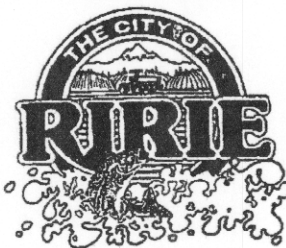


464 Main Street



P O Box 68

Ririe, Idaho 83443

Phone: (208) 538-5548

Fax: (208) 538-7974

To: Mike Holliday

Of: Dept. of Water Resources

Fax #: 525-7177

From: George Franck
City of Ririe

Date: 1-7-04

Note: Information per request

YOU SHOULD RECEIVE 12 PAGE(S), INCLUDING THIS COVER SHEET.
IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (208) 538-5548

**ENERGY EFFICIENCY EVALUATION
FOR PUMPS IN THE CITY OF
RIRIE, IDAHO**

**PREPARED BY
JARED MILLER, ENGINEERING SPECIALIST, EIT**

IDAHO DEPARTMENT OF WATER RESOURCES

ENERGY DIVISION

September 13, 1994

PUMPING PLANT EFFICIENCY TEST

a summary for

City of Ririe

OBSERVATIONS:

PUMP ID	FLOW (gpm)	PRESS (psi)	LIFT (ft)	EFFICIENCY (%)	RATING	BRAKE HP
1936 #1 well ⁴⁰⁰	217	59.0	10.5	45.2	low	16.0
Abandoned #2 well ⁶⁰⁰	210	79.0	11.0	22.6	low	41.0
1972 #3 well ³⁵⁰	334	10.0	42.6	53.2	good	9.5
15 hp booster	146	52.0	-18.5	23.0	low	15.4
7.5 hp booster	125	46.5	-18.5	33.8	low	8.0

The collected data and calculated results from the efficiency tests are summarized in the table above.

#1 WELL

20 HP Turbine

This well pump is operated during the winter months mainly, and as a backup for fire protection in the summer months. It was tested while the #2 well pump was off. The flow rate was measured to be 217 gpm at a discharge pressure of 59 psi. The input power was measured at the panel to be 18.0 horsepower. The depth to water was measured with a Fisher electronic probe and was found to be 10.5 feet. These data indicated an overall efficiency of 45.2%, which is considered "low".

The pump performance curve for this pump could not be located.

#2 WELL

This well pump operates during the summer months and provides extra capacity for fire protection in the winter. It directly pressurizes water from the well into the city's system. While the test was performed, the #1 well pump was turned off. The flow rate was found to be 210 gpm at a pressure of 79 psi. An inline sand filter dissipated 7 psi before the system. There was no explanation evident for the difference in the pressure after the filter of 72 psi, and the system pressure of 58 psi. The power input from the utility lines was measured at the meter to be 45.6 hp. The water level was

found to be 11.0 feet when measured with the Fisher probe. Calculations indicate the overall efficiency to be 22.6%, which is very low. The enclosed pump curve represents the performance of these particular bowls as they were installed. The current operating condition is marked to show the deviation from the new condition.

#3 WELL

This 7.5 horsepower submersible pump lifted water from a well into a storage tank. The flow was measure to be 334 gpm at a pressure of 10 psi. The power to the pump was obtained from the utility meter a found to be 10.7 hp. The well probe found the pumping water level to be 42.6 feet. This gives an overall efficiency of 53.2%, considered "good" for this size and type of pumping plant. A pump curve for this pump could not be located.

15 HORSEPOWER BOOSTER

This booster is installed in parallel with the 7.5 horsepower booster and pressurizes to the system from the tank at #3 well. The 7.5 hp booster was off during the test. This booster was delivering 146 gpm to the system at 52 psi. The power input into the motor was measured at the utility meter to be 17.4 horsepower. The pressure into the pump was 8 psi or 18.5 feet. This information gives an overall efficiency of 23.0%, considered "low". A pump curve for this pump could not be obtained.

7.5 HORSEPOWER BOOSTER

This booster also pressured water from the tank to the system. It was tested with the 15 hp booster off. At this condition, the pump delivered 125 gpm at 46.5 psi into the system. The inlet pressure to the pump was 8 psi, or about 18.5 feet. The motor was pulling 9.0 hp from the utility lines according to the meter. These date indicate an overall efficiency of 33.8%, which is considered "low" for this type of pumping plant. A pump curve for this pump could not be obtained.

