



Since 1958

# PUMP CHECK

Pumping Systems Analysts

Hydraulic Test Report

(951) 684-9801 • Lic. 799498 • Fax (951) 684-2988

Steven Fulstone  
Northeast corner of Old Ranch Rd at Canal Rd

Test Date: 09/09/2012  
Pump type: DWT  
Plant: Albright Well

A test was made on this well pump and the following information was obtained.

## EQUIPMENT

PUMP:	Fairbanks Morse	SERIAL:	D31466
MOTOR:	Westinghouse	SERIAL:	72C39542
H.P.	100	LAT/LON:	38.44.396n119.20.605w
METER:	207856	REF #:	PC 3879

## TEST RESULTS

### TEST 1

Discharge, PSI	0.2
Discharge head, feet	0.5
Standing water level, feet	186.7
Drawdown, feet	34.7
Pumping water level, feet	221.4
Total pumping head, feet	221.9
<b>Gallons per minute flow</b>	<b>899</b>
Gallons per foot of drawdown	25.9
Acre feet pumped per 24 hours	3.974
KW input to motor	84.2
HP input to motor	112.8
Motor load, % BHP	102.7
Measured speed of pump, RPM	1781
KWH per acre foot	508.5
<b>Overall Plant efficiency in %</b>	<b>44.7</b>

Test 1 was the normal operation with the pump operating to a ditch at the time of the test.

The airline length was calibrated at 251.4'.

If you have any questions please contact Jon Lee at (951) 684-9801.

P.O. Box 5646, Riverside, California 92517

"Pump Testing. The Service That Pays For Itself"

## ANNUAL PUMPING COST ANALYSIS

Steven Fulstone

Test date: 09/09/2012

Plant: Albright Well  
 H.P. 100

The following cost analysis is presented as an aid to your cost accounting and planning. It is an ESTIMATE based on the pump test data and your energy use during the previous 12-month period.

EXISTING  
CONDITIONS

Total annual hours of operation	3115
Total annual kWhrs	262318
Total annual cost	\$16,237.48
Average Cost per kWh	\$0.0619

## Test 1

KW input to motor	84.2
Acre feet pumped per 24 hour day	3.974
KWh per acre foot	508.5
Pumping cost per hour	\$5.21
Pumping cost per acre foot	\$31.47
Overall plant efficiency	44.7

## ANNUAL PUMPING COST ANALYSIS

Steven Fulstone

Test date: 09/09/2012

Plant: Albright Well  
 Meter No.: 207856  
 H.P. 100

The following cost analysis is presented as an aid to your cost accounting and planning. It is an **Estimate** based on the pump test data and your energy use or hours of operation during the previous 12-month period.

This pump was found to be operating inefficiently. A new pump, properly designed, should operate with an overall plant efficiency of about **72.0** percent.

A reduction in your energy usage and cost would occur, as shown below, if this pump was redesigned and/or rebuilt.

The following analysis and projection assumes that the water requirement, GPM, total pumping lift and hours of operation will remain as they were at the time of the pump test.

	EXISTING CONDITIONS	IMPROVED EFFICIENCY	SAVINGS
Total annual kWhrs	262,318	162,655	99,663
Total annual cost	\$16,237.48	\$10,068.35	\$6,169.14
kW input to motor	84.2	52.2	32.0
Hours of operation per year	3115	3115	
Equivalent 24 hour days	129.8	129.8	
Acre feet pumped per 24 hour day	3.974	3.974	
Average cost per kWhr	\$0.0619	\$0.0619	
Average cost per hour	\$5.21	\$3.23	
Average cost per acre foot	\$31.47	\$19.52	\$11.96
kWh per acre foot	508.5	315.3	193.2
Overall plant efficiency	% 44.7	% 72.0	

