

Hydro Logic, Inc

1002 W. Franklin Street, Boise, ID 83702 (208) 342-8369, (Fax) 342-3100, hydrologic@qwest.net

December 31, 2007

Mr. Jeff Peppersack, Chief
Water Allocation Bureau
Idaho Department of Water Resources
322 E. Front Street
P.O. Box 83720
Boise, ID 83720-0098

a
RECEIVED

DEC 31 2007

DEPARTMENT OF
WATER RESOURCES

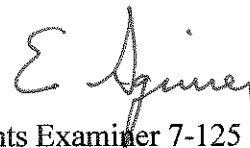
Dear Mr. Peppersack:

Under cover of this letter, I submit a completed Proof of Beneficial Use Licensing Examination for water right Permit No. 63-31550 on behalf of my client, the City of Caldwell. The Proof of Beneficial Use form (attached) was submitted previously on November 1, 2006 with the processing fee of \$200. Because the City has elected to have Hydro Logic, Inc. conduct the licensing examination, I assume that the processing fee paid by Hydro Logic, Inc. for the City, is refundable.

Please have your staff contact me directly with any questions concerning the licensing recommendations or if the Department requires additional information.

Thank you.

Ed Squires
Certified Water Rights Examiner 7-125



c: Gordon N. Law, P.E., City of Caldwell Public Works Director

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

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

See attached sheets, appendices, and figures:

XX Copy of USGS Quadrangle Attached showing location(s) of point(s) of diversion and place(s) of use (Figures 1, 2, & 3).

XX Aerial Photo Attached (Figure 4).

XX Photos 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
Caldwell City Supply Well # 17	Emerson	125	H12 20009332-100R-01	Goulds Pumps 14RJMC 3-stage Impeller trim N/A	SN N/A 10-inch discharge
Zone 2 Boosters (two plants)	U.S. Motors	75	J08-BF61A-M	Goulds DWT 12RJHO 3-stage	1,100 gpm @ 176 feet TDH 12-inch discharge
Zone 3 Boosters (two plants)	U.S. Motors	75	J08-BF61A-M	Peerless Pump 12 LD-3 3-stage	12-inch discharge

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration Date
Main Wellhead Flow Meter	Electro-Magnetic Induction	Endress & Hauser	50W2F-ULGA 1AC2BAAA	6C00A716000	10-inch	unknown - new meter installed 2004
Zone 2 Flow Meter	Electro-Magnetic Induction	Endress & Hauser	50W3H-ULGA 1AC2BAAA	ProMag 50	12-inch	unknown - new meter installed 2004
Zone 3 Flow Meter	Electro-Magnetic Induction	Siemens Sitrans	FM Magflo MAG5100W	7WE6510-5DJ11-1AA0	12-inch	unknown - new meter installed 2004

2. **Measurements:** Discharge measurements for this examination were made using the magnetic induction flow-meter listed above (Figure 5). The minimum piping installation recommendations of the manufacturer (Appendix A) appear to be met because a 50-inch length of straight-run 10-inch pipe, without obstructions, is available upstream of the meter and a 20-inch run exists downstream. Therefore, it is believed likely that the flow-meter was reading correctly (Figure 6). Circular orifice weir data from pumping tests were used to cross-check the flow-rates and the specific capacity of the well (Figures 7 & 8)

E. NARRATIVE/REMARKS/COMMENTS

The field examination for this permit was carried out on July 11th, 2006 by me, Ed Squires, accompanied by Mr. Wally Hammonds of the City of Caldwell Water Department. Also present, was Loren Pearson of Hydro Logic, Inc. who assisted in many of the on-site measurements. The Caldwell # 17 well is housed inside of a 33-foot by 66-foot cinder block pump house (Figure 9) located on the south bank of the Phyliss Canal approximately 300 feet west of Indiana Avenue (Figure 9). The 17-inch diameter well (Figure 10 and Appendix B) is said to be equipped with a Goulds Pumps 14-inch diameter, 3-stage, Model 14RJMC deep well turbine pump (Figure 11) set on 10-inch steel column with the pump intake set at 272 feet below top of 18" steel well head casing. I could find no plate or other pump house information actually identifying this pump number, serial, number, or other identification number on site however. I obtained the correct pump performance curve for the Goulds pump (above) identified by the City as being in the well and this pump curve could fit the observed/measured total dynamic head with a non-standard impeller trim of ~9.32 (Figure 11). I had the City contact the pump supplier for a performance curve and did receive a facsimile copy (difficult to read) that is presented as Figure 12. This curve, which is a Goulds Pump (according to the pump supplier) matches the observed/measured parameters pretty well although the curve shows no indication it was manufactured by Goulds. Either way, the reported/ supplied curves appear representative and the well was observed under operating conditions to produce the water right. For maximum efficiency the pump is coupled with a variable frequency drive unit to allow the well pumping plant to match production from the two booster pump stations when the reservoir level is close to full. The well pump is driven by a 125 hp, 460 volt, 1,735 rpm, Emerson Electric motor (Figure 13). The 10-inch diameter discharge-piping is comprised of a series of 10-inch plumbing fittings and fixtures, including check-valve, tees, couplings, flow-meter, and control valve (Figure 14) prior to entering a 16-inch diameter pipe which exits through the pump-house floor. The well pumping plant can discharge directly to waste at the nearby Phyliss canal or it can discharge directly into an above-ground, two million gallon steel storage reservoir (Figure 15). The totalizing flow-meter on the 10-inch discharge records all diversions from the well with the exception of the flush-to-waste line which is upstream of the flow-meter. The well pump is typically set to operate automatically against the reservoir level but the system is very sophisticated and the well discharge can apparently be regulated to match the output of the various booster pumps as well. The pump/control house also contains four additional 75 HP turbine pumping plants (Figure 15) that pressurize two separate pressure zones within the City's water distribution system ("Zone 2" and "Zone 3"). The Well #17 pumping plant, which pumps directly to the top of the storage reservoir (Figure 16), is operated in concert with an adjustable frequency drive unit that regulates the flow from the well to match the flow out of the reservoir when the tank is full. Whenever the reservoir level is drawn down by the four booster demand pumps, the Well #17 pumping plant pumps at its maximum output (which we found to be is slightly higher than the diversion rate of the water right).

When we arrived on-site, the well pump was operating. We asked Mr. Hammonds to turn the well off and we measured a recovering water level of 46.46 feet below measuring point (mp = 2.5 feet above pump house floor, Figure 13) at 14:02 hours. The operator then restarted the pump which we observed to produce 2,350 gpm for the next 40 minutes during which we measured a number of pumping water levels beginning at 112.14 4 minutes after the pump was re-started and 115.77 ft bmp after 23 minutes of constant pumping. After 40 minute of pumping at this rate, we had the operator valve the flow back to the diversion rate of the water right (2,200 gpm) where we measured

the pumping water level at 114.28 ft bmp. After 69 minutes of pumping, and as the reservoir was approaching full, the adjustable frequency drive automatically regulated the flow to 1,502 gpm where the pumping water level recovered to 87.74 ft bmp at a pressure of 11.5 psi (digital) and 13 psi (Ashcroft gage). One of the Zone 2 booster pumps was running at 1,156 gpm against a system pressure of 54.8 psi under this condition. Water-level measurements are facilitated through a 2-inch diameter PVC measuring tube protruding from the concrete pump base (Figure 13). The installed pumping plant in the well is capable of producing more than the water right to the nearby storage reservoir and the two pairs of booster pumps (Appendix C) appear capable of pumping at least twice the water right to the distribution system (diversion from the storage reservoir). Although the booster pump performance curves are included, the booster pumping system is not covered in the licensing examination other than to confirm that the water pumping into the reservoir by Well #17 can be pumped out at (at least) the same rate. I found that the booster pumps for each zone (of two zones) could produce the water right and that water could be pumped from the storage reservoir at twice the rate of diversion into the reservoir.

I had previously observed a 1,500 gpm, 7.3-hour constant-discharge pumping test of this well on August 5th 2003 (Figure 7). Caldwell Well # 17 was shown to have a short-term (7.3 -hours) specific capacity of 21.5 gpm/foot of drawdown (Figure 7). On the following day (August 6th), I observed a stepped-rate pumping test at discharge rates up to 2,200 gpm (Figure 8). Therefore, the well, as equipped, is capable of the water right instantaneous diversion rate. The specific capacity calculated from the constant-discharge pumping test (25 gpm/ft) compares well with the approximate specific capacity (28 gpm/ft) measured and calculated during the Beneficial Use Licensing Examination for the same 40 minute pumping period (Figure 7).

RECOMMENDATIONS:

Diversion Rate: With the installed pumping plant and well head plumbing configuration, the well appears to be capable of producing the water right flow rate of 4.9 cfs (2,200 gpm) under a constant pressure conditions at the well head. I personally observed 5.2 cfs (2,350 gpm) during the licensing examination and 2,250 gpm during pump-testing of the newly completed well in 2003 using a circular orifice weir to measure discharge. Evaluation of the pump performance curve with respect to the well's specific capacity and system pressures compared with observed well head conditions indicate the well and installed pumping plant are capable of yielding the full water right. Therefore, I recommend that the City of Caldwell municipal water right No. 63-31550 be licensed at the Permitted diversion rate of 4.9 cfs (2,199 gpm).

Permit Conditions: The following Conditions of Approval for Permit No. 63-31550 (Appendix D) are addressed individually below and with the associated recommendations for Licensing:

1) Condition #1:

- a. Beneficial Use Form submitted to IDWR on November 1, 2006
- b. Proof of Beneficial Use Licensing Exam submitted to IDWR on January 2, 2007 owing to State holiday observed January 1.
- c. Delete condition from license.

2) Condition #2:

- a. No changes.

3) Condition #3:

- a. All IDWR drilling permit requirements were complied with (Appendix B).
- b. Well meets or exceeds all minimum standards (Figure 10).
- c. PVC well casing waiver applied for and approved.
- d. Delete this condition from license.

4) Condition #4:

- a. New Source Monitoring requirements of the IDEQ were fully complied with.
- b. Ground water is approved for municipal use by IDEQ with no restrictions.
- c. Delete this condition from license.

5) CONDITION #5:

- a. No suggestions.
- b. Include on License if necessary.

6) Condition #6:

- a. Water-bearing zone should be amended to reflect actual completion interval of the well.
- b. Well #17 is open to the aquifer over the interval 199 feet-to-320 feet below land surface.
- c. Well could conceivable be deepened and or replaced to a depth of 500 feet bls in future.
- d. Recommend changing the water-bearing zone interval to between 200 and 500 feet if the condition cannot be eliminated in its entirety.

7) Condition #7:

- a. This condition is correct and appropriate as it stands.

8) Condition #8:

- a. This requirement is covered under City ordinance and could be omitted from the License.

9) Condition #9:

- a. Although a full-depth surface seal was emplaced and documented, to envelop a centralized casing from land surface to the top of the completion aquifer, the surface seal consists of a high-solids (>30% solids by weight) bentonite grout rather than "solid bentonite chips" specified by the Permit. Also the upper limit of the aquifer is 199 feet rather than the 216 feet specified by the Permit.
- b. Recommend rewording this condition to say: "The well serving as the primary point of diversion for this right shall be continuously cased and sealed from land surface to the top of the completion aquifer at 199 feet below ground level. The seal shall consist of an approved grout pumped into place from the base of the casing, or a solid bentonite chip poured into place, into a uniform annular space surrounding the centralized casing"

10) Condition #10:

- a. Condition no longer applicable; delete from License.

Have conditions of permit approval been met? X yes ___ no

F. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method:

Instantaneous flow rates are based on field-observed readings of a 3-year old, high-quality, magnetic-induction flow-meter installed according to tolerances recommended by the manufacturer. The measured readings are supported by: 1) the operating conditions and pump performance curve, and 2) by the well-documented capacity of the City's # 17 groundwater well during previous pumping tests. Therefore, the observed, calculated, and recommended maximum flow rates for the well appear to be justified.

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

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

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

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

B

2. Volume Calculations for Other Uses:

Not applicable to a municipal water right.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From	To	Rate of Diversion Q (cfs)	Annual Volume (afa)
<u>Municipal</u>	<u>Jan 1.</u>	<u>Dec. 31</u>	<u>4.90 cfs</u>	<u>N/A</u>
Totals:			<u>4.90 cfs</u>	<u>N/A</u>

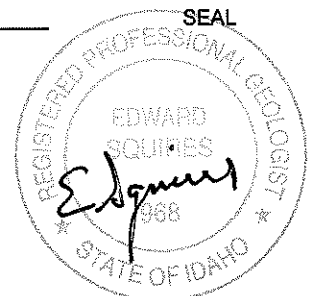
2. Recommended Amendments

 Change P.D. as reflected above Add P.D. as reflected above XX None
 Change P.U. as reflected above Add P.U. as reflected above Other

I. AUTHENTICATION

Field Examiner's Name Edward Squires CWRE No. 07-125 Date December 28, 2007

Reviewer _____ Date _____



Caldwell Water Right No-63-31550 Beneficial Use

Misc. calculations for licensing exam

Specific Capacity Calculations (gpm/ft)

July 11, 2006 Beneficial Use Exam

- assume 31-foot non-pumping water level (Driller + consultant)
- approximate because Well #17 pumping when we arrived.
- draw down = pumping level minus non-pumping (static) level
- pumping water level = ^(40 minutes) (2350 gpm) = ~116 ft bmp

$$\begin{array}{r} 116 \text{ ft pumping level} \\ - 31 \text{ ft static level} \\ \hline 85 \text{ ft} = \text{draw down} \end{array}$$

$$\text{Specific capacity} = \frac{\text{discharge}}{\text{draw down}} = \frac{2350 \text{ gpm}}{85 \text{ ft}} = \sim 28 \text{ gpm/ft}$$

August 5, 2003 Constant-Discharge Test

- pumping water level = ^(40 minutes) (1500 gpm) = ~92 ft bmp.

$$\begin{array}{r} 92 \text{ ft pumping level} \\ - 31 \text{ ft static level} \\ \hline 61 \text{ ft} = \text{draw down} \end{array}$$

$$\frac{1500 \text{ gpm}}{61 \text{ ft}} = \sim 26 \text{ gpm/ft}$$

Line Pressure to Fill Reservoir (psi)

- line loss in 125 feet of 16" pipe at 2350 = negligible
- height of inlet pipe above land surface = 26 feet

$$\frac{26 \text{ ft}}{2.31 \text{ ft per psi}} = 11.3 \text{ psi} = \text{checks with Figure 15}$$

Pump Performance Curve Check

$$\begin{array}{l} 116 \text{ ft} = \text{pumping water level (2350 gpm)} \\ 26 \text{ ft} = \text{line pressure to tank} \\ + 8 \text{ ft} = 90^\circ \text{ell, 20 ft 10" pipe, check-valve, etc} \\ \hline 150 \text{ ft} = \text{T.D.H.} \end{array}$$

$$\frac{150 \text{ ft}}{3 \text{ stages}} = 50 \text{ ft/stage}$$

checks w/ Figure 12.

