TABLE OF CONTENTS

EXECUTIVE SUMMARY

CSI And The Metal Finishing Sector

The Common Sense Initiative (CSI) was launched by Administrator Carol Browner in 1994, as an effort for a multi-stakeholder group to look at environmental protection through the lens of industry decision-making processes. The CSI Metal Finishing Sector has developed a series of projects aimed at improving environmental protection and reducing economic burdens, meeting the needs of all stakeholder groups. Uniting these projects is the Strategic Goals Program, a voluntary program for industry that addresses resource utilization, hazardous emissions, and economic paybacks/compliance costs, and has the potential to reshape the industry's approach to pollution prevention and environmental management. This Program relies not only on the improved performance by metal finishers, but also on the actions by all stakeholders to help the participating companies achieve the performance goals.

The Concept

The paradigm shift that the Strategic Goals Program has set in motion is reflected most clearly by the early endorsement by the CSI Subcommittee of the concept of an alternative performance "flexible track" for top performing metal finishing facilities. Under this concept, industry performance leaders would receive operational flexibility and incentives to achieve ambitious environmental goals. These benefits would also serve to motivate other companies to do better.

Operational flexibility describes the leeway within *existing* regulations to achieve "cleaner, cheaper, smarter" benefits. Although these measures are already available, they are not frequently utilized due to mistrust, poor communication, lack of information, and the ease for all parties to conduct "business as usual." Operational flexibility projects serve as the first step toward overcoming these barriers and broadening opportunities for more effective environmental protection through an alternative regulatory track.

[3]Metal Finishing 2000 Pilots

Metal Finishing 2000 is the project created by the CSI Subcommittee to test out the concept of offering flexibility. Two pilots are underway with firms in Michigan and Rhode Island, each in areas with a high concentration of metal finishers. Each pilot is distinctive in its approach to providing operational flexibility and in the types of "beyond compliance" activities being proposed by participating firms. Although these pilots have not been completed yet, many lessons for improving information and trust, identifying opportunities for flexibility, and developing program structure can be shared as new MF2000 projects begin to develop.

Major Lessons Learned

Key lessons drawn from the experiences of the Detroit and Rhode Island MF2000 pilots are summarized below. While many of these lessons may appear intuitive, the process of gathering together a diverse set of stakeholders to function in a new way can be very difficult. The lessons presented are intended to highlight, and provide guidance on, critical process and policy issues. Lessons for the early stages of a project are presented under "Advance Planning and Getting Started," while later-stage lessons are captured under "Pilot Development, Implementation, and Evaluation," and policy issues are captured under "General Policy-Making Considerations."

Advance Planning and Getting Started:
Lessons For EPA Headquarters and Regions, and State and Local Regulators

Lesson #1: **Establish an Equal Partnership.** Ensure that participating regulators value the project as an important component of their agency's mission and are engaged in the project as equal partners *from the beginning* of the planning process.

Lesson #2: **Address Inter-Regulatory Issues.** Undertake advance planning steps to build a framework, establish rough timelines, resolve any inter-agency issues before engaging other stakeholders in a project, and consider professional facilitation at stakeholder meetings.

Lesson #3: **Link with Existing Programs and Priorities.** Integrate and leverage projects being conducted at the state and local level that either focus on metal finishers or are similar in concept to MF2000. Consider the state's ability to provide flexibility under its existing authority.

Lesson #4: **Identify an Appropriate POTW.** Select a willing POTW with a progressive pretreatment program that serves a high number of metal finishers to invite to participate in the project.

[4]Lesson #5: **Consult with Enforcement Staff.** Discuss the project with federal, regional, and state enforcement staff early in the project's planning and development. This will help ensure that enforcement staff understand the type of flexibility the project plans to offer and that no outstanding enforcement issues will conflict with project development and implementation.

Lesson #6: **Gain Support of Managers.** Ensure that participating regulators have the full support of their managers so that work on the MF2000 pilot can be considered a priority when necessary, rather than viewed as "extra" work outside of, and not as important as, current responsibilities.

Lesson #7: **Identify Project Leaders and Key Point People.** Ensure that the project has a "champion" and leader to push the process, broker consensus, maintain communication among stakeholders, and ensure progress.

Project Development, Implementation, And Evaluation:

Lessons For All Stakeholders

Lesson #8: **Set Firm Milestones.** Establish formal milestones that, if not achieved by an agreed-upon date, signal to stakeholders that they should consider redefining project objectives or discontinuing the project.

Lesson #9: **Ensure Public Participation.** Establish mechanisms for identifying and working with community stakeholders.

Lesson #10: **Identify Appropriate Qualification Criteria.** Develop application criteria for top-tier performers based on environmental performance, worker health and safety records, and community relations.

Lesson #11: **Develop Standard Agreements.** Establish standard agreements to reduce resource costs and improve the potential for replicating the project in the future.

Lesson #12: **Monitor Progress.** Establish a process for regularly monitoring the project's progress toward "cleaner and cheaper" objectives. Evaluate the benefits and costs in a formal, standardized way.

Lesson #13: **Communicate Regularly and Remain Open to New Stakeholder Ideas.** Maintain frequent and effective communication among stakeholders in order to address differing views and ideas. Be flexible and willing to deviate from the initial plans to incorporate new ideas presented by the stakeholder group.

General Policy-Making Considerations:

- Opportunities for providing operational flexibility to achieve improved environmental performance exist within the current regulatory system.
- The desired project outcome can be achieved through trust, shared knowledge and vision, and a willingness to listen.
- Incremental steps taken through pilot projects can build the foundation for an alternate regulatory system.
- MF2000 is an effective process model that can be tailored to meet an agency's needs.

Guidance for the Future MF2000 Projects

The lessons summarized above are intended to aid regional, State, POTW, industry, and other non-governmental groups who are considering developing new MF2000 projects as part of their commitment to the Metal Finishing Strategic Goals Program. This report discusses four main steps to establishing a MF2000 project:

1) **Advance Planning for Regulators** - Advance planning is essential to help regulators reach an understanding about key issues and forge the partnership necessary for a successful project. Regulators should work through several key elements of advance planning, including gauging interest in the MF2000 concept, identifying an appropriate project location, gaining consensus on project objectives, outlining the project's anticipated framework, and establishing project management responsibilities.

2) **Getting Started** - Once a target location(s) is/are chosen, project leaders then begin to interact with industry and the community to help further define the goals and framework of the project. These tasks include identifying the stakeholder group, holding the first planning meeting, establishing boundaries to the project concerning what benefits are available, and setting timelines.

3) **Project Development** – Three key components of project development for a MF2000 project are: (1) defining criteria to qualify for MF2000; (2) establishing an application process; and (3) identifying incentives for participation by metal finishers. Examples of criteria and incentives are provided in Chapter V.

4) **Project Implementation** - The shift from project development to implementation can be one of the most pivotal phases of a project. It often

involves a decentralization of tasks and reliance on new stakeholders to take the lead. Effective project management will depend significantly on clearly defined timelines with milestones that encourage stakeholders to make regular progress. Milestones may reflect major elements of implementation, including getting necessary agreements in place, developing oversight mechanisms, and conducting marketing and outreach.

Looking Ahead

This report is a tool for those interested in implementing MF2000 or launching a different flexible track program that will continue to move the environmental protection system forward. Operational flexibility can often be offered without regulatory changes. These lessons and guidance offer a deployment model for identifying and testing flexibility benefits that can be tailored to meet local needs.

Working with MF2000 and the Metal Finishing Strategic Goals Program offers an excellent opportunity to link pollution prevention and innovative process changes with an industry-specific voluntary program. The results of each new MF2000 project will be communicated to other participating States and POTWs, thereby increasing flexibility options and speeding further innovation.

As the Goals Program matures, MF2000 will serve as both a reward for those achieving the Goals and as an incentive for others to strive toward. The future MF2000 will build upon the foundation of trust and experience created by Detroit, Rhode Island, and new MF2000 projects. This alternative track will offer expanded flexibility, possibly relying on changes to regulations, that will be available to companies achieving the Strategic Goals. This vision for the future will reward continuous environmental performance and stewardship with cost savings and reduced oversight.

I. INTRODUCTION

Under the current regulatory framework, metal finishers often lack sufficient incentives to achieve "beyond compliance" environmental performance. In some instances, the current regulatory system may actually create disincentives. For example, transaction costs associated with "minor" permit modifications can discourage firms from taking steps to change their production processes in environmentally beneficial ways. Metal Finishing 2000 (MF2000) has been developed to examine these types of problems and identify potential incentives for achieving continuous environmental improvement.

Under the MF2000 concept, top environmental performers in the metal finishing industry become eligible for “operational flexibility." Operational flexibility can be described as using existing flexibility mechanisms available under current regulations to enable companies to achieve beyond compliance performance. In recognition of companies' excellent performance and as an incentive for them to set even more ambitious environmental goals, they may be granted flexibility, such as less burdensome permitting, monitoring, and reporting requirements. The MF2000 concept represents an important step away from the "one-size-fits-all" regulatory framework that treats top environmental performers and poor environmental performers equally.

While maintenance of the current regulatory system is essential as a baseline, establishing a flexible regulatory track for top environmental performers fosters a more incentive-based and efficient regulatory approach. Rewarding qualified top environmental performers with operational flexibility could benefit both regulators and industry by:

- **Encouraging top environmental performers to make additional "beyond-compliance" improvements.** Operational flexibility may reduce transaction costs that currently discourage top performers from further environmental improvements.

- **Encouraging firms that are not top performers to move up the environmental "performance ladder."** The lure of rewards for environmental excellence may motivate mid-level and poor performers to make significant environmental improvements.

- **Improving the efficiency of resource allocation.** By distinguishing top environmental performers from the rest of the industry, MF2000 gives regulators a basis for allocating scarce enforcement resources more efficiently. Regulatory resources "saved" by granting operational flexibility to top performers can be concentrated on poor performers.

To test the MF2000 concept, the Common Sense Initiative Metal Finishing Subcommittee established pilot projects in Detroit, Michigan in December 1995 and Rhode Island in February 1996. A broad range of stakeholders have participated in the development and implementation of these pilots, including: EPA headquarters and regional offices, industry trade associations, Michigan and Rhode Island state governments, publicly-owned treatment works (POTWs) to which the participating facilities discharge their wastewater, labor unions, community groups, and other non-governmental organizations (NGOs). While the goals of the pilots have remained similar, implementation approaches have differed due to varying stakeholder priorities and the range of flexibility allowed by current state and local regulations.

Purpose of the Report

Other EPA regions and states have expressed interest in developing their own MF2000 projects. Although the Detroit and Rhode Island pilots are still on-going, much can be learned from their experiences that can help guide new MF2000 pilots. The purpose of this report is to:

- Summarize the progress made so far in developing and implementing the Detroit and Rhode Island pilots;

- Identify and assess the lessons learned from the pilots; and

- Provide guidance on how best to implement a future MF2000 projects by analyzing the Detroit and Rhode Island pilots and drawing on the experiences of other federal, regional, and state flexible track programs.[1]

[1] Programs analyzed for this report include: EPA's Environmental Leadership Program, the Occupational Safety and Health Administration's Voluntary Protection Program, EPA Region 1's Star Track program, EPA Region 1's CLEAN-P2, the Michigan Department of Environmental Quality's Clean Corporate Citizen program, and the New

9 The evaluation of the two pilots and recommendations for future pilots are primarily based on interviews of participating stakeholders.[2] The report is intended for Detroit and Rhode Island MF2000 pilot stakeholders seeking a critical evaluation of the progress made so far, and for other regional, state, and local regulators interested in developing their own MF2000 project.

Structure of the Report

The remainder of the report includes four chapters and appendices.

- **Chapter II** provides background information on EPA's Common Sense Initiative (CSI) -- the program under which the Detroit and Rhode Island MF2000 pilots have been operating. The chapter also summarizes the objectives of CSI's Strategic Goals Program and highlights how future MF2000 pilots may be integrated into the Goals Program. It is intended to be a primer for readers unfamiliar with CSI or the Strategic Goals Program.

- **Chapter III** describes the implementation approach of the Detroit and Rhode Island pilots.

- **Chapter IV** identifies key findings and lessons from the pilots based on stakeholder perceptions.

- **Chapter V** provides guidance on how to develop and implement a MF2000 program. Based on findings and lessons from Detroit, Rhode Island, and other flexible track programs, the chapter identifies and assesses steps that should be considered when establishing a new pilot.

- **Appendix A** briefly summarizes the federal, regional, and state flexible track programs researched for this report.

- **Appendix B** presents sample agreements used in the Detroit pilot.

- **Appendix C** provides an application form for the Rhode Island MF2000 project.

- **Appendix D** provides a brief overview of the metal finishing industry.

- **Appendix E** lists stakeholders and contacts for the Detroit and Rhode Island pilots.

Jersey Chemical Industry Project.

[2] Interviews of MF2000 stakeholders were conducted in January and February 1998.

II. THE COMMON SENSE INITIATIVE AND STRATEGIC GOALS PROGRAM

This chapter provides background information on EPA's Common Sense Initiative (CSI) and CSI's Metal Finishing Strategic Goals Program. The chapter is intended for regional, state, and local regulatory authorities unfamiliar with the Common Sense Initiative. It is designed to provide these authorities with a general understanding of the CSI programs under which the MF2000 pilots were established.

The Common Sense Initiative

The Common Sense Initiative (CSI) is an innovative approach developed by EPA to explore industry-specific strategies for environmental protection. In 1994, EPA's Administrator, Carol Browner, launched CSI to promote "cleaner, cheaper, and smarter" environmental solutions -- cleaner for the environment, cheaper for industry and taxpayers, and smarter in design and implementation. The Initiative seeks to move pilot industry sectors into the next generation of environmental management and regulation using a non-adversarial, stakeholder consensus process. Metal finishing is one of six pilot industries selected to participate in CSI; the others are automobile manufacturing, computers and electronics, iron and steel, petroleum refining, and printing. CSI sectors examine a wide range of topics, including regulatory, reporting, technological, permitting, compliance, and pollution prevention issues.

In January 1995, EPA established the CSI Metal Finishing Sector Subcommittee under the Federal Advisory Committee Act (FACA).[3] The Subcommittee includes representatives from EPA headquarters and regional offices, state government, publicly-owned treatment works (POTWs), the metal finishing industry and its suppliers, national and regional environmental organizations, the environmental justice community, and organized labor. To date, this Subcommittee has developed and endorsed 14 projects, including MF2000, that test new ways to achieve cleaner, cheaper, smarter outcomes for the industry (see Exhibit 2-1).

[3] FACA specifies how federal agencies may seek advice from outside stakeholders.

11 In addition to these projects, the Subcommittee has developed the Strategic Goals Program -- a comprehensive set of performance goals designed to promote pollution prevention and environmental management for the metal finishing industry. Each of the 14 projects listed below is intended to support this strategic approach.

Exhibit 2-1

PROJECTS ENDORSED BY THE CSI METAL FINISHING SUBCOMMITTEE[4]

- Access to Capital Project
- Approaching Zero Discharge Demonstration Project
- Chromium Pollution Prevention Technology Demonstration
- CLEAN-P2 Facility Audit Project
- Environmental Technology Verification Project
- Environmentally Responsible Site Transition for Tier 3 Firms
- Metal Finishing 2000 (MF2000)
- Metal Finishing Guidance Manual
- National Metal Finishing Environmental R&D Plan
- National Metal Finishing Resource Center (NMFRC)
- POTW Training, Education, and Incentives Program
- RCRA Metal Finishing Wastewater Sludge Project
- Regulatory Information Inventory Team Evaluation (RIITE) Program
- Tier 4 Facility Enforcement Project

Strategic Goals Program

In December 1995, Administrator Browner challenged the Metal Finishing Subcommittee to develop a more strategic package of "cleaner, cheaper, and smarter" policy actions for the industry as a whole. The Subcommittee responded by establishing the Strategic Goals Program, a comprehensive approach designed to move the metal finishing sector into the next generation of environmental management and regulation. The Program establishes a set of voluntary targets that represent "beyond compliance" performance for metal finishers. These facility-based and industry-wide goals (summarized in Exhibit 2-2) are designed to encourage tangible results.[5]

After nearly two years of work, the Metal Finishing Subcommittee has met the Administrator's challenge, with the endorsement of the Strategic Goals Program in December 1997. The Program establishes a set of ***voluntary National Performance Goals*** for the industry that represent "better than compliance" environmental performance for metal finishers. The

[4] Information on these projects, as well as the names and phone numbers of project coordinators, can be found at EPA's web site: www.epa.gov/commonsense/metals/index.htm

[5] For more information on the Strategic Goals Program, see the new Goals web site at www.strategicgoals.org or contact Bob Benson at (202) 260-8668.

