



Ms. Corynella L. Price  
April 8, 2015  
Page 2

supplemented by constant speed electrically driven blowers with more efficient electric blowers with VFDs.

The improvements to the dewatering facilities include installation of a screw press, conveyance system, transfer pumps, building, and instrumentation/controls/SCADA connection. These improvements will replace the contracted dewatering facilities located at the plant that utilize belt press technology.

Other proposed improvements to further reduce the energy requirements of the plant include replacement of the antiquated existing lighting fixtures with LED fixtures, and modifications to the old aerated grit chamber to eliminate the need to aerate to prevent deposition of solids.

A summary of the energy savings broken out per component and a summary of the estimated project costs are attached. We hope this letter provides the additional information needed, and we are happy to discuss or provide more detail at your request. Thank you in advance for consideration of Anniston Water Works & Sewer Board's funding request.

Sincerely yours,

Krebs Engineering, Inc.

By



Nina D. Williams, P.E.  
Senior Associate

cc:

Krebs File No. 16022 / Regulatory

**Anniston Water Works & Sewer Board  
Choccolocco Creek Wastewater Treatment Plant Biosolids Improvements  
Power Savings/Reduction Due to Improvements**

<b>POWER SAVINGS DUE TO NEW RAS PUMPS</b>			
Item	Current	Proposed	% Change
Flow (gpm) <sup>1</sup>	3,500	3,500	-
Head (feet)	30	30	-
Efficiency	0.65	0.75	-15%
HP	40.8	35.4	-13%
KW	30	26	-13%
Hours/Day	24	24	-
Days/Year	365	365	-
Annual Power Usage (KW/Year)	266,578	231,034	-13%
Power Cost (\$/kw-hr)	\$0.11	\$0.11	-
Annual Power Cost (\$)	\$29,324	\$25,414	-13%
	Annual Power Savings (KW)	35,544	
	Annual Power Savings (2015\$)	\$3,910	
	Present Value of Savings (20 years, 5%)	\$48,725	

<b>POWER SAVINGS DUE TO NEW WAS PUMPS</b>			
Item	Current	Proposed	% Change
Flow (gpm) <sup>1</sup>	630	200	-
Head (feet)	35	50	-
Efficiency	0.6	0.75	-25%
HP	9.3	3.4	-64%
KW	7	3	-64%
Hours/Day	2	2	-
Days/Year	365	365	-
Annual Power Usage (KW/Year)	5,054	1,834	-64%
Power Cost (\$/kw-hr)	\$0.11	\$0.11	-
Annual Power Cost (\$)	\$556	\$202	-64%
	Annual Power Savings (KW)	3,220	
	Annual Power Savings (2014\$)	\$354	
	Present Value of Savings (20 years, 5%)	\$4,414	

<sup>1</sup> The proposed flow rate is lower due to a lower loading on the plant.

<b>POWER SAVINGS DUE TO AERATION OPTIMIZATION AND NEW BLOWERS</b>			
Item	Current	Proposed	% Change
HP <sup>1</sup>	125.0	85.0	-
KW	93	63	-
Hours/Day <sup>2</sup>	40	24	-
Days/Year	365	365	-
Annual Blower Power Usage (KW/Year)	1,361,450	555,472	-59%
Added Annual Power Required for Anoxic/Anaerobic Zone Mixers, 20 HP (KW/Year)	-	130,699	
Added Annual Power Required for Recycle Pumping, 20 HP (KW/Year)	-	130,699	
Total Annual Power Usage for Biological Treatment	1,361,450	816,870	-40%
Power Cost (\$/kw-hr)	\$0.11	\$0.11	-
Annual Power Cost (\$)	\$149,760	\$89,856	-40%
	Annual Power Savings (KW)	805,978	
	Annual Power Savings (2015\$)	\$59,904	
	Present Value of Savings (20 years, 5%)	\$746,534	

<sup>1</sup> Proposed HP is based on oxygen demand after aeration basin optimization including nutrient removal.

<sup>2</sup> Current conditions reflect the current operation of two, 125 HP constant speed blowers to supplement the gas driven blowers.

**Anniston Water Works & Sewer Board  
 Choccolocco Creek Wastewater Treatment Plant Biosolids Improvements  
 Power Savings/Reduction Due to Improvements**

<b>POWER SAVINGS DUE TO DEWATERING IMPROVEMENTS</b>			
<b>Item</b>	<b>Current</b>	<b>Proposed</b>	<b>% Change</b>
WAS Produced (dry lbs/day)	5,800	1,600	-72%
Feed Rate (dry lbs/hr)	1,500	400	-73%
HP	9	3	-67%
KW	7	2	-67%
Hours/Day	4	4	-
Days/Year	365	365	-
Annual Power Usage (KW/Year)	9,476	3,267	-66%
Power Cost (\$/kw-hr)	\$0.11	\$0.11	-
Annual Power Cost (\$)	\$1,042	\$359	-66%
	Annual Power Savings (KW)		6,208
	Annual Power Savings (2015\$)		\$683
	Present Value of Savings (20 years, 5%)		\$8,510

<b>POWER SAVINGS DUE TO NEW LIGHTING</b>			
<b>Item</b>	<b>Current</b>	<b>Proposed</b>	<b>% Change</b>
Annual Power Usage (KW/Year)	243,738	57,509	-76%
Power Cost (\$/kw-hr)	\$0.11	\$0.11	-
Annual Power Cost (\$)	\$26,811	\$6,326	-76%
	Annual Power Savings (KW)		186,229
	Annual Power Savings (2015\$)		\$20,485
	Present Value of Savings (20 years, 5%)		\$255,291