Proposed Effluent Concentration Scale Up

Prepared by Stantec - A. Schmiedicke, Sept 2013

	MAX - scale up		AVG - scale up		Expected Effluent (a)	
	mg/L adj	**lb/day**	**mg/L adj**	**lb/day**	**mg/L**	**lb/day**
flow (gpm)					664	
pH (units)					8.5	
specific Conductance (25oC, umhos)	**2,823.00**		2,952.43		2,823	
TDS (c)	2,000.000	12,789.588	2,000.000	10,657.990	2,000.000	10,190.744
alkalinity	6.000	38.369	6.000	31.974	6.000	30.572
total alkalinity	312.000	1,995.176	312.000	1,662.646	312.000	1,589.756
sulfur	469.000	2,999.158	469.000	2,499.299	469.000	2,389.729
chloride	688.000	4,399.618	688.000	3,666.349	688.000	3,505.616
phosphate	8.400	53.716	8.400	44.764	8.400	42.801
nitrate	8.100	51.798	8.100	43.165	8.100	41.273
silica	47.000	300.555	47.000	250.463	47.000	239.482
calcium	542.000	3,465.978	542.000	2,888.315	542.000	2,761.692
magnesium	226.000	1,445.223	226.000	1,204.353	226.000	1,151.554
total hardness	768.000	4,911.202	768.000	4,092.668	768.000	3,913.246
sodium	414.000	2,647.445	414.000	2,206.204	414.000	2,109.484
copper	1.988	12.713	1.988	10.594	1.988	10.130
iron	0.904	5.781	0.904	4.817	0.904	4.606
lead (b)	0.100	0.639	0.100	0.533	0.100	0.510
manganese	0.904	5.781	0.904	4.817	0.904	4.606
zinc	1.265	8.089	1.265	6.741	1.265	6.446
TSS	0.000	0.000	0.000	0.000	0.000	0.000
NH4	1.100	7.034	1.100	5.862	1.100	5.605
	mg/L adj	**lb/day**	**mg/L adj**	**lb/day**	**mg/L**	**lb/day**
COD	8.000	51.158	8.000	42.632	8.000	40.763
TOC	2.500	15.987	2.500	13.322	2.500	12.738
BOD5	0.300	1.918	0.300	1.599	0.300	1.529
	scaled from the average of 644 gpm (0.93 MGD) from the GE Characterization Report to the plant's model max of 1.7 MGD		**scaled from the average of 644 gpm (0.93 MGD) from the GE Characterization Report to the plant's model avg of 1 MGD**			

(a) - Expected Effluent from the GE Characterization Report.

(b) - Lead maximum value not determined--used federal standard of 0.1 mg/L to evaluate mass loading.

(c) - TDS values based on the federal standard of 2,000 mg/L to evaluate mass loading.

Conversion of gpm to MGD	
664	gpm
956160	GPD
0.95616	MGD

A	MAX Scale Factor
1	1.25502

NOTE: these values represent the outfall lab data, from Section 4.2 of the GE Characterization Report; intake lab data is taken from Appendix A-1 of the GE Characterization Report

Average Seasonal Temperature Estimates for Discharge

River Temperatures (Youghiogheny R.)		Summer and Winter Ave Temperatures			Summer and Winter Max Temperatures		
Month	Temp (F)	Temp (F)	Months		Temp (F)	Months	
Jan 1-31	35	68.56	May-Sep	Summer	75.00	May-Sep	Summer
Feb 1-29	35	45.10	Oct-Apr	Winter	60.00	Oct-Apr	Winter
Mar 1-31	40						
Apr 1-15	47						
Apr 16-30	53						
May 1-15	58						
May 16-30	62						
Jun 1-15	67						
Jun 16-30	71						
Jul 1-31	75						
Aug 1-15	74						
Aug 16-31	74						
Sep 1-15	71						
Sep 16-30	65						
Oct 1-15	60						
Oct 16-31	54						
Nov 1-15	48						
Nov 16-30	42						
Dec 1-31	37						