

IDAHO DEPARTMENT OF WATER RESOURCES
Water Measurement Program

POWER CONSUMPTION COEFFICIENT WORKSHEET

(Revised 7/2002)

District 36A

Diversion Name STATE PARKS

Inventory Date _____ Test Date 7-16-04

Inventory Examiner _____ Person performing test C. Knowles

PCC o.k.? Yes No Exam complete? Yes No

Name:	<u>IDP</u>
Water Right No.:	_____
Legal Description:	<u>T. 07S R. 13E Sec. 13</u> <u>1/4</u> <u>1/4</u> <u>1/4</u>
Site Tag No.:	<u>A0003564</u>
Diversion Name:	<u>Billingsly Pump</u>

Current Owner

Name _____ Phone _____

Address _____ Cell _____

City _____ St _____ Zip _____ E-mail _____

Operator (if leased or operated by person other than owner)

Name Frank Erwan Phone _____

Address _____ Cell _____

City _____ St _____ Zip _____ E-mail _____

Global Positioning System Data:

Data Collection Filename _____ Offset _____

IDWR Site Tag Identification No. _____

Site Tag Location description: _____

PLS/USGS LOCATOR _____

For Department/District Use Only

Received by _____ Date _____

Reviewed by _____ Date _____

Data Entry By _____ Date _____

Well Pump and Motor Information

Pump Data		Motor Data	
Manufacturer	AUROPA	Manufacturer	UNIMOUNT
Serial Number	385-07059	Serial Number	F-3050-02-176
Model Number		Rated Horsepower	20
Type	361A-2K	Rated Amps	49.6/24.8
Impeller Diameter	314x12	Rated Volts	230/460
Rated Speed	1720	Rated Speed	1765
Rated Discharge	360	Phase	3
Rated Head	1507	Service Factor	1.25

Booster Pump and Motor Information

Pump Data		Motor Data	
Manufacturer		Manufacturer	
Serial Number		Serial Number	
Model Number		Rated Horsepower	
Type		Rated Amps	
Impeller Diameter		Rated Volts	
Rated Speed		Rated Speed	
Rated Discharge		Phase	
Rated Head		Service Factor	

Power and Water Metering Information

Kilowatt-Hour Meter		Water Measurement Equipment and Pipe Information	
Utility	IPC0	Std. Meter Manufacturer	Polysmic
Pole Number	07513E1310	Std. Meter Model No.	TFP
Meter Manufacturer	ABB	Std. Meter Type (circle one)	<input checked="" type="radio"/> Sonic Pyg Collins Hall <input type="radio"/> Anub Dye/chem. Other
Meter Serial No.	04433128	Std. Meter Confidence (circle one)	<input checked="" type="radio"/> Excl <input type="radio"/> Good <input type="radio"/> Fair <input type="radio"/> Poor 2% 5% 10% >10%
Disc Constant (Kh)	21.6	PSI gauge ID location = discharge head	District / Owner _____ Yes / No
Rated Voltage		Pipe Material	CS
Demand	23.90	Pipe Outside Diameter	6.67
Multiplier (Mult)	x1	Pipe Inside Diameter	.195 wall
CTR (Current) PTR (Voltage)	N/A	Distance of straight pipe upstream and down	Upstream _____ Downstream _____

Determination of Power Consumption Coefficient

Kilowatts of Energy Consumed

$$KW = 3.6 \times Kh \times \text{Multiplier} \times \text{No. of revolutions (N)} \div \text{Time (T) in seconds per N}$$

Cond.#1 N = 10 (No. of Disc Rev) Time (sec) = $(42.65) + (42.60) + (42.59) / 3 = 42.61$ Ave

3.6×21.6 (Kh) \times 1 (Mult) \times 10 (N) \div 42.61 (T) = * 18.25 KW

Cond.#2 N = 10 (No. of Disc Rev) Time (sec) = $(56.73) + (56.73) + (56.72) / 3 = 56.72$ Ave

3.6×21.6 (Kh) \times 1 (Mult) \times 10 (N) \div 56.72 (T) = * 13.71 KW

Cond.#3 N = _____ (No. of Disc Rev) Time (sec) = (_____) + (_____) + (_____) / 3 = _____ Ave

$3.6 \times$ _____ (Kh) \times _____ (Mult) \times _____ (N) \div _____ (T) = * _____ KW

Measured Flow Rate and Discharge Pressure – Enter flow rate as determined by the "standard" water measurement meter in GPM, and discharge pressure measured in PSI. Attach documentation to support data such as notes, printout tapes, etc.

