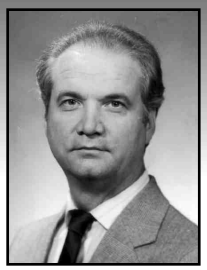

Advice & Counsel

Frank Altmayer, CEF • AESF Technical Director
Scientific Control Laboratories, Inc. • 3158 Kolin Ave. • Chicago, IL 60623-4889
E-mail: mfconsultant@msn.com

Santa was "Naughty," Not Nice

Santa (the U.S. Environmental Protection Agency) dropped a lump of coal into the stockings of the metal finishing industry during the recent holiday season. I am referring to the recently proposed Metal Products & Machinery (MP&M) regulations. We will not spend much time going over the history of this regulation, but a quick look back is in order (those wishing to re-live history, see *P&SF's* "Advice & Counsel, June 1995). Also, at the time this is being written, I only have a pre-publication copy of the regulations. The published regulations may differ in language and some content, but the discharge limits are not likely to change, and those are what we will focus on.

Going briefly back into history, EPA lost a lawsuit alleging that it failed in its duty to regulate numerous industries under the Clean Water Act. EPA was ordered to propose regulations for over 100 industries, where none had existed before. Such a daunting task was made doable by consolidating all of the industries under one set of regulations, thus MP&M was proposed on May 30, 1995. Table 1 summarizes the discharge standards currently in effect—the 1995 proposed standards—and the newly proposed discharge standards under MP&M. Table 2 provides limits for printed wiring board manufacturers. Be prepared before you look at either table.

Where it Applies

First, the regulation is proposed to apply to both jobshop electroplaters (40CFR-413) and captive shops (40CFR-433). This is in complete contrast to language in the 1995 proposal that indicated no desire to include jobshops in MP&M. In fact, it is interesting to note that EPA exempted numerous industries that are already regulated, but specifically states that jobshops and metal finishers are to be included:

"EPA recognizes that, in some cases, unit operations performed in industries covered by the existing effluent guidelines are the same as unit operations performed at MP&M facilities. In general, when unit operations and their associated wastewater discharges are already covered by an existing effluent guideline, they will remain covered under that effluent guideline. (See § 43 8. 1 (b)). However, for the existing Electroplating (40 CFR 413) and Metal Finishing (40 CFR 433) effluent guidelines, some facilities will be covered by this proposal. EPA is proposing to replace the existing Electroplating (40 CFR 413) and Metal Finishing (40 CFR 433) effluent guidelines with the MP&M regulations for all facilities in the Printed Wiring Board subcategory (see codified rule § 438.40), and the Metal Finishing Job Shops subcategory (see codified rule § 438.20)."

If your company is an existing facility, look at the next to last column on the right of Table 1, which summarizes the proposed limits for jobshops and metal finishers, but you also need to pay attention to the last column on the right in both tables. The last column provides the proposed MP&M discharge limits for a new facility, or for a facility that becomes a new source through modification of existing equipment. The proposed discharge standards are essentially **ZERO.** New facilities are asked to produce near-drinking-quality water for discharge to a sewer. Note also that some new parameters have been added, including manganese, molybdenum, TOC, and TOP. TOC is total organic carbon, and is an indicator of the amount of organic matter in the discharge. EPA proposes to monitor either TOC, or TOP. TOP stands for total organic parameter, and would require the discharger to monitor any organics on the TOP list of test for TOC as an indicator. The list contains 49 organics, but those that most likely will be used by metal finishers include toluene, trichloroethylene, and 1,1,1-trichloroethane. For most every metal finisher, TOC monitoring would be preferable by far over TOP. A facility also may have the option of developing a suitable organic chemicals management plan.

