
APPENDIX K

**1-94 Rest Area Study
Greycliff EB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost	Assumptions
Projected Annual Potable Well Power Costs	3	2,025	kW*Hr	\$ 0.078	\$ 158	905 hours of pumping per year based on 5 ac-ft total gallons and 30 gpm pump rate
Projected Annual Irrigation Well Power Costs	1.5	685	kW*Hr	\$ 0.078	\$ 53	4 hours per day over (May-Sept.) = 612 hours
Projected Power Costs - Demand Charges		60	kW	\$ 8.50	\$ 510	5 kW * 12 months
Total Annual Power Costs =					\$ 721	

**1-94 Rest Area Study
Greycliff WB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost	Comment
Projected Annual Potable & Irrigation Well Power Costs	3	3,394	kW*Hr	\$ 0.078	\$ 265	1517 hours of pumping (905+612)
Projected Power Costs - Demand Charges		40	kW	\$ 8.50	\$ 343	3.36 kW * 12 months
Total Annual Power Costs =					\$ 607	

Greycliff Power Record Summary (Average over past 5 years)

Rest Area	5 Yr. Avg. Cost per month	5 Yr. Avg. Cost per Year	5 Yr. Avg. kW usage per month	Avg. \$/kw
Greycliff EB	\$ 329	\$ 3,945	4240	\$ 0.078
Greycliff WB	\$ 288	\$ 3,459	3685	\$ 0.078

**1-94 Rest Area Study
Custer EB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost
Projected Annual Potable & Irrigation Well Power Costs	5	2,957	kW*Hr	\$ 0.072	\$ 214
Projected Power Costs - Demand Charges		67	kW	\$ 8.50	\$ 570
Total Annual Power Costs =					\$ 785

**1-94 Rest Area Study
Custer WB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost
Projected Annual Potable & Irrigation Well Power Costs	5	2,957	kW*Hr	\$ 0.068	\$ 202
Projected Power Costs - Demand Charges		67	kW	\$ 8.50	\$ 570
Total Annual Power Costs =					\$ 773

Custer Power Record Summary (Average over past 5 years)

Rest Area	5 Yr. Avg. Cost per month	5 Yr. Avg. Cost per Year	5 Yr. Avg. kW usage per month	Avg. \$/kw
Custer EB	\$ 156	\$ 1,867	2243	\$ 0.072
Custer WB	\$ 187	\$ 2,239	2810	\$ 0.068

Assumptions (EB & WB):

Pump HP =	5	HP	
Average Day Potable Demand =	971	gpd	
Estimated Annual Potable Consumption =	1.00	Acre-Ft/Year	(based on operational hours of April 15-Nov. 15)
Pump Rate =	30	gpm	
Estimated Hours of Pumping (Potable) =	181	Hrs/Year	
Estimated Hours of Pumping (Irrigation) =	612	Hrs/Year	(4 hrs per day over May-Sept.)
Total Pumping Hours =	793	Hrs/Year	
Estimated Annual Consumption =	2,957	KW*Hr	

**1-94 Rest Area Study
Hysham EB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost
Projected Annual Potable Well Power Costs	5	1,350	kW*Hr	\$ 0.085	\$ 115
Projected Power Costs - Demand Charges		67	kW	\$ 8.50	\$ 570
Total Annual Power Costs =					\$ 686

**1-94 Rest Area Study
Hysham WB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost
Projected Annual Potable Well Power Costs	1.5	1,215	kW*Hr	\$ 0.085	\$ 104
Projected Annual Irrigation Well Power Costs	5	2,282	KW*Hr	\$ 0.085	\$ 195
Projected Power Costs - Demand Charges		87	kW	\$ 8.50	\$ 742
Total Annual Power Costs =					\$ 1,040

Hysham Power Record Summary (Average over past 5 years)

Rest Area	5 Yr. Avg. Cost per month	5 Yr. Avg. Cost per Year	5 Yr. Avg. kW usage per month	Avg. \$/kw
Hysham EB	\$ 251	\$ 3,007	3036	\$ 0.085
Hysham WB	\$ 257	\$ 3,082	3149	\$ 0.085

Assumptions (EB Potable):

Pump HP =	5	HP
Average Day Potable Demand =	1,152	gpd
Estimated Annual Potable Consumption =	2.00	Acre-Ft/Year
Pump Rate =	30	gpm
Estimated Hours of Pumping (Potable) =	362	Hrs/Year
Estimated Annual Consumption =	1,350	KW*Hr

Assumptions (WB Potable):

Pump HP =	1.5	HP
Average Day Potable Demand =	1,152	gpd
Estimated Annual Potable Consumption =	2.00	Acre-Ft/Year
Pump Rate =	10	gpm
Estimated Hours of Pumping (Potable) =	1,086	Hrs/Year
Estimated Annual Consumption =	1,215	KW*Hr

Assumptions (WB Irrigation):

Pump HP =	5	HP
Estimated Hours of Pumping (Irrigation) =	612	Hrs/Year (4 hrs per day over May-Sept.)
Total Pumping Hours =	612	Hrs/Year
Estimated Annual Consumption =	2,282	KW*Hr

**1-94 Rest Area Study
Hathaway EB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost
Projected Annual Potable & Irrigation Well Power Costs	5	4,982	kW*Hr	\$ 0.056	\$ 280
Projected Power Costs - Demand Charges		67	kW	\$ 8.50	\$ 570
Total Annual Power Costs =					\$ 851

**1-94 Rest Area Study
Hathaway WB Rest Area Water System Annual Operation Costs**

Item Description	Pump HP	Estimated Consumption	Units	Unit Price	Total Annual Cost
Projected Annual Potable & Irrigation Well Power Costs	5	4,982	kW*Hr	\$ 0.057	\$ 286
Projected Power Costs - Demand Charges		67	kW	\$ 8.50	\$ 570
Total Annual Power Costs =					\$ 857

Hathaway Power Record Summary (Average over past 5 years)

Rest Area	5 Yr. Avg. Cost per month	5 Yr. Avg. Cost per Year	5 Yr. Avg. kW usage per month	Avg. \$/kw
Hathaway EB	\$ 149	\$ 1,783	2725	\$ 0.056
Hathaway WB	\$ 178	\$ 2,139	3165	\$ 0.057

Assumptions (EB & WB):

Pump HP =	5	HP	
Average Day Potable Demand =	1,725	gpd	
Estimated Annual Potable Consumption =	2.00	Acre-Ft/Year	
Pump Rate =	15	gpm	
Estimated Hours of Pumping (Potable) =	724	Hrs/Year	
Estimated Hours of Pumping (Irrigation) =	612	Hrs/Year	(4 hrs per day over May-Sept.)
Total Pumping Hours =	1,336	Hrs/Year	
Estimated Annual Consumption =	4,982	KW*Hr	