GPM Cond. #1 * 314.7 #2 * _____ #3 * _____
 PSI Cond. #1 * ? #2 * _____ #3 * _____

Power Consumption Coefficient (PCC) = KW \times 5431 \div GPM

PCC Cond #1 = * 18.25 (KW) \times 5431 \div * 314.7 (gpm) = 314.94 (kWh/ac.ft)

Percent of seasonal use * _____ Description * 2 U.L 4 H.L Birds

PCC Cond #2 = * 13.71 (KW) \times 5431 \div * 197.9 (gpm) = 376.25 (kWh/ac.ft) 1/8

Percent of seasonal use * _____ Description * 1 W.L 4 H.L Birds

PCC Cond #3 = * _____ (KW) \times 5431 \div * _____ (gpm) = _____ (kWh/ac.ft)

Percent of seasonal use * _____ Description * _____

Is the system operator required to track and report changes in system operation? ~ Yes ~ No (check one)

System Type (circle all that apply): Pivot, linear / Wheel In / Hand In / Gated pipe, flood / Drip / Open Discharge

	Crop Type	Number of Acres
1		
2		
3		
4		
Total Acres =		

WATER LEVEL DATA

Does the well have access to measure water levels? ~ Yes ~ No (check one)

Is this well part of USGS, IDWR, or another network of water level monitoring wells? ~ Yes ~ No ~ Uncertain

Static Water Level _____ ft Pumping Water Level _____ ft at condition # _____)
 Date _____ Date _____

IDAHO DEPARTMENT OF WATER RESOURCES
Water Measurement Program

POWER CONSUMPTION COEFFICIENT WORKSHEET

(Revised 7/2002)

District WD 36A

Diversion Name _____

Inventory Date _____ Test Date 7-12-04

Inventory Examiner _____ Person performing test C Knowles

PCC o.k.? Yes No Exam complete? Yes No

Name:	<u>Billingsley State Park</u>
Water Right No.:	_____
Legal Description:	<u>T 07S R 13E Sec. 13 _____ 1/4 _____ 1/4 _____ 1/4</u>
Site Tag No.:	<u>40003564</u>
Diversion Name:	_____

Current Owner

Name _____ Phone _____

Address _____ Cell _____

City _____ St _____ Zip _____ E-mail _____

Operator (if leased or operated by person other than owner)

Name _____ Phone _____

Address _____ Cell _____

City _____ St _____ Zip _____ E-mail _____

Global Positioning System Data:

Data Collection Filename _____ Offset _____

IDWR Site Tag Identification No. _____

Site Tag Location description: _____

PLS/USGS LOCATOR _____

For Department/District Use Only

Received by _____ Date _____

Reviewed by _____ Date _____

Data Entry By _____ Date _____

Well Pump and Motor Information

Pump Data		Motor Data	
Manufacturer		Manufacturer	
Serial Number		Serial Number	
Model Number		Rated Horsepower	
Type		Rated Amps	
Impeller Diameter		Rated Volts	
Rated Speed		Rated Speed	
Rated Discharge		Phase	
Rated Head		Service Factor	

Booster Pump and Motor Information

Pump Data		Motor Data	
Manufacturer		Manufacturer	
Serial Number		Serial Number	
Model Number		Rated Horsepower	
Type		Rated Amps	
Impeller Diameter		Rated Volts	
Rated Speed		Rated Speed	
Rated Discharge		Phase	
Rated Head		Service Factor	

