Nogales IWTP

Pre-Treatment Analysis

Table 1

AHL Based on Average Influent Flow of 14.74 MGD (645 lps)

Bolded shows limiting

Bolded italicized shows limiting with 25% safety factor

		MAHL KG/DAY				MAHL KG/MOS				
Pollutant	MAHL - Safety (lb/day)	AHL_{eff} (kg/day)	AHL_{inh} (kg/day)	AHL_{solids} (kg/day)	MAHL - Safety (kg/day)	AHL_{eff} (kg/30 days)	AHL_{inh} (kg/30 days)	AHL_{solids} (kg/30 days)	MAHL - Safety (kg/30 day)	Exceedance first impacts:
Arsenic	2.3	5.07	5.57	**1.39**	***1.04***	152	167	**42**	***31.3***	*solids*
Cadmium	0.41	0.82	289.95	**0.25**	***0.19***	25	8699	**7**	***5.58***	*solids*
Chromium	1.69	45.23	60.22	**1.02**	***0.77***	1357	1807	**31**	***23.0***	*solids*
Copper	12.64	**7.65**	15.05	41.82	***5.73***	**229**	452	1254	***172***	*effluent*
Cyanide	5.03	**3.04**	23.42	-	***2.28***	**91**	703		***68.4***	*effluent*
Lead	1.47	**0.89**	27.88	1.37	***0.67***	**27**	836	41	***20.0***	*effluent*
Mercury	0.08	**0.050**	30.67	0.054	***0.04***	**1.5**	920	1.6	***1.09***	*effluent*
Nickel	13.83	9.62	21.19	**8.36**	***6.27***	288	636	**251**	***188***	*solids*
Selenium	0.55	0.37	-	**0.34**	***0.25***	11	-	**10**	***7.48***	*solids*
Silver	1.84	1.47	-	**1.12**	***0.83***	44	-	**33**	***25.0***	*solids*
Zinc	26.74	-	**16.17**	79.40	***12.1***	-	**485**	2382	***364***	*inhibition*
1,4-Dichlorobenzene	8.87	**5.36**	278.80	5.70	***4.02***	**161**	8364	171	***121***	*effluent*

Table 2: 2nd quarter of 2015

AHL based on recorded flows

Reflects daily average in which pretreatment monitoring took place

Highlight/bold contaminants and loadings where exceedances are taking place

Loadings Summary and Processes Impacted Based on Daily Average

Pollutant	Average Arizona Contribution (LPS)	Average Sonora Contribution (LPS)	Average NIWTP INF (LPS)	MAHL Arizona (kg/day)	MAHL Sonora (kg/day)	MAHL TOTAL (kg/day)	Average Loading Arizona (kg/day)	Average Loading Sonora (kg/day)	Average Loading Total (kg/day)	Processes Impacted by Total Loadings*
Arsenic	68.77	554.2	623.0	0.111	0.895	1.006	0.133	0.170	0.319	
Cadmium				0.020	0.160	0.179	0.001	0.015	0.016	
Chromium				0.082	0.658	0.739	0.000	1.679	1.583	
Copper				0.611	4.920	5.531	0.000	**12.124**	**9.758**	**Effluent**
Cyanide				0.243	1.958	2.201	**3.623**	**4.547**	**9.196**	**Effluent**
Lead				0.071	0.572	0.643	0.000	0.225	0.224	
Mercury				0.004	0.031	0.035	0.001	0.009	0.009	
Nickel				0.668	5.383	6.051	0.000	**15.293**	**13.228**	**Solids, Effluent**
Selenium				0.027	0.214	0.241	0.004	0.039	0.044	
Silver				0.089	0.716	0.805	0.000	0.033	0.019	
Zinc				1.292	10.408	11.700	0.000	**10.968**	10.483	**Treatment process**
1,4-Dichlorobenzene				0.428	3.453	3.881	5.928	0.000	6.962	

Table 2: 3rd quarter of 2015

AHL based on recorded flows

Reflects daily average in which pretreatment monitoring took place

Highlight/bold contaminants and loadings where exceedances are taking place

Loadings Summary and Processes Impacted Based on Daily Average

Pollutant	Average Arizona Contribution (LPS)	Average Sonora Contribution (LPS)	Average NIWTP INF (LPS)	MAHL Arizona (kg/day)	MAHL Sonora (kg/day)	MAHL TOTAL (kg/day)	Average Loading Arizona (kg/day)	Average Loading Sonora (kg/day)	Average Loading Total (kg/day)	Processes Impacted by Total Loadings*
Arsenic	95.00	511.7	606.7	0.153	0.827	0.980	0.055	0.183	0.243	
Cadmium				0.027	0.147	0.175	0.009	0.014	0.023	
Chromium				**0.113**	**0.607**	**0.720**	**0.259**	**1.319**	**1.602**	Solids
Copper				0.843	4.543	5.387	**0.925**	4.268	5.251	Effluent
Cyanide				0.336	1.808	2.144	0.000	0.103	0.000	
Lead				0.098	0.528	0.626	**0.128**	0.344	0.478	Effluent
Mercury				0.005	0.029	0.034	0.003	0.005	0.008	
Nickel				0.923	**4.971**	**5.894**	0.361	**7.008**	**7.448**	Solids, Effluent
Selenium				0.037	0.198	0.234	0.002	0.005	0.007	
Silver				0.123	0.661	0.784	0.000	0.029	0.000	
Zinc				1.784	9.611	11.395	**3.037**	7.027	10.332	Inhibition
1,4-Dichlorobenzene				0.592	3.188	3.780	0.000	0.000	0.000	

