



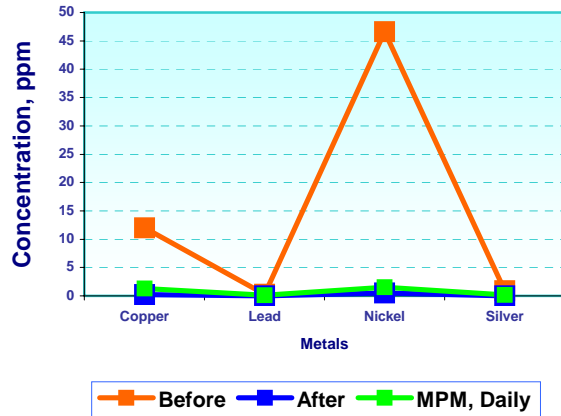
## METAL PLATING, MASSACHUSETTS

A plating facility on the East Coast has an acidic waste stream (pH about 2) that comes from two sources, cyanide line and non-cyanide rinses. The waste contains mainly nickel and copper along with some lead and silver. Cyanide is destroyed with hypochlorite at pH between 9 to 11. The non-cyanide waste is neutralized with  $Mg(OH)_2$  to maintain a pH of about 5.25 – 8.0. Both cyanide and non-cyanide rinses are collected in two 2,500 gal equalization tanks. Wastewater is pumped from equalization tanks to a reaction tank such that a ratio of cyanide to non-cyanide lines of 1:3 is maintained. The pH in the reaction tank is adjusted to about 9.9 - 10.4 and a coagulant is added. The wastewater then flows to a flash mixing tank where a flocculent is added and then to a clarifier. Sludge from clarifier is pumped to a sludge holding tank and dewatered in a filter press. Treated water flows to the final tank where pH is adjusted to between 6.5 -9.5 prior to discharge. The facility needed to cut chemical cost and meet the newly proposed MP & M Limits.

The wastewater composite (pH = 2 - 3) was treated directly with AQUASIL® AMX-5M. Large, dense floc formed within a few minutes and settled quite efficiently. Filtration was easy and filter cake dried quite well. The treated effluent had excellent clarity and final pH was about 9.5 – 10.

Analytical data in the Table below shows that metal concentrations in the effluent are far below the EPA's Proposed MP & M limits. Moreover, the treatment generated a much drier cake.

The AQUASIL® treatment eliminated magnesium hydroxide, caustic, coagulant, and flocculent. As well, the AQUASIL® treatment has eliminated the need for the neutralization tank and reduced the cost of labor, energy and maintenance



Parameter	Proposed MP & M (mg/L)		Before, (mg/L)	After, (mg/L)
	Daily Max.	Monthly Max.		
Copper	1.3	0.58	12.0	0.2
Lead	0.12	0.09	0.26	ND
Nickel	1.5	0.64	46.6	0.5
Silver	0.15	0.06	0.88	ND
pH	6.5 – 9.5	6.5 - 9.5	2.9	10

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