How are these discharge standards to be achieved? EPA discusses four options that are Best Practicable Control Technology (BPCT), which is indicated by EPA to allow compliance with the heavy metals standards:

1. Conventional pretreatment using wastewater stream segregation, oil removal chemical precipitation using lime or sodium hydroxide, and clarification.
2. Same as 1, except in-process flow control and pollution prevention measures are added.
3. Same as 1, except microfiltration instead of clarification.
4. Same as 3, except for the addition of in-process flow and pollution prevention measures.

The option EPA has chosen and based the discharge limits on is option 2. New source standards are based on option 4.

For cyanide treatment, EPA concludes that alkaline chlorination can achieve the proposed limits. Further, cyanide compliance can be monitored at the end of pipe for all

Table 1—Comparison of MP&M & Existing Allowable Discharge Concentrations

Concentrations are in mg/L where applicable, and are presented as 1-day max/4-day or 1-day max/30-day average as applicable.

Parameter	40CFR-413 (Jobshops)	40CFR-433 (Captive Shops)	1995 MP&M	2000 MP&M Existing Sources	2000 MP&M New Sources
Cadmium	1.2/0.7	0.69/0.26	0.7/0.3	0.21/0.09	0.02/0.01
Chromium	7.0/4.0	2.77/1.71	0.3/0.2	1.3/0.55	0.17/0.07
Copper	4.5/2.7	3.38/2.07	1.3/0.6	1.3/0.57	0.44/0.16
Lead	0.6/0.4	0.69/0.43	Not Regulated	0.12/0.09	0.04/0.03
Manganese	Not Regulated	NotRegulated	Not Regulated	0.25/0.1	0.29/0.18
Molybdenum	Not Regulated	Not Regulated	Not Regulated	0.79/0.49	0.79/0.49
Nickel	4.1/2.6	3.98/2.38	1.1/0.5	1.5/0.64	1.9/0.75
Silver	1.2/0.7	0.43/0.24	Not Regulated	0.15/0.06	0.05/0.03
Tin	Not Regulated	Not Regulated	Not Regulated	1.8/1.4	0.03/0.03
Zinc	4.2/2.6	2.61/1.48	0.8/0.4	0.35/0.17	0.08/0.06
Cyanide-T	1.9/1.0	1.2/0.65	0.03/02	0.21/0.13	0.21/0.13
Cyanide-ATC	Not Regulated	0.86/0.32	Not Regulated	0.14/0.07	0.14/0.07
Sulfide	Not Regulated	Not Regulated	Not Regulated	31/13	31/13
TTO	2.13	2.13	Not Regulated	Not Regulated	Not Regulated
Cu+Cr+Ni+Zn	10.5	6.8	Not Regulated	Not Regulated	Not Regulated
TOC	Not Regulated	Not Regulated	Not Regulated	78/59	78/59
TOP	Not Regulated	Not Regulated	Not Regulated	9.0/4.3	9.0/4.3

Table 2—Printed Wiring Board Manufacturer MP&M Discharge Limits

Concentrations are in mg/L where applicable, and are presented as 1-day max/4-day or 1-day max/30-day average as applicable.

Parameter	2000 MP&M Existing Sources	2000 MP&M New Sources
Chromium	0.25/0.14	0.17/0.07
Copper	0.55/0.28	0.01/0.01
Lead	0.04/0.03	0.04/0.03
Manganese	1.3/0.64	0.29/0.18
Nickel	0.3/0.14	1.9/0.75 (possibly a typographical error)
Tin	0.31/0.14	0.09/0.07
Zinc	0.38/0.22	0.08/0.06
Sulfide	31/13	31/13
TOC	101/67	101/67
TOP	9.0/4.3	9.0/4.3

metal finishers, but dilution by non-cyanide flows must be taken into account.

Further, as I understand the pro-proposed document, EPA expects compliance for existing sources to cost about $150,000 per facility. EPA also estimates that 18.7 percent of jobshop metal finishers, and 21.1 percent of the anodizers will close as a result of this regulation.

In the coming months, we will attempt to analyze the impact of these regulations on the industry, as well as the reasoning behind the proposed regulations, as it was used by EPA.

P&SF