414	482

NOTE: All flows are x 1,000

Well #1

an 274 x 31 = 8494

ib 244 x 28 = 6832

arch 250 x 31 = 7750

pril 429 x 30 = 12870

may 462 x 31 = 14,322

me 379 x 30 = 11,370

jly 558 x 31 = 17,298

aug 470 x 31 = 14,570

pt 369 x 30 = 11,070

oct 288 x 31 = 8,928

nov 274 x 30 = 8,220

dec 267 x 31 = 8,277

130,601 or

130,000,000 gallons/year or

356167.1 gallons/day or

247.3 gpm or 0.55 cfs

or 1.58 cfs

x 1,000

199 x 31 = 6169

176 x 28 = 4928

196 x 31 = 6076

22 x 30 = 660

338 x 31 = 10,478

296 x 30 = 8880

497 x 31 = 15,407

505 x 31 = 15,655

359 x 30 = 10,770

216 x 31 = 6696

194 x 30 = 5820

243 x 31 = 7533

99,072 or

99,072,000 gallons/year or 271436 gpd

or 188.5 gpm or 0.42 cfs

2010

Well #1	January	February	March	April	May	June	July	August	September	October	November	December
Average Daily Flow	274	320	270	296	348	407	603	472	404		No	
Peak Flow	374	519	364	392	552	708	798	693	538		Data	

or 1.23 cfs

Well #3	January	February	March	April	May	June	July	August	September	October	November	December
Average Daily Flow	200	158	192	221	243	305	403	344	285		No	
Peak Flow	299	268	286	293	316	431	600	473	405		Data	

NOTE: All flows are x 1,000

Well #1

x 1,000

Jan 274 x 31

Feb 320 x 28

March 270 x 31

Apr 296 x 30

May 348 x 31

June 407 x 30

July 603 x 31

Aug 472 x 31

Sept 404 x 30

Well #2

x 1,000

260 x 31 = 6200

158 x 28 = 4,424

192 x 31 = 5,952

221 x 30 = 6,630

243 x 31 = 7,533

305 x 30 = 9,150

403 x 31 = 12,493

348 x 31 = 10,664

285 x 30 = 8,550

71,596 or 71,596,000 gallons for 9 months

or 262,256.4 gallons/day

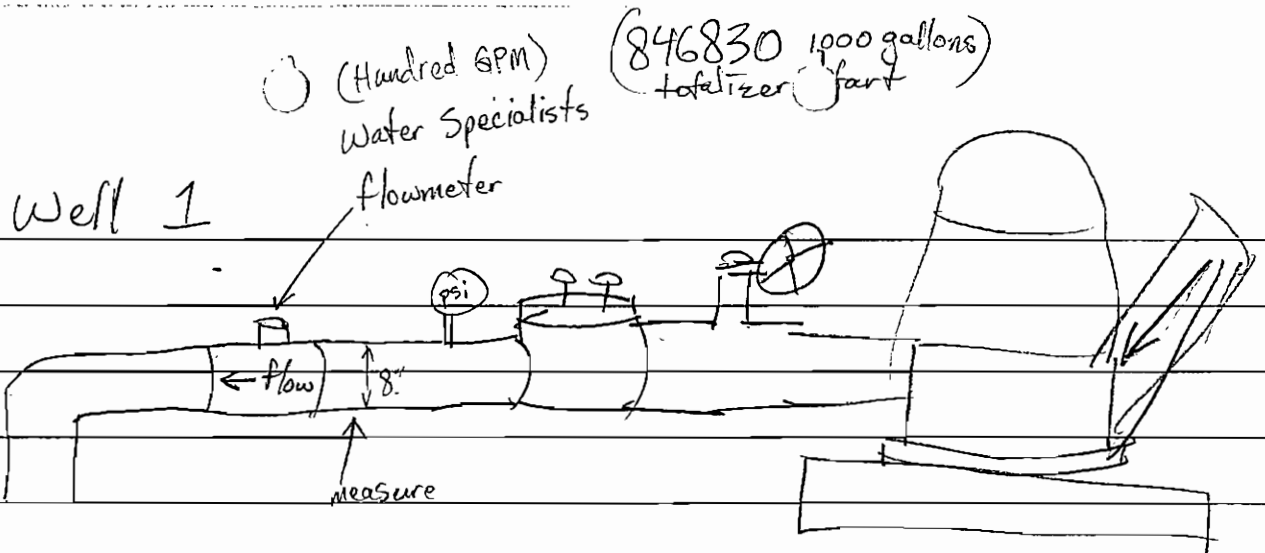
or 182.1 gpm or 0.41 cfs

103,174 or 103,174,000 water usage for 9 months (273 days)

or 37926.74 gallons/day

or 262.45 gpm or 0.58 cfs

FIELD EXAMINER'S SKETCHES



I.D. 8" pipe, 9.05" O.D.

GPS Site ID# E0006751 → IDEQ PWS

~77 psi pre-measurement

wall thickness 0.430"

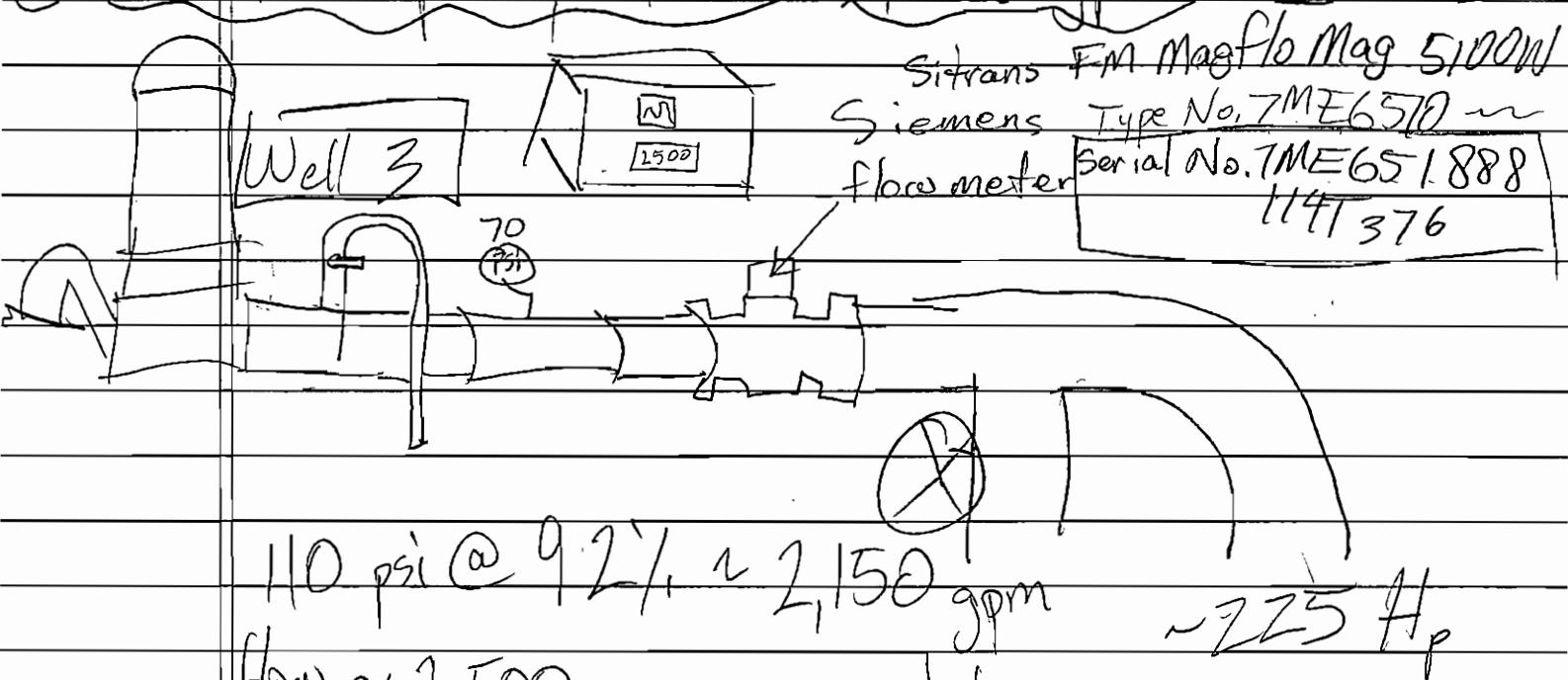
~~0.412"~~

0.391" 0.388"

~~0.349"~~

propeller meter installed 1995

full capacity flow = 2,025 gpm



flow ~ 2,500 gpm max expected

103 psi @ ~90% ~ 2,000 gpm

Well 2 ← backup well

292 hours: totalizer

460 gpm max discharge to ditch
less than 60 hours/year

1358 normal operating condition @ 70 psi

flowmeter in power panel

30 Hp Grundfos pump

* send email to Justin Walker
request district boundary, CAD file



WELL #1 INFORMATION

Pump Data Sheet - Fairbanks Morse Pump, 60 Hz

of Idaho, Inc.