CONCLUSIONS:

The performance of pumps can be judged by the efficiencies received or by the amount of money that could be saved if the efficiencies were improved to an "excellent" rating. Looking at the efficiencies can be deceiving if you don't consider the size of the machine. A larger pump can achieve a higher efficiency than a smaller pump due to the dynamic losses present in all pumps. For example, a 25 hp pump at 58% efficiency would be considered "excellent" while a 200 hp pump at the same efficiency would be considered "fair". Therefore, when looking at the efficiencies consider the size of the pump and its resulting rating.

Probably a better way to evaluate the performance of pumps would be to look at the money that could be saved if the efficiency of the particular pump were increased to "excellent". This figure can be found on the "Potential Energy Savings" sheet enclosed for each pump. This figure assumes that the pump be rebuilt or replaced to deliver the flow and pressure listed in the "potential" column, at an improved efficiency. If you desired to increase the flow or pressure, the operation hours would have to be reduced to achieve the savings. The current figure uses the seasonal operation hours in the "potential" column. If your pumps operate more hours per season, the savings would be greater. As a caution, due to installation and machining practices the efficiency on the bottom of these sheets may not actually be reached. Comments on individual pumps are in the following text.



State of Idaho
DEPARTMENT OF WATER RESOURCES

900 N. Skyline Dr., Idaho Falls, Idaho 83402-1718 - (208) 525-7161 - FAX: (208) 525-7177

EASTERN REGION

PHILIP BATT
GOVERNOR
R. KEITH HIGGINS
DIRECTOR

3 June 1996

Ken Drake, Maintenance Supervisor
City of Ririe
P.O. Box 68
Ririe, Idaho 83443

Re: Well Abandonment

Dear Ken.

This letter will confirm the agreement at our meeting on 31 July 1996 concerning abandonment of the well owned by the City of Ririe.

Once the well house has been demolished the well casing should be excavated to a depth of six feet and the casing cut off at this depth. The casing should then be filled with bentonite chips (1/4 to 1/2) inch in size. These will need to be poured slowly to prevent bridging within the well casing. Once the chips are within two feet of the top of the casing then the remaining casing should be filled with a cement cap. The hole may then be back filled.

If you have any questions please contact me.

Sincerely,

Dennis M. Dunn

Dennis M. Dunn
Sr. Water Right Agent

State of Idaho
Department of Water Resources

Permit To Appropriate Water

NO. 25-07510

COPY

Proposed Priority: September 28, 1989 Maximum Diversion Rate: 1.00 CFS

This is to certify, that CITY OF RIRIE
464 MAIN
P.O. BOX 68
RIRIE, ID 83443

LAPSED

has applied for a permit to appropriate water from: GROUNDWATER
and a permit is APPROVED for development of water as follows:

BENEFICIAL USE	PERIOD OF USE	RATE OF DIVERSION
MUNICIPAL	01/01 to 12/31	1.00 CFS

LOCATION OF POINT(S) OF DIVERSION: SENW Sec. 32, Township 04N, Range 40E
JEFFERSON County

PLACE OF USE: See Remarks

CONDITIONS/REMARKS:

1. Proof of construction of works and application of water to beneficial use shall be submitted on or before February 1, 1993.
2. Subject to all prior water rights.
3. Permit holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.
4. Permit holder shall commence the excavation or construction of diverting works within one year of the date this permit is issued and shall proceed diligently until the project is complete.
5. The issuance of this permit in no way grants any right-of-way or easement across the land of another.
6. Prior to the diversion of water under this permit a flow measurement port or other device as specified by the Department shall be installed to provide for the installation of measuring equipment and the determination of the rate of diversion by the Department.
7. Place of use is within the city limits of Ririe.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code.
Witness the seal and signature of the Director, affixed at Boise, this

4th day of January, 1990.

R. Keith Higginson
for R. Keith Higginson, Director

CITY OF RIRIE
WATER WELLS

WELL #1

Turbine
LOCATED AT 160 E SMITH
DRILLED 1936
20 HP PUMP INSTALLED 1953
16" CASING
GPM 400
DEPTH OF WELL 120 FEET
CASING DEPTH 120 FEET
PERFORATED WITH 1060 HOLES

WELL #2

*Abandoned
1996*

LOCATED AT 320 E SMITH
DRILLED 1953
50 HP PUMP INSTALLED 1962
16" CASING
GPM 600
DEPTH OF WELL 117 FEET
CASING DEPTH 117 FEET
PERFORATED 60 FEET DOWN TO 117 FEET

WELL #3

LOCATED AT 510 E RIRIE HIWAY
DRILLED 1972
7.5 HP SUBMERSIBLE PUMP INSTALLED 1972
12" CASING
GPM 350
DEPTH OF WELL 180 FEET
CASING DEPTH 105 FEET
BOTTOM OF WELL OPEN HOLE