FIGURES

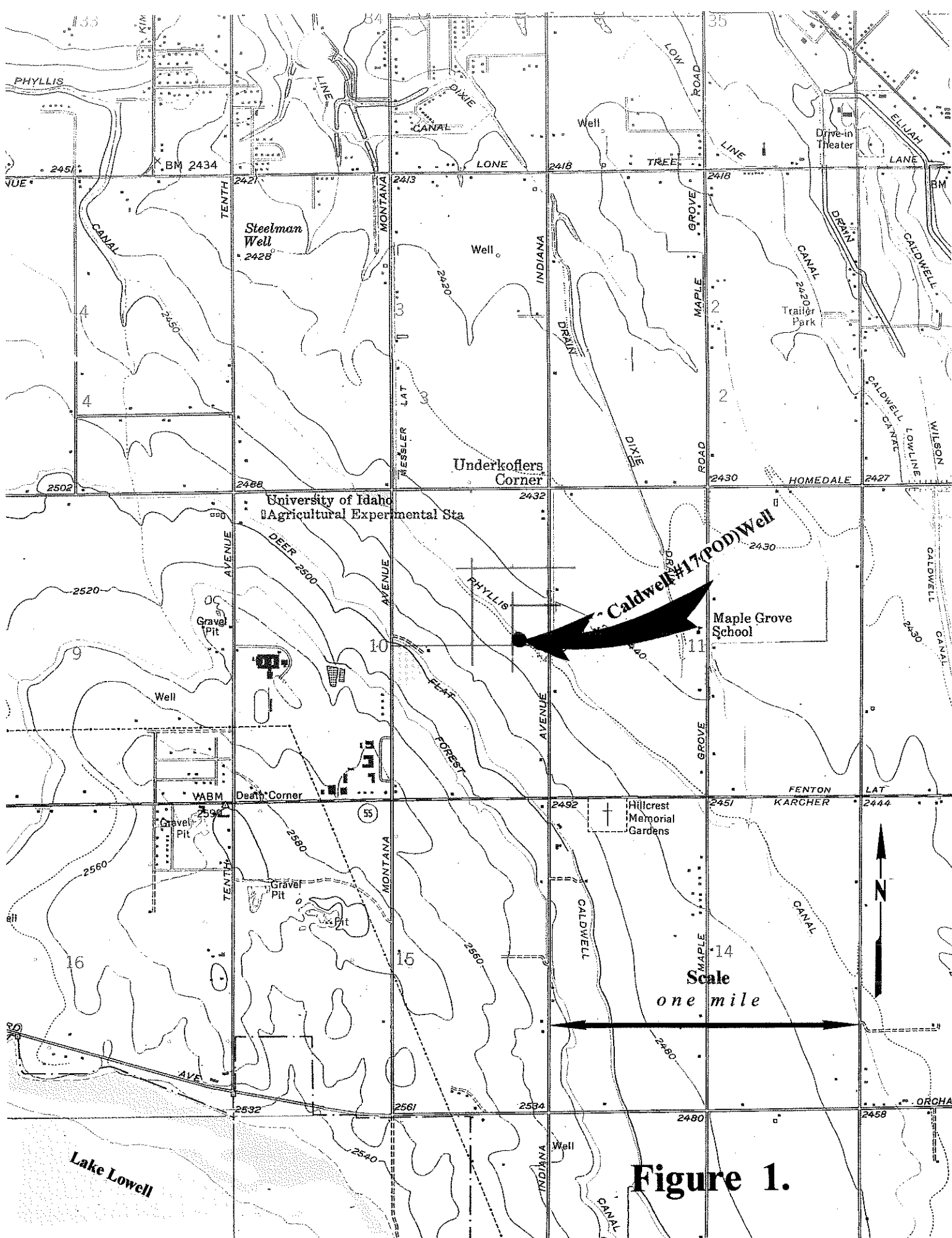


Figure 1.

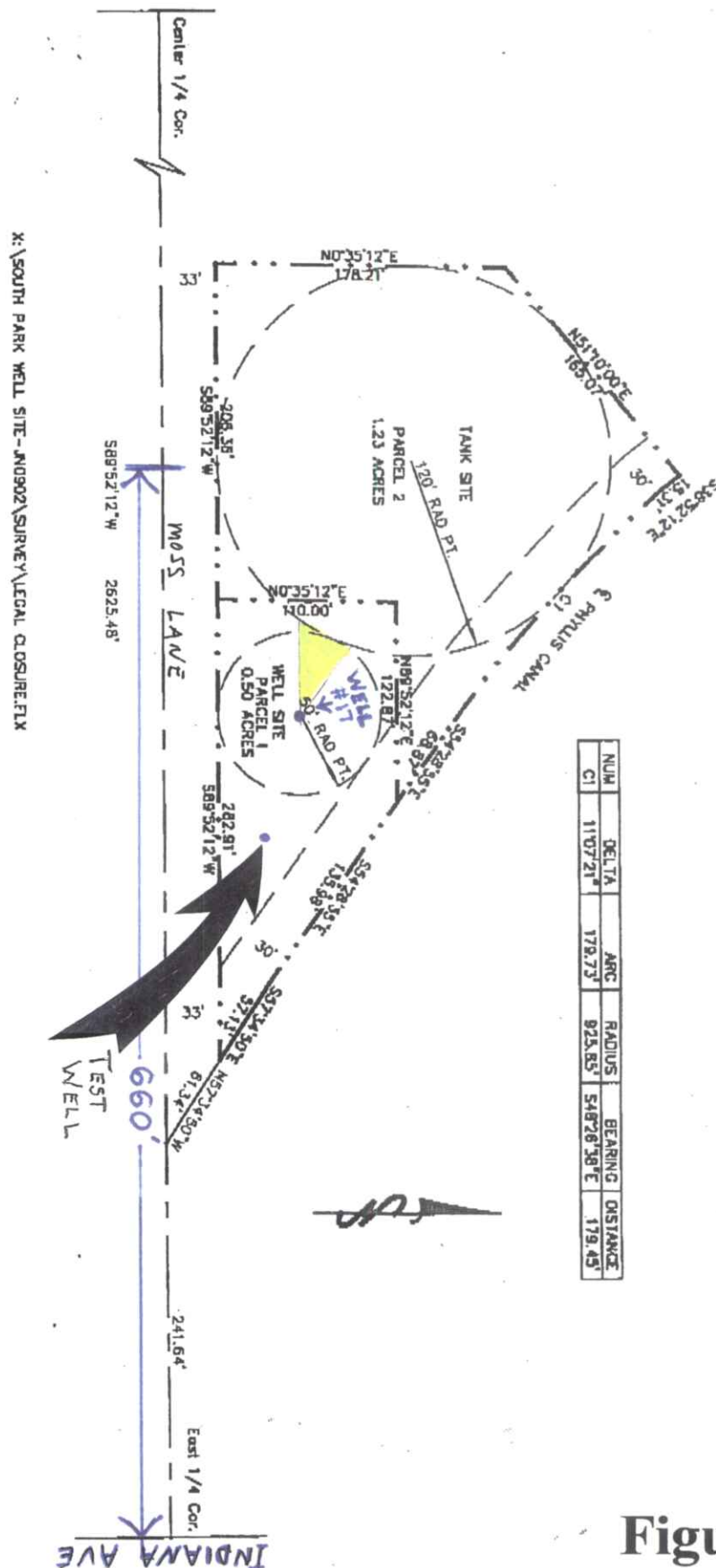


Figure 2.

CALDWELL CURRENT IMPACT AREA

City
of
Caldwell

Legend

- Caldwell
- Impact Area
- Lake
- Parcels
- Interstate
- Railroad
- River, Creek

DISCLAIMER
This map was prepared as a service of the City of Caldwell. It is not intended to be used for any other purpose. The City of Caldwell is not responsible for any errors or omissions on this map. The City of Caldwell is not responsible for any damages or losses resulting from the use of this map. The City of Caldwell is not responsible for any claims or lawsuits resulting from the use of this map. The City of Caldwell is not responsible for any claims or lawsuits resulting from the use of this map.

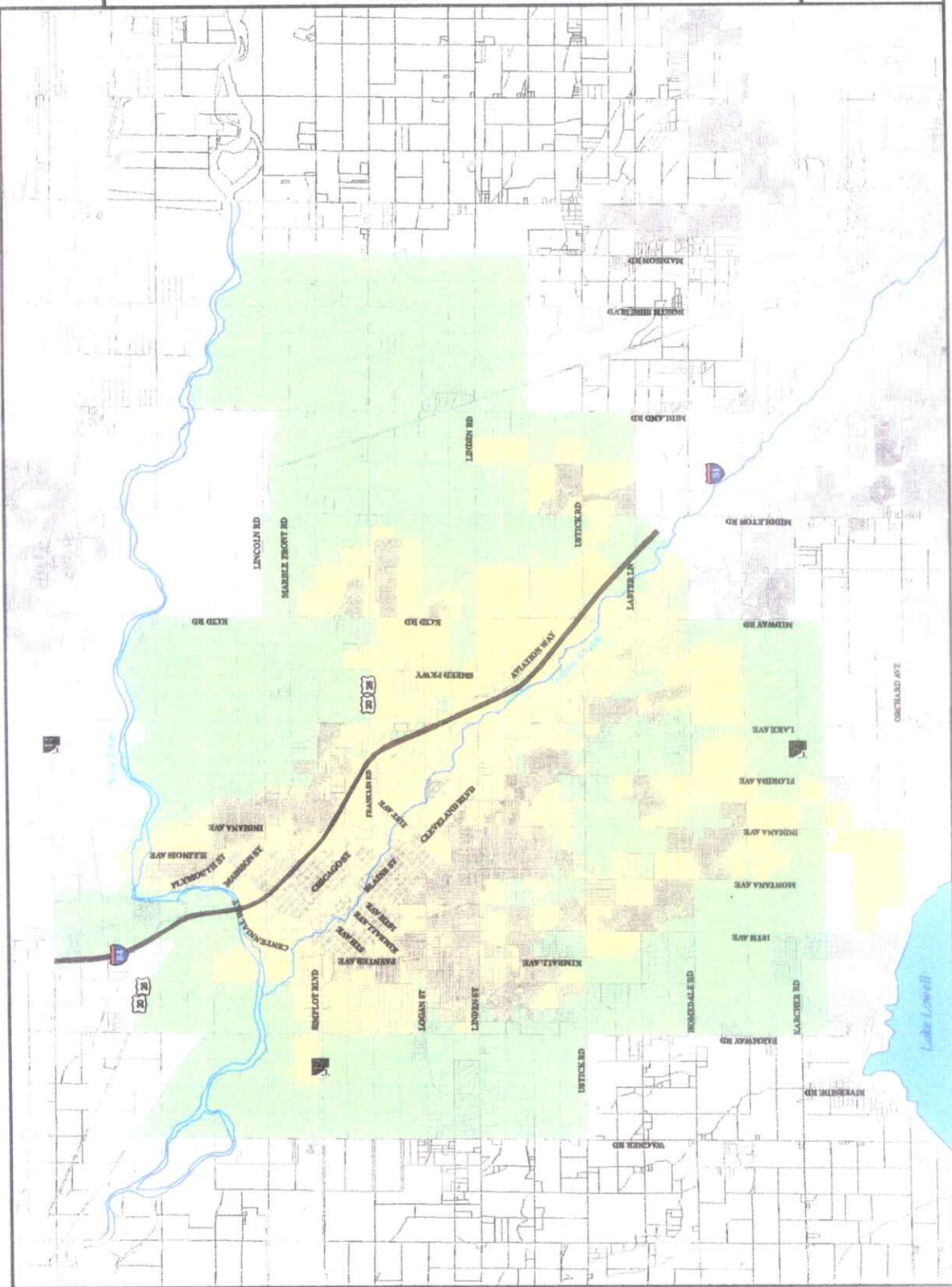
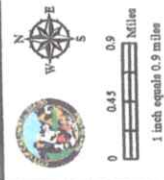
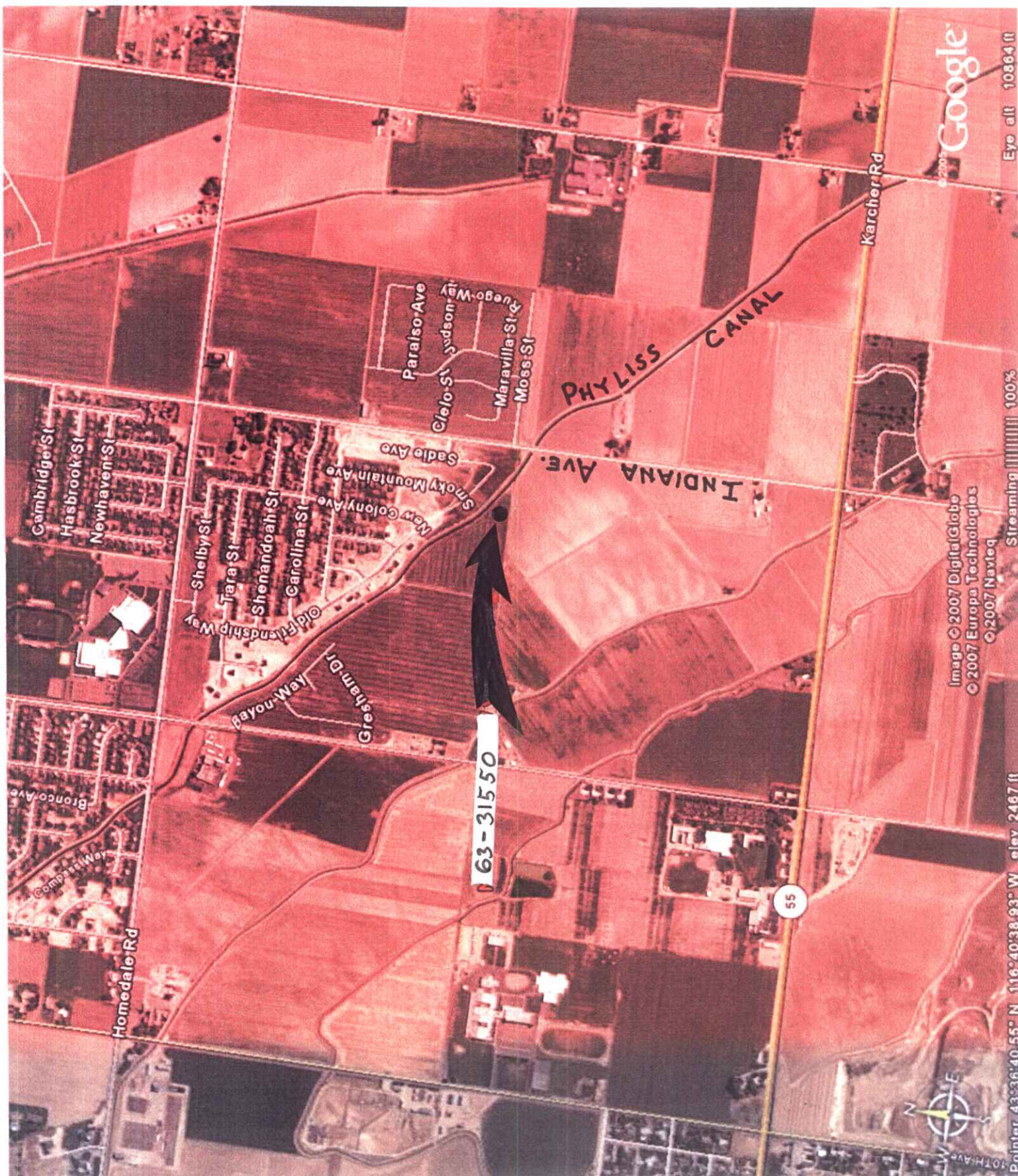


Figure 3.

Figure 4.



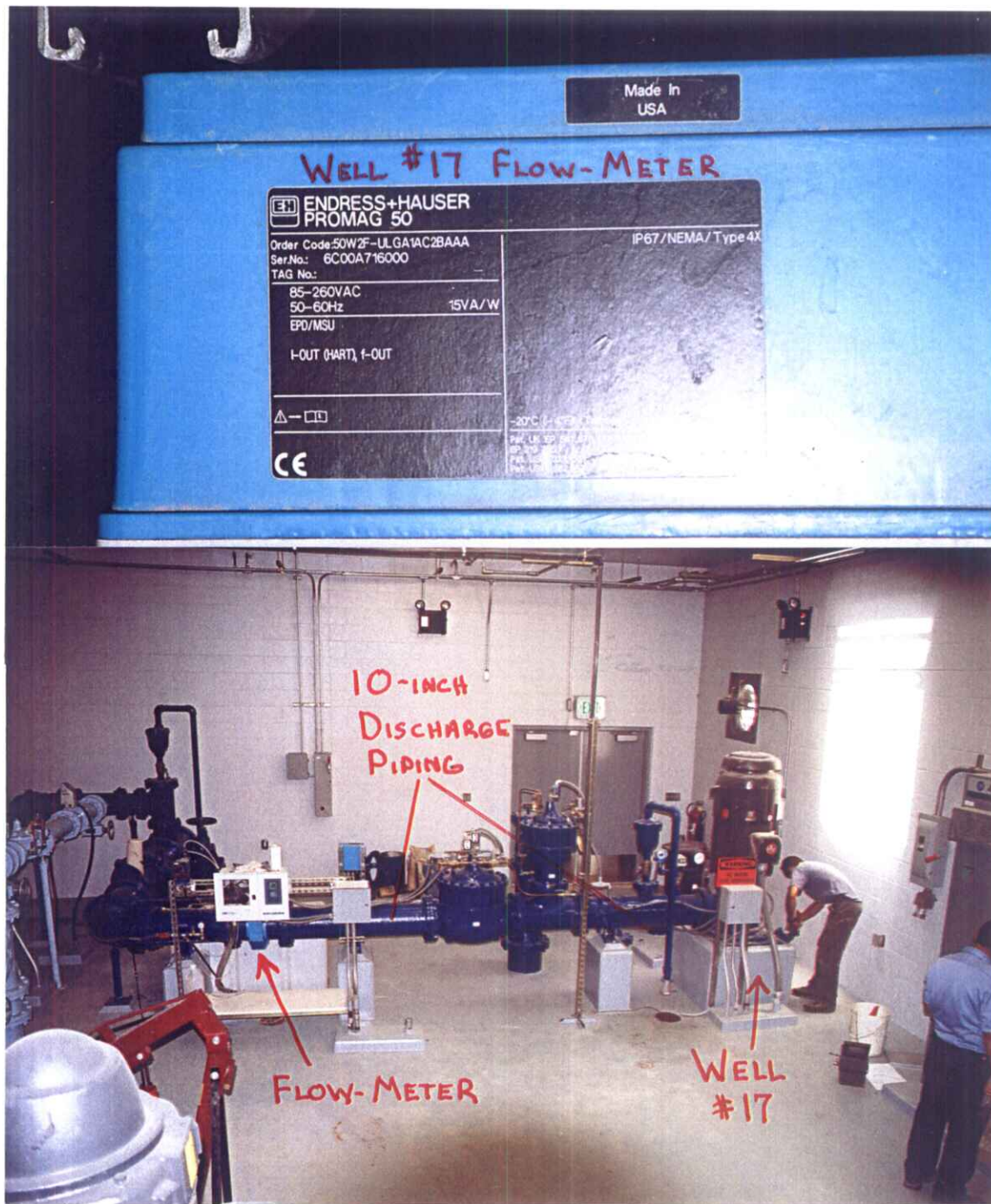


Figure 5. September 22, 2006 photographs of the inside of the Caldwell Well #17 pump/control house. Lower view looks east and depicts the Well #17 well head plumbing including the electro-magnetic induction flow-meter in the 10-inch diameter discharge piping. The upper picture is a close-up of the flow-meter identification tag.