8/2009

WHL ONF



Fairbanks Morse

Pantair Water

Pump:
 Size: 13H.3 (3 stage)
 Type: VERT. TURBINE
 Synch speed: 1800 rpm
 Curve:
 Specific Speeds:
 Dimensions:
 Vertical Turbine:
 Speed: 1770 rpm
 Dia: 8.75 in
 Impeller:
 Ns: —
 Nss: —
 Suction: 13 in
 Discharge: 10 in
 Bowl size: 12.9 in
 Max lateral: 0.8 in
 Thrust K factor: 12 lb/ft

Search Criteria:

Flow: 2000 US gpm

Head: 200 ft

Fluid:

Water
 Density: 62.25 lb/ft³
 Viscosity: 1.105 cP
 NPSHa: —

Temperature: 60 °F
 Vapor pressure: 0.2563 psi a
 Atm pressure: 14.7 psi a

Motor:

Standard: NEMA
 Enclosure: TEFC

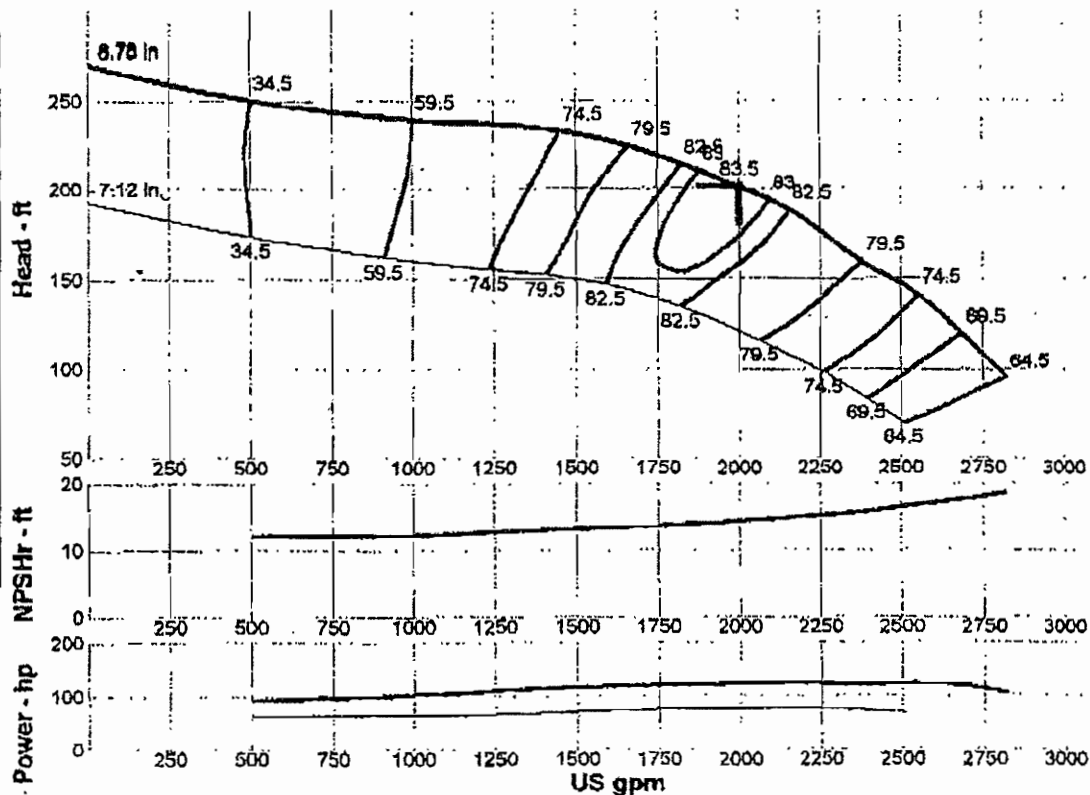
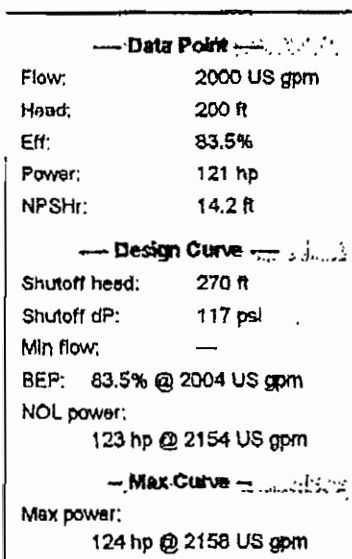
Size: 125 hp
 Speed: 1800
 Frame: 444T

Sizing criteria: Max Power on Design Curve

Pump Limits:

Temperature: 150 °F
 Pressure: 380 psi g
 Sphere size: 1 in

Power: 344 hp
 Eye area: —



Curve efficiencies are typical. For guaranteed values, contact Fairbanks Morse or your local distributor. Las eficiencias en curvas son típicas. Para valores garantizados contacte a Fairbanks Morse o a su distribuidor local.

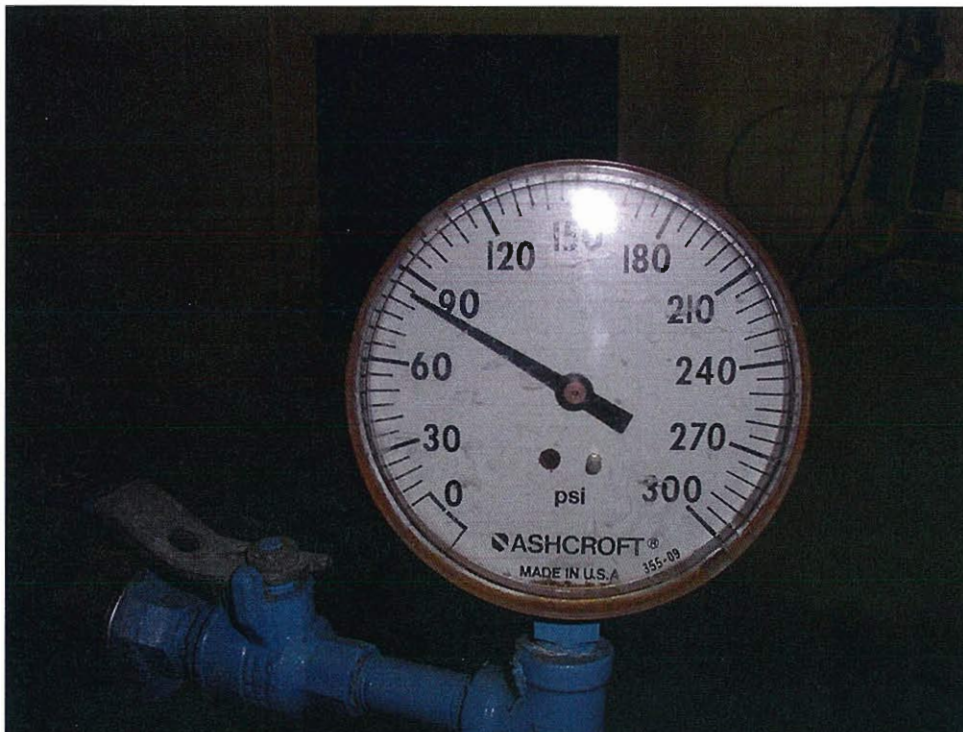
Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
2400	1770	158	78.8	120	15.8
2000	1770	200	83.5	121	14.2
1600	1770	228	78.1	117	13.1
1200	1770	238	66.2	107	12.4
800	1770	243	49.5	97.1	12