Power and Water Metering Information

Kilowatt-Hour Meter		Water Measurement Equipment and Pipe Information	
Utility	IPCO	Std. Meter Manufacturer	TFP
Pole Number	075 13E 1310	Std. Meter Model No.	
Meter Manufacturer	A13B	Std. Meter Type (circle one)	<input checked="" type="radio"/> Sonic Pyg Collins Hall <input type="radio"/> Anub Dye/chem. Other
Meter Serial No.	0443312B	Std. Meter Confidence (circle one)	<input checked="" type="radio"/> Exc <input type="radio"/> Good <input type="radio"/> Fair <input type="radio"/> Poor 2% 5% 10% >10%
Disc Constant (Kh)	21.6	PSI gauge ID location = discharge head	District / Owner _____ Yes / No
Rated Voltage	480	Pipe Material	CS
Demand	23.46	Pipe Outside Diameter	6.65
Multiplier (Mult)	X1	Pipe Inside Diameter	.198 WALL
CTR (Current) PTR (Voltage)	N/A	Distance of straight pipe upstream and down	Upstream _____ Downstream _____

Determination of Power Consumption Coefficient

Kilowatts of Energy Consumed

$$KW = 3.6 \times Kh \times \text{Multiplier} \times \text{No. of revolutions (N)} \div \text{Time (T) in seconds per N}$$

Cond.#1 N = 10 (No. of Disc Rev) Time (sec) = $(37.48) + (39.75) + (39.78) / 3 = 39.04$ Ave
 3.6×21.6 (Kh) $\times 1$ (Mult) $\times 10$ (N) $\div 39.04$ (T) = * 19.6 KW

Cond.#2 N = _____ (No. of Disc Rev) Time (sec) = (_____) + (_____) + (_____) / 3 = _____ Ave
 $3.6 \times$ _____ (Kh) \times _____ (Mult) \times _____ (N) \div _____ (T) = * _____ KW

Cond.#3 N = _____ (No. of Disc Rev) Time (sec) = (_____) + (_____) + (_____) / 3 = _____ Ave
 $3.6 \times$ _____ (Kh) \times _____ (Mult) \times _____ (N) \div _____ (T) = * _____ KW

Measured Flow Rate and Discharge Pressure – Enter flow rate as determined by the "standard" water measurement meter in GPM, and discharge pressure measured in PSI. Attach documentation to support data such as notes, printout tapes, etc.

GPM Cond. #1 * _____ #2 * _____ #3 * _____
 PSI Cond. #1 * _____ #2 * _____ #3 * _____

Power Consumption Coefficient (PCC) = KW \times 5431 \div GPM

PCC Cond #1 = * 19.6 (KW) \times 5431 \div * _____ (gpm) = _____ (kWh/ac.ft)
 Percent of seasonal use * _____ Description * _____

PCC Cond #2 = * _____ (KW) \times 5431 \div * _____ (gpm) = _____ (kWh/ac.ft)
 Percent of seasonal use * _____ Description * _____

PCC Cond #3 = * _____ (KW) \times 5431 \div * _____ (gpm) = _____ (kWh/ac.ft)
 Percent of seasonal use * _____ Description * _____

Is the system operator required to track and report changes in system operation? ~ Yes ~ No (check one)

System Type (circle all that apply): Pivot, linear / Wheel In / Hand In / Gated pipe, flood / Drip / Open Discharge

	Crop Type	Number of Acres
1		
2		
3		
4		
Total Acres =		

WATER LEVEL DATA

Does the well have access to measure water levels? ~ Yes ~ No (check one)

Is this well part of USGS, IDWR, or another network of water level monitoring wells? ~ Yes ~ No
 ~ Uncertain

Static Water Level _____ ft Pumping Water Level _____ ft at condition # _____)
 Date _____ Date _____

Further describe system operating conditions (if necessary) and how percentage of seasonal use was obtained: _____

Sketch of pumping plan layout or photograph of pumping plant and piping:



Notes – Comments – Calculations: _____

I certify that the above information is true and correct to the best of my knowledge and ability and the measurements taken and recorded are in accordance with the standards and specifications of the equipment used.