Figure 5.

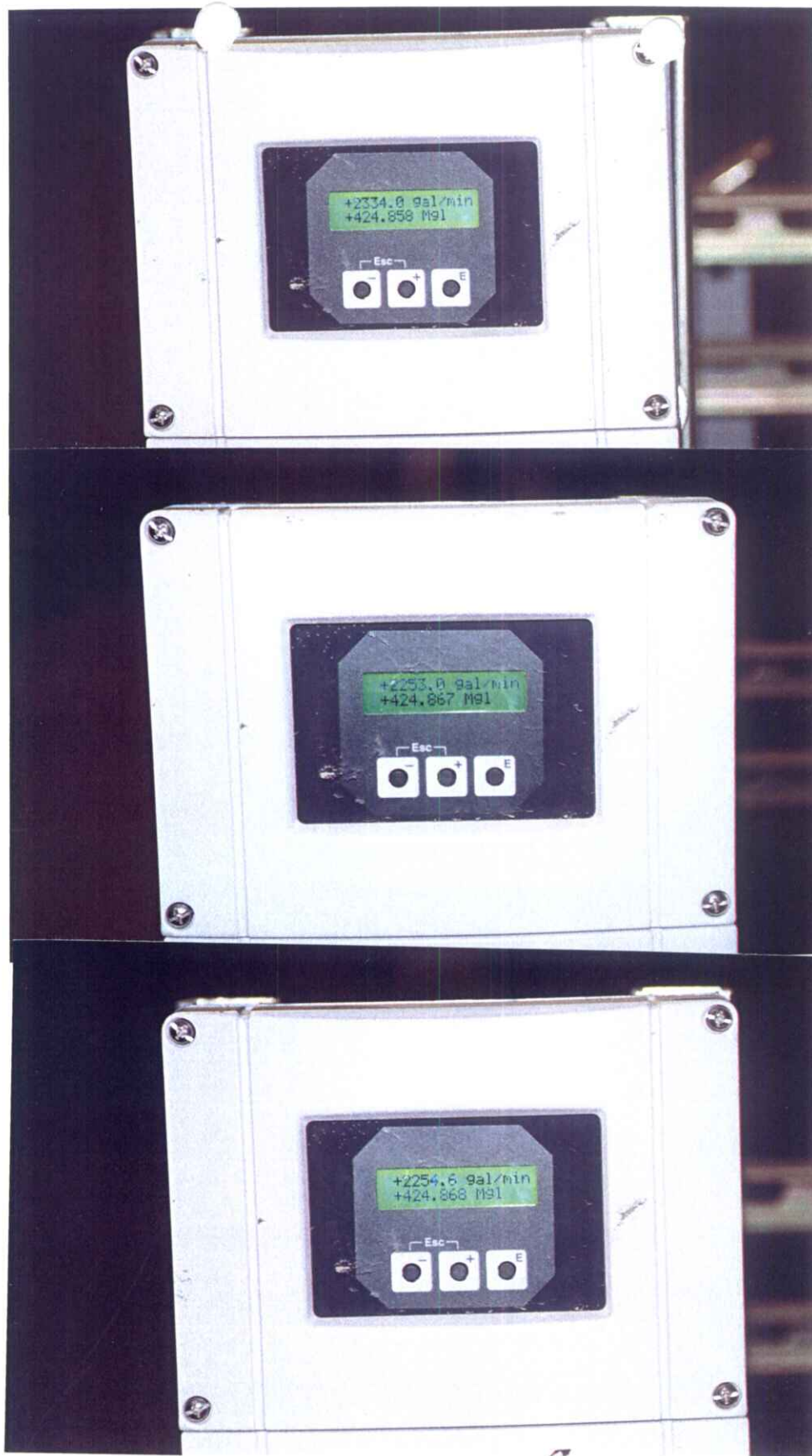
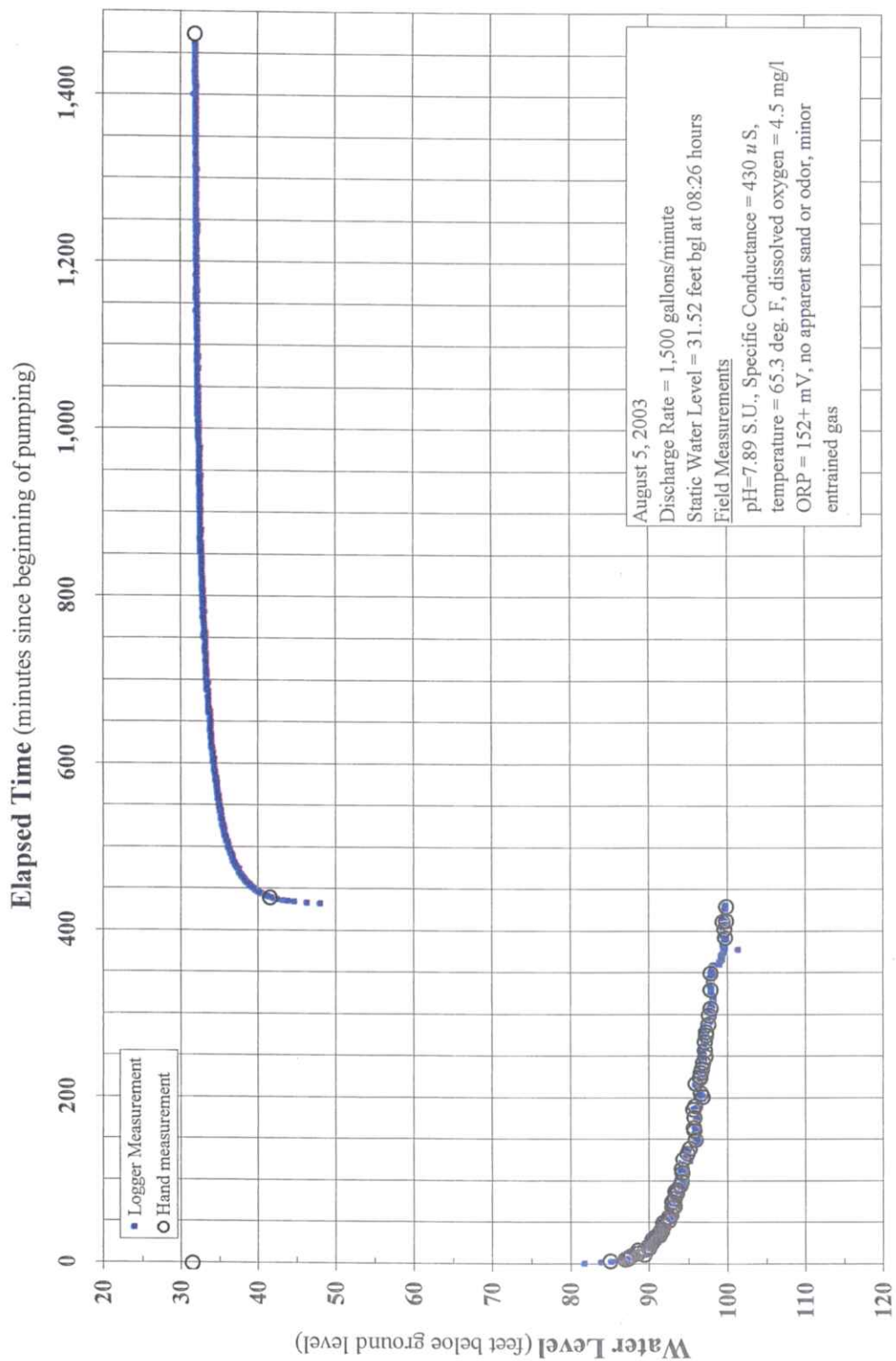


Figure 6. September 22, 2006 photographs of the digital readout panel of the Caldwell Well #17 totalizing flow-meter during the proof of Beneficial Use licensing examination.

Figure 6.

Caldwell #17 Supply Well - Constant Rate Discharge Test - August 5, 2003



Hydro Logic Inc.
Boise, Idaho

Figure 7.

Caldwell #17 Supply Well - Stepped Discharge Test - August 6, 2003

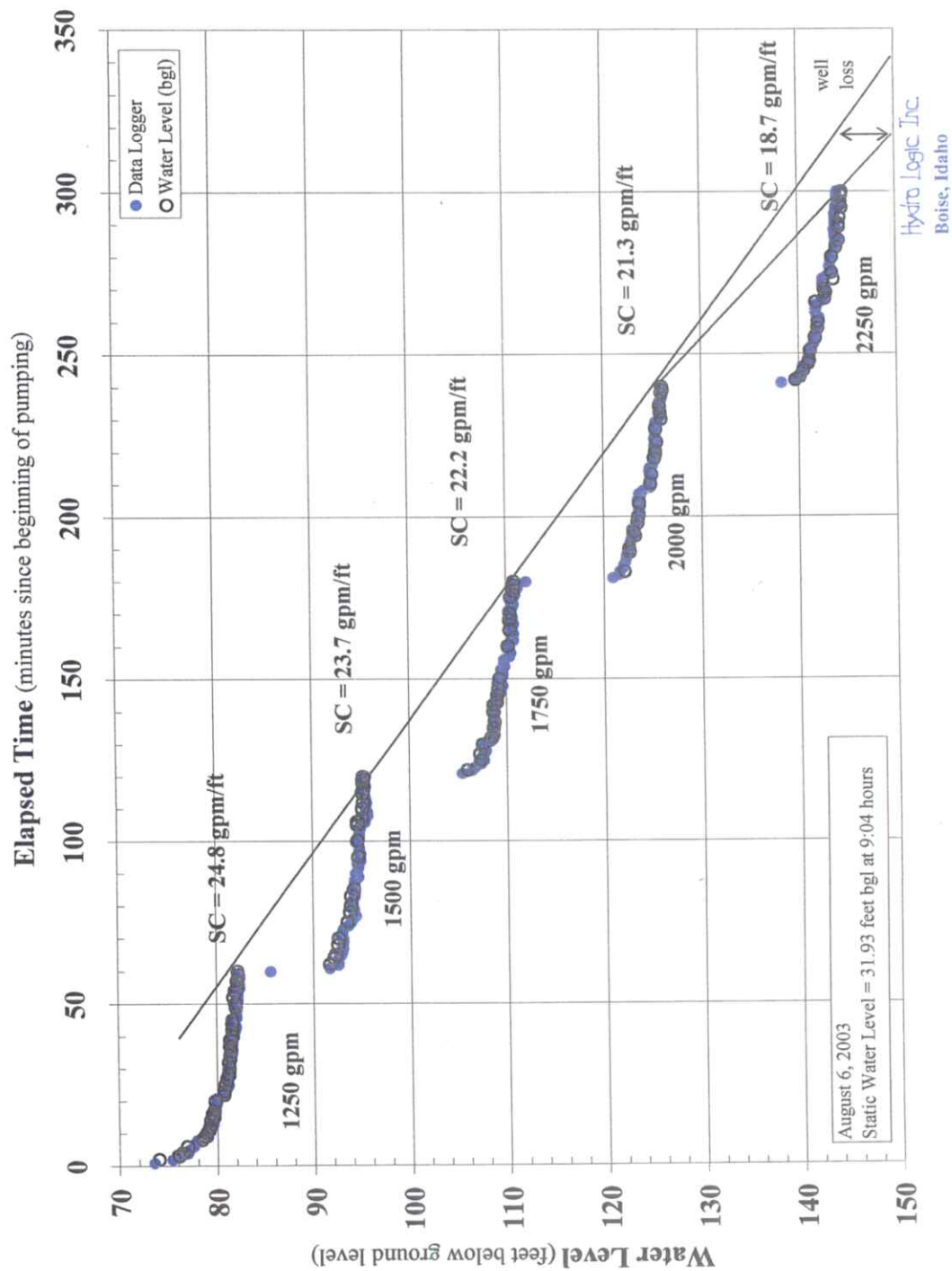


Figure 8.

