Power Services, Inc.

6301 Bearden Lane
Modesto, CA 95357
209.527.2908
fax
cal.powerhydrodynamics.com

Report ID: PT-24635

CONFIDENTIAL/PROPRIETARY INFORMATION

Ralph Heringer

Wednesday, Jan 06, 2021

Rec Dist 2028 Bacon Island
P O Box 4005
Stockton, CA 95204

SUBJECT: PUMPING COST ANALYSIS
HP: 85.00 Plant: West Pump 3
PUMP TEST REFERENCE NUMBER: PT-24635
PUMP TEST RUN: Run 1

The following Pumping Cost Analysis is presented as an aid to your cost accounting. This analysis is an estimate prepared from operating criteria supplied from the pump test performed Jan 05 2021 and information provided by you during the pump test.

It is recommended and assumed that:

- **Overall plant efficiency can be improved to: 66%**
- **Water requirements will be the same as for the past year**
- **All operating conditions (annual hours of operation, discharge head, and water pumping level) will remain the same as they were at the time of the pump test**

	EXISTING PLANT EFFICIENCY	IMPROVED PLANT EFFICIENCY	SAVINGS
kWh/AF	62.8	52	10.90
Estimated Total kWh	76,002	62,861	13,141
Average Cost per kWh	$0.18	$0.18	
Average Cost per hour	$14.03	$14.15	*
Cost Per Acre Ft.	$11.6	$9.59	$2.01
Estimated Acre Ft. Per Year	1,209.94	1,209.94	
Run Hours	1,000.00	1,000.00	
Overall Plant Efficiency	54.6%	66%	
Estimated Total Annual Cost	$14,031.51	$11,605.43	$2,426.08

It is sincerely hoped that this information will prove helpful to you, and that your concerns over maintaining optimum pumping efficiency will be continued. If you have any questions, please contact Bill Power at (209) 527-2908.

Regards,

William Thomas Power, III

Enclosures

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Agricultural and Domestic Pump Test Report
Rec Dist 2028 Bacon Island - West Pump 3 - Run 1

Latitude: 37.97923 | Longitude: -121.57063 | Elevation: -7
Test Date: Jan 05 2021 | Tester: Bill Power | Nameplate HP: 85.00

Customer Information

Rec Dist 2028 Bacon Island

P O Box 4005
Stockton, CA 95204

Contact: Ralph Heringer
Cell: 916-777-6091

Power Company Data

PG&E

Meter #: **1010076943**
Rate Schedule: **AG5B**
Average Cost: **$0.18**

Equipment Data

Motor Make: **Fairbanks-Morse**
Volts/Amps: **440V/105.00A**
Serial #: **5311755**
Pump Make: **No Name Plate**
Pump Type: **Mix Flow**
Drive Type: **Electric Motor**
Gearhead Make:

Hydraulic Data

Pumping Water Level (PWL): 18.50 ft
Discharge Pressure: 6.50 lb/sqft
Discharge Level: 15.02 ft
Total Lift: 33.52 ft
Water Source: Canal

Flow Data

Run Number: 1 of 1
Measured Flow: 6571 gpm
Customer Flow: 0 gpm
Flow Velocity: 4.94 ft/sec
Acre Feet per 24 Hr: 29.08
Cubic Feet Per Second (CFS): 14.63 ft

Power Data

Horsepower Input to Motor: 101.88 hp
Brake Horsepower: 92.71 hp
Kilowatt Input to Motor: 76 kW
Energy Cost: $14.03/hr
Nameplate RPM: 870 rpm
VFD: 0 hz

Percent of Rated Motor Load: 109%
Kilowatt Hours per Acre Foot: 62.81
Cost to Pump an Acre Foot: $11.6
Overall Plant Efficiency: 54.59%
Water Horsepower: 55.61 hp
Run Hours: 1000

Remarks

All results are based on conditions during the time of the test. If these conditions vary from the normal operation of your pump, the results shown may not describe the pump's normal performance.

This pump has an adequate test section.

This pump did not have a flow meter.

Based on information obtained at the time the test was performed, this test represents the pumps standard operating conditions.

HPI measured with direct read KWI.

Overall efficiency of this plant is considered to be low assuming this run represents plant's normal operating condition.

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P O Box 4005
Stockton, CA 95204

Pump Name: West Pump 3

HYDRAULIC TEST RESULTS PT-24635 **Test Date:** Jan 05 2021

Tester: Bill Power
Meter #: 1010076943
Annual Run Hrs: 1000
Utility: PG&E
Rate Sched: AG5B
Avg Cost kWh: $0.18
Meter kH: 1.80
Meter Const: 80

Motor Make: Fairbanks-Morse
Volts: 440
Gearhead Make:
Pump Make: No Name Plate
Water Source: Canal
Motor Serial: 5311755
Amps: 105.00
NameplateRPM: 870
Pump Type: Mix Flow
Horsepower: 85.00
Drive Type: Electric Motor
Pipe Diameter: 23.31

Results	**Test 1**
Discharge Pressure, PSI	6.50
Standing Water Level, Feet	0.00
Recovered Water Level	0.00
Drawdown, Feet	18.5
Discharge Head, Feet	15.02
Pumping Water Level, Feet	18.50
Total Measured Head, Feet	15.015
Measured GPM	6571.00
Customer Meter, GPM	
Well Yield, GPM/ft Drawdown	355.19
Acre Feet Pumped in 24 Hours	29.08
kW Input to Motor	76
HP Input to Motor	101.88
Motor Load %	109.1
Measured Speed of Pump, RPM	
VFD, Hz:	
kWh per Acre Foot	**62.81**
Overall Plant Efficiency (%)	**54.6**
Energy Cost per Hour	14.03
Water Horsepower, hp	55.61
Flow Velocity, ft/sec	4.94