Signature _____ Date _____
(person performing measurements)

Billingsly STATE PARK

OUTER DIAMETER
6.6701 IN

PIPE MATERIAL
? CS,SS

WALL THICKNESS
0.1949 IN

KIND OF FLUID
? WATER

DATA CHANGE
? NO

SPACING
4.792 IN U

00-00 00:0400 *R
+002.50 % AI2

0235.5 MMSEC
100.37 % T0

09:30+321.761E 0GPM 00R
+ 3.333E 0FPS 00R
+00291 *G 00R
-00000 *G 00R

Condition #1
09:32+309.081E 0GPM 00H
+ 3.202E 0FPS 00H
+00000 *G 00H
-00000 *G 00H

09:33+303.797E 0GPM 00H
+ 3.149E 0FPS 00H
+00308 *G 00R
-00000 *G 00R

09:34+290.589E 0GPM 00R
+ 3.011E 0FPS 00H
+00621 *G 00R
-00000 *G 00R

09:35+288.475E 0GPM 00R
+ 2.908E 0FPS 00R
+00931 *G 00H
-00000 *G 00H

09:36+304.054E 0GPM 00R
+ 3.159E 0FPS 00H
+01252 *G 00H
-00000 *G 00H

09:37+360.330E 0GPM 00R
+ 3.733E 0FPS 00R
+01562 *G 00H
-00000 *G 00H

09:38+319.119E 0GPM 00R
+ 3.307E 0FPS 00H
+01883 *G 00R
-00000 *G 00R

09:39+311.458E 0GPM 00R
+ 3.228E 0FPS 00R
+02200 *G 00R
-00000 *G 00R

09:40+315.685E 0GPM 00R
+ 3.270E 0FPS 00R
+02509 *G 00R
-00000 *G 00R

09:41+300.024E 0GPM 00R
+ 3.192E 0FPS 00R
+02825 *G 00H
-00000 *G 00H

09:42+304.590E 0GPM 00H
314.7+ 3.156E 0FPS 00R
GPM +03147 *G 00R
-00000 *G 00R

09:43+313.308E 0GPM 00H
+ 3.248E 0FPS 00H
+03462 *G 00H
-00000 *G 00H

Cond #2
09:55+178.844E 0GPM 00R
+ 1.853E 0FPS 00R
+00000 *G 00R
-00000 *G 00R

Cond #3
09:56+202.884E 0GPM 00R
+ 2.103E 0FPS 00R
+00192 *G 00R
-00000 *G 00R

09:57+208.167E 0GPM 00R
+ 2.158E 0FPS 00R
+00386 *G 00R
-00000 *G 00R

09:58+208.960E 0GPM 00R
+ 2.165E 0FPS 00R
+00586 *G 00R
-00000 *G 00R

09:59+192.317E 0GPM 00R
+ 1.994E 0FPS 00R
+00783 *G 00R
-00000 *G 00R

10:00+177.523E 0GPM 00R
+ 1.840E 0FPS 00R
+00986 *G 00R
-00000 *G 00R

10:01+168.805E 0GPM 00R
+ 1.748E 0FPS 00R
+01185 *G 00R
-00000 *G 00R

10:02+187.033E 0GPM 00R
+ 1.938E 0FPS 00R
+01300 *G 00R
-00000 *G 00R

10:03+232.207E 0GPM 00R
+ 2.408E 0FPS 00R
+01575 *G 00R
-00000 *G 00R

10:04+223.489E 0GPM 00R
+ 2.316E 0FPS 00R
+01778 *G 00R
-00000 *G 00R

10:05+152.427E 0GPM 00R
+ 1.581E 0FPS 00R
+01979 *G 00R
-00000 *G 00R

10:06+245.944E 0GPM 00R
+ 2.549E 0FPS 00R
+02178 *G 00R
-00000 *G 00R

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