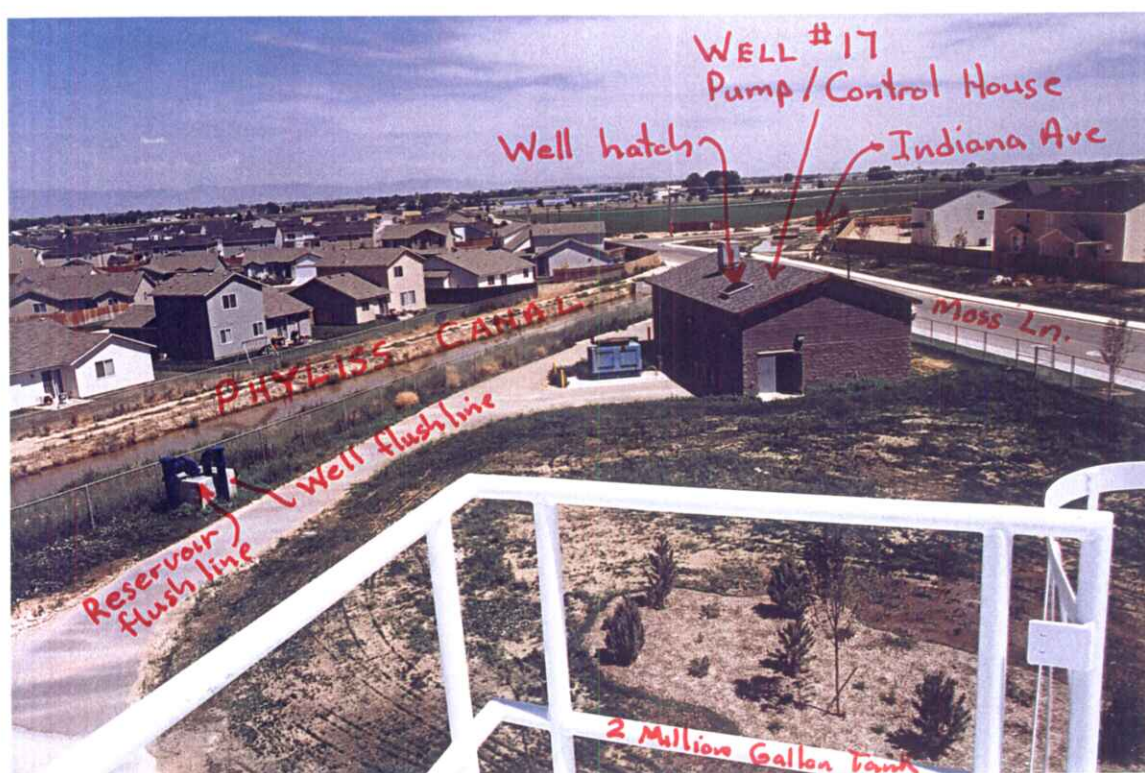
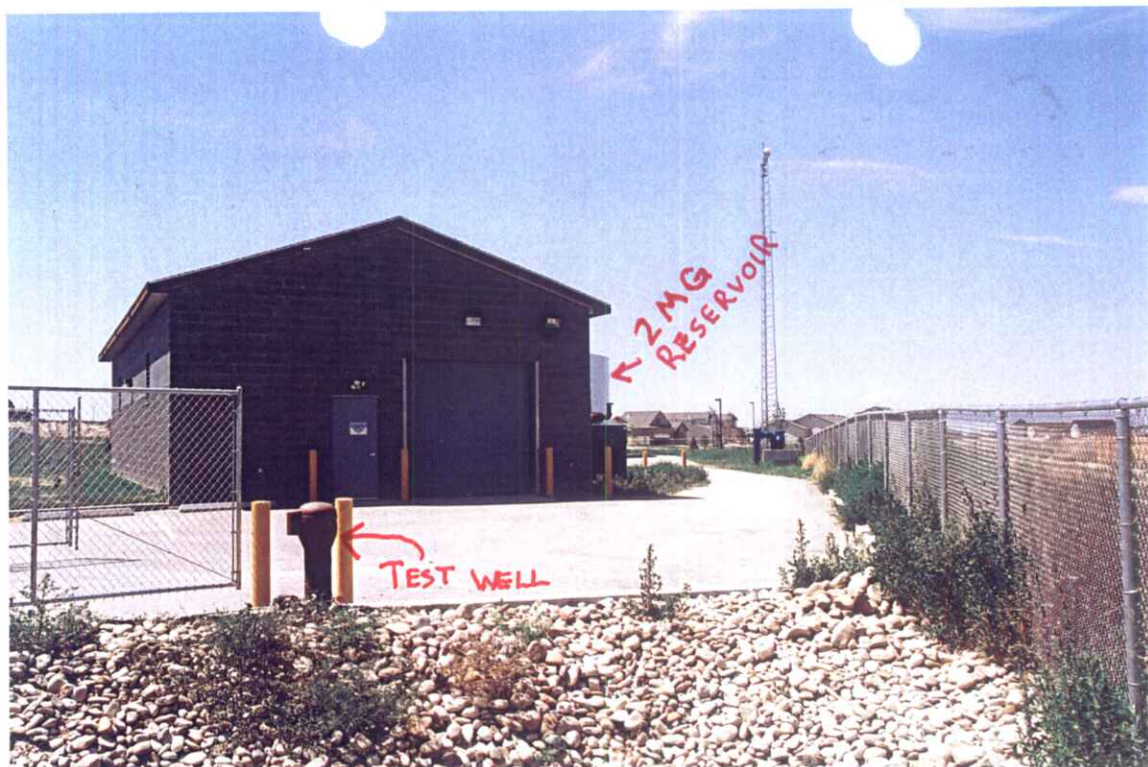
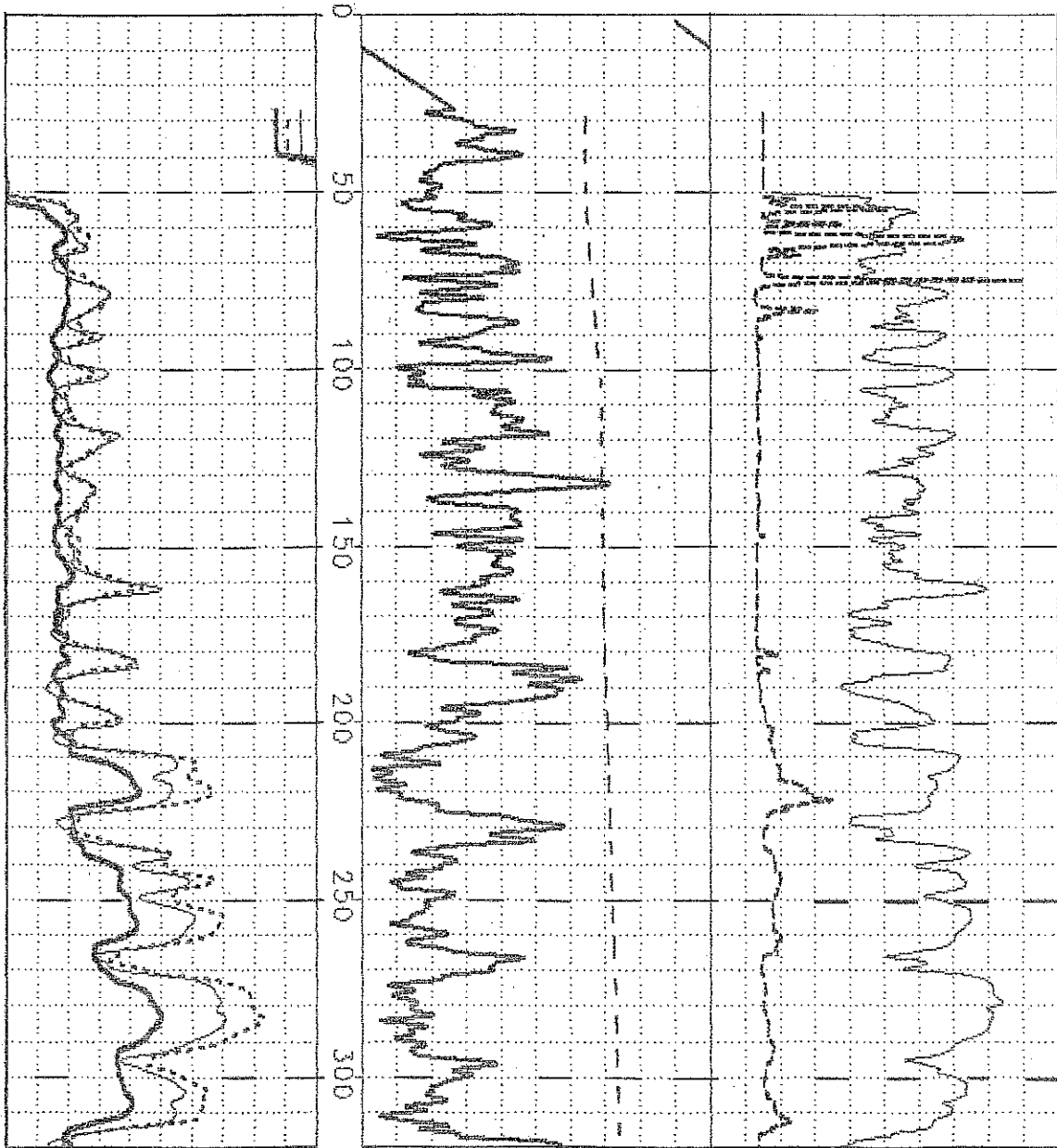
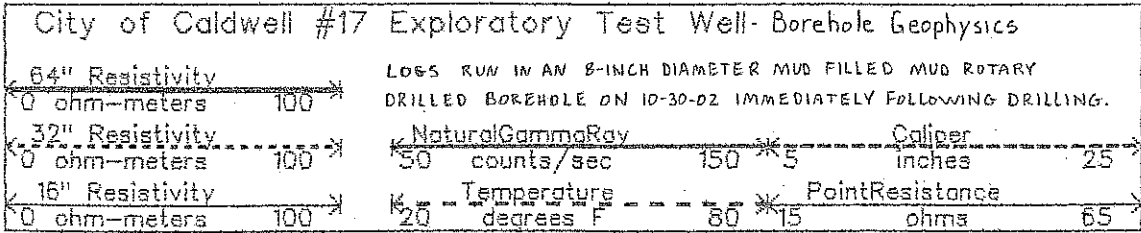


Figure 9. July 11, 2006 photographs of the outside of the Caldwell Well #17 pump/control house. Lower view, taken from the top of the two million gallon storage reservoir to the west of the well, looks east and depicts the Well #17 site with the Phyliss Canal to the north, Moss Lane to the south, Indiana Ave. to the east. Also visible is the emergency back-up power generator (blue) and the flushing facility for the well and the reservoir to the Phyliss Canal. The upper photo looks west and shows the east side of the well/control house..

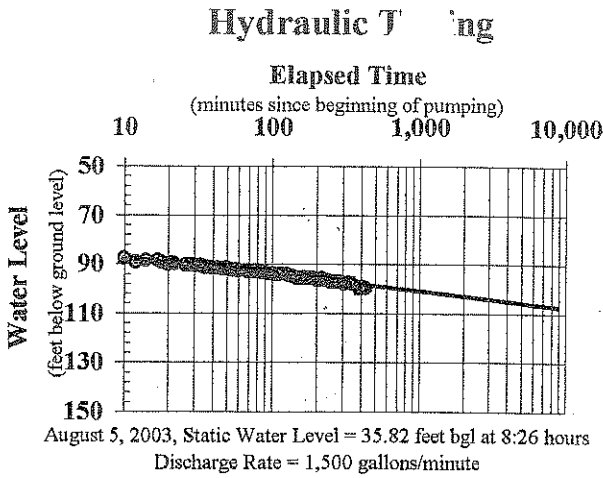
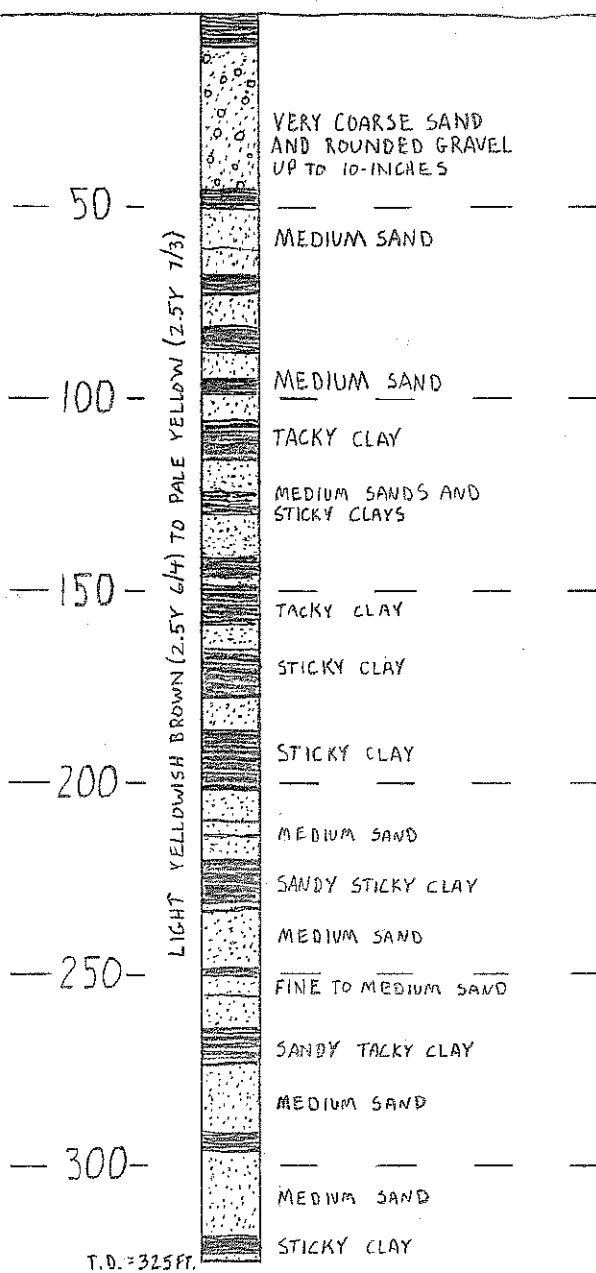
Figure 9.

CITY OF CALDWELL ENGINEERING DEPARTMENT PROJECT
WELL DESIGN CONSTRUCTION OVERSIGHT HYDRAULIC TESTING
DESIGN AND WATER QUALITY SAMPLING BY HYDRO LOGIC INC., BOISE, IDAHO
DRILLING AND WELL CONSTRUCTION BY TREASURE VALLEY DRILLING INC. WEISER IDAHO
PUMP TESTING BY RIVERSIDE INC., PARMA, IDAHO

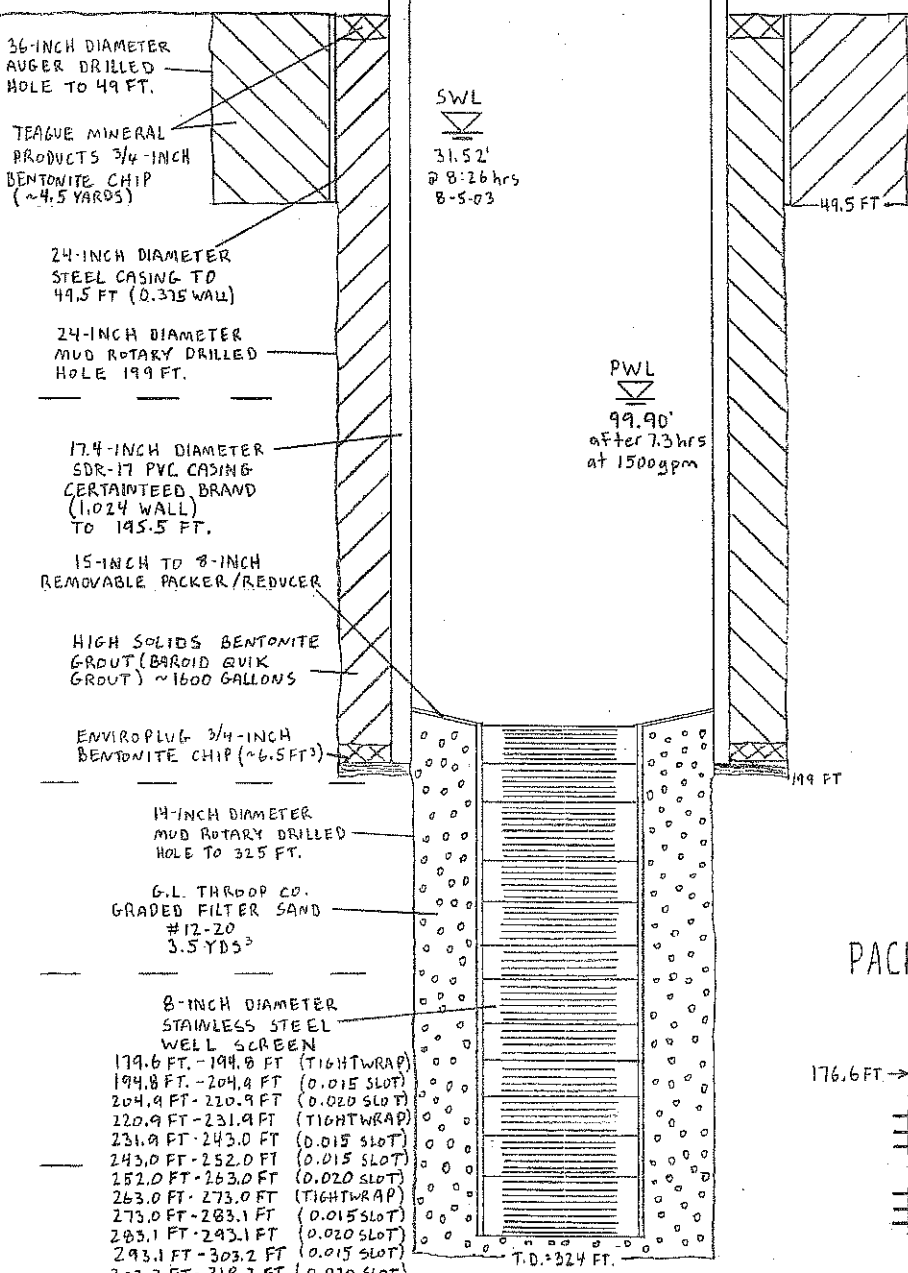
BOREHOLE GEOPHYSICS



DEPTH GEOLOGIST'S LITHOLOGY
(FEET BELOW GROUND LEVEL)



WELL CONSTRUCTION

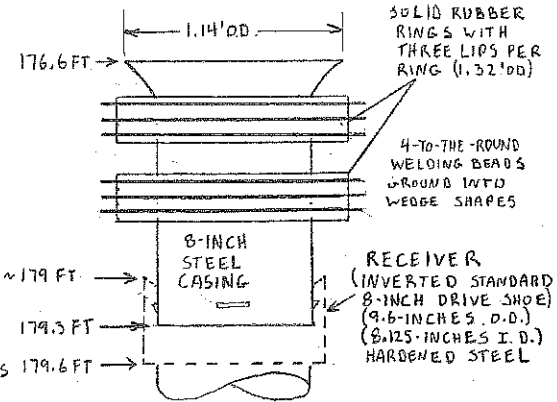


Water Chemistry

Analysis reported in mg/l (unless noted)	8/5/03 Results
Alkalinity	128.0
Ammonia as N	ND
Arsenic	0.006
Calcium as CaCO3	70.0
Chloride	15.0
Conductivity (uS/cm)	410.0
Corrosivity	-0.12
Fluoride	0.58
Hardness	93.0
Iron	0.02
Iron (diss.)	ND
Magnesium	5.58
Manganese (diss.)	ND
Nitrate	0.61
Nitrite	ND
Orthophosphate	0.025
pH (SU)	7.89
Potassium	3.37
Silica	28.1
Sodium	49.2
Sulfate	47.2
Hydrogen Sulfide	ND
Total Dissolved Solids	248.0
Total Organic Carbon	ND
Field Temperature (°F)	65.3
Field Conductivity (uS)	430
Field pH (S.U.)	7.89

Analyses by Alchem Laboratories, Boise, Idaho

PACKER/REDUCER DETAIL



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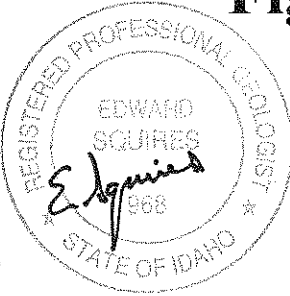
Hydro Logic Inc.
Boise, Idaho
B.Cavanagh 8/03

IMPORTANT NOTE: LITHOLOGICAL DESCRIPTIONS FROM 0-49 FT. ARE FROM AUGER DRILL CUTTINGS OF SUPPLY WELL. DESCRIPTIONS BETWEEN 49 AND 195.5 FT. ARE FROM THE TEST WELL DRILLED ~99 FT AWAY. DESCRIPTIONS FROM 195.5 TO 325 FT. ARE FROM THE SUPPLY WELL DRILL CUTTINGS

CITY OF CALDWELL
#17 SUPPLY WELL

T.3N, R.3W, SEC 10, SE 1/4, NE 1/4
AUGUST, 2003

Figure 10.



