Final Report
of the
Small Business Advocacy Review Panel

on

Effluent Limitations Guidelines and Standards for the Metal Products and Machinery Industry

March 3, 2000

Table of Contents

1. Introduction

This report is presented by the Small Business Advocacy Review Panel (SBAR Panel or Panel) for the proposed rulemaking on the effluent limitations guidelines and standards for the metal products and machinery industry, currently being developed by the Environmental Protection Agency (EPA). On December 8, 1999, EPA's Small Business Advocacy Chairperson convened this Panel under section 609(b) of the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA). Section 609(b) requires convening a review Panel prior to publication of the initial regulatory flexibility analysis (IRFA) that an agency may be required to prepare under the RFA. In addition to its chairperson, the Panel consisted of the Director of the Engineering and Analysis Division within EPA's Office of Water, the Deputy Administrator of the Office of Information and Regulatory Affairs within the Office of Management and Budget, and the Chief Counsel for Advocacy of the Small Business Administration.

This report provides background information on the proposed rule being developed and information on the types of small entities that would be subject to the proposed rule, describes the efforts made to obtain the advice and recommendations of representatives of those small entities, summarizes the comments that have been received to date from those representatives, and presents the findings and recommendations of the Panel. The complete written comments of the small entity representatives (SERs) can be found in Appendix A of this report.

Section 609(b) of the RFA directs the Panel to report on the comments of small entity representatives and make findings on issues related to identified elements of an IRFA under section 603 of the RFA. Those elements of an IRFA are:

- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;

- A description of projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements and the type of professional skills necessary for preparation of the report or record;

- An identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and

- A description of any significant alternative to the proposed rule which accomplishes the stated objectives of applicable statutes and which minimizes any significant economic impact of the proposed rule on small entities.

Once completed, the Panel report is provided to the agency issuing the proposed rule and included in the rulemaking record. In light of the Panel report, and where appropriate, the agency is to make changes to the draft proposed rule, the IRFA for the proposed rule, or the decision on whether an IRFA is required.

It is important to note that the Panel's findings and discussion are based on the information available at the time this report was drafted. EPA is continuing to conduct analyses relevant to the proposed rule, and additional information may be developed or obtained during the remainder of the rule development process. The Panel makes its report at a preliminary stage of rule development and its report should be considered in that light. At the same time, the report provides the Panel and the Agency with an opportunity to identify and explore potential ways of shaping the proposed rule to minimize the burden of the rule on small entities while achieving the rule's purposes. Any options identified by the Panel for reducing the rule's regulatory impact on small entities may require further analysis and/or data collection to ensure that the options are practicable, enforceable, environmentally sound and consistent with the statute authorizing the proposal.

2. Background and Regulatory History

2.1 Discussion of Effluent Guidelines

Effluent guidelines are national standards that are developed by EPA on an industry-by-industry basis, and are intended to represent the greatest pollutant reductions that are economically achievable for an industry (e.g., Metal Products & Machinery). These limits are applied uniformly to every facility in the industry falling within the scope defined by the regulations regardless of the condition of the water body receiving the discharge. To address variations inherent in certain industries, different numeric limitations may be set for groups of facilities (i.e., subcategories) based on their fundamental differences, such as in manufacturing processes, products, water use, or wastewater pollutant loadings.

To develop these technology-based regulations for an industry category, EPA first surveys the industry for information on its typical wastewater characteristics and treatment technologies used to treat the discharge. In evaluating controls available for an industry, EPA considers the age of equipment and facilities involved, processes employed, potential process changes, engineering aspects of applying various types of control techniques, the cost of achieving effluent reductions, cross-media impacts, and any other factors relevant to the decision-making. Using this information in conjunction with financial data for the affected facilities, EPA then identifies the best available technology that is economically achievable for that industry and sets effluent limitations based on the performance of that technology. (Note: The effluent guidelines do not require facilities to install the particular treatment technology identified by EPA; however, the regulations do require facilities to achieve the effluent guidelines limits which were developed based on a particular model technology.) The limits and standards that are developed are used by permit writers and control authorities (e.g., Publicly Owned Treatment Works or "POTWs") to write wastewater discharge permits. Permits may be more

stringent than applicable national guidelines and standards due to water quality considerations but may not be less stringent. EPA may issue different standards for direct and indirect dischargers, known as effluent limitations guidelines and pretreatment standards, respectively. Pretreatment standards for indirect dischargers are issued to control only those pollutants that are determined to pass-through or interfere with POTWs. EPA may also issue different guidelines and standards for new versus existing facilities.

EPA has issued national technology-based effluent guidelines for over 50 industries. The effluent guidelines for the Metal Products and Machinery Industry will be a new category, although many potentially covered facilities are already covered, or partially covered, by an existing set of guidelines (see below) . The MP&M limitations and standards will be listed in Title 40 of the U.S. Code of Federal Regulations, Part 438 once they are finalized.

2.2 Existing Metals Industry Effluent Limitations Guidelines and Standards

EPA has promulgated effluent limitations guidelines and standards for 13 metals industries. These regulations cover metal manufacturing, metal forming, and component finishing, as summarized below.

Summary of Metals Industry Effluent Guidelines

Coverage Area	Title	CFR Reference
Metal and Metal Alloy Manufacturing	Iron and Steel Manufacturing[(a)]	40 CFR 420
	Nonferrous Metals Manufacturing	40 CFR 421
	Ferroalloy Manufacturing	40 CFR 424
Metal Forming	Iron and Steel Manufacturing[(a)]	40 CFR 420
	Metal Molding and Casting	40 CFR 464
	Aluminum Forming	40 CFR 467
	Copper Forming	40 CFR 468
	Nonferrous Metals Forming and Metal Powders	40 CFR 471
Component Finishing	Electroplating	40 CFR 413
	Iron and Steel Manufacturing[(a)]	40 CFR 420
	Metal Finishing	40 CFR 433
	Battery Manufacturing	40 CFR 461
	Coil Coating	40 CFR 465
	Porcelain Enameling	40 CFR 466
	Electrical and Electronic Component Manufacturing	40 CFR 469

Source: Code of Federal Regulations, Part 40

[(a)]The Iron and Steel Manufacturing category includes metal manufacturing, metal forming, and component finishing.

In 1986, the Agency reviewed the coverage of these regulations and identified a significant number of wastewater-discharging metal processing sites that were not covered by these 13

regulations. Based on the results of this review, EPA performed a detailed analysis of these unregulated sites. This analysis resulted in the development of the Machinery Manufacturing and Rebuilding (MM&R) Point Source Category. In 1992, EPA changed the category name to Metal Products and Machinery (MP&M) to clarify the coverage of the category (57 FR 19748); questionnaire respondents found the MM&R label confusing and interpreted the category to apply only to machinery sites. The Agency believes that the MP&M title better describes the coverage of the category.

2.3 Description of the Metal Products and Machinery Rule and its Scope

The Metal Products and Machinery (MP&M) effluent guidelines will cover facilities that manufacture, rebuild, and maintain finished metal parts, products, or machines. Based on preliminary estimates, EPA believes there are as many as 100,000 facilities performing these activities in 18 industrial sectors. Approximately 80% of discharging facilities discharge to publicly owned treatment works (i.e., "indirect dischargers").

The 18 industrial sectors which are being examined for the MP&M regulation include the following:

Phase I*	Phase II*
Aerospace	Bus & Truck
Aircraft	Household Equipment
Electronic Equipment	Instruments
Hardware	Motor Vehicles
Mobile Industrial Equipment	Office Machines
Ordnance	Precious Metals and Jewelry
Stationary Industrial Equipment	Railroad
	Ships and Boats
	Metal Finishing and Electroplating Job Shops
	Printed Circuit Boards
	Other Metal Products

*Note: Phase I and Phase II have now been combined into a single rule (see below).

While some sectors have very few small entities, other sectors are comprised of nearly all small entities. In total, EPA estimated that 90% of the water dischargers may be small entities. In addition to industrial entities, the MP&M rule may cover municipalities and Federal facilities that perform activities

in MP&M sectors. For example, some municipalities own and operate their own Bus & Truck maintenance and repair facilities.

Because of the diverse nature of the industrial sectors and the large number of facilities in the MP&M industrial category, the MP&M rulemaking was initially divided into two phases. The phases differed from one another only in the industrial sectors that were included in each phase and the schedule for issuing regulations. The MP&M Phase I regulation was proposed on May 30, 1995. During the comment period, there was strong support for combining Phases I and II from state and local regulators, industry groups, and environmental groups. The Agency reviewed the comments received from these groups and agreed that it made sense from an implementation standpoint to combine the phases into one regulation which would cover all the industrial sectors in the MP&M industry.