[12]Goals include facility-based, numerical performance targets that track the CSI themes of cleaner, cheaper, and smarter performance:

- Improved resource utilization (for metals, water, and energy)

- Reduced hazardous emissions and exposures (for organic TRI and metals emissions, hazardous sludge disposal, sludge generation, and worker and community exposure).

- Improved economic performance and reduction of "unnecessary" compliance costs.

The Program includes industry-wide goals for full compliance, enforcement of chronic non-compliers, and "brownfield prevention" assistance for facilities that wish to transition their sites to another use. The Goals Program also includes a detailed ***Action Plan for all stakeholder groups,*** drawn from the Sector's 14 projects. These enabling actions address ten important issue areas for the metal finishing industry, including increased flexibility as an incentive to achieve beyond-compliance performance.

Goals Program Kick-Off

Administrator Browner officially launched the Goals Program on January 26, 1998 at an annual metal finishing industry conference in Orlando, Florida. The kick-off ceremony honored the 222 "charter" companies that have already signed up to pursue the Program's voluntary performance goals. The ceremony also recognized 13 charter states and over 20 charter POTWs (representing several major metropolitan areas) that have signed up. Metal finishers who sign up receive a "Welcome Aboard Kit," complete with worksheets for reporting progress toward the Goals. Government stakeholders also receive a "Welcome Aboard Kit" that includes an instruction manual, contact list, and other information to help them think about the first steps for program implementation. Coordination among EPA, states, and POTWs is underway to help metal finishers achieve the Goals.

MF2000 and the Strategic Goals Program

MF2000 is designed for facilities that exhibit a pattern of consistent compliance, want to further improve their environmental performance by achieving National Performance Goals, and

[13]are willing to work with their regulators, workers, and community to assure performance accountability. Although a national MF2000 Program is yet to be defined, stakeholders have highlighted the MF2000 concept as an important incentive factor for facilities to sign up for the Goals Program, because it provides the prospect of a tangible reward (i.e., reduced government presence in day-to-day operations) for good performers. Participation of metal finishing facilities in MF2000 pilot projects, in conjunction with the Goals Program, will provide valuable guidance on the appropriate criteria, process, conditions, and benefits for providing flexibility to top-performing metal finishers.

In creating MF2000, the CSI Subcommittee advocated the concept that facilities making progress toward the Goals and maintaining consistent compliance with all applicable federal, state, and local regulatory requirements should receive some sort of flexibility benefits -- i.e., greater operational flexibility and reduced compliance costs. This view is consistent with the overarching concept of different forms of government oversight and programs for different levels of facility performance.

The initial MF2000 pilots in Detroit and Rhode Island are testing a core set of flexibility benefits and eligibility ground rules, as well as a prototype process for building stakeholder partnerships among companies, regulators (at all levels), and regional community representatives. Additional MF2000 projects in other states will further identify appropriate benefits and incentives to encourage beyond-compliance performance by Goals Program participants.

The Future of MF2000 and the Strategic Goals Program

MF2000 projects, in addition to the Detroit and Rhode Island pilots, will be thoroughly evaluated by an EPA-led multi-stakeholder group. Project results will be used to determine *whether* to proceed with a national MF2000 Program and, if so, *how* such a program should be structured. Full implementation of such a program will require extensive use of partnership arrangements with states and POTWs.

To the extent possible, leaders of future projects should encourage local companies *already signed up for the Strategic Goals Program* to participate in their MF2000 pilot. This will allow projects to test which MF2000 incentives Goals participants find meaningful enough to want to achieve MF2000 status. In addition, projects can identify ways to link the progress companies make toward the Goals to qualification criteria for MF2000. Through this approach,

[14]the lessons learned by future projects will help the Metal Finishing Subcommittee and other stakeholders determine if and how MF2000 can be fully integrated into the Goals Program.

Although the Subcommittee still must address certain issues surrounding the integration of MF2000 into the Goals Program, the MF2000 track is intended to increase the incentives for Goals participants to continuously improve their environmental performance. For example, Goals participants might qualify for MF2000 status by achieving the Goals and meeting other specified qualification criteria, such as having an environmental management system in place. In return, these companies would be eligible for a range of flexibility benefits.

Over the long-term, the Subcommittee intends for the Goals Program to provide a replicable model for a performance-based regulatory system, operating in parallel with the existing baseline set of environmental standards. In concept, this performance-based regulatory track is similar to what is being tested by the MF2000 pilots. In return for a commitment to top environmental performance, the Goals Program will offer incentives and improved relations with regulators MF2000 may be integrated into the Goals Program in the future as a "higher performance track" -- MF2000 status would be a step above being a Goals Program participant.

Exhibit 2-2

Metal Finishing National Performance Goals

Facility-Based Performance Goals (By Year 2002)	Sector-Wide Performance Goals (By 2002)
(1) Improved Resource Utilization *("Smarter")*	**(4) Industry-Wide Achievement of Facility Goals.**
(a) 98% of metals ultimately utilized on product.	(a) 80% of facilities nationwide achieve Goals 1 - 3.
(b) 50% reduction in water purchased / used *(from 1992 levels).*	**(5) Industry-Wide Compliance with Environmental Performance Requirements.**
(c) 25% reduction in facility-wide energy use *(from 1992 levels).*	(a) All operating facilities achieve compliance with Federal, State, and local environmental performance requirements.
(2) Reduction in Hazardous Emissions and Exposures *("Cleaner")*	(b) All metal finishers wishing to cease operations have access to a government sponsored "exit strategy" for environmentally responsible site transition.
(a) 90% reduction in organic TRI emissions and 50% reduction in metals emissions to air and water *(from 1992 levels).*	(c) All enforcement activities involving metal finishing facilities are conducted in a consistent manner to achieve a level playing field, with a primary focus on those facilities that knowingly disregard environmental requirements.
(b) 50% reduction in land disposal of hazardous sludges and a reduction in sludge generation *(from 1992 levels).*	***Note:*** *At facilities where outstanding performance levels were reached prior to 1992, the percentage-reduction targets for Goals 1(b) and (c) and 2(a) and (b) may not be fully achievable, or the effort to achieve them may not be the best use of available resources. In these instances, a target should be adjusted as necessary to make it both meaningful and achievable.*
(c) Reduction in human exposure to toxic materials in the facility and the surrounding community, clearly demonstrated by actions selected and taken by the facility. Such actions may include, for example, pollution prevention, use of state-of-the-art emission controls and protective equipment, use of best recognized industrial hygiene practices, worker training in environmental hazards, and participation in a Local Emergency Planning Committee.	
(3) Increased Economic Payback and Decreased Costs *("Cheaper")*	
(a) Long-term economic benefit to facilities achieving Goals 1 and 2.	
(b) 50% reduction in costs of unnecessary permitting, reporting, monitoring, and related activities *(from 1992 levels)*, to be implemented through burden reduction programs to the extent that such efforts do not adversely impact environmental outcomes.	

III. THE DETROIT AND RHODE ISLAND MF2000 PILOTS

From the first CSI meeting in January 1995, there was a general recognition that this was a unique experiment, bringing stakeholders together in a non-adversarial way to “push the envelope.” The flexible track concept was developed out of the strong belief by this group that partnerships among stakeholders could promote improved environmental performance for innovative companies, overcoming stereotypes by all stakeholders with knowledge, communication, and openness. In developing the flexible track concept, the CSI Subcommittee supported the use of pilot projects as a necessary first step to identifying a replicable process that would serve as an incentive for metal finishers to strive toward beyond-compliance performance. Additionally, there was an up-front commitment to assess the results of the pilots before proceeding on a larger scale.

Key themes stressed by the Subcommittee included listening to stakeholders, taking small steps followed by an assessment, being flexible in project design to meet the needs of stakeholders, linking to existing stakeholder priorities, and working toward cleaner, cheaper, and smarter outcomes. With these themes as a foundation, the Detroit and Rhode Island MF2000 pilots were developed to test the concept of offering “operational flexibility," such as less burdensome permitting, monitoring, and reporting requirements, to encourage continuous environmental improvement by top environmental performers in the metal finishing industry. Operational flexibility refers to utilizing flexibility within the existing regulations.

By recognizing and rewarding top environmental performance, MF2000 seeks to create incentives for all facilities to move up the environmental "performance ladder." In addition, by distinguishing top environmental performers from the rest of the industry, MF2000 is designed to improve the efficiency of enforcement resource allocation by allowing regulators to focus fewer resources on good performers and more resources on poor performers.

The Detroit and Rhode Island pilots were designed to test the merits of the MF2000 concept by:

- Identifying and testing different types of operational flexibility;
- Gauging industry's interest and willingness to participate;

- Experimenting with different program structures;

- Investigating how best to achieve the commitment and buy-in of regulators, industry, and other stakeholders.

In testing MF2000, the pilots have taken somewhat different approaches to implementation. For example, Detroit stakeholders have encouraged individual facilities to identify specific types of incentives and flexibility they need in order to undertake environmentally beneficial projects, as well as define a workable process. Stakeholders have worked with each company to define projects, and develop customized agreements. Similar to Detroit, the Rhode Island pilot provides facilities an opportunity to identify innovative types of flexibility. However, Rhode Island has also developed a "menu" of flexibility options that any qualified MF2000 company can become eligible to receive under a more standardized agreement.

Although neither pilot has been completed, valuable lessons can be drawn from their differing approaches and experiences. A process blueprint has also been developed to provide guidance to other areas wishing to implement MF2000 in support of the Strategic Goals Program. This chapter summarizes the development and implementation of the two pilots and provides a critical review of each pilot based on stakeholder comments. The following chapter identifies a number of central process and policy lessons that should be considered carefully by architects of future MF2000 projects.

The Detroit MF2000 Pilot

The Detroit MF2000 pilot has been operating for more than two years. Currently, stakeholders are negotiating Administrative Consent Orders (ACOs) to define the terms and conditions for operational flexibility and pilot implementation. The timeline and progress to date of the Detroit MF2000 pilot is shown in Exhibit 3-1.

Exhibit 3-1

DETROIT METAL FINISHING 2000:
TIMELINE AND PROGRESS TO DATE

Detroit MF2000 Progress To Date	Timeline
1. Pilot kick-off meeting and getting started.	July 1995-February 1996
2. Identification of potential flexibility incentives.	March-June 1996
3. Development of individual project proposals.	July 1996-April 1997
4. Negotiation of Memoranda of Agreement (MOA) between regulators and company for each project.	May-October 1997
5. Negotiation of Administrative Consent Orders (ACOs) under which projects will operate. Begin projects or parts not requiring ACOs.	November 1997-Present
6. Conduct/continue pilot projects.	After ACOs are completed

Each phase of the pilot is described in more detail below, followed by stakeholder perspectives on these activities.

1. Pilot Kick-Off Meeting And Getting Started (July 1995-Feb. 1996)

In July 1995, EPA HQ began establishing a network of stakeholders interested in the MF2000 concept. As part of this effort, EPA identified a set of candidate metal finishers in the Detroit area based on conversations with metal finishers and trade association representatives from the Michigan Association of Metal Finishers. These metal finishers were considered by their peers to be top innovators and good environmental performers. EPA HQ also conducted a series of conversations with EPA Region, State, and local stakeholders about project concepts, constraints, and preferences prior to holding the first full stakeholder meeting.

EPA HQ convened the first stakeholder meeting for the Detroit MF2000 pilot in December 1995, with a professional facilitator. Along with EPA HQ, representatives attended from EPA Region 5, Michigan Department of Environmental Quality (MDEQ), local POTWs including the Detroit Water and Sewerage Department (DWSD) and the Ypsilanti Community Utilities Authority (YCUA), the metal finishing industry, labor unions, community groups, and other non-governmental organizations (NGOs).

At the meeting EPA HQ discussed the MF2000 flexible track concept and stakeholders discussed flexibility opportunities and concerns. The outcome of the meeting was consensus support to move ahead to the next stage of project definition based on a catalog of stakeholder suggestions and an initial set of ground rules for the project.

Stakeholder Perspectives

⇒ **Coordinated advanced planning can help to alleviate feelings of unequal partnerships.** Although EPA HQ made a concerted effort to talk with all stakeholder groups before the December meeting to discuss concerns and opportunities, representatives from Region 5 enforcement divisions and MDEQ felt that EPA HQ should have consulted with them more about the pilot before the first stakeholder meeting in December 1995. By the time of the first stakeholder meeting, there was a sense among some that "the die had already been cast" for the pilot. This perception made regional and state regulators feel like they were not equal partners in this CSI pilot. Potential barriers to the pilot and opportunities for synergy with existing regional and state efforts should be addressed early in project development.

⇒ **Lack of resource support for the pilot can make it difficult for regional, state, and local regulators to participate.** Although EPA HQ provided a great deal of support in managing the pilot, more direct resource support, such as grants, could not be provided. Some regulators had difficulty with redirecting resources in their existing budget to support the pilot; they felt the CSI Subcommittee was, in effect, making resource allocation decisions for them. Where resources could not be shifted, work on the pilot simply represented an addition to regulators' existing responsibilities.

⇒ **The location of the pilot had mixed support.** At the time the pilot was launched, Region 5 and MDEQ were involved in a lawsuit against the Detroit Water and Sewerage Department (DWSD). Representatives from Region 5 and MDEQ were concerned that

the pilot might interfere with the case, which at the time was nearing a settlement after many years. DWSD also raised some concerns that the on-going enforcement case might limit its ability to grant companies flexibility.

Recognizing that there were concerns surrounding locating the pilot in Detroit, the CSI Metal Finishing Subcommittee felt it was important to go ahead with the pilot there. Based on conversations with regional and state regulators, the Subcommittee decided that the lawsuit and pilot could be handled as separate issues. They also noted that the location would make it easier for several Subcommittee members in the area to participate in the pilot and monitor its progress. Finally, some individuals felt that by conducting a pilot in a location faced with certain hurdles, the group would be able to identify how to implement the concept under different circumstances.

⇒ **Integrating priorities benefits all stakeholders.** Around the time that the MF2000 pilot was first being launched, MDEQ was in the process of developing its Clean Corporate Citizen (C3) program. Similar to MF2000, C3 is designed to reward environmental excellence with flexibility incentives. Although integration of the MF2000 and C3 programs was raised, not enough effort was made to take advantage of this opportunity for synergy. In hindsight, both MDEQ and EPA HQ believe that side-by-side development could have benefited both programs.

2. Identification of Potential Flexibility Incentives (March-June 1996)

EPA HQ led an effort to identify meaningful flexibility incentives for metal finishers. Tours and site interviews with candidate metal finishers were conducted to discuss areas of their operations where flexibility might lead to environmental improvements and cost savings. Firms found it difficult to identify flexibility that would provide significant payoffs, in part because they were unfamiliar (and perhaps uncomfortable) with articulating their needs directly to regulators. At the same time, some regulators had a difficult time providing guidance on what types of flexibility might be feasible.

CSI MF2000 represented "a new way of doing business" for industry and regulators. Metal finishers noted that they typically try to maintain "a low profile" and avoid regulators when possible. Regulators pointed out that interacting with companies on a non-adversarial basis was not their usual role. Under the MF2000 pilot, firms and regulators were asked to work together to identify potential areas for change that would result in "cleaner and cheaper" benefits. Initially, both groups may have been wary of this approach.