GOULDS PUMPS Performance curve for pump reported to be installed in Caldwell Well #17.

GOULDS PUMPS

GOULDS PROPOSAL NO.	GOULDS S.O. NO.	INQUIRY NO.	CUSTOMER P.O. NO.	P.O. DATE	ITEM NO.	CUSTOMER
PROJECT			SERVICE		GPM CAPACITY	FT. TDH
Caldwell Well #17					% EFFICIENCY	RPM

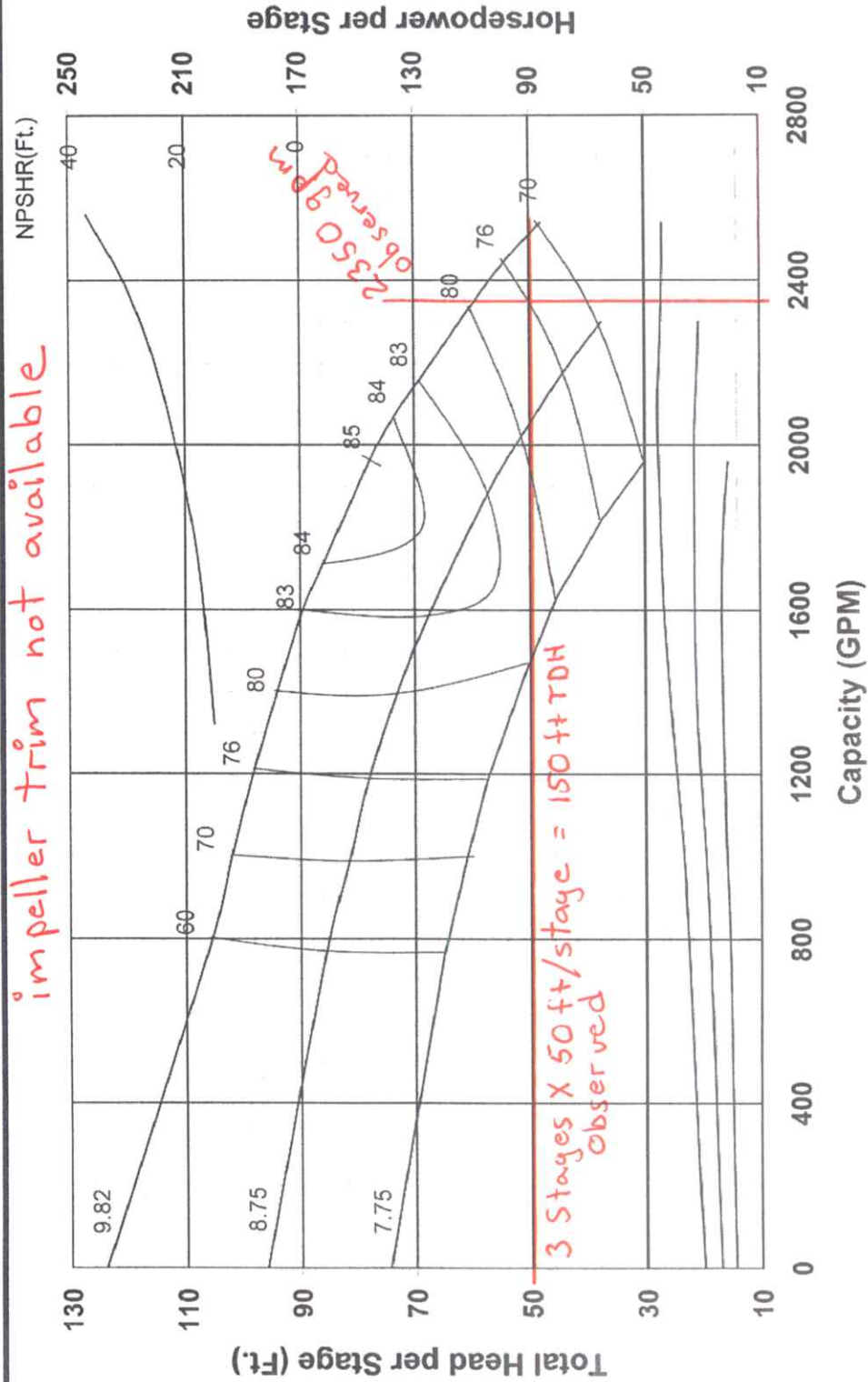


Figure 11.

Model 14RJMC

June 2005

Goulds Pumps



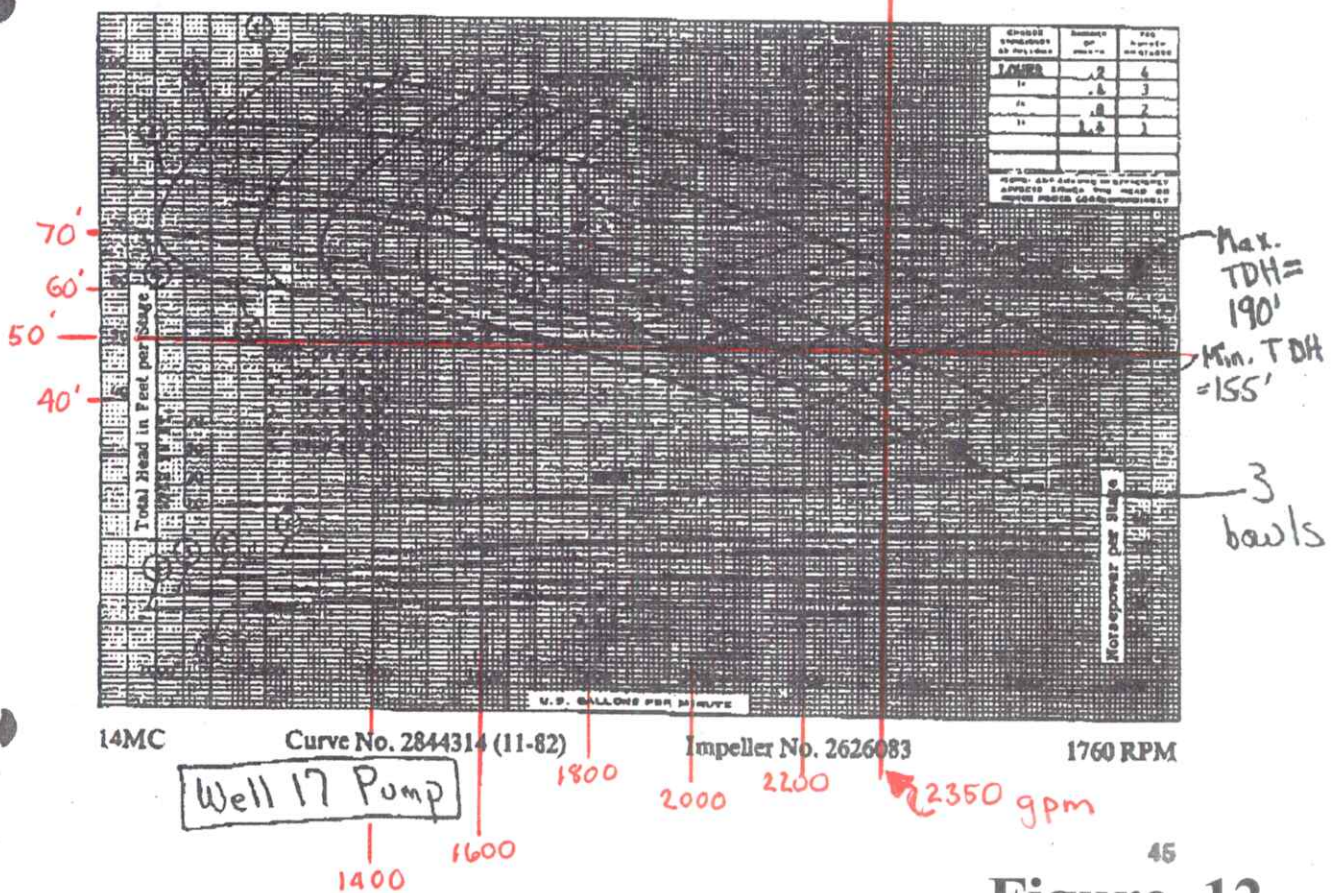
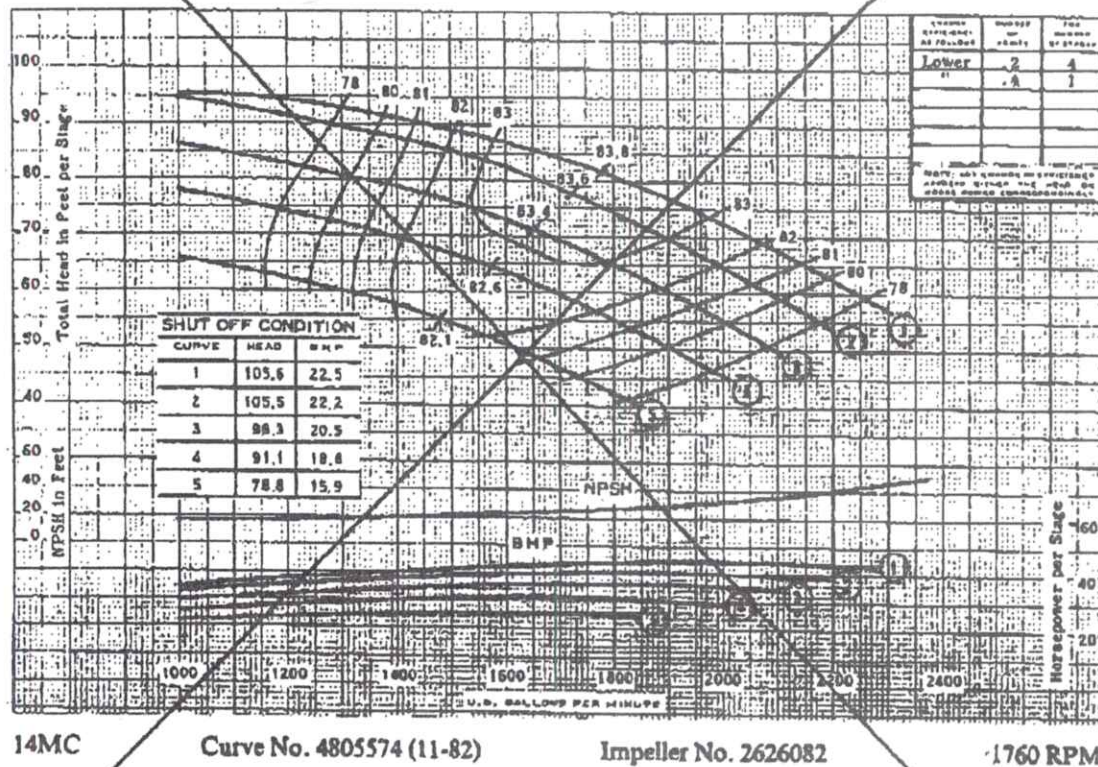


Figure 12.

Pump performance curve supplied by City for Well #17. Reportedly this is a Goulds 14RJMC 3-Stage.

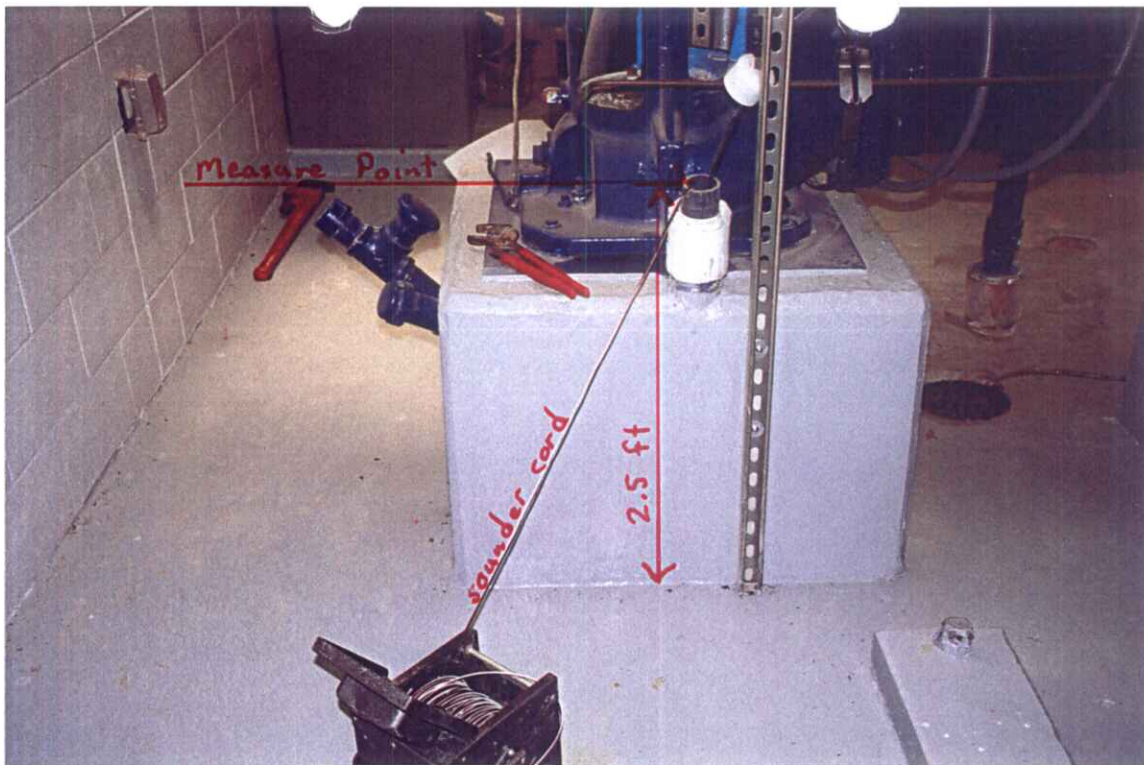


Figure 13. July 11, 2006 photographs inside of the Caldwell Well #17 pump/control house. Lower view looks west and shows the 125 HP Emerson drive motor and discharge-head on the Well #17. The upper photo is a closer look at the base of the discharge head and the monitoring port (measuring point) protruding from the concrete pump base of the well head. The electric well sounder in the foreground was used to measure water levels during the licensing examination.

Figure 13.