Due to the large scope of the MP&M rule, EPA intends to carefully evaluate the potential for overlap with other metals-related effluent guidelines (see Section 2.2 of this report), particularly Metal Finishing (40 CFR 433) and Electroplating (40 CFR 413). For facilities within the 18 MP&M industrial sectors, the MP&M regulation may replace the metal finishing and electroplating guidelines. EPA is also considering covering several types of non-manufacturing iron and steel facilities that were formerly covered only by the Iron & Steel regulations. For facilities covered by other metals-related guidelines (e.g., Aluminum Forming, Porcelain Enameling, Electrical and Electronic Component Manufacturing), it is anticipated that they will continue to be covered under their industry-specific guideline. Since it is likely that the MP&M effluent guideline will only apply to those facilities who discharge more than a specified flow cut-off, the metal finishing and electroplating regulations would still apply to facilities below the flow cut-off.

The schedule for the MP&M rulemaking is included in a consent decree between the EPA and the Natural Resources Defense Council (NRDC). In February 1997, NRDC agreed with EPA's suggestion to combine Phases I and II of this project and issue one regulation to cover all sectors on the same schedule. The deadline for proposing the combined MP&M rulemaking is October 2000, with a final rule due by December 2002. The data used in developing the Phase I proposal will be combined with the Phase II data for the proposal and promulgation of the combined MP&M rule.

3. Overview of Proposal Under Consideration

This section discusses the technology options considered, the potential subcategories that are being evaluated, and the possible use of a low flow exemption in the regulation.

3.1 Best Available Technology (BAT) Options

EPA is currently looking at setting the BAT limitations (and the pretreatment standards) based on the performance of well run chemical precipitation and sedimentation systems that employ the use of

preliminary treatment steps on segregated waste streams (referred to as the "Basic" option). In addition, EPA is considering several modifications to the "Basic" option, such as the use of in-process pollution prevention.

3.1.1 The "Basic" Option

The treatment technology options for the combined Phase I and Phase II MP&M rule is expected to build off of the "Basic" Option that is made up chemical precipitation and sedimentation (including equalization, sludge dewatering using gravity thickening, and pressure filtration) and any appropriate preliminary treatment components, examples of which are given below:

- Oil/water separation through chemical emulsion breaking and either skimming or coalescing;
- Cyanide destruction through alkaline chlorination;
- Chemical reduction of hexavalent chromium;
- Chemical reduction of chelated metals; and
- Batch precipitation of concentrated waste waters.

For costing purposes, these preliminary treatment components will be selected based on each facility's individual operations and wastewater matrix according to EPA's database. They are to be used on segregated waste waters prior to commingling for the chemical precipitation step. For example, for facilities that use cyanide in their operations, EPA intends to cost the use of cyanide destruction technology prior to chemical precipitation.

3.1.2. Primary Potential Modifications to the "Basic" Option

EPA will be evaluating a variety of potential modifications to the "Basic" option. These modifications were chosen based on site visit, sampling results, and questionnaire responses. The potential modifications include the following:

1. Addition of in-process pollution prevention and flow reduction technologies, such as the following:
   - Flow reduction with flow restrictors, conductivity controllers, timed rinses, and countercurrent cascade rinsing;
   - Flow reduction through manual control of wastewater discharge rates or through analytical testing and maintenance of bath chemistry;
   - Centrifugation and recycling of painting water curtains;
   - Centrifugation, pasteurization, and recycling of machining and grinding coolants;
   - In-process metals separation and recovery with ion exchange followed by electrolytic recovery of cation regenerants for selected electroplating rinses.

2. Replacement of oil/water separation with ultrafiltration.

3. Replacement of chemical precipitation and sedimentation with chemical precipitation and ultra/microfiltration.

4. Addition of multimedia filtration as a polishing step after chemical precipitation and sedimentation.

5. Replacement of chemical precipitation and sedimentation with ion exchange for selected wastewater streams in selected subcategories.

Currently EPA has developed preliminary cost estimates for the "Basic" option and for an option that includes both modifications #2 and #3 mentioned above (referred to in pre-panel materials as the "Advanced" option). As time permits, EPA will be incorporating the addition of in-process pollution prevention and flow reduction technologies (modification #1 above) into these and future options.

3.2 Potential Subcategorization

EPA is currently conducting analyses to help determine if any MP&M sectors/sub-sectors should be handled as a separate subcategory under the MP&M regulation. Below is a list of possible subcategories:

- Printed wiring board manufacturing facilities;
- Shipyard operations;
- Railroad maintenance facilities;
- Non-chromium anodizing facilities;
- Metal finishing job shops;
- Oil-bearing "Only" wastewater-generating facilities; and
- Metal-bearing wastewater-generating facilities.

3.3 Consideration of a Low Flow Exemption

Under the 1995 Phase I proposal, EPA set, as its recommended option, a flow cut-off exclusion that applied to indirect discharges (discharges to POTWs). Indirect discharges of less than 1 Million Gallons per Year (MGY) were excluded from the proposed Phase I MP&M rule (this is equivalent to 4,000 gallons/day). No direct dischargers were excluded. Under the Phase I proposal, the scope was reduced from approximately 10,600 facilities to 3,900 facilities (2,000 indirect dischargers; 1,900 direct dischargers). EPA found that 90% of the pollutant loadings from this industry came from those 3,900 facilities that remained in the scope of the rule. EPA is conducting similar analyses on the effect of a low flow exclusion on pollutant loadings for the combined database.

Currently, the Agency is analyzing both the 1 MGY exemption and a 6.25 MGY exemption (i.e., the flow designation, at approximately 25,000 gallons/day, of a "Significant Industrial User" under the national pretreatment program) for indirect dischargers. Based on preliminary estimates, prior to implementing the technology options, there are approximately 40,000 facilities (approximately 40 percent of the industry category) that discharge less than 1 MGY (38,000 indirect and 2,000 direct) and approximately 46,000 (approximately 46 percent of the industry category) that discharge less than 6.25 MGY (43,400 indirect and 2,600 direct). In addition, under either cut-off, EPA estimates that there are 17,700 additional facilities that are currently achieving zero discharge through contract hauling to off-site disposal or other means.

4. Applicable Small Entity Definitions

The estimated 107,000 MP&M facilities perform a wide variety of activities which represent 166 Standard Industrial Classification (SIC) codes. These SIC codes have been placed into 18 industry sectors (see Section 2.2) which sometimes also include a further separation based on activity (i.e., manufacturing or maintenance/repair). EPA chose the SBA threshold definition for the small entities that was common to the most SIC codes (i.e., the mode of the distribution of SBA definitions) in a particular sector (or activity). The following table lists the SBA small business definitions for the MP&M sectors (and activities):

SBA Small Business Definitions for MP&M Sectors and Estimated Number of Small Entities*

Sector Name	SBA Definition Using the Most Common SIC Code (Mode)	Estimated Number of Facilities	% Small
1 Hardware	500 Employees	4,264	88
2 Aircraft - Manufacturing	1,000 Employees	969	86
Aircraft - Maintenance/Repair	5 M Dollars	n/a[3]	n/a[3]
3 Electronic Equipment	750 Employees	1,446	49
4 Stationary Industrial Equip.- Manufacturing	500 Employees	2,844	75
Stationary Industrial Equip.- Maint/Repair	5 M Dollars	n/a[3]	n/a[3]
5 Ordnance	1,000 Employees	189	37
6 Aerospace	1,000 Employees	586	72
7 Mobile Industrial Equip.	500 Employees	803	36
8 Instruments - Manufacturing	500 Employees	1,653	12
Instruments- Maintenance/Repair	5 M Dollars	n/a[3]	n/a[3]
9 Precious Metals/Jewelry - Manufacturing	500 Employees	1,237	99

SBA Small Business Definitions for MP&M Sectors and Estimated Number of Small Entities*			
Precious Metals/Jewelry - Maint/Repair	5 M Dollars	185	100
10 Ship - Manufacturing	1,000 Employees	34	76
Ship - Maintenance/Repair	500 Employees	n/a[3]	n/a[3]
Ship - Maintenance/Repair (SIC 449)[1]	5 M Dollars	n/a[3]	n/a[3]
11 Household Equip.- Manufacturing	500 Employees	770	42
Household Equip. - Maintenance/Repair	5 M Dollars	11	100
12 Railroad - Manufacturing	1,000 Employees	37	24
Railroad - Maintenance/Repair	1,500 Employees	477	99
13 Motor Vehicle - Manufacturing	500 Employees	1,543	80
Motor Vehicle - Maintenance/Repair	5 M Dollars	5,417	>99
Motor Vehicle - Maintenance/Repair (SIC 5013)[2]	100 Employees	n/a[3]	n/a[3]
14 Bus & Truck - Manufacturing	500 Employees	2,564	70
Bus & Truck - Maintenance/Repair	5 M Dollars	83	0
15 Office Machines - Manufacturing	1,000 Employees	131	89
Office Machines - Maintenance/Repair	18 M Dollars	n/a[3]	n/a[3]
16 Printed Circuit Boards	500 Employees	251	79
17 Metal Finishing & Electroplating Job Shops	500 Employees	35,314	>99
18 Other Metal Products - Manufacturing	500 Employees	2,055	32
Other Metal Products - Maintenance/Repair	5 M Dollars	n/a[3]	n/a[3]

Notes:

* These estimates are preliminary. There are approximately 35,213 sites not included in this table because those sites did not provide enough information to designate them as small or large.