FORWARD WHITE COPY TO WATER RESOURCES

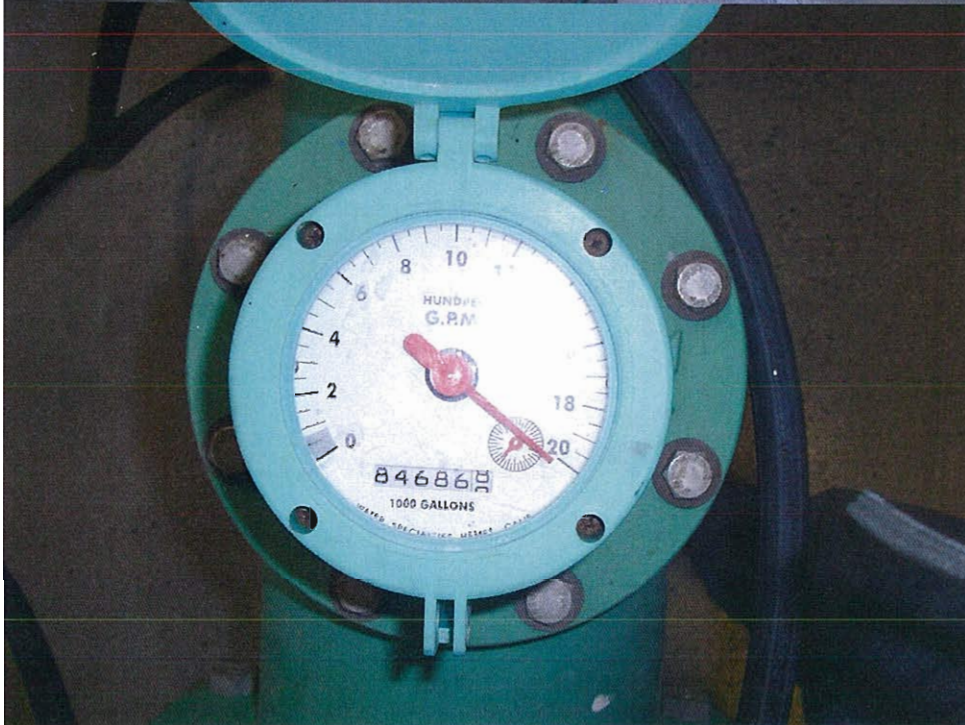
FORWARD WHITE COPY TO WATER RESOURCES

Firm Name Long Beach Firm No. 337
Firm Official [Signature] Date 3/6/95
and
Supervisor or Operator [Signature] Date 3/6/95
(Sign once if Firm Official & Operator)



well #1

CATALOG # H0125S2SL6X		MODEL # BF74	
LOWER END BRG 6212-J	UPPER END BRG 2-7777-B11		
FR 405TP	TYPE RU	ENC 11-1	
PH 3	MAX 40 °C	ID# H03-BF74-H D1	
INSUL CLASS F	DUTYCONT	WT 1155 LBS	BAL
HP 125	RPM 1760	SF 1.15	HZ 60
VOLTS 460	MAX KWAT	NEMA NOM EFFICIENCY 93.0	
AMPS 147	CODE	B DES 1	
SF AMPS	PF	GUARANTEED EFFICIENCY	
OIL CAPACITY LOWER END BRG	GREASE QTS. UPPER END BRG	5	QTS
NRR			
175% EHT			
MADE IN MEXICO		U.S. ELECTRICAL MOTORS	
22701-004		DIVISION OF EMERSON ELECTRIC CO.	
		ST. LOUIS, MO	



From well #1





well #1



From well #1





WELL #2 INFORMATION

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED

JAN 12 1999

Department of Water Resources

A. GENERAL INFORMATION

Permit No. 63-12370

1. Owner: Star Sewer and Water District Phone No. (208) 286-7388

Current Address: P.O. Box 277 Star, ID 83669-0277

2. Accompanied by: Hank Day EXAM DATE: 6-9-98

Address: (Same) Phone No. (Same)

Relationship to Permit Holder: Maintenance Foreman

3. Source: Groundwater tributary to _____

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 63-12100 (well #1)

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

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

Ident No.	Gov't Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.	County	Method of Determination/Remarks
			SE	SW	8	4N	1W	Ada	Site Visit, Map

2. Place(s) of Use: City of Star

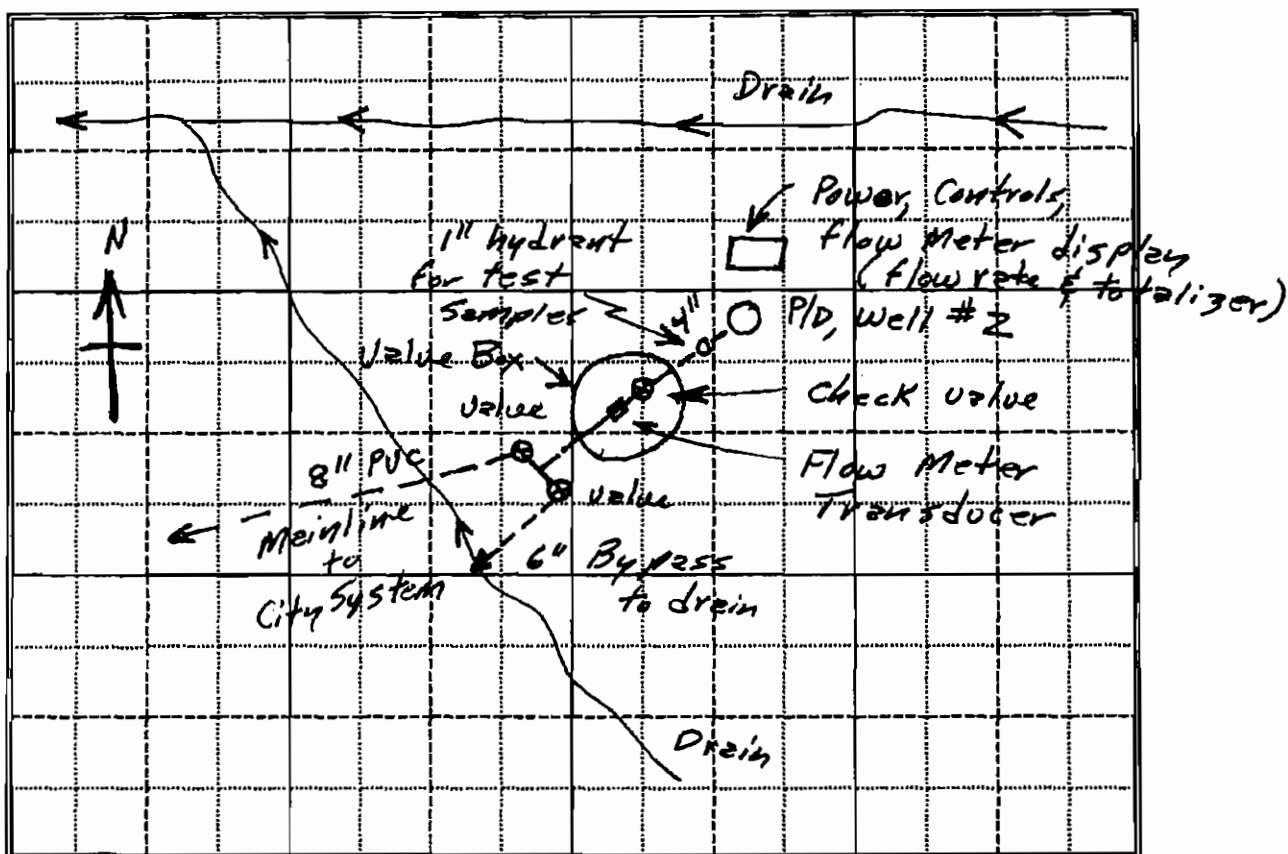
Indicate Method of Determination Site Visit, Map

TWP	RGE	SEC	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

MICROFILMED

APR 13 1999

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate well size/ditch size/pipe I.D. as applicable.