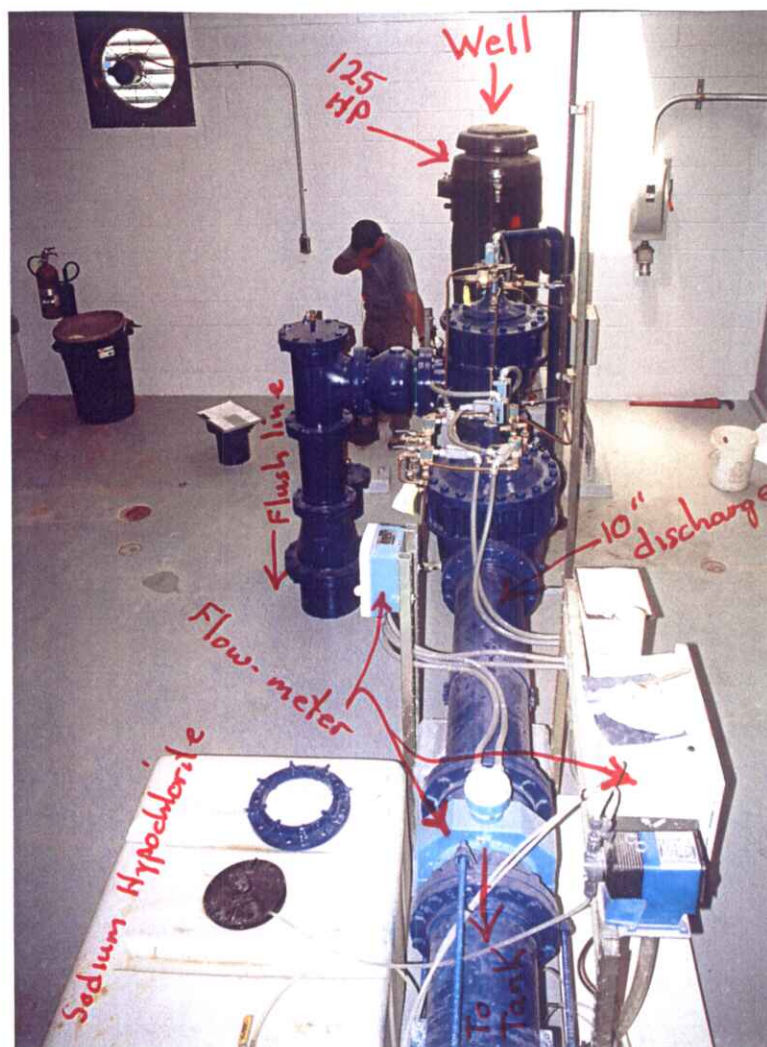
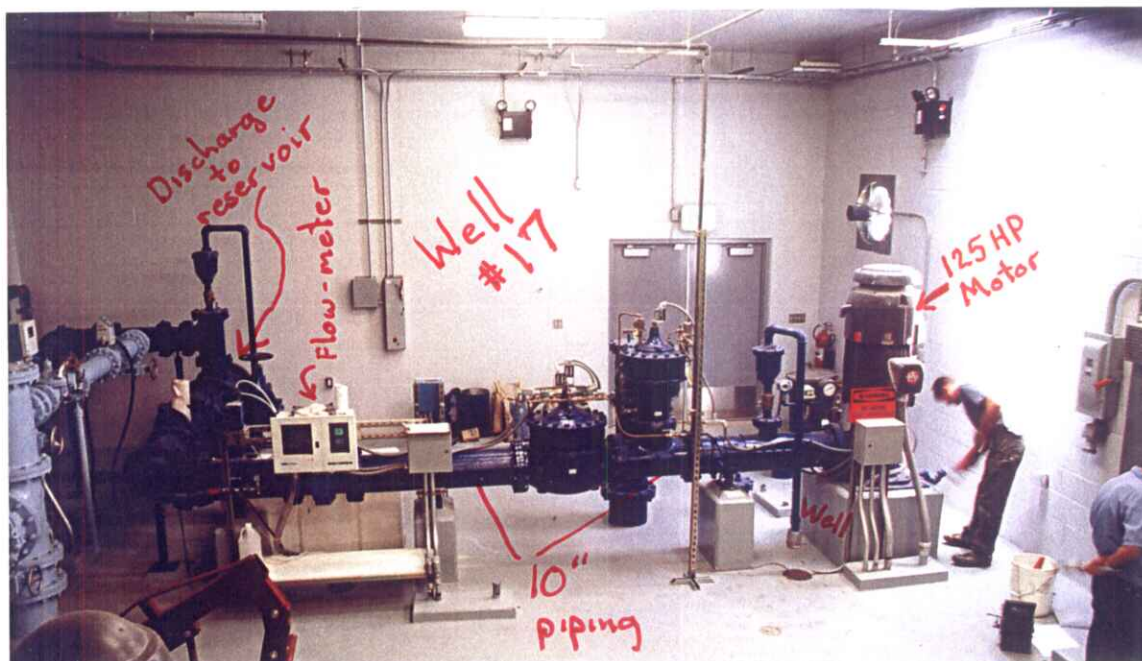


Figure 14.

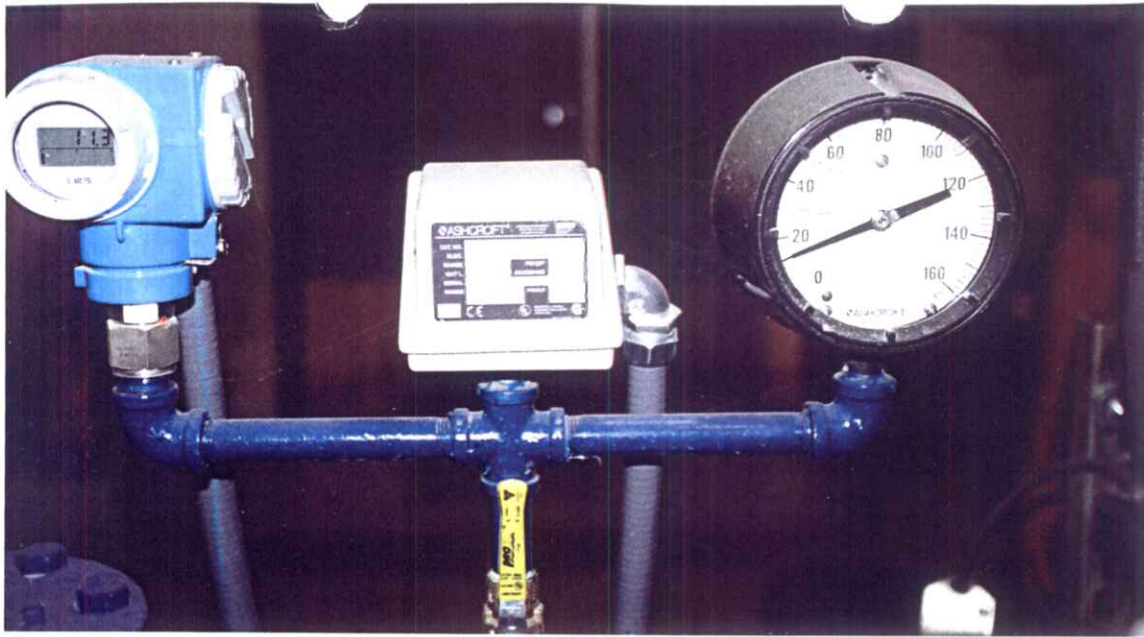


Figure 15. July 11, 2006 photographs of the City of Caldwell's Karcher Reservoir and booster station facility. Lower view looks northwest and shows the 30-foot tall 2 million gallon water storage reservoir with the infill pipe entering the top of the reservoir. The upper photo is a close up of the two pressure gages, inside the pump/control house, indicating the head pressure necessary to pump water into the reservoir.

Figure 15.

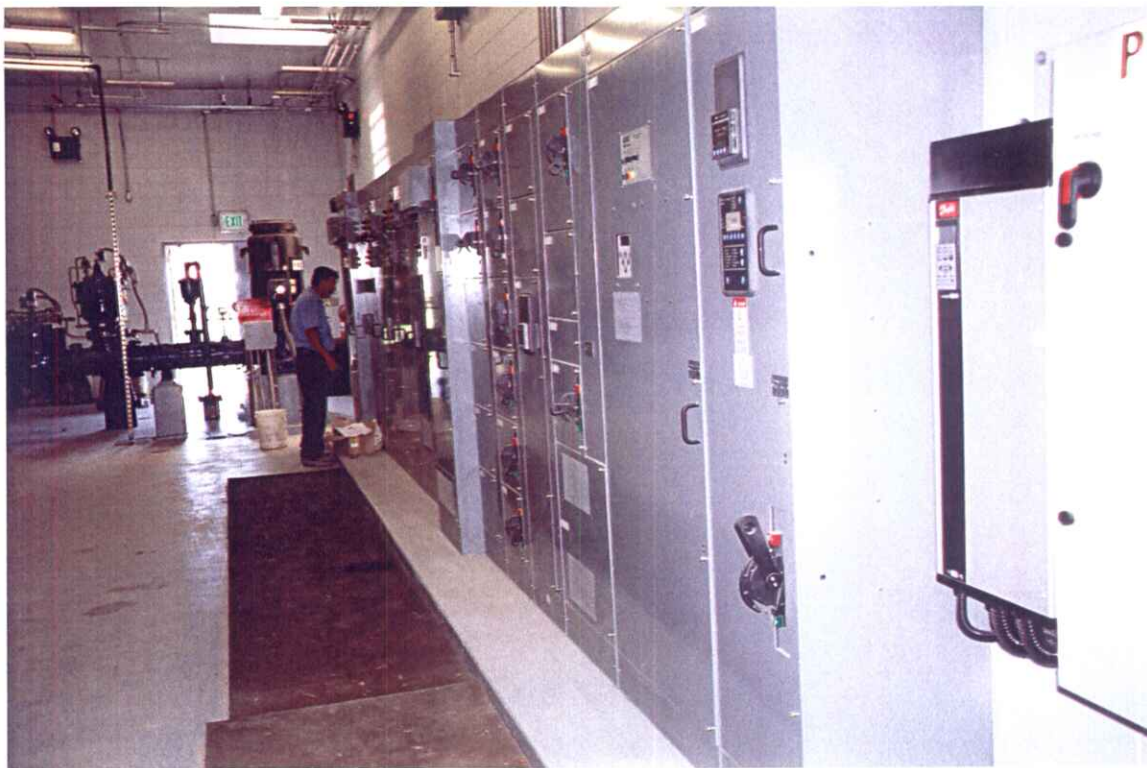


Figure 16. July 11, 2006 photographs inside of the Caldwell Well #17 pump/control house. Lower view looks west and shows the bank of variable speed pump controllers used to vary the pumping rates for the five pumping plants within the facility (one well pump and four booster pumps). The upper photo looks east and shows the four 75 HP U.S. Motors pump motors used to drive the booster pumps to two separate pressure zones of the City's water distribution system.

Figure 16.

APPENDICES

Appendix A.

Technical specifications, installation requirements, certifications, and contact information for the magnetic-induction totalizing flow-meter installed on the discharge piping of the City of Caldwell's Municipal Supply Well #17.



Level



Pressure



Flow



Temperature

Liquid
Analysis

Registration

Systems
Components

Services



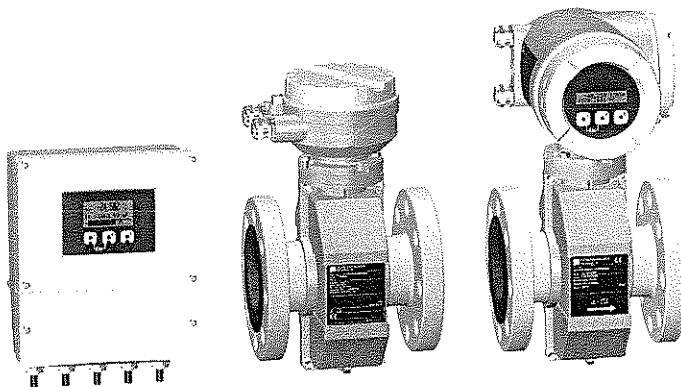
Solutions

Technical Information

Proline Promag 50W, 53W

Electromagnetic Flow Measuring System

Flow measurement in water or wastewater applications



Application

Electromagnetic flowmeter for bidirectional measurement of liquids with a minimum conductivity of $\geq 5 \mu\text{S/cm}$:

- Drinking water
- Wastewater
- Wastewater sludge
- Flow measurement up to $110,000 \text{ m}^3/\text{h}$
- Fluid temperature up to $+80^\circ\text{C}$
- Process pressures up to 40 bar
- Fitting lengths to DVGW/ISO

Application-specific lining materials:

- Polyurethane and hard rubber

Approvals for hazardous area:

- ATEX, FM, CSA

Lined measuring pipes with materials approved for drinking water:

- KTW, WRAS, NSF, ACS, etc.

Connection to process control system:

- HART, PROFIBUS DP/PA, FOUNDATION Fieldbus, MODBUS RS485

Your benefits

Promag measuring devices offer you cost-effective flow measurement with a high degree of accuracy for a wide range of process conditions.

The uniform **Proline transmitter concept** comprises:

- Modular device and operating concept resulting in a higher degree of efficiency
- Software options for electrode cleaning
- Uniform operating concept

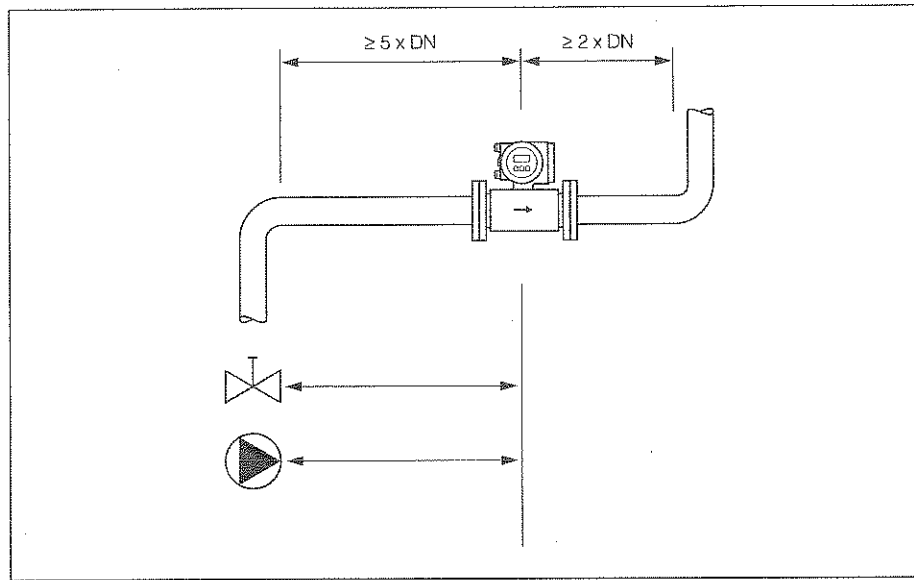
The tried-and-tested **Promag sensors** offer:

- No pressure loss
- Not sensitive to vibrations
- Simple installation and commissioning

Inlet and outlet runs

If possible, install the sensor well clear of fittings such as valves, T-pieces, elbows, etc. Compliance with the following requirements for the inlet and outlet runs is necessary in order to ensure measuring accuracy:

- Inlet run $\geq 5 \times \text{DN}$
- Outlet run $\geq 2 \times \text{DN}$



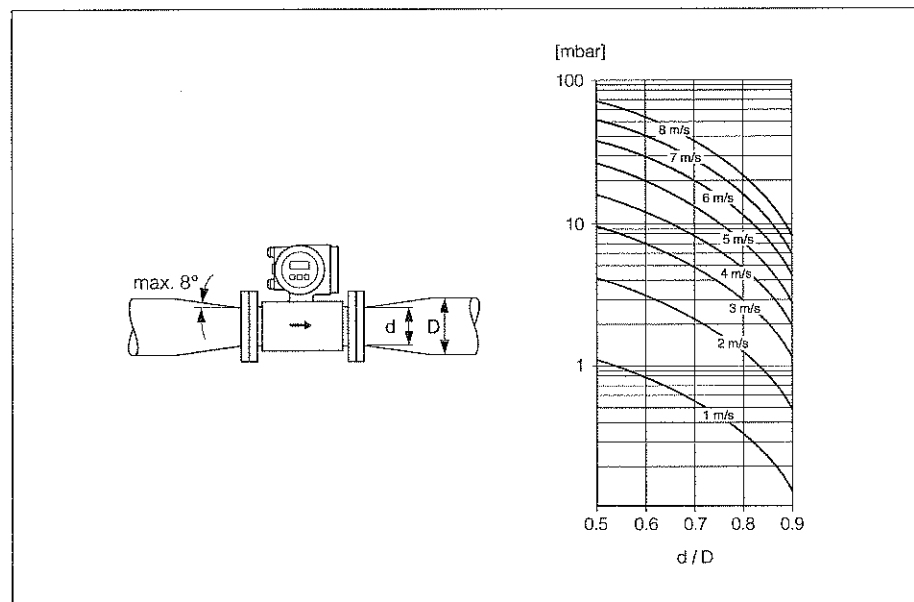
F06-5XXXXXXXX-11-00-00-xx-005

Adapters

Suitable adapters to DIN EN 545 (double flange junction sections) can be used to install the sensor in larger-diameter pipes. The resultant increase in the rate of flow improves measuring accuracy with very slow-moving fluids.

The nomogram shown here can be used to calculate the pressure loss caused by reducers and expanders. The nomogram applies only to fluids of viscosity similar to water.

1. Calculate the ratio of the diameters d/D .
2. From the nomogram read off the pressure loss as a function of flow velocity (downstream from the reduction) and the d/D ratio.