1 = SIC Code 449 - Includes 4491 (Marine Cargo), 4492 (Towing & tugboat service), 4493 (Marinas), and 4499 (Water Transportation Services, nec)

2 = SIC Code 5013 - Wholesale distribution of motor vehicle supplies, tools and equipment; and new motor vehicle parts.

3 = The data currently available to the Agency does not break down facility type beyond main operations, e.g. manufacturing, repair, etc.

In addition, the scope of the MP&M regulation currently includes small entities that are municipalities who own and operate their own MP&M facilities (e.g., Bus & Truck maintenance and

repair facilities). EPA is using a population of 50,000 persons as the threshold for determining a small municipality.

5. Small Entities That May Be Subject to the Proposed Regulation

The scope of the proposed MP&M rule may include small entities that manufacture, rebuild, and maintain finished metal parts, products, or machines. Small entities are found in all of the 18 MP&M sectors as well as small governments (i.e., municipal facilities). MP&M facilities are mainly indirect discharging facilities.

6. Summary of Small Entity Outreach

6.1 Pre-Panel Outreach

Prior to convening the Panel, EPA had several discussions, meetings, and conference calls with small entities potentially impacted by this regulation. During July and August 1999, EPA had several telephone discussions with small MP&M facilities, as well as several trade associations, to identify potential small entity representatives. EPA invited ten small MP&M facility owner/operators, one small municipality, and several trade associations representing the variety of the industry to serve as potential small entity representatives (SERs) for the pre-panel outreach process. On September 1, 1999, EPA mailed the first packet of background materials about the rulemaking to small entities. A second, more detailed, package was mailed to the potential SERs on September 14, 1999. Additional materials were mailed following the two meetings/conference calls with the potential SERs (see Section 6.2 below). A list of all materials shared with the potential SERs during pre-panel outreach is contained in Appendix C of this report.

6.2 Pre-Panel Small Entity Representative Conference Calls and Meetings

On September 16, 1999, EPA held a meeting/conference call in Washington, DC with small entities potentially impacted by this rulemaking. EPA presented an overview of the SBREFA process, an explanation of effluent limitations guidelines and standards rulemakings, and background of the MP&M rule. In addition, EPA explained the contents of the second outreach mailing. Based on discussions during the first outreach meeting, EPA provided additional materials that day to the potential SERs by e-mail. A second outreach meeting was held on October 5, 1999 in Washington, DC. The discussions of this meeting focused on the presentation of the materials from the second outreach package and follow-up e-mail. These included estimates of the number of facilities, potential subcategories, estimates of burden, technology options being considered, preliminary selection of "pollutants of concern," and cost modules for seven pieces of treatment equipment used by EPA in estimating industry compliance costs. Summaries of the first and second meetings/conference calls were provided to the panel member and the potential SERs on October 6, 1999 and November 29, 1999, respectively.

6.3 Panel Outreach and SER Conference Calls/Meetings

Following the convening of the Panel on December 8, 1999, the Panel sent a very detailed package of outreach material to the SERs on December 15, 1999 and another on December 27, 1999. Both data packages were followed by Panel outreach meetings (December 17, 1999 and January 7, 1999, respectively). The first outreach meeting was held to walk the SERs through the detailed material that included costs and pollutant loadings estimates. The second meeting was held to answer any questions on the outreach materials and to listen to feedback from the SERs on the four elements of the IRFA as well as other comments regarding the MP&M effluent guidelines regulation. A list of all materials shared with the SERs during the Panel's outreach is contained in Appendix C of this report.

7. Small Entity Representatives

EPA, in consultation with SBA, invited the following Small Entity Representatives (SERs) to participate in its SBREFA process for the Metal Products and Machinery effluent limitations guidelines and standards rulemaking.

Company	Description	SER	Location
Bowers Manufacturing	Aluminum Anodizer	Andrew Reyburn	Portage, MI
High Tech Finishing	Metal Finisher	Carl Bartuch	Houston, TX
Gull Industries	Metal Finisher	J. Kelly Mowry	Houston, TX
Marsh Plating Corp.	Metal Finisher	David Marsh	Ypsilanti, MI
Beaver Brook Circuits	Printed Circuit Board	Carol Hustis	Bethel, CT
Loxcreen Co.	Aluminum Extruder	Larry Wilkerson	Roxboro, NC
Porcelain Metals Corp.	Metal Finisher	Allan Lerch	Louisville, KY
Alexandria Metal Finishing	Metal Finisher	Bill McBride	Lorton, VA
General Findings Division	Precious Metals and Jewelry	Susan Mayo	Attleboro, MA
Egelson Township	Municipality	Brian Hill	Muskegon, MI
National Association of Metal Finishers (NAMF), Association of Electroplaters and Surface Finishers (AESF), MP&M Coalition	Trade Associations for the Metal Finishing and Electroplating Industry	Al Collins	Washington, DC

IPC	Trade Association for the Printed Wiring Board industry	Holly Evans	Washington, DC
Porcelain Enamel Institute	Industry Trade Association	Jack Waggener, Resource Consultants/Dames & Moore	Brentwood, TN
American Association of Shortline Railroads (ASLRA)	Trade Association for the Shortline Railroad Industry	Matt Reilly	Washington, DC
Electronics Industry Association	Trade Association for the Electronics Industry	David Isaacs	Washington, DC
American Wire Producers Association	Trade Association for Steel Wire Industry	Janet Kopenhaver	Washington, DC

8. Summary of Input from Small Entity Representatives

The Panel received twelve sets of written comments from SERs in response to the October 5, 1999 pre-panel and the January 7, 2000 panel SER outreach meetings. The table below provides a record of the commenters. This section also summarizes the main issues raised by SERs on the four elements of an IRFA specified by the RFA to be examined during the Panel. This includes information from their written comments gathered during the pre-panel and panel outreach efforts, as well as information conveyed in telephone discussions with SERs over the past few months. The complete written comments are provided in Appendix A and include additional areas of comment. Complete summaries of the outreach meetings can be found in Appendix B.

List of SER Written Comments

Name	Organization	Date Received	Number of Pages
Andrew Reyburn	Bowers Manufacturing	11/1/99	34
Andrew Reyburn	Bowers Manufacturing	1/21/00	4
Al Collins	NAMF/AESF/MFSA	11/1/99	1
Al Collins	NAMF/AESF/MFSA	1/14/00	2
Holly Evans	IPC	11/1/99	1.5
Susan Mayo	General Findings Division	1/14/00	2
Carl Bartuch	High Tech Finishing	1/14/00	1

Allan Lerch	Porcelain Metals Corp.	1/14/00	2
Jack Waggener	Dames & Moore/Porcelain Enamel Institute/ASLRA	10/6/99	3
Jack Waggener	Dames & Moore/Porcelain Enamel Institute/ASLRA	1/7/00	6
Jack Waggener	Dames & Moore/Porcelain Enamel Institute/ASLRA	1/14/00-1/24/00	22
Kimberly A. Korbel	American Wire Producers Association	1/21/00	4

8.1 SER Comments: Number and Types of Entities Affected

No SER written comments were received on this issue. However, several SERs commented during outreach meetings that the distribution between the number of discharging facilities and zero-discharging facilities presented in the December 15, 1999 package did not appear to be accurate. In addition, one SER, Holly Evans, commented that the estimate of the number of printed wiring board facilities was too low.

8.2 SER Comments: Potential Reporting, Record Keeping, and Compliance Requirements

8.2.1 Monitoring Cost & Frequency/Regulated Parameters

Both Holly Evans and Al Collins commented that the cost estimates for wastewater sample analyses appear correct if the frequency of monitoring is 4 samples per month (4 days total) and not 4 sets of 4-day sampling. However, one SER, Andy Reyburn, thought that the cost for metals analysis was slightly low (<20%). He said his company also pays $180 per day sampling fee to an outside contract lab to actually conduct the sampling. Another SER, Susan Mayo, commented that they pay $47.50 per sample for analysis of total and amenable cyanide (with results faxed overnight). She also commented that her company saves money by requesting that analysis for amenable cyanide be performed only when total cyanide is detected.