To understand how metal finishers rate the economic and environmental benefits of different flexibility options, EPA HQ developed a brief survey. The eight candidate firms ranked the potential benefits of participating in MF2000 according to their expected value to the firm. As Exhibit 3-2 illustrates, rankings of potential flexibility benefits varied widely among firms. Based on the survey results and the site visit discussions, EPA HQ concluded that there is no "silver bullet" flexibility incentive for metal finishers. Companies differ markedly in their valuation of flexibility benefits; a significant incentive for one firm may be far less meaningful to another firm. For example, metal finishers planning to make major changes in their operations

may see significant value in grace periods for testing and engineering and "after-the-fact" permitting. In contrast, metal finishers who do not have plans to change their processes may be less interested in these incentives.

Rather than define the incentives that would be available to metal finishers, the pilot team decided on an approach designed to allow metal finishers to identify incentives that help them undertake their specific environmental improvement projects, and thereby ensure that the incentives were meaningful. At the end of this step, CSI and regional stakeholders agreed to move forward with project development of more customized, individual projects and incentives.

Stakeholder Perspectives

⇒ **Identifying feasible incentives early in the project can reduce confusion and delay.** Although regulators listed categories of incentives, they also encouraged metal finishers to identify incentives that would meet their specific needs. Metal finishers would have liked regulators to provide more up-front guidance on what incentives "could be on the table." They suggested that setting boundaries on incentives could have prevented the development of non-viable proposals, such as one firm's request to dump its hazardous sludge in a non-hazardous landfill. With a greater understanding of regulators' expectations, metal finishers might have been able to develop better proposals from the beginning.

⇒ **It is important for regulators to understand what incentives are meaningful to metal finishers.** At the same time that metal finishers would have liked more guidance on incentives, regulators would have liked more input from metal finishers to help identify and determine the value of different flexibility incentives. Regulators would have preferred to begin defining an appropriate range of incentives *after* metal finishers had identified types of flexibility that would be useful.

⇒ **Metal finishers saw benefits to participating in the pilot beyond economic benefits.** As one metal finisher put it, "most metal finishers that participated in the pilot did so because they want to do the right thing environmentally. They also saw some public relations benefits. The economic rationale for participation was not there." Although the cost savings from reduced "red tape" should not be dismissed, participation in the pilot has not depended solely on the prospect of economic benefits. Many participating companies recognized the potential benefits of improved relations with regulators and other stakeholders. If expanded, the pilot would probably need to highlight economic and process-change incentives to make it attractive to the wider metal finishing sector.

Exhibit 3-2

SURVEY OF BENEFITS OF MF2000 PARTICIPATION

Potential Flexibility Benefits* (Ranked 1-highest to 8-lowest)	Metal Finishing Companies								
	A	B	C	D	E	F	G	H	Avg. Score
Grace Period for Testing and Engineering	2	4	6	1	2	4	1	1	2.6
Reduced Monitoring	3	3	1	2	5	5	3	2	3.0
Flexibility in RCRA Requirements	4	7	3	4	1	2	5	4	3.8
Flexibility in POTW Pretreatment Standards	5	6	2	5	3	1	6	3	3.9
Reduced Reporting	6	2	5	3	8	7	2	7	5.0
"After-The-Fact" Permitting	7	1	7	6	4	3	8	5	5.1
Positive Public Recognition	1	8	4	7	7	8	7	8	6.3
Reduced Inspections	8	5	8	8	6	6	4	6	6.4

* Flexibility benefits were defined for the survey as follows:

- Grace Periods for Testing and Engineering: Allow a grace period for installation and experimentation with new environmentally beneficial equipment and processes, with small performance "burps" expected and accepted as part of the testing process.
- Reduced Monitoring: Allow regular self-sampling and accept sampling results for purposes of compliance and evaluating facility enhancements. Rely on top-tier firms to self-report significant violations.
- Flexibility in RCRA Requirements: Allow flexibility in 90-day storage, TSD, and other RCRA requirements to enable top-tier firms to increase efficiency of material recovery, recycling, and reuse.
- Flexibility in POTW Pretreatment Standards: Negotiate pretreatment standards for top-tier firms that maximize environmental payoffs and encourage pursuit of opportunities to conserve water and move toward zero discharge.
- Reduced Reporting: Require less frequent reporting, with the report summarizing environmental performance over the period of performance and serving as the basis for renewal of top-tier status. Make reporting more open and transparent.
- "After-The-Fact" Permitting: Allow top-tier firms to write "after the fact" permits for what they install, enabling greater speed and flexibility in product development and environmental management.
- Positive Public Recognition: Provide positive public recognition for top-tier firms.
- Reduced Inspections: Reduce inspections for top-tier firms.

3. Development of Individual Project Proposals (July 1996-April 1997)

Over the next seven months, the pilot continued to make progress. In August and September 1996, federal, state, and local government representatives participating in the MF2000 pilot visited each of the eight candidate metal finishing firms to discuss, and help further develop, their project proposals. This offered an opportunity to increase understanding, knowledge, and trust.

In general, the candidate MF2000 metal finishers had difficulty identifying and defining "cleaner and cheaper" projects. Several projects were still being conceptualized when EPA HQ prepared a report, *Metal Finishing 2000: Developing a Flexible Regulatory System for Top Tier Performers*, to summarize the eight metal finishers' project proposals prior to the November planning meeting. This report was widely circulated and served to improve stakeholder dialogue and project definition. At the November multi-stakeholder meeting, which included other HQ

program representatives, the group used the report to help define project details, data gaps, stakeholder tasks and next steps.

Regulatory authorities from EPA HQ, Region 5, MDEQ, DWSD, and YCUA assessed the proposed projects. Collectively, their primary concern was that many firms had not concretely defined their projects. Regulators had difficulty understanding some of the project's proposed actions, flexibility needs, and environmental benefits. Through a series of conference calls and stakeholder meetings, including an April 1997 meeting to identify remaining issues, regulators learned more about the proposed projects and were able to make judgments about appropriate flexibility incentives. However, one project was too vaguely defined for regulators to assess, so it was postponed pending issuance of a clearer proposal from the company.

In addition, during this proposal evaluation period, regulators conducted compliance checks for several firms that had not previously been screened. Based on this screening, one candidate metal finisher was asked to drop out of the pilot due to a current compliance violation. Exhibit 3-3 provides a summary chart describing the six remaining project proposals and their corresponding flexibility needs.

Stakeholder Perspectives

⇒ **Customized project proposals can be time- and resource-intensive to develop.** Many stakeholders from Region 5, MDEQ, DWSD, and NGOs thought that the year-long proposal development process took too long and noted the high level of resources put toward site visits, meetings, and conference calls. Despite this effort, some companies still defined their projects too vaguely for regional and state regulators to determine if the project would raise an issue for their air, water, or waste division. This made it difficult for them to decide who in their agencies should participate in the pilot. To speed up the proposal development process, EPA HQ made an effort to decentralize the pilot by establishing teams of regulatory stakeholders to address each company's proposal.

⇒ **"The most difficult part of the pilot for metal finishers was developing project proposals."** Both metal finishers and regulators had difficulty defining the boundaries of the pilot. As a result, metal finishers were wary of investing too much time in developing their project proposals, especially if the economic payoff was likely to be low. Metal finishers suggested that firms could develop proposals more efficiently if regulators defined their expectations more clearly. In a contrasting perspective, representatives from Region 5 and MDEQ felt their tasks would have been easier if companies had defined their projects more clearly. In particular, if companies had focused more on developing engineering-based project descriptions with a list of environmental benefits.

⇒ **Pilot firms did not go through a formal process to qualify to participate in MF2000.** The selection of candidate metal finishers for the MF2000 pilot was not based on a set of strict qualification criteria. While admitting that the application of strict criteria may have reduced industry participation, Region 5, MDEQ, and DWSD representatives suggested that the lack of *minimum* criteria for participating made them uncomfortable about providing incentives to the firms. Although the incentives being offered were different, MDEQ raised concerns that the higher qualification standards of the Clean

Corporate Citizen (C3) program, compared to MF2000, could make C3 more difficult to market to industry. While project proposals were being developed, regulatory authorities conducted compliance checks.

⇒ **Other factors can be considered in determining participation.** Some labor and community stakeholders argued that even if their environmental records are sound, firms should not qualify for top-tier status if they do not perform well with respect to worker health and safety issues, or address common community issues, such as site appearance, odor problems, hours of facility operation, and traffic. Although this issue was raised at several stakeholder meetings, the group decided to focus on facilities' environmental performance, given the limited scope of benefits offered to facilities.

Exhibit 3-3

LISTING OF PROJECT PROPOSALS FROM THE SIX CANDIDATE MF2000 FIRMS

Facility	Environmental Projects	Flexibility Needs
Ajax Metal Processing	**Water Reuse:** Install an add-on filtration system to the wastewater treatment system.	**Permit Flexibility:** DWSD provides a grace period from wastewater permit during installation of high volume system, to allow for minor upsets during testing.
Curtis Metal Finishing	**More Efficient Monitoring:** Develop process for reducing monitoring and reporting for constituents not present in the wastewater.	**Monitoring Flexibility:** DWSD reviews the facility operations and changes monitoring frequencies for substances not present at the site. (OW considering national change).
J.D. Plating	**Zinc Reuse:** Install an on-site zinc recovery process for reuse of zinc in plating operation.	**Fast Track Gov't Decision/Hands on Gov't Services:** Michigan DEQ conducts statistical analysis of sludge to determine that sludge as non-hazardous year-round **Permit Flexibility:** DWSD provides a grace period from wastewater permit during installation and testing of zinc recovery system.
K.C. Jones	**Nickel Reuse:** 1) Install and operate a unit to evaporate water from spent electroless nickel; 2) Precipitate nickel out of spent solution; 3) Reuse nickel in plating.	**Fast Track Gov't Decision/Hands on Gov't Services:** 1) MDEQ provides a streamlined air permit modification process; 2) MDEQ provides an exemption from certification requirements for storage tank containment. **Permit Flexibility:** DWSD provides a Grace period from wastewater permit during testing. **Monitoring Flexibility:** DWSD reviews the facility operations and changes monitoring frequencies for all parameters except nickel.
Marsh Plating	**Environmental Management System:** Implement an ISO 14000-type EMS. **Water & Copper Reuse:** Close the loop on its cyanide copper plating line.	*After EMS certification:* **Reduce Reporting, Permit Flexibility:** MDEQ and YCUA provide "after-the-fact" permitting for new process equipment. *After closed loop has proven successful:* **Monitoring Flexibility for Copper and Cyanide Monitoring Flexibility:** YCUA reviews the facility operations and changes monitoring frequencies for parameters that do not exist in its operations.
Reilly Plating	**Zinc Reuse:** 1) Investigate resins for ion exchange to remove and reuse zinc; 2) Install ion exchange system to remove chromium from rinse baths.	**Fast Track Gov't Decision/Hands on Gov't Services:** EPA and MDEQ determine nature of sludge. Assist Reilly in reclassifying sludge. **Permit Flexibility:** DWSD provides a grace period from wastewater permit to install the system.

4. Negotiation of Memoranda of Agreement (May-Oct. 1997)

During the summer and fall of 1997, regulators and companies negotiated Memoranda of Agreement (MOA) for the six remaining MF2000 proposed projects.[6] The MOA provide an overview of the MF2000 concept, describe the metal finisher's production process, and highlight

[6] A sample MOA can be found in Appendix B.

general agreements on project implementation issues. MOA demonstrate stakeholders' support for the pilot projects but do not define the specific terms and conditions under which the projects will be conducted; these are developed under an Administrative Consent Order (see below). The MOA are divided into six sections:

- **Section 1** provides background information on relevant aspects of the metal finisher's manufacturing process.
- **Section 2** describes the proposed project, schedule of implementation, and regulatory flexibility needs, if any.
- **Section 3** identifies the appropriate control mechanism (if regulatory flexibility is sought) and defines the conditions and criteria under which short term violations would be allowed.
- **Section 4** outlines how firms will report progress on their projects.
- **Section 5** lays out the conditions on the content and extent of publicity associated with the project that are allowable.
- **Section 6** describes the process for parties to terminate their participation in the project.

Each MOA was negotiated in a process that involved multiple opportunities for input from regulators and the company, as well as allowing for labor and community representatives to comment. On October 23, 1997, representatives of EPA HQ, Region 5, DWSD, YCUA, the participating companies, the City of Detroit, and the National Wildlife Federation attended a ceremony in Detroit to sign each of the six MF2000 project MOA. This kick-off ceremony marked the first flexible track pilot underway in CSI. To demonstrate their continued support for this unique project, the Deputy Regional Administrator for Region 5, and the Directors of DWSD and Detroit's Environmental Department spoke to the assembled group about the benefits of working in partnership and the significance of this event.

Stakeholder Perspectives

⇒ **Effective communication with various program offices can prevent problems with pilot implementation.** When EPA's Enforcement Office learned of the incentives being offered through MF2000, it almost "shut down" the pilot because of concerns about vaguely defined flexibility benefits. OECA's concerns were allayed once it was reiterated that none of the flexibility offered under the MOA required changes to existing regulations. All stakeholders emphasized the value of the appropriate enforcement, general counsel, and media program staff being informed and consulted about the pilot early in the pilot development process, and the need for intra-agency communications and coordination.

⇒ **MOA development involved many discussions.** Regulators offered comments on each individual MOA over several months. During this period, companies were also given an

opportunity to review and negotiate their MOA. Negotiations took months in part because this was the first time anyone in the group had developed an MOA for this kind of project, and each customized MOA offered unique challenges. In addition, as was the case with the development of project proposals, regulatory stakeholders relied on EPA HQ to facilitate the MOA negotiation process rather than work directly with the companies.

⇒ **The MF2000 process can improve relations among all stakeholders.** MF2000 provided each stakeholder with a unique opportunity to work in a non-adversarial forum, and thereby look beyond stereotypes in order to work toward a common goal. Region 5 noted that the pilot has played a role in building stronger links with state and local regulatory authorities. Similarly, DWSD felt that the pilot provided an opportunity for it to reestablish legitimacy and credibility with the region and state. MDEQ pointed out that, in addition to better agency relations, MF2000 contributed to its larger goal of creating a more "customer service-oriented" atmosphere in its relations with the regulated community.

5. Negotiation of Administrative Consent Orders[7] (Dec. 1997-Present)

DWSD and some of the six participating metal finishing companies are presently engaged in negotiating Administrative Consent Orders (ACOs) under which the terms and intent of the MOA of October 1997 will be carried out. Each ACO spells out in detail the terms and conditions for the project and specifies a process by which DWSD will monitor a project's progress and the facility's compliance with applicable regulatory requirements. Normally, ACOs are issued once a violation has occurred. In the Detroit pilot, it is being applied as an "up-front" measure to ensure that all parties understand what actions will be taken if a violation occurs. This represents a different use of an existing regulatory tool, and offers a mechanism for operational flexibility.

Stakeholder Perspectives

⇒ **The ACO development process has required the involvement of many stakeholders.** ACOs are being developed with input from regulators and companies in a process similar to that used for establishing each of the MOA. Since ACOs are being applied in a different way, regulators are carefully crafting the wording of each ACO to ensure that it accurately and precisely defines the terms and conditions of the project. Each company will also have an opportunity to review their ACO. This process has already taken several months, in part because ACO drafting duties have largely fallen upon a single regulator for whom the pilot project is not an institutionalized responsibility.

⇒ **ACOs are not necessary for some projects (or elements of projects) to go forward.** Some companies are participating in MF2000 to gain flexibility that will allow them to implement their projects *faster* than they otherwise could. Even if the MF2000 pilot did

[7] The Administrative Consent Order in the Detroit project is not the traditional order issued by EPA.

not exist, however, these metal finishers could have undertaken their projects. Some companies have already begun project implementation. The mechanism provided by the MF2000 process and the opportunity to be at the forefront of this experiment encouraged these companies to participate.