Table 3: 2nd quarter of 2015

AHL based on recorded flows

Reflects monthlhy average in which pretreatment monitoring took place

Highlight/bold contaminants and loadings where exceedances are taking place

Loadings Summary and Processes Impacted Based on Monthly Totals

Pollutant	MAHL Arizona (kg/mo)	MAHL Sonora (kg/mo)	MAHL TOTAL (kg/mo)	Actual Loadings Arizona (kg/mo)	Actual Loadings Sonora (kg/mo)	Actual Loadings Sonora Exc (kg)	Actual Loadings Sonora Exc (%)	Actual Loadings Total (kg/mo)	Processes Impacted by Total Loadings*
Arsenic	3.33	26.86	30.19	3.98	5.09			9.57	
Cadmium	0.59	4.79	5.38	0.04	0.44			0.48	
Chromium	2.45	19.73	22.18	0.00	50.37	**30.63**	**155%**	47.50	Solids
Copper	18.32	147.60	165.92	0.00	363.72	**216.12**	**146%**	292.74	Effluent
Cyanide	7.29	58.74	66.03	108.68	136.40	77.67	132%	275.87	
Lead	2.13	17.17	19.30	0.00	6.74			6.71	
Mercury	0.12	0.93	1.05	0.02	0.26			0.27	
Nickel	20.04	161.50	181.54	0.00	458.78	**297.28**	**184%**	396.83	Solids, Effluent
Selenium	0.80	6.42	7.22	0.13	1.18			1.33	
Silver	2.67	21.49	24.15	0.00	1.00			0.57	
Zinc	38.75	312.25	351.00	0.00	329.05	**16.79**	**5%**	314.50	Treatment Process
1,4-Dichlorobenzene	12.85	103.58	116.43	177.84	0.00			208.86	Effluent

Table 3: 3rd quarter of 2015

AHL based on recorded flows

Reflects monthlhy average in which pretreatment monitoring took place

Highlight/bold contaminants and loadings where exceedances are taking place

Loadings Summary and Processes Impacted Based on Monthly Totals

Pollutant	MAHL Arizona (kg/mo)	MAHL Sonora (kg/mo)	MAHL TOTAL (kg/mo)	Actual Loadings Arizona (kg/mo)	Actual Loadings Sonora (kg/mo)	Actual Loadings Sonora Exc (kg)	Actual Loadings Sonora Exc (%)	Actual Loadings Total (kg/mo)	Processes Impacted by Total Loadings*
Arsenic	4.60	24.80	29.40	1.65	5.48			7.28	
Cadmium	0.82	4.42	5.24	0.26	0.41			0.70	
Chromium	3.38	18.22	21.61	7.77	39.56	**21.34**	**117%**	48.06	Solids
Copper	25.30	136.29	161.60	27.74	128.03			157.54	
Cyanide	10.07	54.24	64.31	0.00	3.08			0.00	
Lead	2.94	15.85	18.79	3.85	10.32			14.33	
Mercury	0.16	0.86	1.02	0.08	0.14			0.23	
Nickel	27.69	149.12	176.81	10.84	210.25	**61.13**	**41%**	223.45	Solids, Effluent
Selenium	1.10	5.93	7.03	0.07	0.15			0.21	
Silver	3.68	19.84	23.52	0.00	0.86			0.00	
Zinc	53.53	288.33	341.86	91.11	210.80			309.97	
1,4-Dichlorobenzene	17.76	95.64	113.40	0.00	0.00			0.00	

Change by Quarter - Mx

Table 4: 2nd quarter of 2015
Shows loading changes over time for Sonora

	Last Quarter		Current Quarter		Change		
Pollutant	**Average Loadings Sonora (kg/day)**	**Total Loadings Sonora (kg/mo)**	**Average Loadings Sonora (kg/day)**	**Total Loadings Sonora (kg/mo)**	**Average Loadings Sonora (kg/day)**	**Total Loadings Sonora (kg/mo)**	**% change**
Arsenic	0.207	6.204	0.170	5.086	-0.03725	-1.118	-18%
Cadmium	0.020	0.603	0.015	0.438	-0.00551	-0.165	-27%
Chromium	0.892	26.764	1.679	50.365	0.78670	23.601	88%
Copper	3.799	113.981	12.124	363.722	8.325	249.7	219%
Cyanide	0.000	0.000	4.547	136.403	4.54676	136.403	0%
Lead	0.259	7.760	0.225	6.744	-0.034	-1.015	-13%
Mercury	0.005	0.158	0.009	0.258	0.003	0.101	64%
Nickel	1.836	55.086	15.293	458.781	13.45650	403.695	733%
Selenium	0.006	0.194	0.039	1.183	0.03297	0.989	510%
Silver	0.045	1.361	0.033	0.996	-0.01218	-0.365	-27%
Zinc	7.748	232.448	10.968	329.046	3.220	96.6	42%
1,4-Dichlorobenzene	0.000	0.000	0.000	0.000	0.00000	0.000	0%