Both Holly Evans and Al Collins requested that EPA reduce frequency of monitoring for facilities with good compliance history. They suggested something similar to what was proposed in the Pretreatment Streamlining rulemaking, but offering it directly to the facility instead of at the discretion of the POTW. Al Collins, Andy Reyburn, and Susan Mayo requested that EPA include an option that would allow indirect dischargers to certify that certain pollutants (e.g., cyanide, specific metals) are not present in lieu of monitoring for those pollutants. Susan Mayo believes this would lower monitoring costs and could be implemented in a similar fashion to the Total Toxic Organics (TTO) certification that is currently used under the Metal Finishing regulations (40 CFR Part 433). In addition, she also requested that EPA consider reduction (or elimination) of monitoring when a facility can demonstrate and certify that their wastewater is consistently below the regulated limits using historical self-monitoring data.

Al Collins also suggested allowing the demonstration and use of best management practices (BMP) or well-operated and maintained wastewater treatment technology in place of numerical limitations in permits. He provided an example where a facility's permit would require the use of a cyanide destruction technology in the existing wastewater treatment system for those dischargers who use cyanide in their processes. This would be in lieu of a numerical limit for cyanide in the MP&M effluent guidelines regulation. In his example, dischargers would certify annually that they were operating the technology "effectively and correctly." He believes this will save time and money for small businesses.

Susan Mayo and Andy Reyburn raised a concern about the restriction on the range of pH that may be imposed by the proposed rule and how it might inhibit compliance with the metals limits. Andy Reyburn also stated that pH is not a pollutant and it is adequately regulated by POTWs. He also raised a concern over setting TSS limits as surrogates for other metals for indirect dischargers and pointed out that for his annodizing facility, a TSS limit would have the same effect as an aluminum limit and be prohibitively expensive. He suggested that limits be set only for specific metals. [Note: In the 1995 MP&M proposal, EPA proposed pH and TSS limits for direct dischargers only.]

Susan Mayo also suggested that effluent limitations should apply only at the point of discharge, and not to specific processes within the plant, as subsequent process steps may further reduce pollutant concentrations.

Andy Reyburn also raised the issue of the POTW's interpretation of the limits and commented that his POTW prefers to see their SIUs operate comfortably below the maximum limits (e.g., not higher than 90% of the limits). He understands the POTW's desire to have a margin of safety, but believes that with tighter limits (e.g., proposed MP&M limits) his company may have difficulty operating within the POTW's margin of safety.

Andy Reyburn also expressed strong opposition to setting limits for either aluminum or iron, as well as for TSS, which would have the same effect for anodizers. He stated that not only would

removing and disposing of aluminum raise his costs substantially, necessitating a ten-fold increase in the size of his hydroxide precipitation system and perhaps a thirty-fold increase in operating costs, but that aluminum is not harmful to the environment, can be removed more cost effectively by POTWs than by individual industrial users, and, in fact, is added by many POTWs to enhance the effectiveness of their treatment systems. He also noted the difficulty for anodizers of removing other metals without removing large amounts of aluminum and stated that he would have to remove about 2000 lbs of aluminum for every additional pound of other metals removed.

8.2.2 Organics Monitoring/Use of a Surrogate

In the Phase I MP&M rulemaking, EPA proposed Oil & Grease (O&G) as a surrogate parameter for measuring the organic pollutants. Holly Evans commented that IPC's members prefer the use of Chemical Oxygen Demand (COD) as a surrogate parameter for testing organics. Al Collins suggested that no surrogate parameters be specified and that facilities select a method for testing for organics that is most appropriate for their particular situation. Andy Reyburn requested that EPA retain the TTO and the certification used in the Metal Finishing regulations for the MP&M regulations. He stated that typical anodizing facilities have virtually no organic pollutants but would have O&G from cleaning parts. He believes that the only TTO chemicals that are possibly present at an anodizer facility would be aromatic and halogenated solvents. He requested that if certification cannot be considered, an alternative would be to develop "generic analytical procedures" for these two groups of materials. In addition, Holly Evans and Al Collins commented that if no oil and grease is present, that no testing for O&G should be required.

Jack Waggener believes, based on the pollutant loadings and removals data presented by EPA, that the use of O&G or total petroleum hydrocarbons (TPH) as a surrogate parameter for individual organic toxics appears unnecessary, as the only organic in the top twenty pollutants of concern (ranked by PE removals) is acrolein, which accounts for only 0.3% of PE removals, and which would not be picked up by O&G or TPH monitoring because of its volatility. He also commented that the concept of using a surrogate has merit in some situations, but that the proposed Phase I limits were set well below the levels normally allowed at a POTW (i.e., 100 to 200 mg/L) and did not allow for the variability of the analytical method. He also stated that in his comparisons of the data, most organics were below proposed limits even when the O&G concentrations were greater than 200 mg/L.

8.2.3 Reporting Burden

Both Holly Evans and Al Collins stated that the burden estimates, presented by EPA, associated with the compliance requirements for Categorical Industrial Users (CIUs) are too low. They commented that it would take 2 days to complete the Baseline Monitoring Report (BMR) and one full day each to complete the Industrial User Compliance Attainment Report and the 90-day Compliance Report. Al Collins also commented that some of his members reported that significant information and

clarification on the instructions for completing these reports had to be obtained from the POTW, adding additional time to the process.

8.3 SER Comments: Related Federal Rules

Prior to the Panel process, Al Collins, representing the metal finishing and electroplating job shops, provided the following listing of all the Federal Rules or initiatives affecting the metal finishers:

- The Metal Finishing Strategic Goals Program (50% water reduction/ 98% metals recovery).
- Chrome MACT Amendments (OAR will do a direct final rule in the fall to allow flexibility for enclosed tanks technically out of compliance; flexibility for plating tank reconstruction; and expanding pressure allowance).
- Title V Deferral for small or area sources (memo from OAR dated April 15, 1999).
- Pretreatment Streamlining Rule (64 FR 39564); includes various regulatory relief measures for indirect dischargers.
- Method Detection Limits (OW is working to identify a methodology for determining compliance with standards where current analytical methods are inadequate).
- Urban Air Toxics Strategy promulgated in June of 1999 (list of the top 30 hazardous air pollutants which include chrome and nickel).
- NTP's Ninth Report on Carcinogens (may include soluble nickel compounds as carcinogens).
- RCRA Ninety day storage rule extension (final rule due January 2000); allows F006 (waste water treatment sludge from electroplating) to be stored an additional ninety days without a RCRA Part B permit when going for recycling.
- RCRA F006 reform effort to determine if F006 should be regulated differently to promote recycling (no date specified).
- RCRA Hazardous Waste Manifest revisions; could allow F006 to be transported outside of the current RCRA manifest system (no date specified).
- OSW PBT Voluntary Reduction Effort; lists metals as targets for reduction from RCRA waste by 50% by 2005.
- TRI PBT Rule (64 FR 687) and TRI PBT Lead and Lead Compounds Rule (64 FR 42221); will reduce the TRI reporting thresholds for some PBT chemicals from 25,000 lbs to 10 or 100 lbs.
- OSHA Chrome Permissible Exposure Limit (PEL) (proposed rule was projected for 9/99 but has not been issued); proposal to reduce the chrome PEL three orders of magnitude.
- TSCA Inventory Update Rule; proposal to add inorganics to the Chemical Use Inventory (CUI) system.

In addition, Susan Mayo commented that the RCRA 90 Day Storage Rule Extension will reduce costs of hauling F006 sludge due to less frequent shipments and will promote recycling. She

also stated that she supports the efforts to classify F006 sludge that is going for reclamation as "regulated recyclable material" instead of hazardous waste.

Carl Bartuch noted the various federal and local regulations facing the industry (e.g., air, hazardous waste) including local building and fire code regulations.

8.4 SER Comments: Regulatory Alternatives

8.4.1 Reduced Flow Exemption

Under the Phase I MP&M rulemaking, EPA proposed an exemption for facilities with annual discharges less than 1 million gallons per year (MGY). EPA believed that such a flow exemption would reduce the regulatory burden on many of the smallest facilities and regulators while still protecting the environment. During pre-panel outreach, SERs requested that EPA analyze additional flow cut-offs, for example 6.25 million gallons per year (i.e., the Significant Industrial User flow level in the national pretreatment program). In general, commenters on this issue stated that the originally proposed 1 MGY flow cutoff was too low to be helpful to their segment of the industry. Al Collins originally commented that a more appropriate cutoff that would provide pollution prevention incentives would be 6 MGY, as that is the average flow rate for the metal finishing industry. However, after reviewing EPA's analysis using a 6.25 MGY cut-off, he suggested that EPA also analyze various intermediate flow cut-offs (between 1 and 6.25 MGY) and that such analyses should also be performed by industrial subcategory. He expected these analyses might show the most cost-effective flow cutoff to be around 4-4.5 MGY. Holly Evans commented that the smallest printed wiring board facilities discharge an average of 10 million gallons per year and urged EPA to adopt a higher cut-off than 1 MGY. Andy Reyburn stated that the 1 MGY cut-off would not help over 90% of the anodizing industry. He also stated that the anodizing industry is a water-intensive industry that is considered a "clean" form of metal finishing. Susan Mayo commented that the 1 MGY cut-off would be beneficial to the many small jewelry manufacturers and job shops who would not be able to afford the capital expense of the proposed rule or who may lack technical expertise and would, therefore, incur the additional costs of hiring a consultant. Allan Lerch recommended the 6.25 MGY exclusion level or higher, in addition to the total exclusion of several sectors with few toxics, to reduce the financial impact of the rule on small businesses. Jack Waggener noted that the rule was not significantly more cost-effective with the 1 MGY exclusion than without it and suggested that, although full loadings and cost data on a 6.25 MGY cut-off were not yet available, it appeared that even with this cutoff the cost-effectiveness of the rule would be very unfavorable for all but a few sectors compared to previous effluent guidelines.