6. Conduct Pilot Projects (Ongoing)

The Detroit MF2000 pilot specifies reporting and oversight measures in each project's MOA and/or ACO. Reporting requirements differ somewhat from project to project, depending on a project's objectives and timeline. For example, a company might report on its initial testing period, provide a mid-year report, and then summarize the results, cost savings, environmental benefits, and effectiveness of the project in a final report. Regulators participating in Detroit MF2000 maintain their authority to independently monitor projects and carry out their obligations under applicable law if participants "abuse" their flexibility. The ACO also notes the date upon which the terms and conditions of the ACO will be terminated.

After the ACOs are signed, metal finishers will begin or continue implementing their projects. Most of the projects are expected to run for one year, although some projects have follow-on phases that extend beyond a one-year period.

Stakeholder Perspectives

⇒ **The pilot helped test what flexibility can be offered within existing enforcement discretion.** Initially, some of the proposed projects requested flexibility that would require regulatory changes; the flexibility could not be provided under existing law. EPA management decided MF2000 will not offer regulatory flexibility that would require a site-specific rule. Therefore, where necessary, projects were revised so that they could be undertaken without regulatory changes. All six of the current MF2000 projects can be carried out within the enforcement discretion of the local POTW (i.e., DWSD or YCUA). Since no attempt was made to change federal regulations, stakeholders pointed out that the pilot could have been accomplished entirely at the local level without EPA HQ or regional assistance. However, it is not standard practice for companies to seek operational flexibility from their POTW. Both MDEQ and DWSD felt more comfortable using their enforcement discretion (provided under current regulations) with the support of Region 5 and EPA HQ.

A fundamental point of the project was to test flexibility within existing regulations. Although this flexibility exists, regulators are often wary of providing it. MF2000 provides a process, ground rules, and facilitation to achieve enough trust, communication, and assurance to allow flexibility to be given with resulting environmental benefits.

⇒ **An evaluation of the project should consider the lessons learned, "cleaner and cheaper" benefits, and resources expended.** Although the Detroit projects will result in some environmental improvements and cost savings to firms, the costs of conducting the pilot are greater than these benefits. Costs have included attending meetings, participating in conference calls, identifying flexibility incentives, developing project

proposals, and negotiating MOA and ACOs. However, as with any experiment, the value of the learning process may be of greater importance than the more immediate and tangible pilot benefits.

⇒ **The structure of the project will vary depending on the location and number of participants.** Each Detroit project has been customized to the needs of an individual firm. In addition, MOA and ACOs have been tailored to the unique objectives, terms, and conditions of each project. Replication of the Detroit method would largely depend on the issues, history, and individuals involved with the project. Regardless of the length of time involved, the Detroit pilot succeeded in identifying several points:

- Opportunities for using operational flexibility to achieve "cleaner and cheaper" benefits;
- A process model to achieve constructive, non-adversarial stakeholder dialogue, joint planning, and tangible results;
- Methods for using existing regulatory tools, such as ACOs, in different ways;
- Ideas for improving the current regulatory system.

The Rhode Island (RI) MF2000 Pilot

The Rhode Island pilot was launched two years ago; Exhibit 3-4 charts its timeline and progress. Initially, the pilot made headway identifying flexibility incentives and qualification criteria for top-tier firms. Several months into the pilot, however, disagreements among regulators over appropriate criteria, incentives, and oversight agreements led to a significant delay. After a 15-month hiatus during which regulators debated and resolved these issues, the pilot was relaunched at a stakeholder meeting in March 1998. Despite the delay, much can still be learned from the Rhode Island effort about how a pilot might be structured.

Exhibit 3-4

RHODE ISLAND METAL FINISHING 2000: TIMELINE AND PROGRESS TO DATE

Rhode Island MF2000 Progress To Date	Timeline
1. Pilot kick-off meeting and getting started.	January-February 1996
2. Identification of potential flexibility incentives.	March-April 1996
3. Identification of qualification criteria for top-tier firms.	May-August 1996
4. Development of agreements among regulators.	May-October 1996
5. Delay of pilot.	October 1996-January 1998
6. Restart of pilot.	January 1998

The phases of the pilot are described in more detail below, followed by stakeholder feedback on each phase.

1. Pilot Kick-Off Meeting and Getting Started (Jan.-Feb. 1996)

EPA Region 1 convened its first full stakeholder meeting for the RI MF2000 pilot in February 1996. Along with Region 1, representatives attended from the Rhode Island Department of Environmental Management (RI DEM), the Narraganset Bay Commission (NBC), the metal finishing industry and Rhode Island Contract Electroplaters (RICE) trade association, and the environmental organization Save the Bay. At the meeting Region 1 introduced the MF2000 concept and stakeholders identified a "wish list" of objectives they would like to achieve through the pilot. Industry's wish list included the following areas:

- Increased flexibility for top-tier firms undertaking new industrial activities.
- Reassessment of the regulations governing evaporation.
- Reduction of reporting requirements, such as pH monitoring and effluent monitoring reports.
- Reduced frequency of inspections or substitution of inspections with non-regulatory P2 audits.
- Possible reduction in permit fees (based on Public Utilities Commission filings).

- Assistance with the implementation of innovative waste management practices or procedures.

Unlike the Detroit MF2000 approach of customizing projects for individual firms, RI MF2000 stakeholders envisioned a pilot structured to provide the same set of incentives to any top-tier firms that meet specified application criteria. Therefore, RI stakeholders focused on building a pilot structure by developing application criteria for top-tier firms and identifying potential incentives that would be available to all eligible metal finishers.

Stakeholder Perspectives

⇒ **The NBC service area was a good choice for the pilot's location.** NBC has a reputation for innovation and an award-winning record of performance. In addition, numerous metal finishers operate in NBC's service area and NBC personnel have good relations with these companies. The existing relationships helped get the pilot "off to a running start" because local regulators and metal finishers already shared a level of familiarity and trust.

⇒ **State concerns about undertaking a pilot need to be considered from the beginning of pilot planning.** Region 1 admits that "RI DEM was not on board from the beginning. They were more concerned with other priorities and internal organizational issues." At the time MF2000 was launched, RI DEM was in the midst of a major internal reorganization. "The timing [of the pilot] probably could not have been worse," according to a RI DEM participant. RI DEM's reorganization eventually resulted in a new director and chief legal counsel.

⇒ **An effort should be made to link initiatives with State and local priorities.** At the same time that RI DEM is struggling to maintain its current core programs due to budget constraints, EPA has been asking the state to participate in its numerous new initiatives (e.g., CSI, CLEAN P2, the Environmental Leadership Program (ELP), and Project XL). From RI DEM's perspective, one initiative looked just like another because EPA had not made any significant effort to prioritize among them. Therefore, MF2000 was just one of many recent initiatives.

Finding resources for all these initiatives is another problem. EPA would like states to fund their participation out of existing budgets, which puts resource pressure on the state's core programs. To encourage more effective implementation of its initiatives, some stakeholders felt that EPA needs to limit the introduction of new programs, prioritize among them, and provide support funding to states to implement pilot efforts. According to a RI DEM representative, the RI MF2000 pilot exists today despite resource constraints and competing initiatives because of Region 1's excellent job of communicating its importance to upper management at RI DEM.

2. Identification of Potential Flexibility Incentives (March-April 1996)

RI stakeholders narrowed the "wish list" set of incentives down to a single area: (1) increased flexibility for top-tier firms undertaking new industrial activities.[8] Metal finishers felt that flexibility in this area would allow for faster changes to production processes. They noted that the current waiting time of 3 to 4 weeks for a new process permit can result in lost work orders because customers unwilling to wait take their business elsewhere. Allowing for more rapid alterations to production systems would enable MF2000 metal finishers to meet customer needs and gain work orders. Metal finishers pointed out that offering this type of flexibility could provide a strong economic incentive for firms to improve their environmental performance and apply for the pilot.

In addition to investigating flexibility for firms undertaking new industrial activities, regulators agreed to reexamine evaporator regulations. Industry stakeholders felt that the current evaporator regulations did not make "common sense." In their view, the issue was an appropriate one for regulators to reassess as part of the Common Sense Initiative. Regulators agreed to look into changes to evaporator regulations, but *not* with the objective of offering evaporation flexibility as a MF2000 incentive. Changes to evaporator regulations would affect *all* metal finishers, not just top-tier firms.

Stakeholder Perspectives

⇒ **Expediting the notification process for production system changes could be an important incentive.** While minor changes within a facility may currently be made by industry, with limited notification to NBC, major process changes require submittal of detailed plans that must be reviewed and approved by NBC's Industrial Pretreatment Program staff. Under the RI MF2000 project, qualified companies would have the freedom to expand their businesses without this often time-consuming oversight requirement.

⇒ **Allowing for more rapid changes to production systems may not be an attractive incentive to all metal finishers.** Firms with established customer bases and process systems may have no plans for altering their production. These firms would be less interested in the opportunity to make more rapid process changes and therefore may not apply to participate in MF2000. However, these companies are urged to identify other types of operational flexibility that they would be meaningful to them.

[8] It is worth noting that RI stakeholders agreed that this is the most meaningful incentive without input from the Detroit pilot, which had earlier come to a similar conclusion. In a survey of the eight metal finishers participating in MF2000, the Detroit pilot found that metal finishers preferred a "grace period for testing and engineering" over seven other potential incentives.

3. Identification of "Top-Tier" Qualification Criteria (May-August 1996)

RI stakeholders developed a list of qualification criteria for top-tier firms and voted on which elements were most appropriate to include as part of the MF2000 application (see Exhibit 3-5). Each stakeholder was allowed to vote for four items.[9]

Exhibit 3-5

TOP-TIER CRITERIA AND VOTING

Top-Tier Criteria*	Votes
No "significant" violations or pattern of violations in the last 3 to 5 years.	13
No other significant issues/violations (such as Occupational Safety and Health Administration (OSHA) violations).	12
Written policy or plan for pollution prevention (large firms); invested in, and implemented, pollution prevention in the last 3 years (small firms).	9
Participates in water conservation.	8
Management system and company approach reflect rewards for environmental improvements.	6
Investment in environmental technology.	6
Eliminated (or trying to eliminate) the use of halogenated solvents.	4
Willingness to submit to multi-media inspections with amnesty and "soft landing" for correcting violations.	4
Written environmental policy or commitment to environmental management systems (EMS).	1
Demonstrated community involvement.	1
Written RCRA waste minimization plan.	0

*Criteria were developed during a RI MF2000 stakeholder meeting in July 1996. The criteria were not defined in greater detail than what appears in this exhibit.

Representatives from RI DEM raised concerns that some firms applying to the MF2000 pilot may not have been inspected in recent years. To provide regulators with confidence that these firms are top-tier performers, RI DEM proposed that inspections be required for firms that have not been inspected in the past two years. RI DEM suggested that the pollution prevention program could lead the effort with assistance from enforcement inspectors, and also suggested establishing a checklist of "critical issues" to inspect. This checklist would be made available to firms and the public so that firms could decide, based on the inspection checklist, whether or not they want to proceed with the application process. Firms that applied would be asked to fix their critical problems prior to acceptance into the pilot. If they did not comply, they would not be approved for the MF2000 pilot.

Stakeholders discussed RI DEM's free environmental assessment approach, raising the following issues:

[9] RI DEM regulates NBC through a National Pollutant Discharge Elimination System (NPDES) permit that stipulates the maximum allowable loadings of metals and organics in NBC's effluent and sludge.

- The introduction of enforcement inspectors into RI DEM's P2 program could cause credibility problems for the P2 program in the future.

- Firms may be concerned that inspectors will take note of violations not on the check list and revisit firms later to take action against them for those violations.

- Requiring inspections, even of this nature, may cause a decrease in applications to the MF2000 pilot due to the conservative approach of many firms.

- If the pilot grows into a larger program, who will pay for the free environmental assessment?

Stakeholder Perspective

⇒ **A firm's record of worker health and safety performance must be considered as part of the criteria for determining which firms are top-tier performers.** As indicated in Exhibit 3-5, stakeholders felt that being a top-tier metal finisher goes beyond environmental compliance. In voting on the top-tier criteria, stakeholders gave the second highest number of votes to the category of "no other significant issues/violations (such as Occupational Safety and Health Administration (OSHA) violations)." If a firm has an excellent environmental record, but a poor OSHA record, stakeholders felt that it should not be considered a top performer.

4. Development of Agreements Among Regulators (May-October 1996)

NBC and RI DEM expressed concerns about going forward with the pilot without formal support (via an agreement or letter) from EPA Region 1. RI DEM questioned whether incentives offered under the pilot would require a formal revision to NBC's pretreatment plan, including a notice and public comment process. As delegated authority over NBC, RI DEM was concerned that EPA Region 1 would decide later that the NBC should have rewritten its pretreatment plan for the pilot and then hold RI DEM accountable for not doing its job as delegated authority.[10]

Stakeholders agreed that the pilot required two levels of agreements:

- Agreement among regulatory authorities. EPA Region 1 will provide assurances to RI DEM and NBC that they are not putting themselves in jeopardy of violating their permits by participating in the pilot. In addition, this agreement will describe the objectives of the project and establish criteria for top-tier firms based on stakeholder input.

[10] RI DEM regulates NBC through a National Pollutant Discharge Elimination System (NPDES) permit that stipulates the maximum allowable loadings of metals and organics in NBC's effluent and sludge.

- Application process for prospective participants. The application will specify the criteria that must be met to qualify for the pilot and the type and level of flexibility allowable to participating firms.

Stakeholder Perspectives

⇒ **Internal regulatory issues need to be resolved prior to full stakeholder meetings.** EPA held a number of stakeholder meetings that focused primarily on developing an agreement among Region 1, RI DEM, and NBC. Other stakeholders had little to add to this discussion; from their perspective these meetings were not a constructive use of their time. Industry and community participants asked regulators to resolve internal regulatory issues on their own before bringing in other stakeholders.

⇒ **Agreements need to be legally binding, but written in "laymen's terms" to the extent possible.** Stakeholders voiced concern that EPA Region 1's proposal governing the flexibility options available to metal finishers was "too legal and technical." They feared that the complexity and legalese of such an agreement would discourage metal finishers from participating in the pilot.

5. Delay Of Pilot (October 1996-January 1998)

A RI pilot stakeholder meeting scheduled for October 1996 was postponed because Region 1, RI DEM, and NBC needed more time to resolve issues associated with pilot incentives, criteria for defining and verifying top-tier firms, and oversight agreements. For instance, RI DEM continued to express concerns over the possibility that incentives proposed under the pilot might require formal revision of NBC's pretreatment plan. Also, regulators debated what constitutes "good" compliance and discussed the pros and cons of requiring a multi-media audit.

Industry and community group representatives had requested that regulators not invite them to a meeting where their input was not needed. Therefore, regulators discussed these issues among themselves rather than convene full stakeholder meetings. Discussions among Region 1, RI DEM, and NBC took place over a 15-month period until regulators achieved an agreement under which the project could once again move forward. NBC decided to reduce the incentives offered under the pilot to a level within the purview of their pretreatment program.

NBC developed the RI MF2000 program application package in late 1997 based on previous stakeholder input, and began discussing program issues with EPA Region 1 in January 1998. Regulators from NBC, Region 1, and RI DEM met with project stakeholders to update them on program implementation plans in March 1997.

Stakeholder Perspectives

⇒ **The delay dampened industry interest.** Industry stakeholders felt that an 18-month "lull" was not reasonable; either the pilot should have been restarted quickly or canceled.

They suggested that EPA pay much more attention to setting timelines and meeting deadlines.

⇒ **In the event of a delay, regulators need to keep stakeholders updated on the state of the pilot.** Industry stakeholders would have liked regulators to keep them better informed about progress toward resolving inter-regulatory issues during the 18-month delay. RICE was concerned that "the longer we wait, the more likely it is that metal finishers will lose interest."

