

<b>DATA INPUT</b>	
Sludge Input	<u>11.4</u> Wet tons per Week
Solids Content	<u>16%</u>
Weekly Operation	<u>1</u> Day(s) per Week
Daily Operation	<u>7</u> Hours per Day
Sludge Density	<u>65</u> lbs per cu.ft
Lime Density	<u>60</u> lbs per cu.ft
Acid Density	<u>80</u> lbs per cu.ft
Mix Density	<u>65</u> lbs per cu.ft
Initial Temp - Sludge	<u>65</u> Degrees F (18.3 degrees C)
Initial Temp - Lime	<u>65</u> Degrees F (18.3 degrees C)
<b>Sludge Flow Rate</b>	<b>50.15</b> cu.ft sludge per hour
	<b>6.25</b> gpm
	<b>54.33</b> Lbs per minute

<b>PROJECT:</b> <u>Coleraine/Bovey/Taconite JWF</u>
<b>Rep:</b> <u>S. Roberts Co.</u>
<b>Contact:</b> <u>Steve Roberts</u>
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<b>Telephone:</b> <u>715-247-3433</u>

<b>PEC APPROVED OPERATION</b>	
Required Retention Time	<b>30</b> Minutes
<b>Thermodynamic</b>	
Target Temp (Per PEC)	55.00 Degrees C
	<b>131.00</b> Degrees F

<b>STANDARD EPA APPROVED PROCESS</b>	
Retention Time	30 Minutes
<b>Thermodynamic</b>	
Target Temp (EPA 503)	70.01 Degrees C
	<b>158.01</b> Degrees F

<b>To Meet the Target Temperature Wet lb basis</b>	
Lime Required	0.121 Lbs lime per Lb Total
Acid Required	0.00078 Lbs of acid per Lb Total
<b>TOTAL WEIGHT</b>	<b>0.121</b> Lbs of Lime & Acid per Lb

<b>To Meet the Target Temperature</b>	
Lime Required	0.174 Lbs lime per Lb Total
Acid Required	0.00113 Lbs of acid per Lb Total
<b>TOTAL WEIGHT</b>	<b>0.175</b> Lbs of Lime & Acid per Lb

<b>Mass Flow</b>	
Sludge Cake	<b>87.85%</b> of INCOMING PRODUCT
Lime and Acid	<b>12.15%</b>
Sludge Cake	<b>54.33</b> Lbs per minute
Lime	<b>6.56</b> Lbs per minute
Acid	<b>0.04</b> Lbs per minute
<b>TOTAL</b>	<b>60.93</b> Lbs per minute

<b>Mass Flow</b>	
Sludge Cake	<b>82.52%</b>
Lime and Acid	<b>17.48%</b> of INCOMING PRODUCT
Sludge Cake	<b>54.33</b> Lbs per minute
Lime	<b>9.44</b> Lbs per minute
Acid	<b>0.06</b> Lbs per minute
<b>TOTAL</b>	<b>63.83</b> Lbs per minute

<b>Volumetric Flow Rate</b> <b>TOTAL FLOW RATE</b>	0.9 cu.ft/ min (See Density) 7.0 gpm (See Density) 56.2 cu.ft/ hour	<b>Volumetric Flow Rate</b> <b>TOTAL FLOW RATE</b>	1.0 cu.ft/ min (See Density) 7.3 gpm (See Density) 58.9 cu.ft/ hour
<b>Equipment Selection</b> Reactor Selection <b><u>BR02</u></b> Pump Selection <b><u>KSP 5</u></b> Reactor Retention Vol 95.43 cu.ft Specified Flow Rate <b>56.25</b> cu.ft sludge per hour Reactor Retention Time 101.79 Minutes Safety Factor @ Temp 239.32%	<b>Equipment Selection</b> Reactor Selection <b><u>BR02</u></b> Pump Selection <b><u>KSP 5</u></b> Reactor Retention Vol 95.43 cu.ft Specified Flow Rate <b>58.92</b> cu.ft sludge per hour Reactor Retention Time 97.18 Minutes Safety Factor @ Temp 223.92% Minimum Temp to meet 66.37 Degrees C EPA 503 Regs with Reactc 151.46 Degrees F		
<b>SUMMARY</b> <b>Final Product</b> Solids Content 28.56% Solids Temperature 131.00 Degrees F pH 12.00 <b>Production</b> Sludge Production 22,820 Lbs per Week Lime Usage 2,754 Lbs per Week Acid Usage 18 Lbs per Week Lime Cost <u>\$150.00</u> per Ton Acid Cost <u>\$2,800.00</u> per Ton Weekly Lime Cost \$206.55 per Week Weekly Acid Cost \$25.06 Per Week Power Consumption 16 kW per Hour 113.16 kWhr per week Power Cost \$0.08 per kWhr Weekly Cost \$9.05 <b>TOTAL ESTIMATED ANNUAL (Chemical &amp; Power)</b> <b>OPERATING COST \$12,514.81</b>	<b>SUMMARY</b> <b>Final Product</b> Solids Content 33.25% Solids Temperature 158.01 Degrees F pH 12.00 <b>Production</b> Sludge Production 22,820 Lbs per Week Lime Usage 3,963 Lbs per Week Acid Usage 26 Lbs per Week Lime Cost <u>\$150.00</u> per Ton Acid Cost <u>\$2,800.00</u> per Ton Weekly Lime Cost \$297.21 per Week Weekly Acid Cost \$36.06 Per Week Power Consumption 16 kW per Hour 113.16 kWhr per week Power Cost \$0.08 per kWhr Weekly Cost \$9.05 <b>TOTAL ESTIMATED ANNUAL (Chemical &amp; Power)</b> <b>OPERATING COST \$17,800.73</b>		