8.4.2 Potential Subcategorization

Generally commenters agreed that there is a need to subcategorize the industry and that analyses must be prepared by subcategory. Andy Reyburn favored a subcategory for aluminum anodizers, although he thought that it might not be necessary if EPA is not going to regulate discharges

of aluminum and iron. He also pointed out that there are other types of anodizing that are more similar to sulfuric acid anodizing than chromic acid anodizing. They are oxalic acid and phosphoric acid anodizing. He believed that they should be considered in a subcategory of "non-chromic" anodizers along with the sulfuric acid anodizers. He explained the need for the non-chromic anodizer subcategory on the basis of the additional burden that "heavy" metals limits would impose on anodizers as compared to other metal finishers. He stated that, due to the large amounts of aluminum in their wastewater, they would have to oversize their precipitation equipment to perform a difficult separation of the aluminum from the alloy metals. Alternately, they would have to remove and dispose of large quantities of aluminum. He also suggested that this subcategory might be excluded from the final rule altogether, and that it may not be worth regulating the non-chromic anodizers under the Metal Finishing rules either, let alone any more stringent MP&M standards.

Several SERs also recommended that other specific industry sectors be excluded from the rule, either because their projected loadings reductions were small or because the cost per PE removed was excessive, or both. Allan Lerch suggested excluding the household equipment manufacturing sector, while Jack Waggener suggested excluding the railroad manufacturing and rebuilding and maintenance sectors. Mr. Waggener also noted that only 3 sectors (ship manufacturing, motor vehicle rehabilitation and maintenance, and other metal products) showed cost effectiveness figures comparable to even the high end of the cost effectiveness range in previous effluent guidelines ($155/PE), and that many sectors showed total removals per facility below the levels that EPA had decided not to regulate for industrial laundries and proposed not to regulate for the food grade, hopper, and petroleum subcategories of the transportation equipment cleaning industry. He suggested that EPA consider excluding all sectors with low removals and unfavorable cost effectiveness ratios. As an illustrative calculation, he estimated that excluding indirect dischargers in all sectors with removals per facility of less than 100 PE/year would eliminate only 5% of total PE removals while excluding 43% of otherwise covered facilities. Similarly, excluding indirect dischargers in all sectors with removals per facility of less than 250 PE/year would eliminate 15% of PE removals while excluding 58% of facilities. Finally, he estimated that eliminating all sectors except the three noted above with cost-effectiveness ratios in the range of previous effluent guidelines would still retain 46% of toxic removals. He also suggested that this issue (low removals and unfavorable cost effectiveness ratios) could be addressed through high flow exemptions, and that as an alternative to regulation, EPA should explore providing pollution prevention guidance to excluded facilities.

During a SER Outreach conference call, Janet Kopenhaver, representing the American Wire Producers Association, requested that EPA not include the stand-alone wire facilities (i.e. facilities that do not manufacture wire rod, but rather draw wire from rod not produced at the facility) in this rule but, instead, continue to cover them through the Iron & Steel effluent guidelines regulation.

8.4.3 General Comments on Cost and Feasibility of Proposed Limits

All commenters were concerned about the apparent high cost of the regulation and the seemingly low level of pollutant reductions. Al Collins stated that potentially 75% of the metal finishing job shops would close as they have annual sales of $5 million or less. He based his analysis on an assumption that compliance costs of 10% of revenues would cause closures. He estimated an annual compliance cost for job shops using data provided by EPA in the December 15, 1999 data package (page 3-7) that supplied costs for 10 representative facilities. Annual costs for the job shop listed were estimated at close to $500,000 (which is 10% of $5 million). Carl Bartuch expressed similar concerns regarding the significant capital outlay and operating expenses projected in EPA's cost models. He stated that these expenses will need "to be made up with new customer volume or price increases to existing customers which are both very difficult goals to achieve in today's globally competitive environment." He added that marginally profitable operations will most likely have to close. He also expressed concern that the Phase I proposed limits were not consistently achievable, even using the best equipment and technology available, and noted that some of the proposed limits were 5 to 10 times lower than existing limits.

Susan Mayo stated in an outreach meeting that under their waste removal contract, they pay $595/ton for removal of their F006 sludge including reclamation of metals. Andy Reyburn commented that water and sewerage expenses are significant to anodizers. His company spends approximately $240,000 per year on water and sewer fees.

In addition, Al Collins commented on the relatively low toxicity of the pollutants being addressed by the MP&M rule as compared to chlorinated organic compounds, PCBs, dioxins, and furans. He also noted the apparently high marginal cost (38% increase) and low marginal benefit (3-5% more removals) of EPA's "advanced option" (which includes additional ultra/microfiltration steps), relative to the "basic option." He further indicated that the costs of the advanced option (specifically ultrafiltration and reverse osmosis) were significantly understated. He recommended emphatically that the advanced option be rejected. Andy Reyburn also noted the high cost and technical complexity of treatment processes such as micro/ultrafiltration, reverse osmosis, and selective ion exchange, as well as the susceptibility of filtration systems to fouling by aluminum hydroxide. Allan Lerch commented that the pollution prevention techniques and the wastewater treatment systems required to meet the Metal Finishing and Porcelain Enameling rules are the reason for low removals of toxics by the MP&M rule for the Household Equipment Manufacturing sector. He also stated his concern about having to install "several $100,000 of additional treatment equipment for little gain to the environment." He was also concerned that the limits were not achievable. He also stated that the apparent cost effectiveness of over $400 per PE removed for the entire MP&M industry compared very unfavorably with the maximum cost effectiveness in previous effluent guidelines of $155 per PE removed and even more unfavorably with the cost effectiveness in the Metal Finishing guidelines of $10 per PE removed.

Jack Waggener was also concerned about the achievability of the limits in the original Phase I proposal. He noted a number of generic difficulties with the way EPA calculates limits, including: 1) too few data points from too few facilities are used to generate long term averages and variability factors; 2)

"outliers" that actually represent legitimate variability are sometimes edited out; 3) data close to the detection limit is often included in the variability factor calculations, artificially reducing variability; 4) variability of wastes across facilities or sectors is not adequately accounted for; and 5) sampling on successive days at facilities with large equalization tanks reduces variability relative to what would be observed with more widely spaced sampling episodes. He noted that 15 out of 17 facilities that were used as a basis for the Phase I proposal would actually have violated the proposed limits for at least one parameter in at least one sampling episode, and speculated that variability (and thus non-compliance) would have been even greater among facilities not used to calculate the limits, or across more widely dispersed sampling episodes at facilities that were. He underscored the importance of setting limits that realistically reflect what facilities can actually accomplish using the designated BAT in the real world, in order to minimize violations based on "statistical anomalies" rather than inadequate or poorly operated treatment. He suggested that this problem could be minimized by first ensuring that the plants on which the limits were based could consistently meet them, and then checking the limits against a wider range of sampling data using discharge monitoring reports from plants that have already installed BAT. Andy Reyburn also expressed concern with developing limits that do not adequately account for variability across different types of facilities within an industry sector, and provided a substantial amount of data on variability within the anodizing sector.

Jack Waggener also commented on the changes in toxic weighting factors (TWFs) and POTW removals as compared to past regulations and expressed concern that EPA will not be able to compare the cost-effectiveness of the MP&M rule against bench-marks set in other effluent guidelines. His comments present an analysis of these changes and note that the net result is that projected toxic removals are significantly higher than they would have been using the TWFs and POTW removal factors used in the 12/98 analysis of the Centralized Waste Treatment Rule. He requested that EPA "normalize" the TWFs and POTW removals for comparison purposes. He also expressed concern over his belief that a number of recent analyses of loading and removals have contained serious errors. He requested that all information documenting and supporting these analyses be included in the public record for notice and comment prior to the MP&M proposal.