6. Restart of Pilot (January 1998)

NBC has developed a draft MF2000 pilot proposal that reflects stakeholder input from the 1996 meetings. NBC spearheaded the effort to establish a pilot after Region 1 awarded the POTW with a $35,000 matching grant; the MF2000 pilot will receive a total of $70,000 in resource support -- $35,000 from Region 1 and $35,000 from NBC. NBC presented its pilot proposal at a stakeholder meeting in March 1998. The proposal calls for NBC to work with six to eight metal finishers over an 18-month period "to find new ways of protecting the environment while fostering growth in the metal finishing industry."[11] To be eligible for the pilot, metal finishers must be subject to NBC pretreatment requirements and meet "Tier 1 Environmental Performance Criteria." An applicant's environmental performance level will be evaluated in accordance with the following criteria:

- **Environmental Compliance:** Participants in the pilot must have an exceptional environmental compliance record with federal, state, and local environmental and OSHA regulations. While a perfect compliance record is not required, a pattern of repeated violations and/or inadequately addressed violations will prevent an applicant from participating. Firms can demonstrate that they meet compliance criteria by disclosing: (1) all non-compliance issues that have arisen at the applicant's facility over the past three years; (2) how the applicant responded to those issues to expeditiously and safely return to compliance; and (3) response actions taken to prevent future non-compliance. Information submitted by applicants is subject to verification through a search of federal, state, and local regulatory files and databases.

- **Pollution Prevention (P2) Efforts:** Applicants must demonstrate their commitment to, and use of, P2 policies and procedures through a combination of the following: (1) use of a P2 facility management plan; (2) demonstration of reduction in waste generation trends; (3) implementation of suggestions made by a Rhode Island P2 technical assistance program; (4) implementation of water use reduction techniques and/or technologies; and (5) involvement with an industrial community-based environmental or P2 program.

[11] "NBC Metal Finishing 2000 Program Description," *Draft*, January 1998.

- **Employee Environmental Education:** Applicants must have an educational system in place that trains employees in proper environmental management practices and procedures, and encourages employees to find new ways to reduce pollutants at the source of generation.

- **Improved Environmental Performance:** An applicant must clearly define the type and extent of regulatory flexibility desired, and demonstrate how such flexibility would result in improved environmental performance or make it easier to maintain the current level of environmental performance. NBC is including this criterion in the hope of learning more about what types of flexibility firms find meaningful. Collecting this information will help identify potential areas for operational flexibility that are not available in the current program.

Upon acceptance into the MF2000 pilot, firms would become eligible for flexibility incentives. NBC's proposal suggests two incentive areas (see Exhibit 3-6 for examples).

1. **No Prior Notification Required.** Participating firms would not be required to notify NBC prior to undertaking specified industrial activities. However, NBC would require follow-up notification, such as revised site plans, pretreatment plans, or emergency procedures, within 30 days of the changes.

2. **Limited Notification Required.** Other industrial activities designated by NBC would only require limited reporting (i.e., a phone call).

Exhibit 3-6 FLEXIBILITY INCENTIVES OFFERED BY NBC TO PARTICIPANTS IN THE MF2000 PILOT
(1) No Prior Notification Required
• Relocation of existing tanks.
• Re-piping of process water/wastewater flow.
• Installation of additional rinse tanks.
• Initiation of certain P2/source reduction techniques or practices, such as: – Installation and use of "hang-bars" over process tanks; – Installation and use of fog-spray rinse systems; – Installation and use of ion exchange equipment for recycling process water; – Use of membrane separation equipment for recycling process water and materials; – Use of electrolytic recovery equipment; – Hazardous material replacement, provided no cross-media contamination occurs; and – Process changes that result in the elimination or reduction of hazardous material usage.
• Installation of equipment to treat incoming water for production use, such as ion exchange, carbon absorption, and reverse osmosis.
(2) Limited Notification Required
• New industrial activities that do not involve the addition of any regulated constituents, unless those constituents are already included in the company's existing permit.
• New industrial activities that will not increase current water usage by more than 10 percent and will not put the company into a different permit category.
• The addition of new production lines/equipment.
• Installation of proven water pollution control/prevention and/or wastewater recycling equipment/ technologies, such as ion exchange, membrane separation, diffusion dialysis, and carbon absorption.

NBC plans to market the pilot through industry trade associations, such as RICE and AESF. Interested companies will be encouraged (by trade association representatives and the application materials) to contact an NBC Pollution Prevention (P2) Manager to request more information and arrange for an initial confidential meeting with NBC non-regulatory personnel. NBC envisions the following steps will be taken for each potential participating company.

- NBC P2 staff and company representatives will meet to discuss the pilot and review the company's compliance record, P2 efforts, and overall environmental management practices. In addition, they will consider the various regulatory requirements for which flexibility may be granted. No guarantee of flexibility will be offered at this time.

- With assistance from NBC P2 staff, the company will complete a MF2000 application. NBC, RI DEM Air, Water, and Waste divisions, and EPA Region 1 will review the application.

- Upon application approval, NBC P2 and regulatory personnel will work with the company to implement regulatory flexibility options. This may include the development and execution of written agreements among the appropriate regulatory oversight agencies and the company.

NBC is in the process of developing a draft application, improving the presentation of other pilot materials, and launching its outreach effort. In addition, NBC

plans to hold a luncheon with the Rhode Island Chamber of Commerce in June 1998 to discuss the pilot. By that time, NBC expects to have signed up its target number of 6-8 companies for the pilot.

Stakeholder Perspectives

⇒ **RICE was concerned about placing the burden on companies to submit materials to demonstrate compliance.** At the March 1998 stakeholder meeting, industry representatives voiced concern that the approach of the "Environmental Compliance" criterion would unnecessarily burden companies seeking to participate in the pilot. They felt that regulators already have compliance information on firms, so there is no need to make firms revisit their files. NBC clarified that it only wants firms to identify non-compliance issues that have arisen over the past three years and provide a description of what was done to resolve the issues and prevent future problems.

⇒ **Resource and management support for the pilot has been critical to its restart.** The matching grant awarded to NBC from Region 1 has allowed NBC to focus staff on the MF2000 pilot. The pilot has been integrated into the everyday duties of these staff; it is not "extra" work tacked onto their existing responsibilities. Therefore, as part of their performance appraisal, they expect their supervisor to evaluate how well they have managed the pilot. NBC staff also know that management supports the pilot; the NBC manager responsible for the pilot is also a CSI Metal Finishing Subcommittee member.

IV. MAJOR LESSONS LEARNED

The process and policy lessons coming out of the MF2000 pilots are presented as a new chapter to highlight the critical issues and opportunities learned from these experiments. Key lessons from the Detroit and Rhode Island MF2000 pilots are summarized below. Lessons for the early stages of a pilot are presented under "Advance Planning and Getting Started," later-stage lessons are captured under "Project Development, Implementation, and Evaluation," and policy issues are captured under "General Policy-Making Considerations."

Advance Planning and Getting Started:

Lessons For EPA Headquarters and Regions, and State and Local Regulators

Lesson #1: **Establish an Equal Partnership.** Ensure that participating regulators value the project as an important component of their agency's mission and are engaged in the project as equal partners *from the beginning* of the planning process.

Lesson #2: **Address Inter-Regulatory Issues.** Undertake advance planning steps to build a framework, establish rough timelines, resolve any inter-agency issues before engaging other stakeholders in a project, and consider professional facilitation at stakeholder meetings.

Lesson #3: **Link with Existing Programs and Priorities.** Integrate and leverage projects being conducted at the state and local level that either focus on metal finishers or are similar in concept to MF2000. Consider the state's ability to provide flexibility under its existing authority.

Lesson #4: **Identify an Appropriate POTW.** Select a willing POTW with a progressive pretreatment program that serves a high number of metal finishers to invite to participate in the project.

Lesson #5: **Consult with Enforcement Staff.** Discuss the project with federal, regional, and state enforcement staff early in the project's planning and development. This will help ensure that enforcement staff understand the type of flexibility the project plans to offer and that no outstanding enforcement issues will conflict with project development and implementation.

Lesson #6: **Gain Support of Managers.** Ensure that participating regulators have the full support of their managers so that work on the MF2000 pilot can be considered a priority when necessary, rather than viewed as "extra" work outside of, and not as important as, current responsibilities.

Lesson #7: **Identify Project Leaders and Key Point People.** Ensure that the project has a "champion" and leader to push the process, broker consensus, maintain communication among stakeholders, and ensure progress.

Project Development, Implementation, And Evaluation:

Lessons For All Stakeholders

Lesson #8: **Set Firm Milestones.** Establish formal milestones that, if not achieved by an agreed-upon date, signal to stakeholders that they should consider redefining project objectives or discontinuing the project.

Lesson #9: **Ensure Public Participation.** Establish mechanisms for identifying and working with community stakeholders.

Lesson #10: **Identify Appropriate Qualification Criteria.** Develop application criteria for top-tier performers based on environmental performance, worker health and safety records, and community relations.

Lesson #11: **Develop Standard Agreements.** Establish standard agreements to reduce resource costs and improve the potential for replicating the project in the future.

Lesson #12: **Monitor Progress.** Establish a process for regularly monitoring the project's progress toward "cleaner and cheaper" objectives. Evaluate the benefits and costs in a formal, standardized way.

Lesson #13: **Communicate Regularly and Remain Open to New Stakeholder Ideas.** Maintain frequent and effective communication among stakeholders in order to address differing views and ideas. Be flexible and willing to deviate from the initial plans to incorporate new ideas presented by the stakeholder group.

General Policy-Making Considerations:

- Opportunities for providing operational flexibility to achieve improved environmental performance exist within the current regulatory system.

- The desired project outcome can be achieved through trust, shared knowledge and vision, and a willingness to listen.

- Incremental steps taken through pilot projects can build the foundation for an alternate regulatory system.

- MF2000 is an effective process model that can be tailored to meet an agency's needs.

V. GUIDANCE FOR FUTURE MF2000 PROJECTS

This chapter provides step-by-step guidance to policy-makers on key elements of developing and implementing future MF2000 projects. MF2000 is a critical component of the Metal Finishing Strategic Goals Program, as it can provide the process for offering flexibility incentives and rewards to companies achieving part or all of the Goals. Offering this guidance is therefore designed to help policy-makers effectively implement this important Program element and achieve a degree of consistency among locally-based projects.

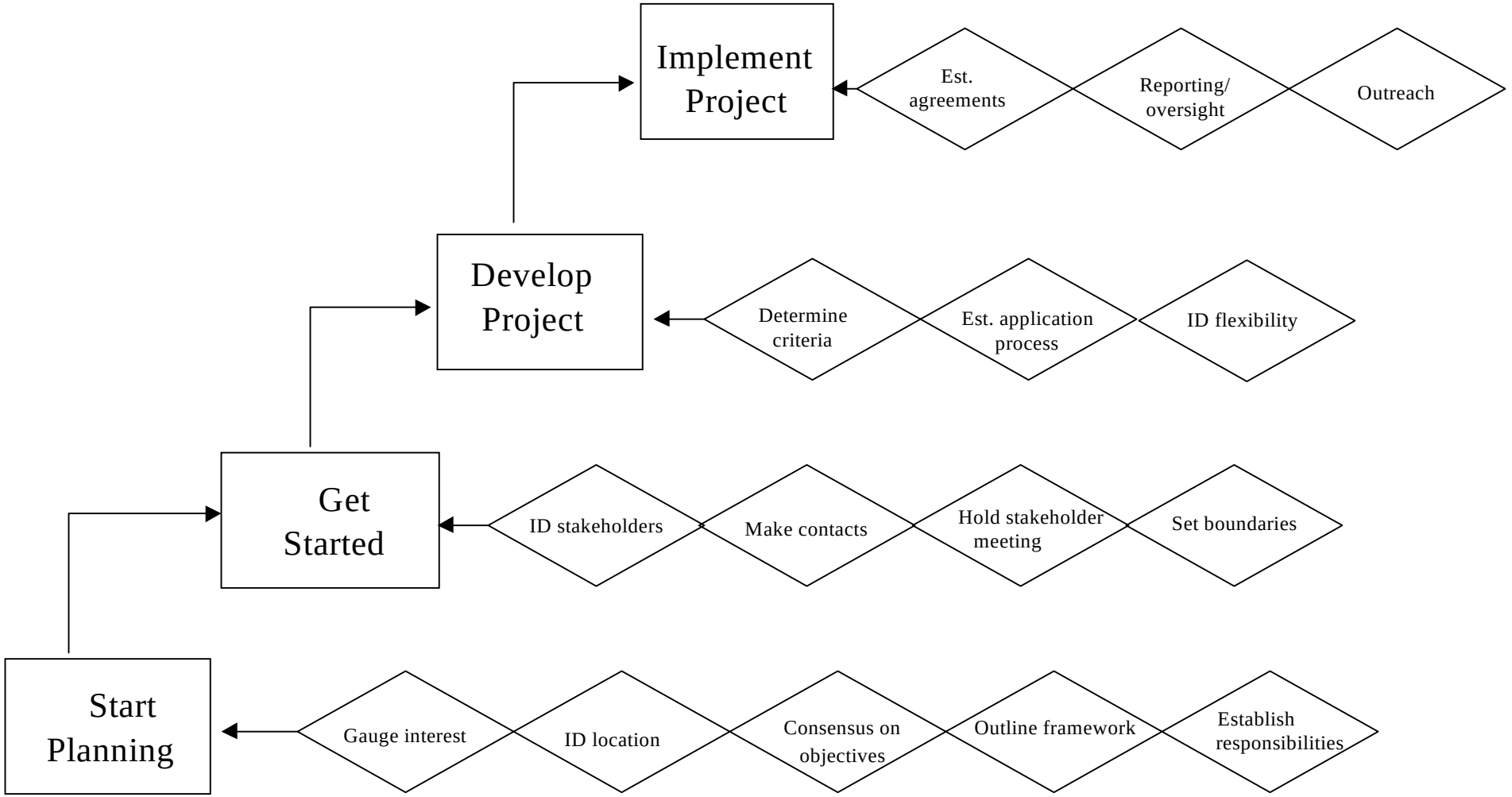
Under a future national MF2000 program, participation in MF2000 (or the achievement of MF2000 status) will be dependent upon an (as yet undetermined) level of performance in the Strategic Goals Program. Therefore, future projects should encourage local companies already signed up for the Goals Program to participate in the MF2000 project. This will allow projects to identify which incentives Goals participants find meaningful enough to make MF2000 participation attractive. In addition, projects can test ways to link the progress companies make toward the Goals to qualification criteria for MF2000.

The chapter is organized around the four major steps to establishing a MF2000 project: (1) Advance Planning For Regulators; (2) Getting Started; (3) Project Development; and (4) Project Implementation (see Exhibit 5-1). The chapter highlights key issues and potential pitfalls associated with each phase of a project and offers suggested approaches for addressing them. The foundation of this guidance is drawn from lessons learned from Detroit and RI, as well as relevant experiences from other similar "flexible track" projects.[12]

[12] Summaries of these flexible track programs are provided in Appendix A.

Exhibit 5-1

Steps for MF2000 Projects



Step 1: Advance Planning For Regulators

Advance planning among federal, state, and local regulatory authorities is perhaps the most essential step to helping regulators reach an understanding about key issues and forging the partnership necessary for a successful project. Prior to contacting industry and holding the first full stakeholder meeting of a MF2000 project, regulators at the EPA Regional, state, and local level should work through several key elements of advance planning, including:

- Gauging interest in the MF2000 concept;
- Identifying an appropriate project location;
- Gaining consensus on project objectives;
- Outlining the project's anticipated framework; and
- Establishing project management responsibilities.

Step 1(a): Gauge Interest in the MF2000 Concept

Regulators need to discuss the MF2000 concept among themselves and assess their level of support for a project. EPA Regions must be willing to be proactive in their leadership of the project, and States and POTWs must want to conduct a MF2000 project as a part of their overall strategy for implementing the Goals Program.

An informal effort should also be made to gauge industry and community interest in the MF2000 concept. For example, regulators might call representatives of local industry trade associations and environmental groups to discuss the MF2000 concept. The project should not be conducted unless general support for the MF2000 concept is forthcoming.