Scale: 1" = None

☒ Copy of USGS Quadrangle Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

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

☒ Photo of Diversion and System Attached

4.

Well #2

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
GP5# D000149	Franklin	30	78,350121	Grundfos	300S300-8 (30HP)
					(Model No.)

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

D. FLOW MEASUREMENTS (Pump off at time of exam) - No Measurement

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Flow Meter (Electronic)	Electr.	Mcrometer	R0900	5PM 25192	4"	
	(Mcrometer)					

2. Measurements: The flow meter has a transducer in the 4" line from the well, and a flow rate and totalizer display in the control room by the well.

F. FLOW CALCULATIONS

Measured Method: (None)

Additional Computation Sheets Attached

1) Theoretical Cal.

Normal operating pressure is 75 psi;
Max. 85 psi for municipal system

$$Q = \frac{(8.8)(30 \text{ HP})(70\%)}{4' + (75 \text{ psi})\left(\frac{34'}{14.7 \text{ psi}}\right)} = 1.04 \text{ cfs} > 0.60 \text{ cfs in permit}$$

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

2) From Pump Performance Curves:

$$\text{TDH} = 4' + (75 \text{ psi})\left(\frac{34'}{14.7 \text{ psi}}\right) = 178'$$

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = Q = 405 \text{ GPM} = 0.90 \text{ cfs} > 0.60$$

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

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

2. Volume Calculations for Other Uses:

Municipal — only diversion rate.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Municipal	01/01	12/31	0.60	
Totals:			0.60	

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

Field Examiner's Name Wan Tovich Date 6-9-98

Reviewer _____ Date _____

SEAL

MICROFILMED

APR 13 1999

Model 300S

300 GPM

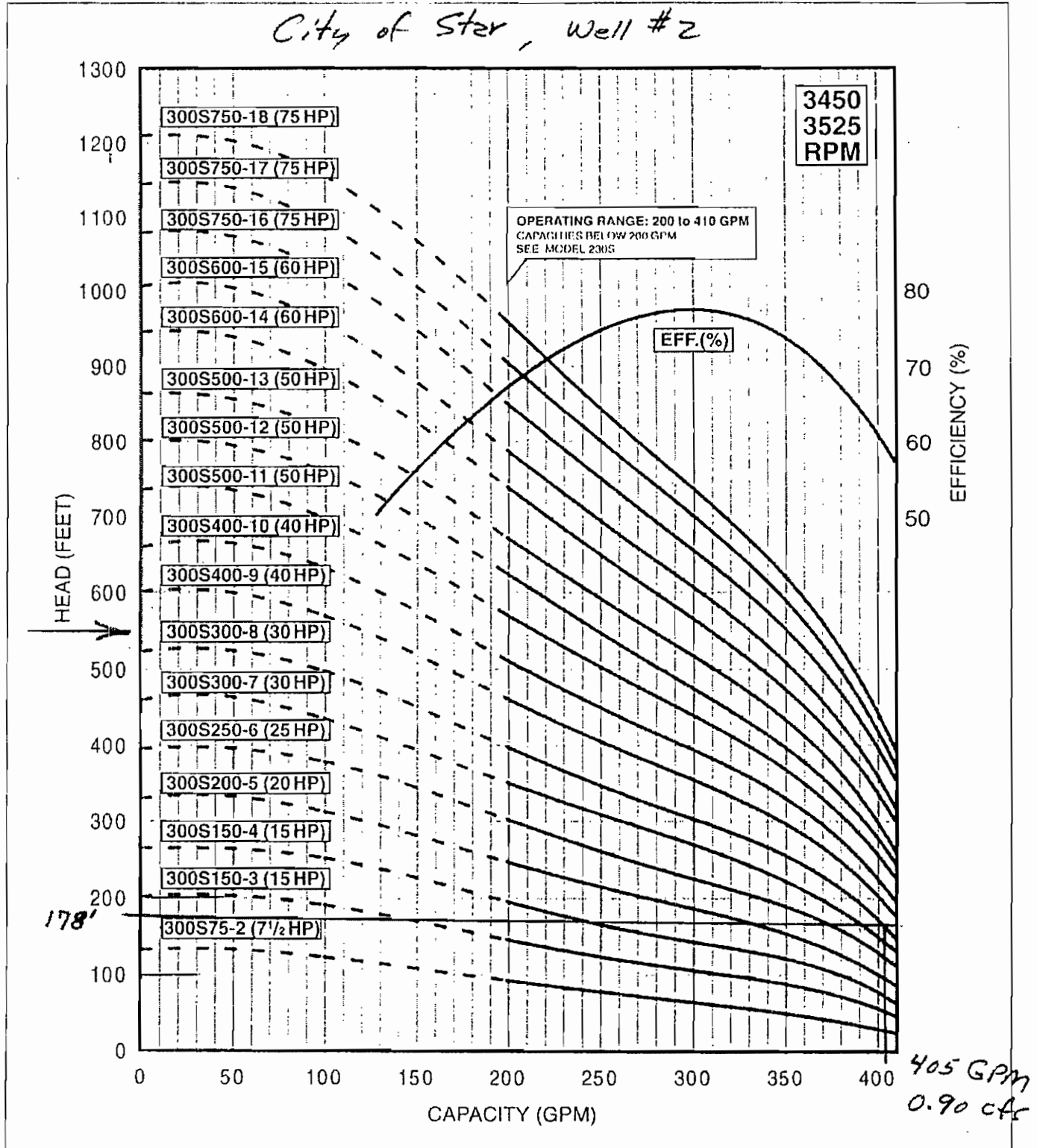
Performance Curves

FLOW RANGE: 200 -410 GPM

OUTLET SIZE: 3" & 4" NPT*

NOMINAL DIA. 6"

City of Star, Well #2



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

4" MOTOR STANDARD, 7.5 HP/3450 RPM.

6" MOTOR STANDARD, 15-50 HP/3450 RPM.

8" MOTOR STANDARD, 60-75 HP/3525 RPM.

* 3" NPT 2-7 STAGES, 4" NPT 8-18 STAGES.

Performance conforms to ISO 2548 Annex B
@ 8 ft. min. submergence.

MICROFILMED

63-12370

300 S 300 - 8 (30 HP)

APR 13 1999

GRUNDFOS

8. POSSIBLE CONTAMINATION SOURCES:

Is there evidence of Chemigation? ☐ Yes ☒ No

If yes, is there a check-valve present? ☐ Yes ☐ No

Is there a possible source of contamination nearby? ☐ Yes ☒ No

If yes, what Type? _____

How far away from the well is this source? _____

9. REMARKS:

This is well #2 for the Municipal water system for the City of Star and is manually operated as needed to meet any water demand in excess of the capacity of well #1. The well pumps directly into the City system.