Both Jack Waggener and Andy Reyburn also indicated a concern with using detection limits as the effluent concentration for non-detects when calculating POTW removals. This approach provides a lower bound on POTW removals, and thus is likely to lead to an overestimate of removals attributed to the rule. The problem is compounded by the fact that removals at many POTWs may have improved since the mid 1980s when the data on which EPA bases its POTW removal factors were gathered. Mr. Reyburn stated, based on conversations with personnel at his local POTW, that there is a big difference between removals at an old, out-of-date plant and a modern plant with tertiary treatment.

Several commenters also expressed concern that EPA's estimated waste disposal costs were too low. They suggested that respondents to the industry survey may have provided data on hauling costs only, and omitted tipping or disposal fees. They indicated that the costs presented by EPA were not consistent with their experience. Al Collins stated that current and accurate estimates of waste

hauling and disposal costs for F006 sludge could be found in the Regulatory Impact Analysis for the RCRA 90-Day Storage Extension Rule.

8.4.4 Miscellaneous Additional Comments

Andy Reyburn also expressed concern about the financial impact on POTWs of tightening standards on industrial users (IUs) for pollutants that could be more cost effectively removed by the POTWs. Many POTWs set fees based on pollutant loadings in the IU's discharge. Setting tighter limits for the IU may reduce these fees and significantly increase costs of the IU with little environmental benefit. In fact, he believes that such regulations may actually slow environmental improvement by undermining a POTW's ability to modernize and more effectively treat conventional pollutants.

Mr. Reyburn also opposed the use of mass-based limits. He believes they are technically difficult to administer and unnecessary. He stated that, at least for anodizers, water and sewage costs are so high that use of dilution as an alternative to treatment would not be economically viable. In his view, this eliminates one of the principal arguments for using mass-based limits.

He also warned against using the effluent guidelines to accomplish other purposes not directly related to improving water quality or, at least, that, if the effluent guidelines were to be used in this way, this be openly acknowledged and the public be given a chance to comment. In this context, he specifically mentioned the following concerns: 1) inclusion of water conservation BMPs, or other incentives for water conservation (he noted that, at least in his area, water is abundant and conservation is not an issue, since all water is "recycled" in natural systems); 2) promotion of metals recycling (he noted that recycle markets are notoriously unreliable and that recycle of metals, other than precious metals, is generally not economically viable); and 3) land application of sewage sludge (he stated that many POTWs, including his, do not land apply even though they meet all applicable sludge limits because it is not economically viable, and suggested that for those POTWs that do land apply, necessary restrictions could be achieved through local limits).

He also expressed concern with the current definition of a job shop (ie, 50% or more of material belongs to an outside customer) because some facilities may be near this threshold and their status may thus fluctuate from month to month. He suggested exploring alternative definitions that might be more robust, such as proportion of functional capacity used for outside work, or percent of revenues derived from outside work.

9. Panel Findings and Discussion

It is important to note the Panel's findings and discussion are necessarily based on the information available at the time this report was drafted. EPA is continuing to conduct analyses relevant to the proposed rule, and additional information may be developed or obtained during this process and from public comment on the proposed rule. Any options the Panel identifies for reducing the rule's

regulatory impact on small entities may require further analysis and/or data collection to ensure that the options are practicable, enforceable, environmentally sound, and consistent with the Clean Water Act.

9.1 Potential Reporting, Record Keeping, and Compliance Requirements

EPA does not intend that the proposal will contain specific record keeping or reporting requirements. Monitoring for compliance with any limitations established on regulated pollutant parameters will be determined under current EPA regulations at 40 CFR, Parts 122 and 403. However, since EPA bases its regulatory limits on its assumed monitoring regime, EPA in general recommends that permitting authorities consider this regime in determining appropriate monitoring frequencies. In addition, EPA's guidance document entitled "Interim Guidance for Performance-Based Reduction of NPDES Permit Monitoring Frequency, April 19, 1996," issued by the Office of Enforcement and Compliance Assurance (OECA) in conjunction with the Office of Water, offers guidance for determining the frequency of monitoring for facilities. EPA will acknowledge this guidance in the preamble to the proposed rule.

The Panel notes that there are MP&M facilities that are currently required to monitor more frequently than under the monitoring regime EPA has assumed for basing the limits and for costing of monitoring. The Panel believes, therefore, that basing limits on, and recommending to permitting authorities, a reduced monitoring regime for small businesses may result in significant monitoring relief for some of these businesses. The Panel recommends that EPA consider this option, along with other approaches discussed below, for reducing monitoring costs to small entities.

The Panel recognizes that EPA generally only recommends monitoring frequency requirements to state and local permitting authorities. State and local permitting authorities have historically used factors such as raw waste variability, treatment, and compliance history to determine appropriate monitoring frequency. Nevertheless, the Panel believes permitting authorities may also consider the monitoring frequencies used in evaluating the cost of limits in determining site specific monitoring requirements and believes it is appropriate for them to do so. The Panel supports EPA's intent to recommend that permitting authorities consider the monitoring regime EPA assumed for costing and limitation development purposes. The Panel also notes that EPA can affect monitoring requirements through its choice of regulated parameters, as discussed below.

Certification in lieu of Pollutant Monitoring

The Panel notes that SERs made several suggestions in regard to reducing the compliance requirements of the proposal and thereby reducing associated costs of these requirements. Several SERs suggested that EPA consider allowing facilities to certify that they do not have cyanide or specific metals on-site and to waive monitoring requirements for those constituents. One SER compared such a waiver to the Total Toxic Organic certification option in the Metal Finishing Effluent Guideline (40 CFR Part 433). Similarly, another SER compared it to the sampling waiver outlined in EPA's Pretreatment Streamlining (PTS) proposal ("Amendments to Streamline the National Pollutant Discharge Elimination System Program Regulations: Round 2; Proposed Rule." 61 FR 65268. December 11, 1996). This

would allow dischargers to waive sampling of pollutants that have been determined (through periodic certification) to not be present in concentrations greater than ambient background levels. However, this SER requested that the certification be included in the MP&M rule as a standard compliance option, rather than as an alternative that would be available only at the discretion of the POTW, as would be the case under the PTS proposal.

The Panel supports such an approach for reducing monitoring, record keeping, and reporting costs and encourages EPA to explore options for allowing certification in lieu of monitoring in cases where an operator can determine, based on knowledge of the facility and its processes, that certain pollutants are not likely to be present or are adequately controlled. EPA plans to analyze the certification and monitoring waiver approaches utilized in the Metal Finishing effluent guidelines (40 CFR 433) and the Pharmaceuticals effluent guidelines (40 CFR 439) when developing the approach for the MP&M proposal. In the Metal Finishing effluent guidelines, control authorities may allow dischargers to make a certification statement in lieu of monitoring for TTO. In addition, the discharger must submit a solvent management plan that specifies to the satisfaction of the local control authority the toxic organic compounds used; the method of disposal used instead of dumping, such as reclamation, contract hauling, or incineration; and procedures for ensuring that toxic organics do not routinely spill or leak into wastewater.

For the Pharmaceuticals effluent guidelines, permit limits and compliance monitoring are not required for regulated pollutants that are neither used nor generated at the facility. A determination that regulated pollutants are neither used nor generated is based on a review of all raw materials in use, and an assessment of the process chemistry, products and by-products resulting from each of the manufacturing processes. This determination along with recommendation of any surrogate must be submitted with permit applications for approval by the permitting authority, and reconfirmed by an annual chemical analysis of wastewater from each monitoring location, and the measurement of a non-detect value for each regulated pollutant or its surrogate. In the proposed rule, EPA will, at a minimum, solicit comment on such certifications and monitoring waivers, whether or not specific ones are proposed. The Panel strongly endorses EPA's plans to explore these options.

Incorporation of Options from Pretreatment Streamlining Proposal

The Panel notes that a SER suggested that EPA consider adopting several other aspects of the Pretreatment streamlining proposal (61 FR 65268) in the MP&M rule. The SER specifically requested that EPA adopt, from the Pretreatment Streamlining proposal, an exemption from certain inspection and monitoring requirements for categorical industrial users (CIUs). This CIU exemption would only be available to facilities below a specified flow cutoff (the PTS proposal was for a cutoff of 100 gallons per day) and would be dependent upon annual certification by the facility stating it was in compliance with "discharge limitations or technologies and low flow rates." The SER also suggested that the MP&M proposal should include a provision for best management practices (or waste treatment technologies) to serve as limits and be enforceable as permit requirements.