Step 1(b): Identify an Appropriate Project Location

One the most critical decisions regulators face in establishing a project is the selection of an appropriate POTW service area. POTWs play a significant role in regulating metal finishers in general. They have been instrumental in the development of the Strategic Goals, and will play a significant role in working with metal finishers that are participating in the Strategic Goals Program. As demonstrated by the active participation of POTWs in the Detroit and Rhode Island pilots, any future project will likely need a high level of POTW participation.

In order to simplify project development and implementation, regulators should initially try to restrict the location of a project to a single POTW service area. Listed below are several questions regulators ought to consider when making their choice:

- Is there a concentration of Goals participants in a particular service area, including willing States and POTWs?

- Does the POTW have a progressive pretreatment program that can provide flexibility under its current industrial pretreatment standards?

- Are there active trade groups to support the project, and help identify likely participants and desired flexibility incentives?

- Does the State or POTW currently have incentives or performance-based programs that can be linked with MF2000, thereby increasing support and leveraging existing resources?

- Is there a cooperative working relationship among the various players? For example, between industry and the POTW, State and POTW, or Region and State.

1(c): Gain Regulator Consensus On Project Objectives

Regulators who have not bought into the project's objectives are less likely to fulfill their project responsibilities in a timely and effective manner. To prevent such problems, consensus on the major objectives of the project is essential. The broad goals of a MF2000 project may include:

- A high level of metal finisher participation;

- "Cleaner, cheaper, and smarter" results; and

- A project structure that can be expanded or replicated without expending substantial resources.

For goals such as these, regulators need to discuss what level of metal finisher participation is desirable and feasible; define their expectations for cleaner and cheaper benefits; and discuss the merits of various flexible track program approaches.

Step 1(d): Outline an Anticipated Project Framework

At the advance planning stage, regulators need to agree on a tentative approach for their project. For example, will the project attempt to customize projects and agreements to each firm's needs as was done in Detroit, or will the project focus on developing a list of possible incentives available to eligible firms under a single more standardized agreement? In addition to the Detroit, Rhode Island, and other flexible track programs (see Appendix A), regulators need to consider the approaches of on-going regional or state programs that either focus on metal

finishers or are similar in concept to MF2000. Where appropriate, MF2000 should be linked or integrated into these efforts.

Step 1(e): Establish Project Management Responsibilities

Every project needs a leader/champion to push the project forward. Where possible, EPA Regions should play a lead role. In general, regulators need to determine the following:

- Who will take responsibility for running and marketing the project?
- How much time will be required to maintain the dialogue among the various stakeholders and work with the metal finishers who will be participating?
- What resources are available for support, such as grants?

Resource support or more effective parceling out of responsibilities can help prevent future problems.

Step 2: Getting Started

Once a target location(s) is/are chosen, project leaders then introduce the project to stakeholders, solicit feedback from stakeholders on their objectives and concerns, and establish ground rules and a timeline for the project. Bringing together stakeholders in a kick-off meeting and encouraging their input on the project is an effective way of creating an atmosphere of openness, where each stakeholder's opinion is valued. One useful tool is for stakeholders to identify what they would most like to see come out of a project but developing a "wish list." This exercise was an excellent way for stakeholders to gauge each other's expectations. Other steps for getting a project started are discussed below:

- Identify the stakeholder group;
- Make individual contacts in advance;
- Hold the first planning meeting; and
- Set boundaries of project.

Step 2(a): Identify the Stakeholder Group

Stakeholder input plays a fundamental role in the development and success of a MF2000 project. To ensure this input reflects a wide array of views, the stakeholder group needs to include representatives from a range of interested parties, including the metal finishing industry, community and environmental groups, labor unions, and federal, regional, state, and local

regulatory agencies. Although inclusion of a broad range of stakeholders is important, inclusiveness should be balanced with the size and manageability of the stakeholder group.

Metal Finishing Stakeholders

At the beginning of the project, MF2000 project leaders may encounter several difficulties when trying to identify and encourage the participation of metal finishing stakeholders, including the following:

- Metal finishers fear that participation will require a significant investment of their time, but may result in few tangible benefits. Time management is at a premium for most metal finishers.

- Metal finishers may worry that participation in the project will put their firm "under the magnifying glass" of regulators. Such scrutiny could result in costly fines or enforcement actions.

- Metal finishers may be apprehensive about testing out regulatory flexibility opportunities because by doing so they risk legal actions from third parties who believe the flexibility "goes too far."

Tip for Success: Address these problems early to encourage participation. Look to local industry trade associations to identify interested metal finishers, as well as assist in communicating the benefits of MF2000.

Community Stakeholders

Project leaders face a different set of challenges in identifying and encouraging participation by community stakeholders. Project leaders are charged with ensuring that the potentially diverse interests of these groups are represented in a balanced way. In cases where projects are offering significant flexibility or suggesting regulatory changes, an extra effort needs to be made to get community representatives involved.

It may be difficult to identify appropriate representatives of "the community." Community stakeholders may include: local officials and residents, neighborhood associations, school groups, religious organizations, labor union members, environmental groups, and other non-governmental organizations (NGOs). Any of these groups may have strong, moderate, or little interest in the project. In addition, strongly interested groups may hold very different perspectives on the project.

Tips for Success: In identifying community stakeholders, project leaders should be careful not to "define" the community or target only specific groups. Here are some suggested steps for outreach and letting the community define itself:

- State and local regulators may know of groups to contact initially, and these groups may be able to identify other potential representatives.

- Other outreach efforts may include telephone calls, mailings, advertisements and articles in local newspapers and community newsletters, and notices in churches and community centers.

- Metal finishers might identify community groups that have shown an interest in their operations. These groups are more likely to be in a position to provide meaningful input to the project, and can help build a level of trust that may reduce metal finishers' fears about legal actions from third parties.

Step 2(b): Make Advance Contacts

As noted above, it is crucial that project leaders have an understanding of the perspectives of potential stakeholders and interested observers. Individual discussions should be held in advance of a full stakeholder meeting. Suggested points to discuss include:

- Perceptions of project;

- Anticipated outcomes/benefits;

- Particular needs for individual participation; and

- Concerns about project.

Step 2(c): Hold First Stakeholder Planning Meeting

At the first stakeholder meeting, project leaders should explain the MF2000 concept, provide an overview of the Common Sense Initiative (CSI) and Strategic Goals Program, and clarify the linkage between MF2000 and the Strategic Goals Program to ensure that all stakeholders begin the project with a similar baseline level of understanding. To encourage an open discussion of MF2000's objectives and approach, use the “wish list" exercise described above. Through this exercise, stakeholders can understand each other and reach agreement on the goals of the project.

Step 2(d): Setting Boundaries for the Project

Some basic ground rules and objectives when launching a project:

- All stakeholders need to communicate and be willing to listen to each other.

- A timeline with clear milestones and deadlines for project development needs to be established that encourages stakeholders to make steady progress and allows for more effective project management. In addition, indicators should be defined that allow a project to "pull the plug" if agreed upon milestones cannot be achieved in a timely manner or other indicators suggest the project is unlikely to succeed.

- The primary government participants need to be able to identify the parameters and limits of operational flexibility, i.e., what is do-able and what they may be willing to grant.

ARE YOU READY FOR MF2000?

Essential Elements to Have Before Moving to Step 3:

- ❑ *Shared Goals*
- ❑ *Agreement on Objectives*
- ❑ *Agreement Among Regulators Regarding Flexibility Options*
- ❑ *Willingness to Work Together*
- ❑ *Potential for Real Flexibility Benefits & Real Environmental/ Economic Improvement*
- ❑ *Linkage with Agency Priorities/Activities/Interests*
- ❑ *Identified Leaders*

Step 3: Project Development

Three key components of project development for a MF2000 project are: (1) defining criteria to qualify for MF2000; (2) establishing an application process; and (3) identifying incentives for participation by metal finishers. These components are discussed below.

Step 3(a): Define Criteria to Qualify for MF2000

When defining what constitutes "top-tier performance" by a metal finishing facility, flexible track programs tend to focus on four areas of a facility's performance:

- Record of environmental compliance;
- Commitment to pollution prevention policies;
- Establishment of EMS or commitment to environmental education and training; and
- Record of worker health and safety.

Stakeholders are in general agreement that facilities should be industry leaders in these areas to be considered top-tier performers, but they differ over how these criteria should be defined. Additionally, participation in the Metal Finishing Strategic Goals Program with a commitment to achieving the performance goals is a key element for qualification into future MF2000 projects. Drawing on examples from the MF2000 projects and other flexible track programs, a closer look at performance criteria is provided below.

Criterion #1: Environmental Compliance

Given the number and complexity of regulatory requirements, it is rare that even top performing facilities attain 100 percent environmental compliance. Stakeholders are faced with the task of determining what, short of 100 percent compliance, constitutes "good" compliance. As part of this determination, stakeholders need to identify types of violations that require disqualification of an applicant. Exhibit 5-2 provides several compliance factors for consideration, identified by stakeholders participating in the NJ Chemical Industry Project.[13]

[13] See Appendix A for more information on the New Jersey Chemical Industry Project.

Exhibit 5-2

DEVELOPING A DEFINITION OF "GOOD" COMPLIANCE

1. **Does the facility have a record of sustained compliance over a determined threshold period?**

2. **To the extent that there have been any environmental violations, consider the following:**

   (a) Cause of violations -- Were the violations the result of unforeseen circumstances (e.g., lightning), or were they caused by willful or negligent actions of facility personnel?

   (b) Response to violations -- Has there been self-disclosure of violations, and has the facility taken quick and appropriate corrective action?

   (c) Nature of violations --
   - Criminal vs. civil?
   - Emission-related vs. administrative requirements?
   - Major or minor excursion above allowable limits?
   - Number/frequency of violation? -- Repeated violations?
   - Magnitude or impact of violation?

3. **Has the facility historically been proactive in compliance with new requirements?**

Criterion #2: Pollution Prevention (P2)

Future MF2000 projects interested in establishing P2 requirements for applicants should consider the approaches of the Rhode Island and Detroit projects and MDEQ's C3 program.[14] These programs require applicants to demonstrate their commitment to, and use of, P2 policies and procedures in order to qualify for participation. Exhibit 5-3 offers some suggested criteria for judging a commitment to pollution prevention.

[14] For more information on the C3 program, see Appendix A or visit the program's website (http://www.deq.state.mi.us/ead/tasect/c3review.html).

Exihibit 5-3

DEVELOPING CRITERIA TO JUDGE P2 COMMITMENT

1. **Is the company making progress toward meeting the MF Strategic Goals?**

2. **Does the company have a history of innovation in pollution prevention and waste minimization?**

3. **Is the company involved with any industrial community-based environmental programs or any federal, state, or local P2 or technology sharing programs?**

4. **Does the company engage in environmentally sound on-site and off-site recycling?**

5. **Does the company reuse waste and purchase recycled materials?**

6. **Does the company have an established source-specific P2 management program under which it:**

   - Adopts and posts its written P2 policy;
   - Conducts periodic P2 assessments that identify opportunities for eliminating waste at the source, reuse, and recycling; and
   - Records and maintains reports to demonstrate progress on P2 goal implementation.

In tailoring P2 requirements for a future project, stakeholders should consider how to balance the number and stringency of requirements with the level of incentives offered and the possible overall effects on participation.

Criterion #3: Environmental Management Systems (EMS)

An EMS is broadly defined as an organizational structure designed to provide a consistent, systematic approach to managing the environmental issues that face a facility. It encourages the integration of environmental management into every stage of a facility's operations including product design, materials selection, production, waste management, recycling, accounting practices, finance, and insurance. EMS standards, such as the International Organization for Standardization (ISO) 14001 standards, are a set of guidelines that define the basic structure, components, and requirements of an EMS.[15]

[15] For more information on EMS standards, a comparison of major EMS standards, and discussion of how standards may be integrated into EPA's regulatory framework, see Jared Hardner and Shaye Hokinson, *Emerging Environmental Management Systems And Their Potential Regulatory Implications*, prepared for the Industry Strategies Division, Office of Policy, Planning, and Evaluation, U.S. Environmental Protection Agency, October 23, 1996.

Several flexible track programs require firms to have an EMS or less formal environmental education and training system in place to qualify for program incentives. For example, EPA's Environmental Leadership Program (ELP), EPA Region 1's StarTrack program, and MDEQ's C3 program all require participants to have implemented some form of an EMS, while the Rhode Island MF2000 project includes a less formal environmental education requirement as part of its criteria for qualification (see Chapter 3).

The experiences of these programs suggest that future MF2000 projects should not incorporate comprehensive or stringent EMS requirements in their qualification criteria. Such requirements would likely discourage most metal finishers from applying, as these firms probably cannot afford to implement rigorous EMS due to resource constraints. It is important to note here that most facilities implementing an EMS through ELP, C3, and StarTrack are large in size (i.e., they have hundreds of employees), whereas metal finishing facilities tend to be small.[16]

Two metal finishers are currently in the process of implementing EMS (Whyco Chromium Company which is participating in StarTrack, and Marsh Plating Company which is participating in the Detroit MF2000 project), but both of these metal finishing job shops are relatively large (over 100 employees) compared to the overall industry. Future projects need to evaluate whether an EMS, in its current form or a scaled down version, may be applicable to smaller firms.

Criterion #4: Worker Health and Safety

In addition to top environmental performance, some MF2000 stakeholders suggested that top-tier firms should have good community relations and excellent worker health and safety records. Although it may be difficult to construct formal criteria for "good community relations," the views of local community groups should be sought to help in the evaluation of a facility's performance. For example, local communities might be concerned about facility problems associated with site appearance, odor problems, hours of facility operation, and traffic. Consultations with community stakeholders can provide an important input into regulators' decisions about whether to accept an applicant.

To evaluate a facility's worker health and safety record, a future MF2000 project might use criteria currently employed by the Occupational Safety and Health Administration's (OSHA) Voluntary Protection Program (VPP). VPP recognizes industry leaders in injury and illness prevention programs that have been successful in reducing workplace hazards. To be eligible for the program, an applicant's most recent three-year average rate of lost workday injury cases (LWDI) and injury/illness incidents (II) must be below the most recent industry average

[16] Only about two percent of all metal finishing job shops have over 100 employees (81 out of 3,296 establishments). *Census of Manufacturers*, 1992.

published by the Bureau of Labor Statistics (BLS).[17] These measures indicate whether or not a facility's worker health and safety record is above-average.

Stakeholders of future MF2000 projects need to consider how the LWDI and II benchmarks of worker health and safety might complement other criteria for determining top-tier performance. In doing so, they should keep in mind criticisms of the measures. Critics question the value of using the LWDI and II measures as benchmarks of good performance because facilities may currently under-report these statistics. Moreover, they caution that offering incentives (through a flexible track program) to facilities with fewer reported injuries may create peer pressure for employees not to report injuries in the future.

Step 3(b): Establish an Application/Selection Process

Once the criteria have been selected, the mechanism for entry into the program needs to be defined. Two main methods have been tested in a number of projects: submitting an application, or submitting a project proposal. Both strategies have merit depending on the targeted audience, available resources, and objective of the project.

There are four main sub-steps to establishing and implementing this process:

1. Determine which method to follow based on input from stakeholder group.

2. Develop guidelines for reviewing the applications or proposals based on the criteria selected by the stakeholder group. This will also offer greater consistency as the project expands, as well as reducing the amount of time involved.

3. Establish a process to evaluate applications or proposals and to conduct compliance screens.

4. Determine if compliance screens should be followed with an audit or some other mechanism to verify any submitted information.

One of the primary issues of debate when developing a flexible track program is whether to require an audit as part of the application process. An audit serves the purpose of assuring regulators and other stakeholders that the applicant is a top performer, but audits can be expensive to implement. In addition to the cost to regulators, audit requirements may reduce

[17] The LWDI rate refers to the number of lost workdays due to occupational injury or illness per 100 employees. The II rate refers to the number of occupational injuries/illnesses per 100 employees. For more information on OSHA VPP, see Appendix A or the OSHA VPP web site (http://spider.osha.gov/oshprogrs/vpp/overview.html)

industry participation. Many metal finishers may be wary of the risks of agreeing to an audit; correcting compliance problems discovered through the audit could be expensive. Rather than take the risk, metal finishers may opt not to apply.

