

## B2.2 WELL EFFICIENCY AND PERFORMANCE ANALYSIS

[Return to MAIN Menu](#)

WELL DESCRIPTION: **Ashley Creek Well #11 (typical annual demand)**

	Well Total Depth:	1,000 feet
	Final Equiped Well Rating (Q):	815 gpm
	Pump Setting Depth:	220 feet
	Static Water Level (Pump Off):	42 feet
	Peak Month Water Drawdown:	86 feet
	Current Actual Pump Capacity (Q):	800 gpm
Peak Demand Month:	Well Specific Capacity @ Peak:	gpm/ft.
Jul	Well is Amortized Over:	20 years
	Annual Interest Rate:	5.00 %
	Annual Power Inflation (Escalation) Rate:	1.50 %

Total Developed Well Cost:	650,000 dollars
Total Dynamic Pumping Head (H) at Collar:	300 feet
Peak Month Duty Cycle Limit Factor (0% to 100%):	75.00%
Continuous Acre Feet @ Duty:	967.85 ac-ft / yr
Effective Annual Operational Well Yield:	473.60 ac-ft / yr
Annual Peaking Factor:	2.04
Power Rate #:	6
Power (Energy) Costs per Kilowatt Hour:	0.0277 \$/kW-hr
Power Demand Charge per Kilowatt/Month:	8.10 \$/kW/Month
Design Pump Efficiency:	80.00 % Eff.
Design Motor Efficiency:	80.00 % Eff.

MONTH	Monthly Percent of Annual Demand	Percent of Peak Monthly Flow	Pump Duty Cycle per mo.	Hours of Pump Operation per mo.	Gallons Pumped per Month	Average Monthly Pump (Q) gpm	Acre Feet per Month	Average Well Draw Down (ft)	Total Dynamic Pumping Head (ft.)	Average Water Horse-Power HP	Average kW Power Required	Monthly Power Cost of Pumping	Monthly Energy Cost of Pumping	Monthly TOTAL Cost of Pumping
Jan	4.50%	25.93%	19.44%	144.67	6,944,347	800	21.31	86	386	121.85	90.85	736	364	1,100
Feb	4.06%	23.42%	19.44%	130.67	6,272,314	800	19.25	86	386	121.85	90.85	736	329	1,065
Mar	4.50%	25.93%	19.44%	144.67	6,944,347	800	21.31	86	386	121.85	90.85	736	364	1,100
Apr	6.22%	35.84%	27.78%	200.00	9,600,480	800	29.46	86	386	121.85	90.85	736	503	1,239
May	9.00%	51.85%	38.89%	289.33	13,888,694	800	42.63	86	386	121.85	90.85	736	728	1,464
Jun	13.69%	78.85%	61.11%	440.00	21,121,056	800	64.82	86	386	121.85	90.85	736	1,107	1,843
Jul	17.36%	100.00%	75.00%	558.00	26,785,339	800	82.21	86	386	121.85	90.85	736	1,404	2,140
Aug	15.43%	88.89%	66.67%	496.00	23,809,190	800	73.07	86	386	121.85	90.85	736	1,248	1,984
Sep	9.95%	57.35%	44.44%	320.00	15,360,768	800	47.14	86	386	121.85	90.85	736	805	1,541
Oct	6.43%	37.04%	27.78%	206.67	9,920,496	800	30.45	86	386	121.85	90.85	736	520	1,256
Nov	4.36%	25.09%	19.44%	140.00	6,720,336	800	20.63	86	386	121.85	90.85	736	352	1,088
Dec	4.50%	25.93%	19.44%	144.67	6,944,347	800	21.31	86	386	121.85	90.85	736	364	1,100
<b>TOTAL</b>	<b>100.00%</b>		<b>100.00%</b>	<b>3,214.67</b>	<b>154,311,715</b>	<b>800</b>	<b>473.60</b>					<b>8,831</b>	<b>8,090</b>	<b>16,921</b>
<b>PEAK</b>	<b>17.36%</b>	<b>100.00%</b>	<b>75.00%</b>	<b>558.00</b>	<b>26,785,339</b>	<b>800</b>	<b>82.21</b>	<b>86</b>	<b>386</b>	<b>121.85</b>	<b>90.85</b>			

TOTAL Fixed Capital Cost per GPM:	65.19
TOTAL Variable Operational Cost per GPM:	21.15
TOTAL Cost per GPM:	86.34

TOT. Fixed Capital Cost per Acre-Foot:	110.13
TOT. Variable Elec. Cost per Acre-Foot:	35.73
Total Cost per Acre-Foot:	145.86

Annual Well Capital Cost:	52,158
TOT. Annual (Capital/Power) COST:	69,078
Present Worth (Power):	391,268
TOTAL WELL PRESENT WORTH:	1,041,268

Total Theoretical System Efficiency:	0.64 %
Specific Capacity (in gpm/foot):	9.48

Electrical Cost / 1,000 Gals:	0.11
Total Cost per 1,000 Gallons:	0.45

Specific Capacity Cost/gpm/ft:	68,589
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