F06-5XXXXXXXX-05-05-xx-xx-000

Flow characteristics (US units)					
Nominal diameter		Recommended flow rate	Factory settings		
[inch]	[mm]	Min./max. full scale value (v ~ 0.3 or 10 m/s)	Full scale value (v ~ 2.5 m/s)	Pulse weighting (~ 2 pulse/s)	Creepage (v ~ 0.04 m/s)
1"	25	2.5...80 gal/min	18 gal/min	0.20 gal	0.25 gal/min
1 1/4"	32	4...130 gal/min	30 gal/min	0.20 gal	0.50 gal/min
1 1/2"	40	7...190 gal/min	50 gal/min	0.50 gal	0.75 gal/min
2"	50	10...300 gal/min	75 gal/min	0.50 gal	1.25 gal/min
2 1/2"	65	16...500 gal/min	130 gal/min	1 gal	2.0 gal/min
3"	80	24...800 gal/min	200 gal/min	2 gal	2.5 gal/min
4"	100	40...1250 gal/min	300 gal/min	2 gal	4.0 gal/min
5"	125	60...1950 gal/min	450 gal/min	5 gal	7.0 gal/min
6"	150	90...2650 gal/min	600 gal/min	5 gal	12 gal/min
8"	200	155...4850 gal/min	1200 gal/min	10 gal	15 gal/min
10"	250	250...7500 gal/min	1500 gal/min	15 gal	30 gal/min
12"	300	350...10600 gal/min	2400 gal/min	25 gal	45 gal/min
14"	350	500...15000 gal/min	3600 gal/min	30 gal	60 gal/min
16"	400	600...19000 gal/min	4800 gal/min	50 gal	60 gal/min
18"	450	800...24000 gal/min	6000 gal/min	50 gal	90 gal/min
20"	500	1000...30000 gal/min	7500 gal/min	75 gal	120 gal/min
24"	600	1400...44000 gal/min	10500 gal/min	100 gal	180 gal/min
28"	700	1900...60000 gal/min	13500 gal/min	125 gal	210 gal/min
30"	—	2150...67000 gal/min	16500 gal/min	150 gal	270 gal/min
32"	800	2450...80000 gal/min	19500 gal/min	200 gal	300 gal/min
36"	900	3100...100000 gal/min	24000 gal/min	225 gal	360 gal/min
40"	1000	3800...125000 gal/min	30000 gal/min	250 gal	480 gal/min
42"	—	4200...135000 gal/min	33000 gal/min	250 gal	600 gal/min
48"	1200	5500...175000 gal/min	42000 gal/min	400 gal	600 gal/min
54"	—	9...300 Mgal/d	75 Mgal/d	0.0005 Mgal	1.3 Mgal/d
—	1400	10...340 Mgal/d	85 Mgal/d	0.0005 Mgal	1.3 Mgal/d
60"	—	12...380 Mgal/d	95 Mgal/d	0.0005 Mgal	1.3 Mgal/d
—	1600	13...450 Mgal/d	110 Mgal/d	0.0008 Mgal	1.7 Mgal/d
66"	—	14...500 Mgal/d	120 Mgal/d	0.0008 Mgal	2.2 Mgal/d
72"	1800	16...570 Mgal/d	140 Mgal/d	0.0008 Mgal	2.6 Mgal/d
78"	—	18...650 Mgal/d	175 Mgal/d	0.001 Mgal	3.0 Mgal/d
—	2000	20...700 Mgal/d	175 Mgal/d	0.001 Mgal	3.0 Mgal/d

Pressure loss

- No pressure loss if the sensor is installed in a pipe of the same nominal diameter.
- Pressure losses for configurations incorporating adapters to DIN EN 545 → Page 18

Certificates and approvals

Ex approvals	Information about currently available Ex versions (ATEX, FM, CSA) can be supplied by your Endress+Hauser Sales Centre on request. All explosion protection data are given in a separate documentation which is available upon request.
CE mark	The measuring system is in conformity with the statutory requirements of the EC Directives. Endress+Hauser confirms successful testing of the device by affixing to it the CE mark.
C-Tick mark	The measuring system is in conformity with the EMC requirements of the Australian Communications Authority (ACA).
Pressure Equipment Directive	Flow meters with a nominal diameter smaller or equal DN 25 are covered by Art. 3(3) of the European directive 97/23/EG (Pressure Equipment Directive) and are designed according to sound engineering practice. For larger nominal diameter, optional approvals according to Cat. III are available when required (depends on fluid and process pressure).
PROFIBUS DP/PA certification	The flow device has successfully passed all the test procedures carried out and is certified and registered by the PNO (PROFIBUS User Organisation). The device thus meets all the requirements of the following specifications: ■ Certified to PROFIBUS PA, profile version 3.0 (device certification number: on request) ■ The device can also be operated with certified devices of other manufacturers (interoperability)
FOUNDATION Fieldbus certification	The flow device has successfully passed all the test procedures carried out and is certified and registered by the Fieldbus Foundation. The device thus meets all the requirements of the following specifications: ■ Certified to FOUNDATION Fieldbus Specification ■ The device meets all the specifications of the FOUNDATION Fieldbus H1. ■ Interoperability Test Kit (ITK), revision status 4.0 (device certification number: on request) ■ The device can also be operated with certified devices of other manufacturers ■ Physical Layer Conformance Test of the Fieldbus Foundation
MODBUS certification	The measuring device meets all the requirements of the MODBUS/TCP conformity test and has the "MODBUS/TCP Conformance Test Policy, Version 2.0". The measuring device has successfully passed all the test procedures carried out and is certified by the "MODBUS/TCP Conformance Test Laboratory" of the University of Michigan.
Other standards, guidelines	EN 60529: Degrees of protection by housing (IP code) EN 61010: Protection Measures for Electrical Equipment for Measurement, Control, Regulation and Laboratory Procedures. EN 61326/A1 (IEC 6326): Electromagnetic compatibility (EMC requirements) NAMUR NE 21: Electromagnetic compatibility (EMC) of industrial process and laboratory control equipment. NAMUR NE 43: Standardisation of the signal level for the breakdown information of digital transmitters with analogue output signal. NAMUR NE 53: Software of field devices and signal-processing devices with digital electronics.

Subject to modification

International Head Quarter

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GmbH+Co. KG
Instruments International
Coltmarer Str. 6
79576 Weil am Rhein
Deutschland

Tel. +49 76 21 9 75 02
Fax +49 76 21 9 75 34 5
www.endress.com
info@ii.endress.com

Endress+Hauser 
People for Process Automation

Promag 50W**Technical data**

Measure Task	Conductive Liquids
Measuring Principle	Electromagnetic
Main features	Standard applications for flow rate measurement of fluids in water / waste water applications
Diameter	DN 25...2000 1"...78"
Measuring range	0...110'000 m3/h
Process temperature	-20...+80°C (-4...+176°F)
Pressure range	PN6...40 Cl 150...300 JIS 10...20K AWWA Class D AS 2129 Table E
Measured error	±0.5% ±0.2% (optional)
Display/Operation	Two line display with backlit Push button
Inputs	Status
Outputs	4...20 mA Pulse/Frequency Status
Communication	HART Profibus PA
Ex-Approvals	ATEX FM CSA
Protection electronic	IP 67 (NEMA 4x) IP 68 (Nema 6P)
Features	S-DAT Validation Quick Set-Up Monitoring of the medium ECC 2 Totalizer Bullet nose electrodes
Advantages	Easy servicing and maintenance. Validation on site without removal of the sensor: - Optimized plant maintenance - Incorporation in QS-systems Robust field housing in IP 67 Wall-mount housing in IP 67 for the straightforward installation of the remote version "Quick Setup" menus for straightforward commissioning in the field

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Endress+Hauser Consult AG - Kägenstr. 7 - 4153 Reinach/BL, Schweiz
 Tel.: +41 61 715 77 00, Fax: +41 61 715 77 01, Email: info@holding.endress.com
 For further information: www.endress.com

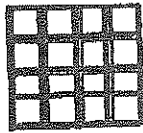
Appendix B.

State of Idaho Well Driller's Report for the City of Caldwell #17 Supply Well

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

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

1. DRILLING PERMIT NO. D0029668
Other IDWR No. 803958
2. OWNER:
Name City Of Caldwell
Address 621 Cleveland Blvd.
City Caldwell State ID Zip 83605
3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

W  Twp 3 North x or South ☐
Rge 3 East or West x
Sec 10 NE 1/4 SE 1/4 SW 1/4
Gov't lot County Canyon
Lat: Long:

Address of Well Site 250 Ft. west of Indiana Ave. on S. bank of Phyllis canal. City Caldwell
(Circle at least three of road + distance to road or landmark)

Lt. Blk. Sub. Name

4. USE:
Domestic x Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
x New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD
Air Rotary ☐ Cable x Mud Rotary ☐ Other

SEAL/FILTER PACK		AMOUNT		METHOD
Material	From	To	Seals or Pounds	
1/4 plug bentonite	0	55	9000 lbs.	pour
Bentonite grout	0	200	6000 gal	pump

Was drive shoe used? ☐ Y x N Shoe Depth(s)
Was drive shoe seal tested? ☐ Y x N How?

Diameter	From	To	Gauge	Material	Casing	Welded	Threaded
24	+1	55	375	steel	X	☐	X
17	+2	200	Std 17	PVC	X	☐	X
20	+4	4	250	Steel	X	☐	X

Length of Headpipe Length of Tailpipe

9. PERFORATIONS/SCREENS
☐ Perforations Method
x Screens Screen Type Johnson

From	To	Slot Size	Number	Diameter	Material	Casing	Lines
180	195	0		8	SS	☐	☐
195	205	15		8	SS	☐	☐
205	221	20		8	SS	☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
30 ft. below ground Artesian Pressure lb
Depth flow encountered 180-316 ft. Describe access point or control devices: 1" flanged lid

11. WELL TESTS:
x Pump ☐ Bailor ☐ Air ☐ Flowing Artesian

Yield gpm	Drawdown	Pressure Level	Time
1500	100	160	7.5 hrs

Water Temp. 62 Bottom hole temp. 62
Water Quality test or comments: Depth first Water Encountered 15

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia	From	To	Remarks: Lithology, Water Quality & Temp.	Water Y	N
36	0	5	Topsoil and clay		X
36	5	15	Hard pan		X
36	15	53	Sand and gravel	X	
36	53	55	Yellowish brown clay		X
24	55	185	Sand and clay strips	X	
24	185	200	Yellowish brown clay		X
15	200	204	Yellowish brown clay		X
15	204	210	Medium coarse sand	X	
15	210	211	Yellowish brown clay		X
15	211	213	Medium coarse sand	X	
15	213	215	Yellowish brown clay		X
15	215	221	Medium coarse sand	X	
15	221	232	Yellowish brown clay		X
15	232	233	Medium coarse sand	X	
15	233	234	Yellowish brown clay		X
15	234	248	Medium coarse sand	X	
15	248	251	Yellowish brown clay		X
15	251	255	Medium coarse sand	X	
15	255	256	Yellowish brown clay		X
15	256	265	Medium coarse sand	X	
15	265	267	Yellowish brown clay		X
15	267	291	Sand and clay strips	X	
15	291	296	Yellowish brown clay		X
15	296	316	Medium coarse sand	X	
15	316	318	Yellowish brown clay		X

Completed Depth: 318 (Measurable)
Date Started 06/24/03 Completed 07/31/03

13. DRILLER'S CERTIFICATION
I/We certify that all maximum well construction standards were complied with at the time the rig was removed.

Firm Name Treasure Valley Drilling Firm No. 560
Firm Official [Signature] Date 12/26/03
Supervisor or Operator [Signature] Date 12/26/03
(Sign once if Firm Official & Operator)

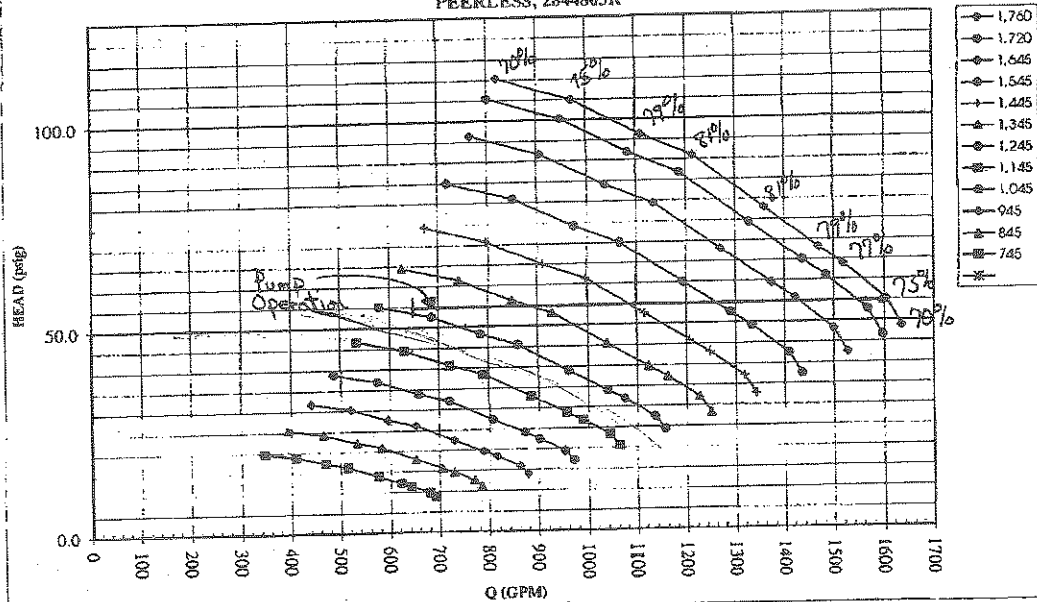
Date: 12/26/2003 Time: 10:13 AM

page 1 of 2

Appendix C.

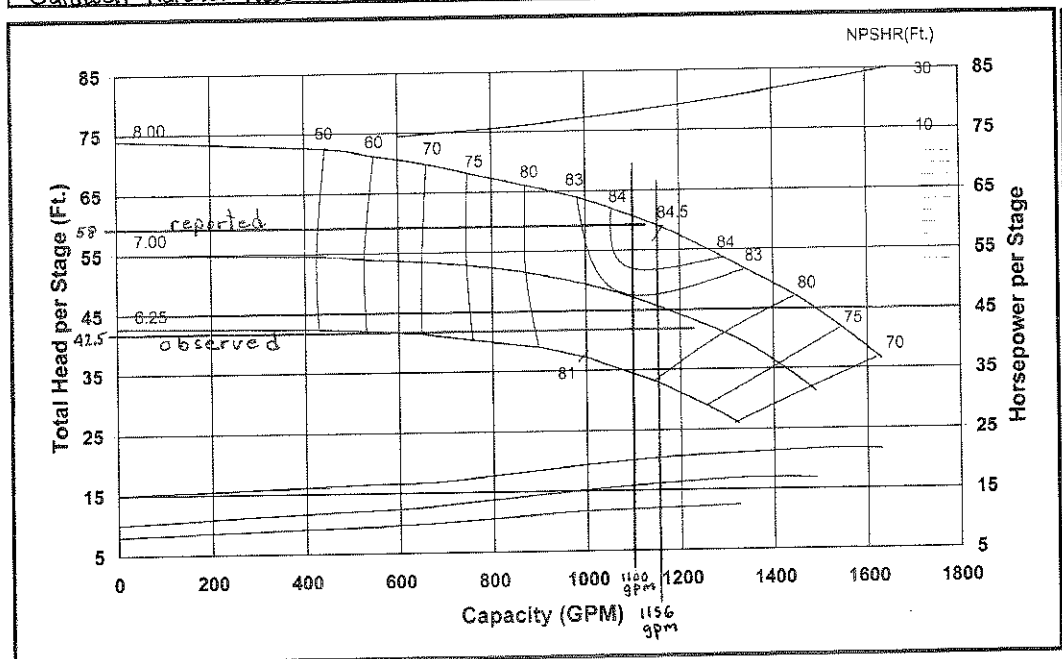
**Performance curves and technical data for the four booster pumps that pressurize
Zones #2 and #3 of the City of Caldwell's water distribution system from the
"Karcher" reservoir and booster station facility in south Caldwell**

**PUMP CURVES FOR VARYING SPEEDS
INDIANA RESERVOIR AND PUMP STATION
ZONE 2, PUMP 201 AND 202 (1600 GPM)
PEERLESS, 2844803R**



Caldwell Pressure Zone #2 Booster Pumps - Well #17

GOULDS PROPOSAL NO.	GOULDS S.O. NO.	INQUIRY NO.	CUSTOMER P.O. NO.	P.O. DATE	ITEM NO.	CUSTOMER
PROJECT	SERVICE	GPM CAPACITY	FT. TDH	% EFFICIENCY	RPM	
Caldwell Karcher Reservoir Site	Zone #2 Boosters	~ 1100	127'-10" - 176'	~ 84%	1760 max	



Curve No. E6412RDPC0	
Model 12RJHO	
RPM 1760	
EFFICIENCY CORRECTION	
1-STAGE	
2-STAGE	
3-STAGE	
4-STAGE	
Impeller OPEN	
Ns = 2840	
K = 13.7 LBS/FT	
K(Bal.) = N/A	
Bowl O.D.	11.60"
Bowl Lateral	1.00"
Max. PSI	340
Disch Size	6" 8", 10"
TURBINE OPERATIONS	
Lubbock, Texas	
BOWL PERFORMANCE CURVE	
BASED ON PUMPING CLEAR,	
NON-AERATED WATER.	
RATED POINT ONLY IS	
GUARANTEED. CURVES	
REPRESENT SINGLE STAGE	
PERFORMANCE BASED ON	
TEST OF MULTI-STAGE BOWL	
ASSEMBLY. EFFICIENCY	
CORRECTION IS REQUIRED	
FOR LESSER STAGES.	

Model 12RJHO

June 2005

Goulds Pumps is a brand of ITT Water Technology, Inc. - a subsidiary of ITT Industries, Inc.