Step 3(c): Identify Operational Flexibility for Metal Finishers

Determining Flexibility Benefits

Stakeholders must be engaged in the process for determining possible operational flexibility benefits. Identification of benefits may entail the following: meeting with local trade associations, conducting multi-stakeholder brainstorming meetings, and interviewing candidate companies. General stakeholder support for operational flexibility will ensure meaningful benefits.

The Detroit and Rhode Island projects offer two approaches to developing incentives for metal finisher participation:

- Detroit stakeholders encouraged individual firms to specify types of flexibility that would help them undertake environmentally beneficial projects. Incentives were then customized to each project.

- Rhode Island developed a "menu" of incentives available to any qualified MF2000 company (see Chapter 3, Exhibit 3-6 for a list of the incentives). The Rhode Island project will also be asking prospective firms to identify other meaningful types of flexibility.

Evaluate Effectiveness of Benefits

Before proceeding further, stakeholders need to evaluate the expected effectiveness of operational flexibility benefits. Some benefits may be more attractive to metal finishers, or more feasible for regulators to provide, than others. Listed below are several questions to help evaluate potential benefits:

- Will metal finishers find the incentives attractive enough to participate in the project? What types of metal finishers are likely to find the incentives attractive (e.g., big vs. small firms, innovative vs. mature, less-innovative firms)?

- Can the incentives be provided within the POTW's existing discretion?

- Given regulators' resource constraints, is it feasible to provide the incentives?

- How easy would it be to provide the incentives if the project were expanded to include more firms or replicated in another area?

Suggested Operational Flexibility Benefits for Future MF2000 Projects

MF2000 project stakeholders have begun to identify several potential operational flexibility benefits available for industry participants. Although the appeal of benefits differs from company to company (see the informal survey of firms, Chapter 3, Exhibit 3-2), on the whole, metal finishers participating in the pilot projects favored incentives allowing permit flexibility for modifying processes and reduced monitoring. These flexibility options and others are listed below for consideration.

Option #1: Wastewater Discharge Permit Flexibility for Process Modifications

Stakeholders in the current projects have proposed several types of facility improvements that could be allowed without a prior permit modification. Allowing firms to make these types of process changes without an up-front permit modification can result in economic benefits for firms -- a significant incentive for firms to participate in MF2000. Possible process changes to consider include:

- Reconfiguration and/or modification of existing equipment;
- Installation of additional rinse tanks; initiation of pollution prevention/source reduction practices; and
- Installation of equipment to treat incoming water for production use.

Option #2: Reduced Pretreatment Monitoring and Reporting for Low Dischargers

This flexibility incentive is consistent with (though not tied to) EPA's current proposed rule to define and exempt *de minimus* industrial facilities. This includes facilities that never discharge concentrated wastes (such as solvents, spent plating baths, filter backwash, and sludges) and do not discharge more than a *de minimus* amount of process wastewater per day (as defined in the rule).

Option #3: Less Frequent Pretreatment Monitoring For Pollutants Not In System

Metal finishers are required to sample for all pollutants regulated by their categorical pretreatment standard (under 40 CFR 403.12(e)(1)), even if certain pollutants regulated by the standard are not reasonably expected to be present at their facility. As part of the projects, POTWs and metal finishers will test a reduction in the frequency of sampling for these types of pollutants, within the existing standards of 40 CFR 403.12. The appropriate amount of sampling will depend on the specific processes and pollutants involved, and the company's certification

that pollutants are not present. POTWs still must comply with current requirements for semi-annual sampling and analysis.

Option #4: Grace Periods for Testing and Engineering of Innovative Technology

Rather than removing the need for up-front permit modifications for changes to industrial processes, this incentive provides flexibility in the standards a company must meet during a specified "grace period" for testing new technology. When metal finishers install new technology, they are often concerned about the potential for a small performance "burp" (i.e., exceedance of standards) during testing. This risk impedes their willingness to innovate. In some cases, firms may refrain from modifications that would have long term environmental benefits.

Option #5: Adjusting Rates to Create Economic Incentives for Reduced Discharges

A POTW could use sewer rate adjustments to encourage improved environmental performance. The POTW for Chicago is currently using sewer use fees based on discharge of toxic pollutants (metals) as an economic incentive to encourage improved environmental performance. In addition, the POTW is exploring performance-based oversight flexibility linked to reduced user permit fees to encourage participation in the Strategic Goals Program.[18]

Option #6: Reduced Inspections

Inspections of metal finishers are conducted by POTW staff, as well as by regional and state regulators. The frequency and duration of inspections can require significant staff time, for both regulators and firms. Reducing this burden for top-tier firms would conserve government resources and provide a direct benefit to firms.

Option #7: Public Recognition

By participating in MF2000, companies can improve their relationship with regulators and the surrounding community. An enhanced public image might also help a metal finisher market its products and services to customers that care about the company's top environmental performance.

[18] For more information on this project, contact Rich Sustich at the Metropolitan Water Reclamation District of Greater Chicago (tel: 312-751-3050 or email: richard.sustich@mwrdgc.dst.il.us).

Option #8: Increased Access to Technical Assistance

Improved relationships between companies and regulators can enable more effective technical assistance. While any company can benefit from technical assistance, MF2000 companies can receive more personalized attention.

Step 4: Project Implementation

The shift from project development to implementation can be one of the most pivotal phases of a project. It often involves a decentralization of tasks and reliance on new stakeholders to take the lead. Effective project management will depend significantly on clearly defined timelines with milestones that encourage stakeholders to make regular progress. Milestones may reflect major elements of implementation, including getting necessary agreements in place, developing oversight mechanisms, and conducting marketing and outreach. These elements are discussed in more detail below.

Step 4(a): Establish Necessary Agreements[19]

The implementation of a future MF2000 project will likely require two types of agreements similar to those employed in the Detroit and Rhode Island projects. Stakeholders should draft agreements between companies and regulators in "laymen's terms" to the extent possible. These agreements will be reviewed to ensure legal accuracy and authority.

1. The first agreement may be necessary between the POTW and the regulatory authority responsible for regulating the POTW (i.e., EPA Region or state authority).[20] This agreement may be used to address any concerns the POTW may have about enforcement of its pretreatment program. The agreement may take the form of a communication from the oversight agency or a more formal Memorandum of Agreement (MOA) among the participating agencies.

2. A second agreement is needed between the participating company and the POTW and/or state. This agreement specifies the type and level of flexibility allowable to a participating firm and states that the firm will not be a priority for federal enforcement if it meets the requirements of the order. For specialized projects, such as those conducted under the Detroit project, the terms and conditions of the agreement may need to be tailored

[19] Agreements following this guidance are limited to ones that do not involve activities that are contrary to federal statutes or regulations, or call into question a state's or local entity's authority to operate a federally authorized or delegated program. All agreements shall be consistent with the enforcement authority of the agencies.

[20] EPA has authority over POTWs through National Pollutant Discharge Elimination System (NPDES) permits, but EPA can delegate this authority to the state.

to the unique needs and goals of each project. For programs with more standardized application procedures, such as the Rhode Island project, a general set of terms and conditions may be agreed to as part of the application and sign-up process.

Step 4(b): Establish Reporting, Oversight, & Recertification Mechanisms

Reporting and oversight mechanisms should measure progress toward program objectives, such as the "cleaner, cheaper, smarter" goals of the MF2000 projects, and ensure accountability. The more concrete the indicators, the more useful the progress reports will be for these purposes.

Reporting requirements will differ somewhat from project to project, depending on a project's objectives and timeline. Below are points to consider when establishing a reporting and oversight mechanism:

- Reports should not entail significant burdens on the companies.
- To the extent possible, information needs to be transparent and readily available to the public (e.g., by placing information and results on a web site or agency docket).
- Reports should utilize the performance information that companies are already submitting under the Strategic Goals Program.
- The company should identify any benefits that have been realized through participation in MF2000 including, but not limited to, financial benefits, enhanced P2, and better compliance records.
- Based on indicators of progress, stakeholders can assess whether changes to either the project implementation process or on-going projects are necessary. Ultimately, a project's success or failure is based on how well it has achieved its stated objectives. Questions to consider include:
  - Are MF2000 firms maintaining/improving their top-tier environmental performance?
  - Are firms that have undertaken MF2000 projects following through on them?

Recertification will offer regular checks on whether a facility still meets top-tier criteria. The stakeholder group should determine the most effective means of recertifying participating companies, such as a modified application, audit, or compliance check. The group should also determine the frequency of recertification, such as every year or two years. The current regulatory

system is based on self-monitoring and reporting. As a project incentive, additional verification could replace some of the existing requirements where there is regulatory leeway.

Step 4(c): Outreach Activities

The Detroit and Rhode Island pilot projects have primarily used local trade associations and POTWs to market their projects to potential industry participants. These projects have also included the participating POTWs in outreach efforts because, for most metal finishers, the POTW is the primary point of contact with regulators. If their POTW is not promoting the MF2000 project, they may be less interested in applying to participate.

There are several outreach strategies available to future MF2000 projects, following the outreach strategies of the Detroit and Rhode Island projects, as well as other approaches used by other flexible track programs.

- Strategic Goals Web Site: This web site identifies all State, POTW, and industry participants, which can help project leaders identify potential participants.

- Mentoring by top-tier performers: This approach can be used to help struggling companies improve their environmental performance, while advertising the rewards derived from MF2000 status. Mentoring may include any of the following: information sharing (e.g., workshops, newsletters); compliance assistance site visits (e.g., compliance audits/reviews, facility personnel training, assistance with corrective actions); and environmental management system assistance (e.g., review/establish necessary documentation, identify improvements to information management, identify P2 opportunities).

- Recognition: Public recognition of good industry performers can be a good way of rewarding participants and attracting attention to a program. Such publicity provides an avenue for senior managers to tout their commitment to quality products, workers, and workplaces. The benefits of public recognition ceremonies should be weighed against the cost of holding them.

- Trade Group-Sponsored Activities: Partnerships with local trade associations can be very effective means for marketing to potential new participants. Training programs and technical assistance can offer a venue for highlighting the benefits of participation.

Linking Strategic Goals/MF2000 Industry Participants

Over the long-term, the CSI Metal Finishing Subcommittee intends for MF2000 to be become an integral piece of the Strategic Goals Program (SGP); MF2000 status would represent a step above being a Goals Program participant. Over 200 companies have already signed up to pursue the SGP's voluntary performance goals. EPA and its regulatory partners are in the process of developing mechanisms to recognize Goals achievers and MF2000 participants. As the SGP matures and MF2000 is implemented on a greater scale, one option is to create an association open only to SGP participants. It could serve as a vehicle for introducing and informing metal finishers about MF2000. This association could "spread the word" about the benefits of better environmental practices and promote the SGP to prospective metal finishers.

CONCLUSION

Policy-makers interested in establishing a MF2000 project will naturally differ over the best process for development and implementation. The step-by-step guidance provided in this chapter is intended to help policy-makers understand the key milestones and issues of project development and implementation; it is not intended to micro-manage their efforts. Indeed, the purpose of establishing future projects is to test new types of flexibility incentives and qualification criteria and encourage innovative project ideas that can result in cleaner and cheaper benefits. While maintenance of the current regulatory system is essential as a baseline, MF2000 projects can help lay the foundation for developing an alternative "flexible track" track for top performers. Establishing such a track would foster a more incentive-based and efficient regulatory approach that encourages continuous environmental improvement.

Significant reservations still exist among all stakeholder groups over the reliability, legality, and necessity of institutionalizing an alternative regulatory path. Therefore, continued dialogue is crucial for learning from the experiences of others, building a foundation for change, and helping agencies move toward a degree of consensus on the framework of an alternate regulatory path for so-called “top performers.”

The Metal Finishing Strategic Goals Program offers an excellent opportunity to link pollution prevention and innovative process changes with an industry-specific voluntary program. The results of each new project will be transferable to other participating locales, and thereby increase flexibility options and speed further innovation. If the mission of the SGP is to improve the environmental performance of the metal finishing industry, then MF2000 serves as both a reward for those achieving the goals and as an incentive for others to strive toward.

The vision for the future MF2000 is a true alternative regulatory track for those companies achieving the Strategic Goals. MF2000, therefore, holds out the possibility that Goals achievers may receive benefits that remove them from the constraints of the current regulatory system and offers a competitive edge to enable continuous environmental improvement. Experience through additional projects will help define this alternative track.

APPENDIX A: "FLEXIBLE TRACK" PROGRAMS

Appendix A provides brief summaries of six on-going "flexible track" programs at the federal, regional, and state level:

1. U.S. EPA's Environmental Leadership Program;
2. Occupational Safety and Health Administration's Voluntary Protection Program;
3. EPA Region 1's Star Track program;
4. EPA Region 1's CLEAN-P2;
5. Michigan Department of Environmental Quality's Clean Corporate Citizen program; and
6. New Jersey Chemical Industry Project.

1. U.S. EPA's ENVIRONMENTAL LEADERSHIP PROGRAM[21]

The Environmental Leadership Program (ELP) was initiated in April 1995 by the U.S. Environmental Protection Agency (EPA) as part of EPA's efforts to improve environmental performance, encourage voluntary compliance, and build working relationships with stakeholders. The ELP is designed to recognize and provide incentives to facilities willing to develop and demonstrate innovative approaches to establishing accountability for compliance

[21] Information for this summary was obtained from EPA's ELP Web site (http://es.epa.gov/elp) June 2, 1998 and personal communication with Scott Throwe of OECA (September 11, 1997).

with existing environmental laws. In addition to better protection of the environment and human health, the ELP seeks to increase identification and timely resolution of environmental compliance, augment compliance assistance efforts by including industry as mentors, and foster constructive and open relationships between agencies, the regulated community, and the public.

The first step in the development of the ELP involved piloting the program at 12 facilities (ten private companies and two federal facilities). The EPA's Office of Enforcement and Compliance Assistance (OECA), which coordinates the program, plans to launch the full-scale, national ELP once the EPA Office of Reinvention approves the program. (The announcement of the ELP and publication of its guidelines in the *Federal Register* have been delayed one year as the Office of Reinvention reevaluates EPA's approach to voluntary programs and establishes a consistent and coordinated approach across programs.) While the exact structure of the national ELP has not been finalized, it is expected to closely resemble the pilot program. Specifically, the program will offer public recognition, reduced inspection and monitoring requirements, and permitting flexibility to participating facilities that have an environmental management system (EMS), perform compliance and EMS audits, mentor other facilities, and write annual environmental performance reports.

EPA used the pilot projects to evaluate the proposed components of the ELP, to design a program of interest to companies, and to build support for the program. Simultaneously, EPA ran an extensive outreach program to all stakeholders and regulatory staff. Two significant modifications emerged from the pilots and stakeholder meetings: the addition of the Mentoring Program requirement and the opportunity for public comment on a facility's application to the ELP. EPA added the Mentoring Program requirement because it is another indicator of leadership and to create technical and compliance assistance for smaller, less-sophisticated facilities. The public comment provision was added at the urging of environmental groups for broader public participation. To facilitate regulator support for the ELP and mitigate additional staff resource demands on state and regional EPA regulators, OECA is offering grants to states developing or implementing ELP and will provide the regional EPA offices with one full time equivalent employee for each state in an office's region that has an ELP facility.

ELP staff anticipate a positive response to ELP among large businesses because many already meet the leadership standards and are ISO 14001-certified. Based on the number of responses received to participate in the pilot projects (40 companies), ELP staff anticipate receiving 50-75 applications when the full-scale program is released nationally.

INCENTIVES

While the full-scale national ELP has not been finalized and announced, it will likely contain elements similar to those in the pilot program. In addition to the incentives described below, the full-scale ELP is tentatively scheduled to offer limited regulatory flexibility, possibly including expedited permit reviews, longer permit cycles, and streamlined permit modifications. Incentives currently offered to facilities participating in the pilot program include:

- **Inspection discretion.** During the course of the pilots, EPA and participating State agencies agree not to conduct any routine regulatory inspections involving compliance with environmental statutes, or as specified in the Memorandum of Agreement signed by EPA, the State, and the facility. Certain inspections will be conducted at the facility during the course of the pilot phase if a regulatory agency determines that an immediate and substantial threat to public health or the environment exists at the facility. EPA and State agencies also reserve the right to conduct inspections in response to a tip or complaint concerning potential civil or criminal violations at the facility.