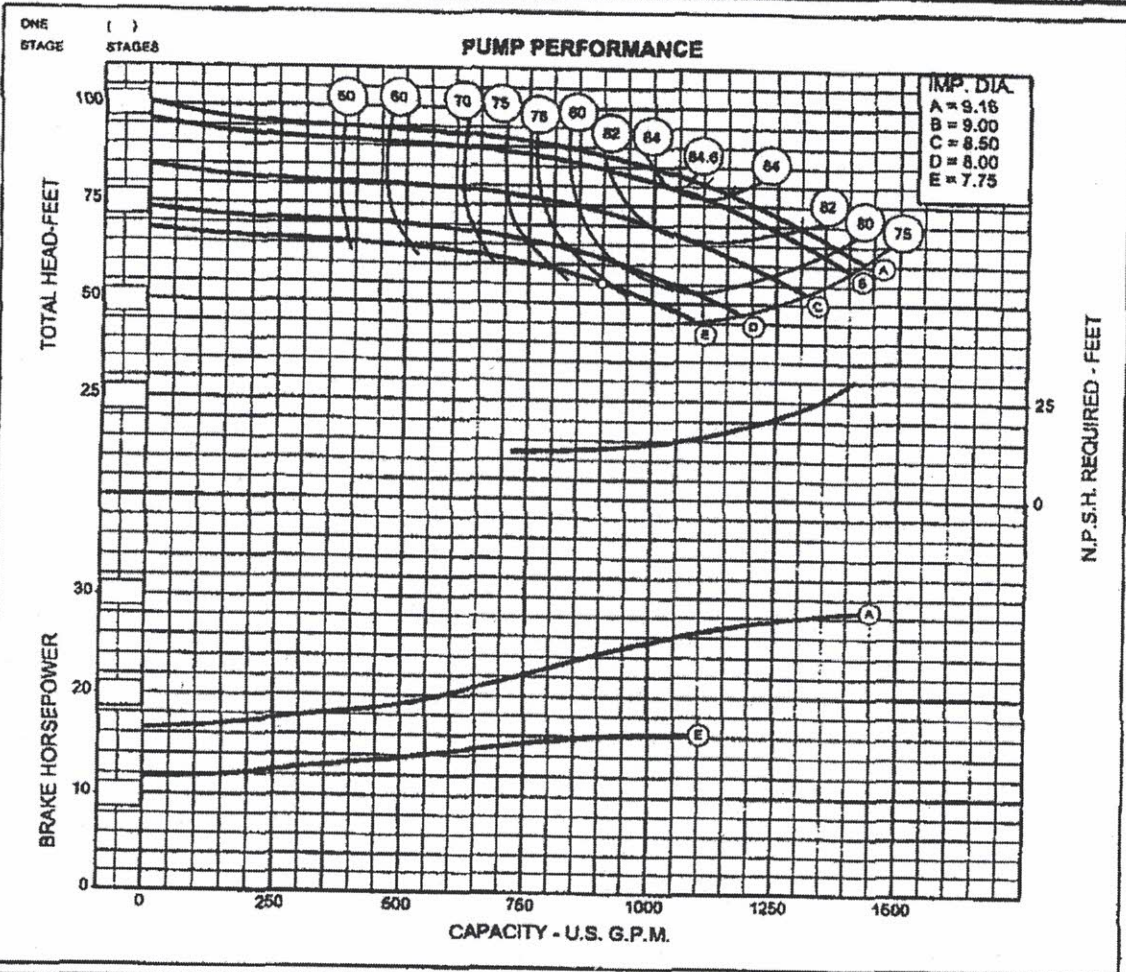


ALBRIGHT

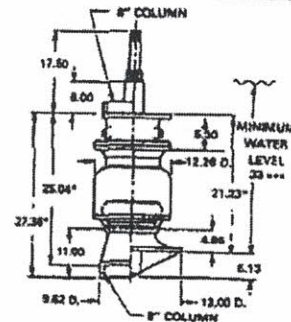
Performance  
1800 RPM Performance Curves

1100gpm @ 320'

No. Stages	EST. Change	MATERIAL	EST. Change	12 M	1770 R.P.M.
1	-2.5	IMP. - C.I.	-1	SINGLE STAGE LAB PERFORMANCE WITH STANDARD MATERIALS. EFFICIENCY SHOWN FOR 2 OR MORE STAGES. HORSEPOWER SHOWN FOR ONE STAGE BASED ON 2 STAGE EFFICIENCY. CORRECTIONS SHOULD BE MADE FOR STAGES AND MATERIAL.	
2	-1.5	IMP. - BRZ	0		
3	-0.5	IMP. - ENAM. C.I.	0		
4	0	BOWL - C.I.	-2		
		BOWL - ENAM. C.I.	0		



Maximum Operating Speed	2300	Maximum Sphere Size - inches	0.94
Pump Shaft Diameter - inches	1.687	Thrust Factor - K	6.33
Bowl Weight, 1st Stage - lbs.	290	WR2	1.82
Bowl Weight, Ea. Add. Stage - lbs.	105	Running Position (above seat) - in.	0.200
Allowable Shaft Stretch - inches	0.920	Submergence - inches	33
Maximum Working Pressure - PSI	380	Max. Bowl Brg Clearance - in. Dia.	0.014
Maximum Hydro Pressure - PSI	570	Max. Wear Ring Clearance - in. Dia.	0.018
Impeller Eye Area - Sq. In.	19.40	Max Bowl O.D. - inches	12.26
Rotor Weight 1st/add stages - (K <sub>a</sub> )	29.529.5	Suct Bell O.D. - inches	13.00
Add 10.75' per additional stage		Maximum Number of Stages	8
Discharge - inches	8	Suction - inches	8





P.O. Box 5646    Riverside, CA 92517    (951) 684-9801    Fax (951) 653-1950

### NRCS Criteria

**Name:** Steven Fulstone  
**Plant:** Albright Well  
**Date:** 09/09/2012

#### Pump Data:

Manufacturer:	Fairbanks Morse
Size:	12
Type:	12FM
Stages:	4
Design Head:	300
Design Flow:	1100
Pump Set:	250'
Well Depth:	n/a
When was it installed:	n/a
Well Drilled:	n/a

#### Motor Data:

Manufacturer:	Westinghouse
HP:	100
Nema Nom Eff:	91.0
When was it installed:	n/a

<b>Irrigation Type:</b>	Flood to Ditch
When was it installed:	n/a
What is the sprinkler package:	n/a
Annual hours of operation:	3115

### NRCS Criteria

**Name:** Steven Fulstone  
**Plant:** Albright Well  
**Date:** 09/09/2012

#### Test Point #1

2: 221.4

3: 1781

4: 1.71

4a: 0.599

5: 49.1

6: Please refer to the Test Result, Cost Benefit page 3

7: 99,663

#### Test Point #1

kW 84.2

Motor Eff 0.91

WHP 50.4

OPE 44.7