Goulds Pumps and the ITT Engineered Blocks symbol are registered trademarks and tradenames of ITT Industries.

PRINTED IN U.S.A.

Specifications subject to change without notice.

Goulds Pumps



ITT Industries

Customer: Price Electric
412 W. Summit Blvd.
Caldwell, ID
83605
USA

Peerless Pump Company
2005 Dr. M. L. King Jr. St.
Baltimore, MD 21202
Phone 317-324-7362
Fax 317-324-7262

CALDWELL #17 Zone #3 Boosters

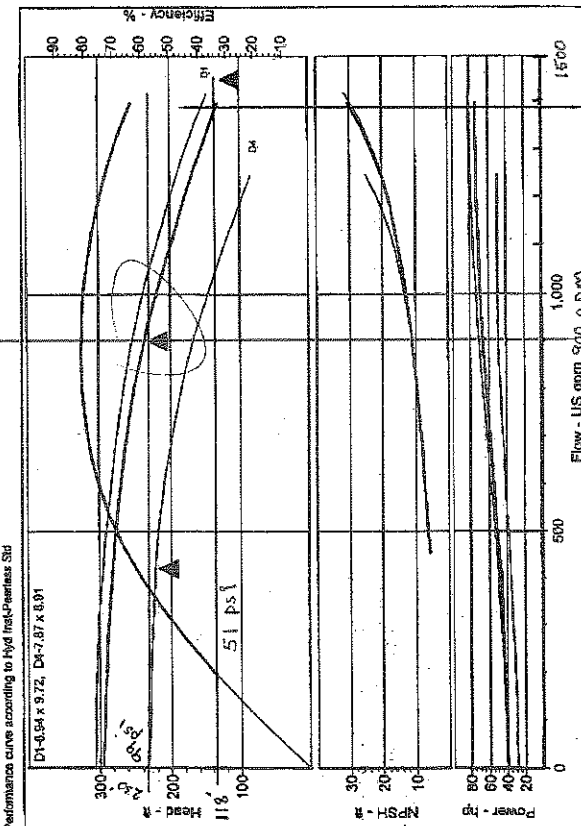
Contact: Lee Evans
Phone: 208-439-5351
Date: Friday, August 05, 2005
Page No: 1

Project: Karcher Reservoir & Pump Station
Quote No.: US-3290-420

Pump Model: Peerless Vertical - 12LD 3 Stages
Nom. Speed: 1770 RPM, 60 Hz Electric
Market: Vertical Turbine Pump
Impeller No.: 2834820 / HC
Material Spec. Group: A - B; CIE; 8 Bz = Standard
Item: 12LD-3
Your Ref.:

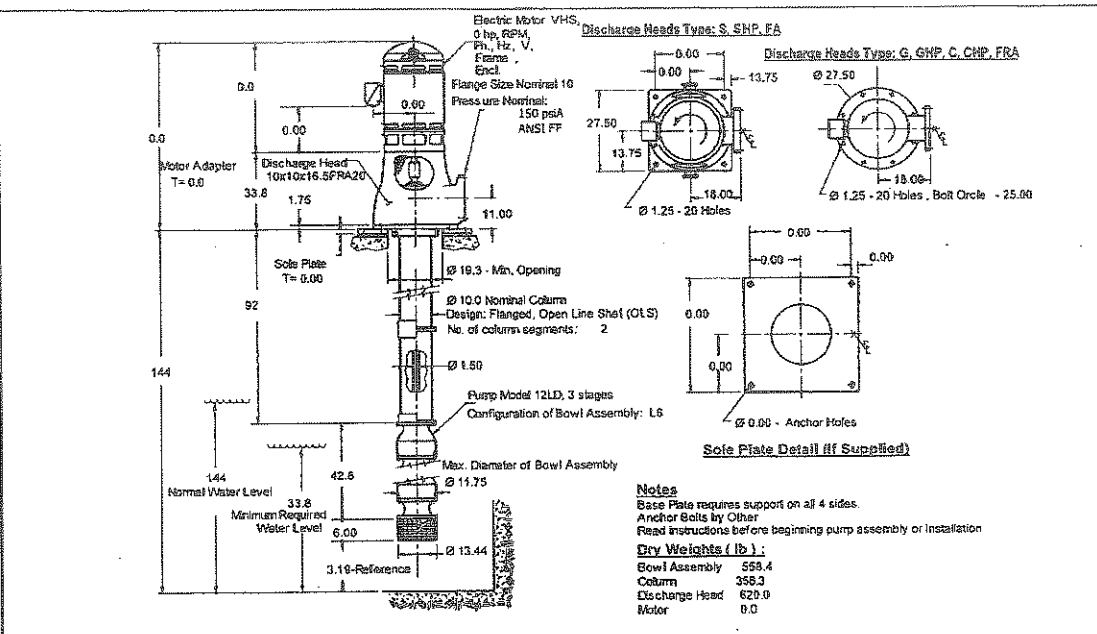
Flow rate Q: 900 US gpm
Bowl Total Head: 230 ft
Bowl Efficiency: 81.2 %
Bowl Power Required: 66.43 hp
NPSH Required: 11.136 ft

Fluid: Water
Temperature: 53 °F
Viscosity: 1.097 cSt
Sp. Gravity: 1.000 (base temp. 68 °F)



Comments:
Refer to factory for all single point bowl performance guarantees. Pumps must be selected with hydraulic Institute-Peerless Std. See Std. Hydraulic Performance document in RAPI/D for testing tolerances & contractual guarantees.

Peerless Pump Company - RAPI/D v6.04 - 12th July 2005



Dimensions in (inch) CALDWELL #17 Zone #3 Booster Pumps

Project:	Karcher Reservoir & Pump Station	Capacity:	900 (US gpm)	Frame/Model:	
Customer:	Price Electric	Total Head:	230 (ft)	Elec. Spec.:	
Item No.:	12LD-3	Pump Speed:	1770 (RPM)	Service Factor:	
Quote No.:	US-3290-420	Impeller Dia.:	9.22 (inch)	Rotation:	
Pump Model:	Peerless Vertical - 12LD	Power:		Enclosure/Type:	

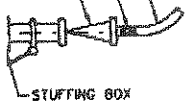


Peerless Pump Company
2005 Dr. M. L. King Jr. St.
Baltimore, MD
Phone 317-324-7362
Fax 317-324-7262
Date: Friday, August 05, 2005
Page No: 2

Peerless Pump Company - RAPI/D v6.04 - 12th July 2005

4 HYPOCHLORITE AT
3.49 GPM FLOW RATE.

TRACTOR SHALL
BE 50-FT OF 1/2"
PTER FOR
DIA
KABLE TUBE
C
VALVE



STUFFING BOX
OR SEAL
CORPORATION STOP
SPECIFIED
150 LB STEEL BLIND
FLANGE WITH TAPPED
HOLE FOR CORPORATION
TOP
VULCAN FACE GASKET
LB FLANGED OUTLET

DETAIL 2
M-2

STEEL BAR 1"x1/4"x4"
WELDED TO INSIDE OF
STEEL PIPE w/ 2"
EXTENDING BEYOND
END OF PIPE (TYP OF 3)

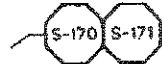
20" PW(B)
REMOVABLE DRAIN

PIPE PLAN

EL BAR 1"x1/4"x4"
DED TO INSIDE OF
EL PIPE (TYP OF 3)

1" PW(B)
OVABLE DRAIN

20" PW(B)
PROVIDED BY
TANK MANUFACTURER



EL 2447.50

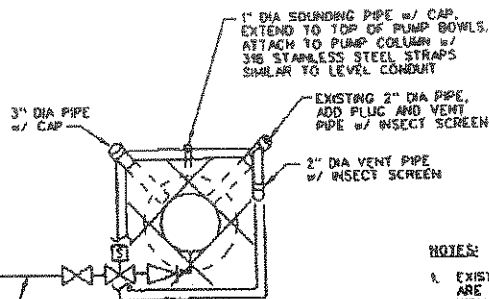
ITE:
OVIDE PIPE COATINGS PER
ECIFICATION SECTION 09806.

LET

6

C-4

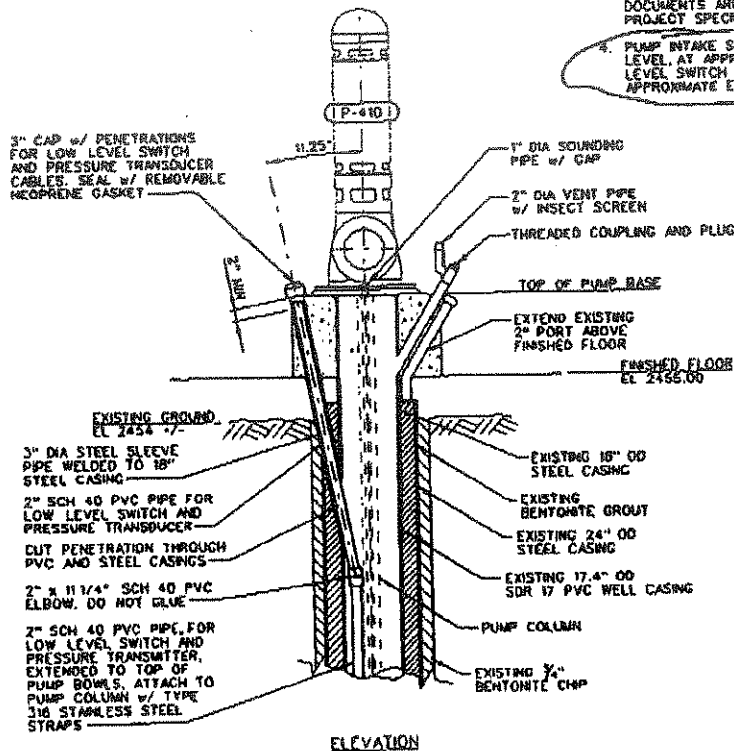
PRE-LUBRICATING
SYSTEM TO BE
VERIFIED WITH PUMP
MANUFACTURER



PLAN

NOTES:

- EXISTING WELL 17 CASING AND BENTONITE GROUT ARE SHOWN IN THE APPENDIX TO THE SPECIFICATIONS. WELL CASING SHALL BE CUT DOWN TO THE ELEVATION SHOWN ON THE MECHANICAL DRAWINGS SECTION B/M-6. THE CONTRACTOR SHALL VERIFY THE TOP OF PUMP BASE ELEVATION WITH THE PUMP MANUFACTURER TO ENSURE THAT THE PUMP DISCHARGE CENTERLINE ELEVATION IS AS SHOWN ON SECTION B/M-6.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL THE 2" VENT PIPE, THE 1" SOUNDING PIPE, AND THE 2" PIPE FOR WATER LEVEL SENSORS. THE 2" VENT PIPE CAN BE INSTALLED ON THE EXISTING 2" PORT IF THE LOCATION IS SATISFACTORY. PIPES SHALL BE SCHEDULE 80 PVC. USE COMMERCIALY AVAILABLE LONG SWEEP BENDS. THE PIPES SHALL HAVE THREADED COUPLINGS AT THE SAME SPACING AS THE PUMP COLUMN, SEE SPECIFICATION 1901.
- WELL 17 DRILLING CONSTRUCTION AND DEVELOPMENT DOCUMENTS ARE INCLUDED AS AN APPENDIX TO THE PROJECT SPECIFICATIONS.
- PUMP INTAKE SHALL BE SET 172 FEET BELOW GROUND LEVEL, AT APPROXIMATE ELEVATION 2282.0. SET LOW LEVEL SWITCH 7 FEET ABOVE THE INTAKE, AT APPROXIMATE ELEVATION 2289.0.



ELEVATION

WELL 17 WELL HEAD DETAIL

3

M-2

CALDWELL #17 WELL PUMP



SHEET

GM-3

AWH

CITY OF CALDWELL, IDAHO
KARCHER RESERVOIR

MECHANICAL DETAILS - 2

Appendix D.

Permit to Appropriate Water No. 63-31550 in the name of the City of Caldwell and a Proof of Beneficial Use form signed by the Mayor on April 17, 2006 and submitted to the Idaho Department of Water Resources on November 1, 2006.

State of Idaho
Department of Water Resources

Permit to Appropriate Water

NO. 63-31550

Priority: September 20, 2002

Maximum Diversion Rate: 4.90 CFS

This is to certify, that CITY OF CALDWELL
621 E CLEVELAND BLVD
CALDWELL ID 83605

has applied for a permit to appropriate water from:

Source: GROUND WATER

and a permit is APPROVED for development of water as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>
MUNICIPAL	01/01 to 12/31	4.90 CFS

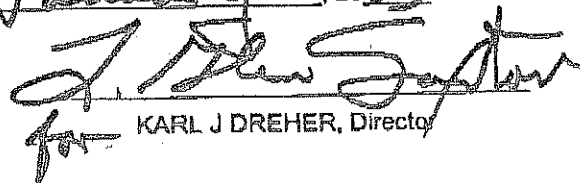
LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 10, Twp 03N, Rge 03W, B.M., CANYON County

CONDITIONS OF APPROVAL

1. Proof of application of water to beneficial use shall be submitted on or before January 01, 2008.
2. Subject to all prior water rights.
3. Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code and applicable Well Construction Rules of the Department.
4. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable water quality standards of the Department of Environmental Quality.
5. The Director retains jurisdiction to require the right holder to provide purchased or leased natural flow or stored water to offset depletion of Lower Snake River flows if needed for salmon migration purposes. The amount of water required to be released into the Snake River or a tributary, if needed for this purpose, will be determined by the Director based upon the reduction in flow caused by the use of water pursuant to this permit.
6. Water bearing zone is between 260 and 900 feet.
7. Place of use is within the service area of the City of Caldwell municipal water supply system as provided for under Idaho Law.
8. The right holder shall not provide water diverted under this right for the irrigation of land having appurtenant surface water rights as a primary source of irrigation water except when the surface water rights are not available for use. This condition applies to all land with appurtenant surface water rights, including land converted from irrigated agricultural use to other land uses but still requiring water to irrigate lawns and landscaping.
9. The well serving as the point of diversion for this right shall be continuously cased and sealed from land surface to the top of the proposed target aquifer at 216 feet below ground level. The full depth surface seal for the well shall consist of solid bentonite chips poured into place as an envelope to a centralized well casing.
10. Failure of the right holder to comply with any condition of approval is cause for the Director to void this permit.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the signature of the Director, affixed at Boise, this 9th day of January, 2003.


for KARL J DREHER, Director

RECEIVED

NOV 01 2006

FOR OFFICE USE ONLY
Amt. Of Fee \$: 200.00
Receipt No. 0082524
Receipt By: AMB
Date Received: 11-01-06

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

★ Please direct inquiries to Ed Squires at 342-8369.

PROOF OF BENEFICIAL USE

The Idaho Department of Water Resources considers this form a statement that the permit holder(s) has/have completed all development that will occur under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below. This form must be accompanied by a license examination fee, when necessary, or be accompanied by a completed field examination report prepared by a certified water right examiner.

1. Permit No. 63 - 31550 Telephone No. (208) 455-3006
2. Name(s) of Permit Holder(s): The City of Caldwell, Idaho
3. Mailing Address: 621 Cleveland Blvd., Caldwell, Idaho 83605
4. Source of Water: Groundwater (Well #17) If GROUNDWATER (well), Date Drilled: mo. 8 /yr. 2003
 - a. Well Driller: Treasure Valley Drilling & Pump, Inc. Drilling Permit Number: 803958
5. Use(s) (as authorized by the water right permit): * *Please refer to attached cover letter and field report*
Domestic (No. of households): _____ Stockwater (No. and type of stock): _____
Irrigation (no. of acres): _____ Other: Municipal
6. Total rate of diversion and / or volume for which proof is submitted: 4.9 cfs OR N/A acre feet
7. Measuring Device Requirement: (refer to the approval conditions on your permit and respond accordingly)
(This question is not optional. Please check either yes or no. Proofs returned not checked accordingly, will be considered incomplete)
Measuring Device: Is a measuring device required? Yes _____ or No X
Has the measuring device been installed? Yes X or No _____
* *a measuring port has been provided*
Flow Measurement Port: Is a flow measurement port required? Yes _____ or No X
Has the measurement port been installed? Yes X or No _____
8. Fee Enclosed: \$ ~~N/A~~ 200.⁰⁰ (See Fee Schedule on back of the instructions for the filing proof of beneficial use)
9. Person to contact to accompany the Department representative during field examination of the water system.
Name: Field examination conducted by Ed Squires, Hydro Logic, Inc. Telephone Number: 342-8369
Address: 1002 W Franklin Street, Boise, ID 83702 (Certified Water Right Examiner No. 7-125)
10. The information given on this form is my true statement of the extent to which the above numbered permit has been developed and I relinquish any undeveloped portion of the permit to the State of Idaho.
Signature of permit holder: *David L. Ornelas* Date: April 17, 2006