In the development of the proposed rule, the Panel recommends that EPA consider carefully whether to adopt certain aspects of the Pretreatment streamlining rule for MP&M facilities or whether the Pretreatment streamlining rule itself addresses adequately these reduced record keeping and reporting options. However, the Panel notes that in the case of exemption from certain inspection and monitoring requirements, the proposed PTS cutoff of 100 GPD (36,000 GPY) would make this provision inapplicable to most MP&M facilities. EPA should thus consider what cutoff is appropriate for the MP&M industry (and any subcategories it establishes) and consider any reductions of inspection and monitoring requirements accordingly. In the MP&M Phase I proposal, EPA solicited comment on whether Best Management Practices could be promulgated in lieu of numeric limitations for low volume discharge sites. EPA will once again solicit comment on such an option and plans to carry out analyses regarding the cost savings that BMPs could provide to Control Authorities as well as dischargers. If these prove significant, the Panel recommends that EPA give serious consideration to proposing guidelines based on BMPs instead of numerical limitations, at least for some pollutants and/or categories of facilities, or providing this as a compliance option, as was done in the Pesticide Chemical Formulating, Packaging and Repackaging industry guidelines (40 CFR 455). However, the Panel does not support requiring specific treatment technologies in lieu of performance-based limits, as this can deprive operators of needed flexibility in the selection of cost-effective treatment options based on site specific factors, and undermine incentives for technological progress in treatment efficiency.

Total vs Amenable Cyanide Monitoring

The Panel notes that one SER indicated that her current permit requires her to monitor for total and amenable cyanide, and she discussed the cost savings of monitoring for amenable cyanide only when total cyanide has been detected. The Panel recommends that EPA explore such an option for the current rule. EPA will also analyze and solicit comment in the proposal on several other approaches for cyanide monitoring including one similar to that outlined in the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) effluent guideline (40 CFR Part 414). In the OCPSF guideline, discharges of cyanide are not subject to the cyanide limitations and standards of 40 CFR part 414 if the permit writer or control authority determines that the cyanide limitations and standards are not achievable, due to elevated levels of non-amenable cyanide (i.e. cyanide that is not oxidized by chlorine treatment) that result from the unavoidable complexing of cyanide at the process source of the cyanide-bearing waste stream, and establishes an alternative total cyanide or amenable cyanide limitation that reflects BAT. [40 CFR 414.11 (g)]. The determination must be based upon a review of relevant engineering, production, and sampling and analysis information, including measurements of both total and amenable cyanide in the waste stream. The Panel endorses EPA's plans to explore such an approach.

End-of-Pipe versus In-process Monitoring for Cyanide

The Panel notes that a SER also suggested that EPA only require constituents (e.g., cyanide) to meet numerical limitations at the point of discharge rather than at other in-plant monitoring locations. In

general, EPA sets limitations for the end-of-pipe discharge, but in certain cases (e.g., Pharmaceuticals and Pesticide Manufacturing effluent guidelines) has set a limit based on in-plant compliance but allowed end-of-pipe monitoring unless demonstration of compliance at the point of discharge is not feasible. EPA typically does not require in-process monitoring because it does not want to discourage innovative ways for facilities to meet the limitations at the point of discharge. However, EPA considers the location of the monitoring point to be of specific importance in the case of cyanide. Cyanide waste streams that are mixed with metal-bearing waste streams prior to treatment can result in complexed metals which are difficult to remove through chemical precipitation. Further, there are health and safety risks associated with reactions that occur when commingling cyanide-bearing waste streams with other (i.e., acid-bearing) waste streams. Finally, in-process monitoring of cyanide prevents facilities from meeting the cyanide limitation through dilution (i.e. mixing the cyanide-bearing waste streams with other waste streams) prior to treatment.

EPA is currently considering proposing the same approach for cyanide monitoring as outlined in the 1995 MP&M Phase I proposal. In that proposal, EPA required compliance with cyanide limitations after cyanide treatment and before combining with other streams. However, EPA proposed that samples could be taken from the final effluent, in lieu of the cyanide treatment effluent, if the plant limitations were adjusted based on the dilution ratio of the cyanide treatment effluent to the final effluent flow. This addresses EPA's concern with ensuring cyanide treatment prior to subsequent processing/treatment steps, and still preserves some flexibility in demonstrating compliance with the requirement. The Panel recommends that in the current proposal EPA discuss the basis of this approach and solicit comment on it.

Indicator Parameter for Organic Constituents

The Panel notes that several of the comments made by SERs addressed the use of a surrogate parameter for individual organic toxic constituents. One SER suggested that the use of oil and grease (O&G) or TPH as a surrogate appears unnecessary based on current analyses that show toxic organic constituents as only a very small portion of the total toxic pollutant load. This SER also commented that, in general, O&G and TPH could make reasonable surrogates if the regulatory limit is set closer to levels normally allowed at a POTW (i.e., 100 to 200 mg/L), where the variability of these tests is less likely to cause violations. Several other SERs suggested that O&G/TPH monitoring not be generally required, and one suggested allowing a TTO certification similar to the provisions of the metal finishing guidelines in lieu of such monitoring (see above). One SER also suggested COD as a surrogate for organics.

The Panel agrees that in the preliminary data presented to the SERs, the toxic organic constituents make up only a small portion of the total toxic pollutant loads. EPA believes that the apparent low level of organic constituents in MP&M wastewater, as represented in the preliminary data base, is at least partially due to the implementation of solvent management plans at MP&M facilities. However, the Panel notes that the data presented to the SERs was preliminary and was not segregated into subcategories. It is possible that once EPA analyzes pollutant loads on a subcategory basis organic constituents could comprise a higher portion of a particular subcategory's total pollutant loads.

Therefore, the Panel recommends that EPA continue to analyze whether the presence of toxic organic constituents are at levels which would warrant regulation on a subcategory basis. However, if subsequent analysis does not reveal toxic organics at levels higher than what appears in the current data, the Panel recommends that EPA give serious consideration to not proposing pretreatment standards for these pollutants but rather leaving their regulation to the local limit determinations of individual POTWs or existing effluent limitations guidelines. If the projected toxic removals remain similarly low for the direct dischargers, the Panel recommends that EPA give serious consideration to not proposing national limits for these pollutants, but rather leaving their control to existing effluent limitations guidelines or to the best professional judgment of local permit writers.

In addition, the Panel notes that the 1995 MP&M Phase I proposal of the O&G surrogate monitoring parameter for organic constituents was intended to reduce monitoring burden. Based on comments to the 1995 Phase I proposal, EPA collected data on many additional potential surrogate parameters. EPA is continuing to evaluate potential organic indicator methods. EPA's analysis includes potential indicators such as O&G, total recoverable phenolics, total organic carbon, total petroleum hydrocarbons, and chemical oxygen demand. In addition, EPA is also considering an option for the proposal in which a facility could demonstrate and certify which organic indicator is most appropriate for its facility and then be required to meet the limitation that EPA establishes for that indicator parameter. (One SER suggested an option similar to this.) EPA is also considering including an alternative that would allow monitoring of specific organic pollutants or compliance with a TTO limitation in lieu of an indicator. EPA intends to continue to analyze these options and ultimately propose an option (or a combination of several options) that offers the maximum flexibility for MP&M facilities while still being protective of the environment. The Panel strongly supports EPA's continued analysis of an appropriate organic indicator for the MP&M proposal if it turns out that limitations on organic pollutants are appropriate for one or more subcategories.

Regulation of pH

The Panel notes that EPA did not previously propose and does not plan to set pretreatment standards in this rulemaking for pH, leaving the regulation of pH from indirect dischargers to the existing provisions of the general pretreatment regulations and individual local limits established by the POTW. The Panel supports this approach.

Aluminum and Iron as Indicator Metals

The Panel recommends that the proposed rule not include limitations for indirect dischargers for iron and aluminum or for TSS.

9.2 Related Federal Rules

The Panel also received comments recommending that the scope of the MP&M proposal be clearly articulated such that coverage can be accurately assessed and overlap with other effluent guidelines avoided. At this time, EPA anticipates that the proposed rule will replace the Metal Finishing and Electroplating regulations for sites above a certain flow cut-off with operations in one of the MP&M industrial sectors. EPA is also considering covering in the MP&M rule several types of non-manufacturing iron and steel facilities (e.g. wire drawers, bar drawers, pipe and tube manufacturers, batch hot dip coaters) that are currently covered by the Iron & Steel regulations. For facilities covered by other metals-related guidelines (e.g., Aluminum Forming, Porcelain Enameling, Electrical and Electronic Component Manufacturing), it is anticipated they will continue to be covered under their industry-specific guideline (see Section 2.2 of this report). EPA notes that if such facilities (e.g., porcelain enameling facilities) have MP&M process waste waters that are not covered by their industry-specific guideline, the facility will be covered by both the industry-specific guideline and by MP&M. In no case will a specific waste stream at a facility be covered by more than one effluent guideline, unless it is commingled prior to treatment with a waste stream covered by a different effluent guideline, in which case limits would be derived on a site-specific basis using the combined waste stream formula or building block approach. Since it is likely that the MP&M effluent guideline will only apply to those facilities who discharge more than a specified flow cut-off, the metal finishing and electroplating regulations will still apply to facilities below the flow cut-off. The Panel recommends that EPA clearly articulate the scope of the MP&M rule in the proposal and clarify in the preamble how facilities that have operations covered by more than one effluent guideline are regulated.