Don Tomish Water Rights Examiner

Signature of Dept. Representative & Title

6-9-98

Inspection Date

PHOTOS, DRAWINGS, OTHER ATTACHMENTS:

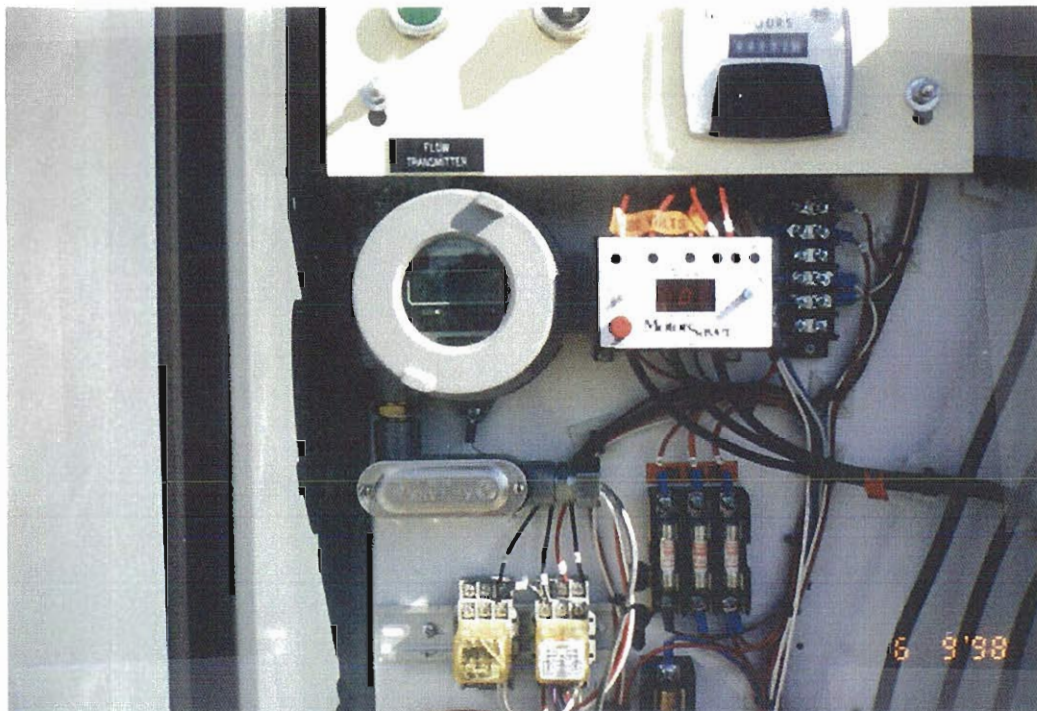
Well #2



1 of 2



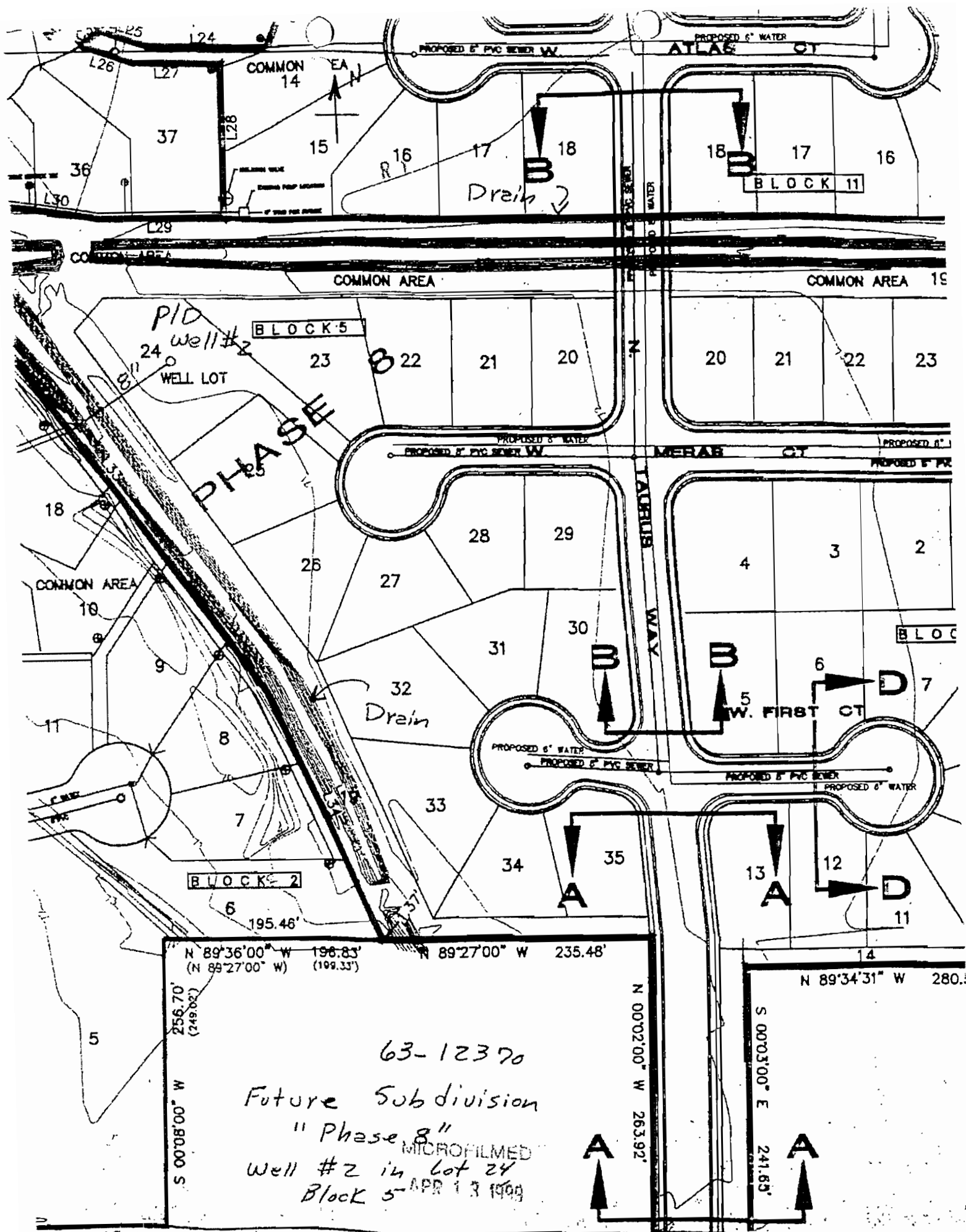
P/O
Well #2,
Power/control
Box with
flow meter,
1" Hydrant,
and valve
Box on
left.
View Looking
Northwest.



Place of
Measurement:
Flow meter
(Gray ©)
displays
Flow rate
and total
Gpm.

MICROFILMED
APR 13 1999

63-12370



5. For Cond 7 - water zone for well is 151'-183',
not 400' to 475.

E. NARRATIVE/REMARKS/COMMENTS

1. This permit is for Well #2, which is manually operated and supplies water to the Star Municipal system when the demand is in excess of the capacity of Well #1. Well #1, WR 63-12100, is the primary well and supply for the system. Well #1 pumps water to a 500,000 Gal. storage tank and directly into the city system. Well #2 pumps directly into the system, and is manually started as needed.

2. Well #2 is located at the site of a proposed subdivision. It will be in lot 24, Block 5 of "phase 8" when the subdivision is built. Condition 5 on the permit is not the correct location description. The subdivision has not been named at this time.

3. The well is equipped with a electronic flow meter, a pump and control box, a 1" hydrant to collect water samples, a 6" bypass line to flush the well, and a 8" pvc mainline interconnected to the municipal system.

4. This well is considered to be a low pressure artesian well at certain times of the year. The water level was about -4' (down) at the time of the exam. The 5 old artesian wells that

Have conditions of permit approval been met? ☒ yes ☐ no (Cond. 7)

supplied the municipal water under the old system are no longer being used. Except for about 15-20 homes on private wells, all of the Star Service area is now supplied by wells #1 and #2.