Change by Quarter - Mx

Table 4: 3rd quarter of 2015
Shows loading changes over time for Sonora

	Last Quarter		Current Quarter		Change		
Pollutant	**Average Loadings Sonora (kg/day)**	**Total Loadings Sonora (kg/mo)**	**Average Loadings Sonora (kg/day)**	**Total Loadings Sonora (kg/mo)**	**Average Loadings Sonora (kg/day)**	**Total Loadings Sonora (kg/mo)**	**%change**
Arsenic	0.170	5.086	0.183	5.476	0.01254	0.390	7%
Cadmium	0.015	0.438	0.014	0.414	-0.00119	-0.024	-8%
Chromium	1.679	50.365	1.319	39.564	-0.36019	-10.801	-21%
Copper	12.124	363.7	4.268	128.027	-7.856	-235.7	-65%
Cyanide	4.547	136.403	0.103	3.077	-4.44442	-133.326	-98%
Lead	0.225	6.744	0.344	10.323	0.119	3.579	53%
Mercury	0.009	0.258	0.005	0.137	-0.004	-0.121	-49%
Nickel	15.293	458.781	7.008	210.252	-8.28460	-248.529	-54%
Selenium	0.039	1.183	0.005	0.149	-0.03404	-1.034	-87%
Silver	0.033	0.996	0.029	0.862	-0.00426	-0.134	-13%
Zinc	10.968	329.0	7.027	210.796	-3.941	-118.2	-36%
1,4-Dichlorobenzene	0.000	0.000	0.000	0.000	0.00000	0.000	0%

Change by Quarter - Az

Table 5

Shows loading changes over time for Arizona

	Last Quarter		Current Quarter		Change		
Pollutant	**Average Loadings AZ (kg/day)**	**Total Loadings AZ (kg/mo)**	**Average Loadings AZ (kg/day)**	**Total Loadings AZ (kg/mo)**	**Average Loadings AZ (kg/day)**	**Total Loadings AZ (kg/mo)**	**%change**
Arsenic	0.039	1.181	0.133	3.979	0.094	2.798	240%
Cadmium	0.000	0.000	0.001	0.036	0.001	0.036	0%
Chromium	0.000	0.000	0.000	0.000	0.000	0.000	0%
Copper	0.000	0.0	0.000	0.000	0.000	0.000	0%
Cyanide	0.000	0.000	3.623	108.679	3.623	108.679	0%
Lead	0.000	0.000	0.000	0.000	0.000	0.000	0%
Mercury	0.000	0.000	0.001	0.017	0.001	0.017	0%
Nickel	0.000	0.000	0.000	0.000	0.000	0.000	0%
Selenium	0.000	0.000	0.004	0.127	0.004	0.127	0%
Silver	0.005	0.152	0.000	0.000	-0.005	-0.152	-100%
Zinc	0.000	0.0	0.000	0.000	0.000	0.000	0%
1,4-Dichlorobenzene	0.000	0.000	5.928	177.839	5.928	177.839	0%

Change by Quarter - Az

Table 5: 3rd quarter of 2015
Shows loading changes over time for Arizona

	Last Quarter		Current Quarter		Change		
Pollutant	**Average Loadings AZ (kg/day)**	**Total Loadings AZ (kg/mo)**	**Average Loadings AZ (kg/day)**	**Total Loadings AZ (kg/mo)**	**Average Loadings AZ (kg/day)**	**Total Loadings AZ (kg/mo)**	**%change**
Arsenic	0.133	3.979	0.055	1.654	-0.078	-2.325	-59%
Cadmium	0.001	0.036	0.009	0.258	0.008	0.222	760%
Chromium	0.000	0.000	0.259	7.769	0.259	7.769	0%
Copper	0.000	0.000	0.925	27.740	0.925	27.740	0%
Cyanide	3.623	108.679	0.000	0.000	-3.623	-108.679	-100%
Lead	0.000	0.000	0.128	3.849	0.128	3.849	0%
Mercury	0.001	0.017	0.003	0.084	0.002	0.067	180%
Nickel	0.000	0.000	0.361	10.838	0.361	10.838	0%
Selenium	0.004	0.127	0.002	0.065	-0.002	-0.062	-46%
Silver	0.005	0.152	0.000	0.000	-0.005	-0.152	-100%
Zinc	0.000	0.000	3.037	91.112	3.037	91.112	0%
1,4-Dichlorobenzene	5.928	117.839	0.000	0.000	-5.928	-117.839	-100%

Questions?