The Panel is concerned with the additional burden facilities and their regulatory authorities face when having to apply more than one effluent guideline. The Panel recommends that EPA perform an analysis to identify what portion of the existing MP&M population is already covered by an existing effluent guideline. The Panel further recommends that EPA evaluate whether any of the older effluent guidelines (in addition to Metal Finishing and Electroplating) could be replaced in whole or in part by the MP&M regulation, and whether facilities covered under another effluent guideline could be excluded from the MP&M regulation due to their existing coverage.

The Panel also notes the American Wire Products Association request that the "stand-alone" wire industry not be included in MP&M but remain subject to the Iron and Steel regulation instead. The association stated that this rule change would cause the steel min-mills that produce wire products to be subject to one regulation, and the stand-alone industry to be subject to another, although both have substantially similar production processes. The Panel recommends that EPA carefully examine this request in development of the proposed MP&M rule.

In general, the Panel recommends that EPA attempt to minimize the potential for MP&M facilities to be covered by more than one guideline, in order to reduce the administrative complexity of compliance.

9.3 Regulatory Alternatives

Cost-Effectiveness and Toxic Removals

Several of the SERs commented on the potential high cost of the regulation in comparison to the low levels of toxic pounds removed. The Panel agrees that, for many sectors, the high cost effectiveness ratios and low levels of toxic removals appear quite unfavorable relative to those of many previous effluent guidelines, but notes that the costing and pollutant loadings information supplied to the Panel and the SERs was preliminary and that some of the underlying data is still being revised. In addition, these data were not presented by subcategory but rather by primary industrial sector. EPA intends to analyze the cost and pollutant removal data on a subcategory basis. In cases where there are potential high economic impacts compared to low pollutant reductions or low environmental benefits for a specific subcategory, the Panel recommends that EPA seriously consider regulatory alternatives (including no regulation) in order to reduce any significant economic impacts that are not justified by environmental improvements, and to improve the cost-effectiveness of the guidelines.

If the subcategory-specific data, as determined at the time of proposal, shows pound-equivalent removals per facility that are comparable to levels which EPA has determined not to regulate in other rulemakings (i.e. Industrial Laundries and Landfills), the Panel recommends that EPA give serious consideration to not including pretreatment standards for such subcategories in the proposal, consistent with the approach taken in these other rulemakings.

Flow Cut-off

In addition, recognizing the potentially high costs of the rule to small businesses, EPA intends to analyze several bases for not including certain small businesses within the scope of the proposal. EPA discussed with the SERs and Panel members the possibility of adopting a flow cut-off for the MP&M regulation for indirect dischargers where there are low pollutant loadings or the costs of removal may not be economically achievable. EPA presented estimated pollutant loadings and compliance costs for the MP&M industry based on two flow cut-offs: excluding all indirect dischargers with flows under 1 million gallons per year (MGY) and excluding all indirect dischargers with flows under 6.25 MGY. The SERs and Panel members supported EPA's inclusion of a flow cut-off, but recommended that EPA perform additional analyses, on a subcategory basis, in order to determine what flow cutoff is most appropriate, considering costs for small businesses, administrative burden for the local control authorities, environmental benefits, and pollutant loads. Prior to proposal, EPA will analyze flow cut-off levels for indirect dischargers between 1 MGY and 6.25 MGY on a subcategory basis in order to determine the most appropriate flow cut-off level. The Panel supports EPA's intent and recommends that EPA adopt an appropriate flow cut-off for any subcategory in which the costs for facilities are disproportionate to the loading reductions and corresponding environmental benefits expected from those same facilities. EPA should give serious consideration to flow cutoffs above the 1 MGY level where appropriate, and may find it appropriate to consider flow cutoffs above 6.25 MGY for some sectors. If the relationship between environmental benefits (as suggested by the current pollutant reduction estimates) and costs does not appear significantly more favorable as a result of further analysis, the Panel believes it likely that some combination of flow cutoffs above 1 MGY and exclusions for specific industry sectors and/or subcategories would be appropriate.

Technology Options

In the information that EPA supplied to the SERs and Panel members, EPA developed cost and pollutant reduction estimates for two options: the basic option and the advanced option. Several commenters noted that implementation of the advanced option resulted in only marginal additional benefits over the basic option for a substantial increase in costs. For this reason, the SERs believe that the advanced option should be rejected by EPA. Again, the Panel points out that the cost and pollutant loading data on which this conclusion was based are preliminary and some of the underlying data are still being revised. However, the Panel agrees that if the advanced option continues to show incremental benefits that do not justify the significant cost increases, then EPA should reject that option. EPA should also pay close attention to the SERs' comments on various technical problems with some technologies being considered for the advanced option (e.g., fouling of ultra/microfiltration by aluminum hydroxide).

9.4 Methodological Issues

The Panel discussed several methodological issues related to the manner in which EPA plans to calculate costs, loads, and limitations for the MP&M proposal.

Costs for Contract Hauling

Several SERs noted that EPA's current estimated costs for contract hauling and disposal (for both wastewater and sludges) appear too low. EPA based its estimated costs on the responses to Question 45 of the "1996 Metal Products and Machinery Industry Phase II Survey." (OMB Control Number 2040-0184). Although the MP&M questionnaire asked for "total removal cost" including "all costs associated with treatment, disposal, transportation, fees, and the analysis of the waste," several SERs believed that this question may have been interpreted more narrowly by respondents than EPA intended (i.e. they may have included only hauling costs) and, as a result, these costs may not accurately reflect the full cost of removing and disposing of wastes. Therefore, the Panel recommends that EPA review these estimated costs in more detail and, to the extent possible, supplement the MP&M questionnaire cost data with costing data collected as part of the Office of Solid Waste's Final Rule for a 180-day Accumulation Time for F006 Wastewater Treatment Sludges. Note: This was recommended by one SER, who referred the Panel to the "F006 90-day Storage Extension Rule" as a source of "current and accurate" estimates.

Statistical Methodology for Calculating Effluent Limitations

Several of the SERs raised concerns regarding a facility's ability to meet the BAT limitations developed for the 1995 Phase I proposal on a consistent basis. One SER described a series of potential problems with the limited data used to generate the limits and the methodology (including data

editing criteria) used to set the limits. He proposed cross-checking a proposed limit on actual real data, both from the effluent guideline's data, and also from the DMR reports of the selected facilities.

EPA routinely investigates whether all of the facilities from which data is used in the calculation of BAT limitations can reliably and consistently meet the proposed limitations. The Panel agrees that these facilities, which EPA has identified as well-operated and maintained examples of BAT, should be able to reliably and consistently meet the limitations derived from their real world performance, perhaps with minor operational improvements and treatment enhancements in some cases. The Panel recommends that EPA carefully document in its Development Document for the proposed rule which facilities used for calculating BAT limitations did not meet effluent limitations for certain constituents, and what incremental costing was assumed necessary for those facilities to comply with all of the effluent limitations. EPA should carefully describe any operational changes or treatment enhancements that it determines adequate for these BAT facilities to consistently and reliably achieve full compliance with the proposed limitations, and its basis for determining that these changes are adequate, including laboratory and real world data where possible. EPA should request comment on the costing and adequacy of any such operational changes or treatment enhancements. Finally, EPA should cross-check the proposed limits against additional data, not used in their calculation, from facilities with BAT. Such additional data may include self monitoring data (e.g. DMRs) from both the facilities used to derive the limits and additional facilities with BAT. More generally, the Panel also recommends that EPA carefully examine the specific methodological concerns raised by SERs, attempt to improve its methodology to address these concerns where appropriate, and request comment on these methodological issues in the preamble to the proposed rule.

POTW Percent Removals and TWFs

One SER and some of the Panel members were particularly concerned that the POTW removal factors and toxic weighting factors (TWFs) that EPA is using in its pollutant loadings analysis have changed relative to previous effluent limitations guidelines. Certain members of the Panel are concerned that these changes may make it difficult for EPA and the public to compare the cost-effectiveness of the MP&M rule against benchmarks set in other effluent guidelines. The Panel recommends that EPA perform analyses in order to identify any general trends that have occurred as a result of the change in TWFs or POTW removal factors and, to the extent possible, create a way that the pound-equivalents estimated to be removed by this regulation can be compared to past effluent guidelines which used older TWFs and different POTW removal factors. The Panel also recommends that EPA re-examine its methodology for calculating POTW removal factors, including its treatment of non-detects in the POTW effluent and the appropriateness of allowing for improvements over time in POTW treatment efficiency, to ensure that POTW removals are not being underestimated. Finally, the Panel also recommends that EPA request comment on the POTW removals methodology and revised TWFs as part of this rulemaking.