WELL #3 INFORMATION

Company: C.H. Spencer & Company
Name: Star Well
Date: 11/9/2010



Pump:

Size: 14RHMC (4 stage)
Type: Lineshaft
Synch speed: 1800 rpm
Curve: E6414RMPC1
Specific Speeds:
Dimensions:
Vertical Turbine:
Speed: 1770 rpm
Dia: 9.8125 in
Impeller:
Ns: 3100
Nss: --
Suction: 12 in
Discharge: 10 in
Bowl size: 14 in
Max lateral: 0.75 in
Thrust K factor: 16 lb/ft

Search Criteria:

Flow: 2500 US gpm
Head: 310 ft
Fluid:
Water
Density: 62.37 lb/ft³
Viscosity: 1.105 cP
NPSHa: --
Temperature: 60 °F
Vapor pressure: 0.2563 psi a
Atm pressure: 14.7 psi a

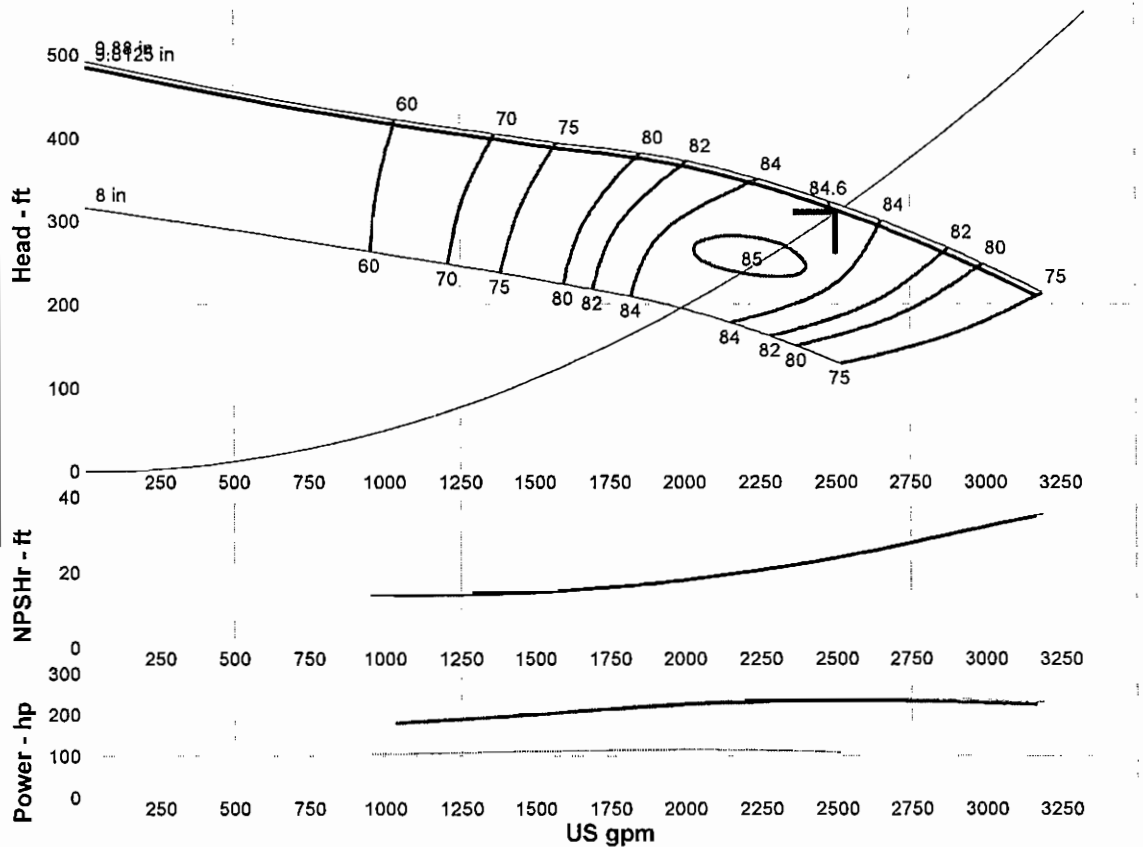
Motor:

Standard: NEMA
Enclosure: WPI
Sizing criteria: Max Power on Design Curve
Size: 250 hp
Speed: 1800
Frame: 447

Pump Limits:

Temperature: --
Pressure: 327 psi g
Sphere size: --
Power: --
Eye area: --

Data Point	
Flow:	2500 US gpm
Head:	313 ft
Eff:	84.5%
Power:	234 hp
NPSHr:	24.1 ft
Design Curve	
Shutoff head:	485 ft
Shutoff dP:	210 psi
Min flow:	--
BEP:	84.6% @ 2478 US gpm
NOL power:	234 hp @ 2478 US gpm
Max Curve	
Max power:	240 hp @ 2650 US gpm



Suction Size-10" Discharge Sizes-10",12". Curves are certified for water at 60°F only. Consult factory for performance with any other fluid.

Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
3000	1770	239	79.3	229	32.3
2500	1770	313	84.5	234	24.1
2000	1770	366	82.1	225	18.1
1500	1770	392	73.5	202	15
1000	1770	418	59.1	179	14

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

1. WELL TAG NO. **D 0046412 - 2**
DRILLING PERMIT NO. **894262-839636**
Other IDWR No. **63-31969**

2. OWNER:

Name **Star Sewer and Water Well #3**
Address **PO Box 400**
City **Star** State **ID** Zip **83669**

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

Sketch map showing well location relative to section corners. The map is a 36-section grid with the well located in the SE 1/4 of the SE 1/4 of the SW 1/4 of Section 5, Township 4 North, Range 1 East, and Meridian 10 acres.

Twp. **4** North **X** or South
Rge. **1** East or West **X**
Sec. **5** SE 1/4 SE 1/4 SW 1/4
Gov't Lot **Ada** 10 acres 40 acres 160 acres
Lat: Long:

Address of Well Site **N of Floating Feather**

Rd., **1/2 mile East of Star Rd.** City **Star**

Lt. **6** Blk. **5** Sub. Name **Lobo Creek**

4. USE:

Domestic ☒ Municipal Monitor Irrigation
Thermal Injection Other

5. TYPE OF WORK: check all that apply (Replacement etc.)

☒ New Well ☒ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:

Air Rotary Cable ☒ Mud Rotary Other

7. SEALING PROCEDURES:

Seal/Filter Pack		AMOUNT		METHOD
Material	From To	Sacks or Pounds		
6-9 Sand	584' 643'	2.4 Yds		Poured
8-16 Sand	510' 584'	3.6 Yds		Poured

Was drive shoe used? ☒ Y ☒ X N Shoe Depth(s)

Was drive shoe seal tested? ☒ Y ☒ X N How?

8. CASING/LINER:

Diameter	From To	Guage	Material	Casing	Liner	Welded	Threaded

Length of Headpipe

Length of Tailpipe

9. PERFORATIONS/SCREENS:

Perforations Method
☒ Screens Screen Type **Johnson**

From To	Slot Size	Number	Diameter	Material	Casing	Liner
574' 564'	.025		8"	SS		☒ X
564' 554'	.015		8"	SS		☒ X
554' 544'	.020		8"	SS		☒ X

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

ft. below ground Artesian pressure lb.
Depth flow encountered ft. Describe access port or control devices:

Office Use Only

Inspected by

Twp Rge Sec
1/4 1/4 1/4

Lat: : : Long: : :

11. WELL TESTS:

Pump	Bailer	Air	Flowing Artesian
Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp.

Bottom hole temp.

Water Quality test or comments:

Depth first Water Encounter

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks Lithology, Water Quality & Temperature	Water
22"	507'	523'	Fine Blue Sand	☒ X
22"	523'	543'	Sticky Blue Clay	
16"	543'	553'	Fine Blue Sand	☒ X
16"	553'	561'	Medium Quartz Sand	☒ X
16"	561'	571'	Silty Blue Sand	☒ X
16"	571'	584'	Soft Sandy Blue Clay	
16"	584'	621'	Medium-Coarse Sand	☒ X
16"	621'	624'	Sandy Blue Clay	
16"	624'	643'	Silty Blue Sand	☒ X

Completed Depth **643'** (Measurable)

Date: Started **5/31/2006** Completed **8/16/2006**

13. DRILLER'S CERTIFICATION:

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

Company Name **Treasure Valley Drilling**

Firm No. **560**

Firm Official

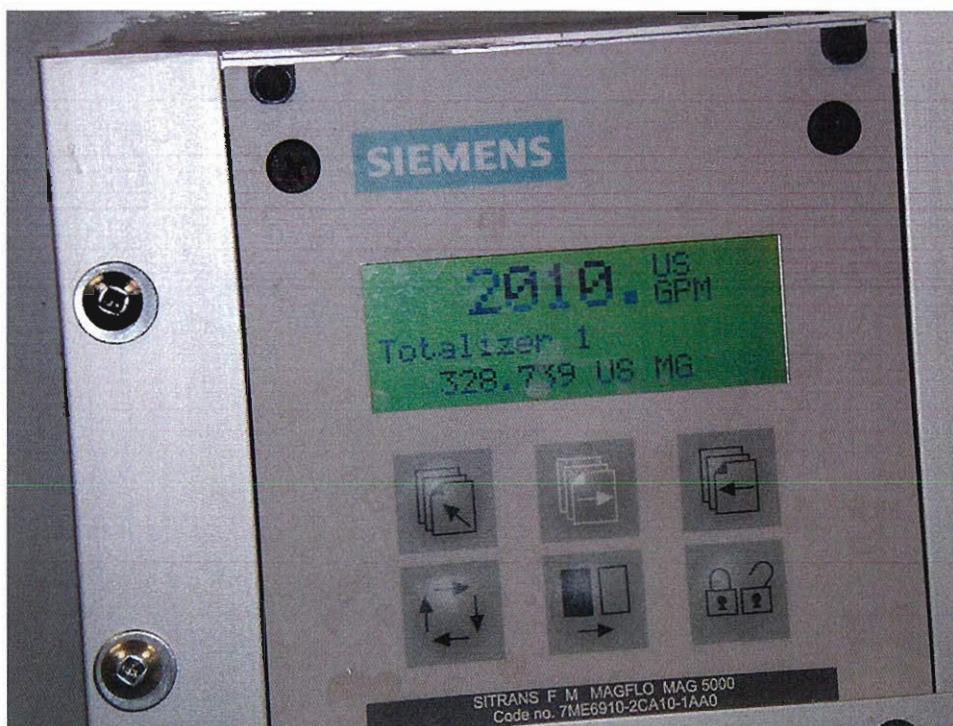
Date **8/18/2006**

and

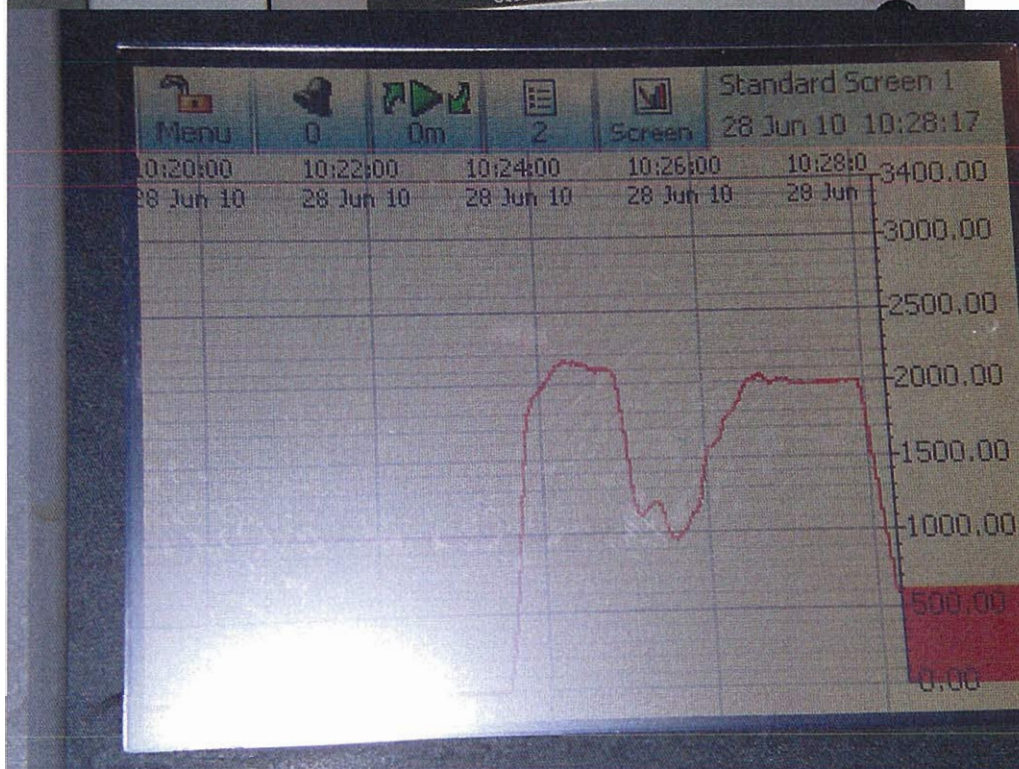
Driller or Operator

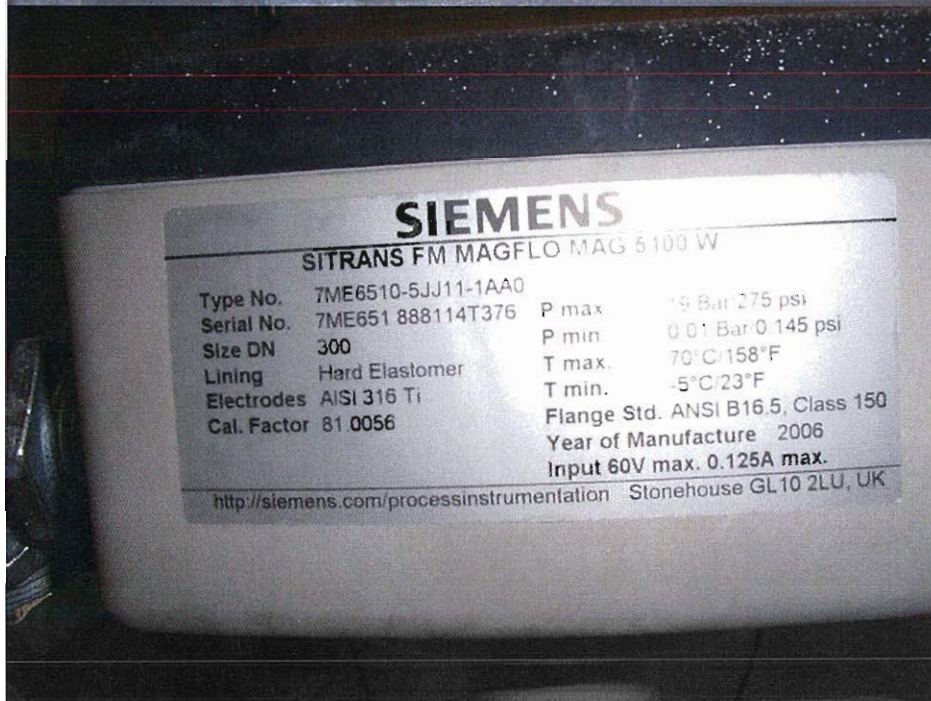
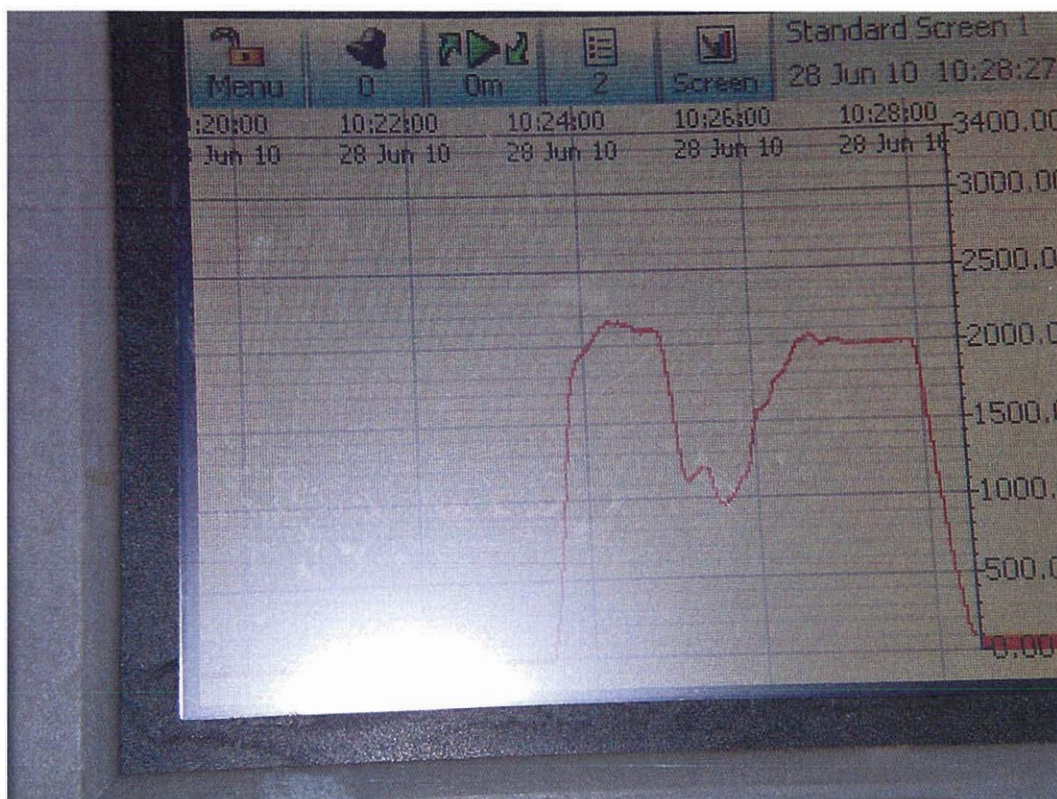
Date **8/18/2006**

(Sign once if Firm Official & Operator)



Well #3





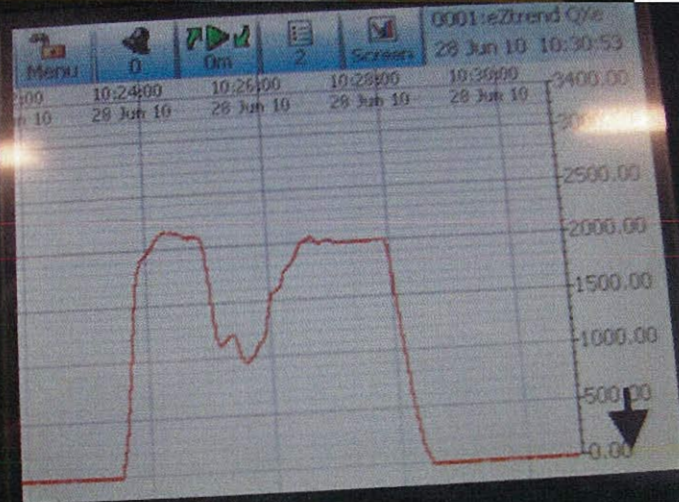
From Well #3

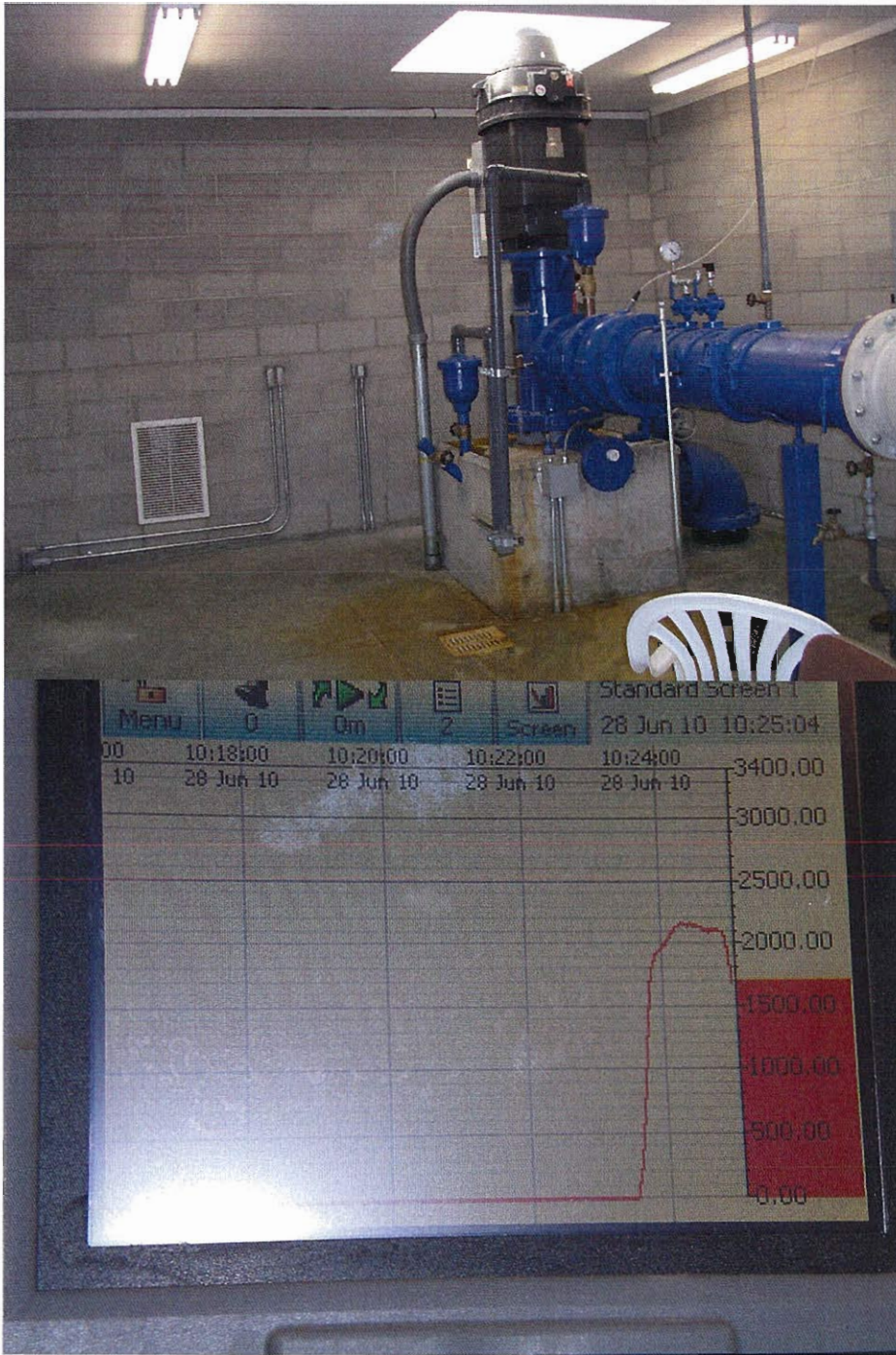
SIEMENS

SITRANS PM MAG 10 MAG 5100 W

Type No.	7ME6510-5J01-0AA0	P max.	19 Bar/275 psi
Serial No.	7ME651 8881147 2006	P min.	0.01 Bar/0.145 psi
Size DN	300	T max.	70°C/158°F
Lining	Hard Elastomer	T min.	-5°C/23°F
Electrodes	AISI 316 Ti	Flange Std.	ANSI B16.5, Class 150
Cal. Factor	81.0056	Year of Manufacture	2006
		Input	60V max. 0.125A max.

<http://siemens.com/processinstrumentation> Stonehouse GL10 2LU, UK





Well #3

→ 2200 GPM?