- **Limited correction period for violations.** EPA established a 90-day correction period in which violations, including those detected during audits or inspections, can be corrected without any enforcement action (including notices of violation and civil penalties) being taken against the facility. This limited correction period is not available for: (1) criminal violations; (2) violations that may present an imminent and substantial endangerment to the public health or the environment; (3) actions to address recurrences of violations for which a prior enforcement response had been taken; or (4) violations where EPA or the State determine that significant economic benefit has accrued or been realized as a result of the violation(s).

- **Public recognition.** EPA issues certificates of participation in the ELP and seeks to develop programs and activities designed to publicly recognize ELP facilities at federal, regional, state, and local levels. Participating facilities can also use the EPA-issued ELP logo in facility (but not product) advertising on facility equipment and structures, and internally on items such as stationery and coffee mugs.

PROGRAM ELIGIBILITY

Any public, private, or federal facility will be able to participate in the full-scale ELP provided they meet the ELP criteria for environmental leadership. These criteria include having in place a mature environmental management system (EMS), regular compliance and EMS audits, and community outreach and employee involvement programs. Federal facilities also need to verify that their parent agency endorses the Code of Environmental Management Principles (CEMP) and briefly describe how the applying facility is implementing the CEMP.

Environmental Management Systems (EMS)

The ELP EMS should be an integrated, structured, and systemic approach for identifying significant environmental impacts from an organization's activities, products, and services. The EMS should also address improvements necessary for a facility to: (1) achieve compliance with

all relevant regulatory and statutory requirements; (2) continually improve its overall environmental performance; (3) implement pollution prevention activities and practices as an integral part of the EMS; and (4) communicate effectively with outside stakeholders on the organization's EMS and its performance.

All of these activities are accomplished by first assessing the facility's impact on the environment, reviewing the activities that address those impacts, confirming implementation of the activities, and then measuring and evaluating their effectiveness. To participate in the full-scale ELP, a facility must demonstrate it has had an effective EMS in place for at least 2 years, indicating that the facility has identified and addressed any weaknesses during the initial stages of the EMS. In addition to compliance assurance, community outreach, pollution prevention, and additional environmental enhancement activities, a facility is expected to conduct self-audits and track regulations to ensure compliance with environmental requirements on a continuous basis.

Compliance and EMS Auditing Program

An applicant must demonstrate that it has a compliance and EMS auditing program in place. This can be done by a facility submitting or making available facility-wide compliance audit results and EMS information (data or results documentation) obtained from the past two years. In addition, the application should include the dates and a summary of the findings from any agency regulatory inspection(s) conducted in the past two years.

Community Outreach and Employee Involvement

EPA is committed to "place-based" solutions to pollution problems, and to environmental justice for all communities regardless of race or income. Participants in pilot projects were to explore and test how local communities and industrial facilities can work cooperatively to negotiate environmental goals and track progress in meeting them. Facilities in the full-scale ELP will have to demonstrate they have a strategy for identifying and addressing community needs. In addition, facilities should demonstrate they have in place an internal communications strategy to identify employee environmental concerns and needs. EPA believes that recognizing community members and employees as major stakeholders of a facility, sharing environmental performance information with the public, and initiating community involvement are important steps in demonstrating environmental leadership.

PROGRAM REQUIREMENTS

Once a facility is accepted into the ELP, the expectations of ELP participation are to:

- **Continue the EMS and community outreach/employee involvement program.** It is expected that a facility will maintain an active role in continuing and building upon these aspects of the ELP.

- **Implement a Mentoring Program.** By establishing this requirement, EPA is looking to encourage the transfer of expertise between larger facilities, which tend to be more advanced in addressing environmental

issues, and smaller, less-sophisticated facilities that may have difficulty achieving environmental compliance. A Mentoring Program should incorporate some combination of the following aspects: information sharing (e.g., workshops and newsletters), compliance assistance site visits (e.g., compliance audits/reviews, facility personnel training, assistance with corrective actions), and EMS assistance (e.g., review/establish necessary documentation, identify improvements to information management, identify pollution prevention opportunities). The selection of a facility to mentor is up to the ELP facility and all models are acceptable - like-industry to like-industry, industry to supplier, and industry to customer.

- **Conduct compliance and EMS audits.** Compliance and EMS audits should be conducted at a minimum in the second and fifth years of the six-year ELP participation cycle. Compliance audits should be facility-wide and address all environmental regulatory requirements. EMS audits should evaluate the performance of the EMS against ELP and site-specific EMS objectives, and identify needed improvements. Facilities may use internal or external environmental auditors that meet ELP qualifications, but a third-party observer that meets ELP auditor qualifications should observe the ELP audits if an internal auditor is used.

- **Prepare Environmental Performance Reports.** These reports should provide a summary of the ELP facility's environmental performance for each year of its participation and be available to the public. It will at a minimum include information on the facility and its environmental impacts, EMS objectives, audit results, inspection results, any violations or exceedances, community outreach and employee involvement, and mentoring activities.

CONTACT INFORMATION

To learn more about the ELP, contact:

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2. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION's VOLUNTARY PROTECTION PROGRAMS[22]

The Occupational Safety and Health Administration (OSHA) established the Voluntary Protection Programs (VPP) in 1982 to recognize and promote effective safety and health management in the workplace. The VPP concept acknowledges that compliance enforcement alone can never fully achieve the objectives of the Occupational Safety and Health Act; good safety management programs that go beyond OSHA standards can protect workers more effectively than simple compliance. Implemented by state occupational and safety health agencies and regional OSHA offices, VPP rewards facilities with outstanding and effective safety and health programs by eliminating inspections, providing limited amnesty for violations, and giving public recognition.

In the VPP, management, labor and OSHA establish cooperative relationships at workplaces that have implemented strong programs.

- Management commits to operate an effective program that meets VPP criteria.
- Employees commit to participate in the program and work with management to ensure a safe and healthful workplace.
- OSHA evaluates a facility's program through application and onsite review, publicly recognizes the facility's exemplary program, and continues to investigate complaints, leaks, spills, accidents, and fatalities.

Over the history of the VPP, participants have witnessed improved employee motivation to work safely, lost workday case rates that are below industry averages, reduced workers' compensation and other injury/illness-related costs, and positive community recognition and interaction.

The VPP consists of three programs: Star, Merit, and Demonstration. Star is the flagship program and Star participants must meet all VPP requirements. Merit facilities have demonstrated the potential and willingness to achieve Star standards and are implementing planned steps to meet Star requirements. Demonstration Program participants exhibit special industry operations and/or are committed to promising alternative safety and health program approaches that are not currently available under the VPP. Results from the Demonstration Program are then used to develop alternative criteria for attaining Star status.

[22] Information for this summary was obtained from OSHA's VPP Web site (http://spider.osha.gov/oshprogs/vpp/) on June 3, 1998 and personal communication with Jerry Catanzaro, OSHA, August 13, 1997.

MARKETING VPP

In developing the VPP, OSHA wanted to create a single leadership program that would most effectively leverage agency resources. During the program's developmental stage, both industry and labor unions had reservations about the proposed VPP. To overcome initial skepticism from industry, OSHA implemented VPP with established safety and health leaders in the oil and chemical industries. This gave the program additional credibility with industry and paved the way for successful marketing efforts. OSHA also added more stringent requirements for employee and union participation to address the concerns of unions.

Perhaps the most important factor that contributed to successfully attracting participants was the creation of the VPP Participants' Association (VPPPA). OSHA established this complementary organization in the mid-1980s to disseminate the benefits of better safety and health practices and build interest in and support for VPP. In the early 1990s, with the backing of a few large corporations, the VPPPA became independent of OSHA. The VPPPA has grown to become an independent business voice for the value of safety and health investments generally and VPP in particular. The VPPPA accomplishes these goals by hosting an annual conference, running a mentoring program, and distributing information on best practices. VPPPA members that participate in the Mentoring Program advise prospective facilities in preparing for an audit and directly assist OSHA in auditing companies for admittance into the Merit or Star Program. Mentors are especially effective because managers in a prospective facility are more likely to believe and respect the benefits of VPP when touted by fellow safety and health managers than by OSHA itself.

As of April 1998, these marketing efforts have resulted in 355 facilities being VPP-certified. Of this total, 14 facilities are in the Demonstration Program, 50 are in the Merit Program, and the remainder are in the Star Program. Most VPP facilities are large (over 500 employees) and owned by multi-national corporations, and approximately one-third are in either the chemical and allied products or petroleum sectors.

INCENTIVES

VPP offers three incentives for facility participation:

- **Exemption from enforcement inspections.** OSHA agrees not to conduct routine inspections once a facility meets all VPP requirements. OSHA is able to offer this incentive because the initial onsite inspection for VPP evaluation is more thorough than regular compliance inspections. (OSHA safety specialists and industrial hygienists spend upwards of two days examining the entire worksite to identify potential and existing hazardous conditions.) However, OSHA retains the right to investigate the facility in the event of complaints, fatalities, and significant accidents.

- **Amnesty period to correct violations.** OSHA officials will not immediately issue citations for violations or hazards discovered during the

initial VPP inspection. During the onsite review, OSHA officials will work with facility representatives to determine how and when the hazards can be corrected. Only if cooperative attempts fail to resolve the problem is the VPP team obligated to recommend that enforcement action be taken.

- **Public recognition.** OSHA offers VPP-certified facilities two opportunities to promote their VPP status in the community and emphasize internally their commitment to worker health and safety. First, OSHA will hold a flag-raising ceremony to officially announce the facility's qualification as a VPP facility. Second, the facility may use VPP certification in marketing materials and other public pronouncements. VPP participants have indicated that both avenues allow for a facility to establish or emphasize the link between quality products, workers, and workplaces, similar to ISO certification or participation in other quality-related programs.

In addition to these incentives, participants typically realize significant economic benefits as a result of maintaining the advanced safety and health practices of the VPP. VPP participant sites generally experience from 60 to 80 percent fewer lost workday injuries than would be expected of an "average" site of the same size in their industries, along with reduced workers' compensation costs, reduced insurance costs, improved employee morale, and lower absenteeism. These factors result in cost savings and improved productivity.

PROGRAM ELIGIBILITY

Facilities must meet criteria in five areas to be eligible for the VPP:

- **Lost workday injury rate.** An applicant must show that the injury incidence and lost workday case rates for regular worksite employees is at or below the national average.[23]

- **Management leadership and employee involvement.** The VPP application outlines 12 criteria that must be met in this area, cumulatively illustrating that the facility integrates health and safety concerns and planning into the overall management of the site. Specific criteria include: (1) a written safety and health program appropriate for the size of the facility and industry that addresses VPP issues; (2) clearly assigned safety and health responsibilities with documentation of accountability; (3) adequate authority and resources to meet responsibilities; (4) employee involvement in activities that have a major effect on the safety and health

[23] Union critics question the value of using lost workday case and injury incidence rates as benchmarks of good performance because facilities may under-report these statistics or offer incentives to employees reporting no injuries for the year. VPP staff consider this possibility during evaluation of the application.

program; and (5) annual safety and health program evaluations with written narrative reports, recommendations for program changes, action plans and verification procedures.

- **Worksite analysis.** Nine criteria must be met in this category, including: (1) a method such as comprehensive safety and industrial hygiene surveys to identify existing or potential hazards in the facility; (2) routine self-inspections, hazard analyses, and monitoring of toxic substances and noise; and (3) a written hazard reporting system enabling employees to pass on their observations or concerns to management without fear of reprisal.

- **Hazard prevention and control.** Applicants must meet 11 criteria in this area including: (1) engineering and administrative controls adequate for the hazards at the worksite; (2) written safety rules and practices that are understood and followed by all employees; (3) written plans to cover emergency situations; and (4) documented ongoing monitoring and maintenance of workplace equipment.

- **Safety and health training.** Successful applicants will have documentation of training for all employee levels that emphasizes safety and health responsibilities, use and maintenance of personal protective equipment, and emergency procedures.

If a facility currently meets all the criteria, it is eligible for the Star Program. If a facility does not currently meet all criteria (injury rates above the national average, in particular) but has or plans to have an internal program to address those criteria, then it is eligible for the Merit Program. A facility is eligible for the Demonstration Program if it is able to demonstrate that its current approach to health and safety issues may prove successful as an alternative basis for inclusion in the Star Program.

After receiving a facility's application, OSHA performs a multi-day, onsite audit to verify that the safety and health program described in the VPP application is fully operational and addresses all potential hazards at the facility. The onsite audit includes document review, a walk-through/inspection, and interviews. The applicant must also demonstrate union approval of the facility's VPP application in the form of formal signed statements from any collective bargaining agents. If no collective bargaining agent exists, the applicant must show that all employees understand the VPP and raise no serious objections to the application.

PROGRAM REQUIREMENTS

With the exception of the Demonstration program, VPP has the same basic requirements for all facilities. First, facilities must inform all employees about the goals, criteria, and responsibilities of the VPP. Second, facilities must correct all hazards discovered through self-inspections, accident investigations, and employee notifications. Third, facilities agree to

provide annual occupational safety and health data including written program descriptions, the injury incidence rate, the lost workday injury rate, monitoring data, and annual evaluation reports.

To verify a facility is continuing to meet VPP criteria, OSHA reviews the annual data received from the facility. In addition, OSHA conducts onsite audits at Star Program facilities three years after acceptance and every five years thereafter, and at Merit Program facilities annually after acceptance. For annual data reviews and onsite audits, OSHA focuses on compliance with Star requirements, resolution of problems raised after approval, and employee involvement.

CONTACT INFORMATION

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3. EPA REGION I's STARTRACK PROGRAM[24]

StarTrack was established by EPA Region I in 1997. Closely modeled after EPA's Environmental Leadership Program (ELP), StarTrack is a voluntary program whose objective is to expand and reward the use of compliance audits and environmental management systems (EMSs), thereby improving protection of the environment, increasing public understanding of a company's environmental performance, and achieving more efficient use of public and private resources. The StarTrack program requires independent, third party auditors to certify a facility's environmental practices and record, and in return a facility enjoys reduced regulatory oversight and greater compliance flexibility.

In the first year of StarTrack, eight companies (Chesebrough-Ponds, EG&G, International Paper, Petroleum Heat and Power, Sanders, Spalding Sports Worldwide, Texas Instruments, and Whyco Chromium) participated in the pilot program; a ninth (Gillette) joined the program in early 1998. These companies represent a variety of business sizes and types (including one metal finisher - Whyco Chromium). EPA Region I was concerned about straining program resources during StarTrack's early stages; therefore EPA Region I did not heavily advertise or recruit for the program. However, EPA Region I would like to have approximately double the current number of participants in StarTrack by the end of 1998, and is currently working with the States to identify additional qualified participants.

INCENTIVES

Incentives for facilities participating in the StarTrack program were developed after considerable evaluation by EPA Region I. The current list of incentives includes:

- **Correction Period and Limited Penalty Amnesty for Violations.** The EPA-wide audit policy states that firms that self-disclose violations will not have an enforcement action taken against them unless the violation is egregious. Firms that participate in StarTrack have this policy extended to include protection from fines. After self-disclosing a violation, firms have a 60-day correction period to address the violation and restore compliance.

- **Modified Inspection Priority.** A participating facility may be considered a lower inspection priority by participating regulatory agencies.

- **"Express Lane" permitting.** EPA Region I recently added expedited permitting and regulatory review as an incentive to participating firms.

- **Recognition for Participation and Completion of Program Requirements.** A public ceremony is held to publicize the environmental

[24] Information was obtained from EPA's StarTrack Web site (http://www.epa.gov/region01/steward/strack/overview.html) on April 13, 1998 and personal communication with David Guest (EPA Office of Environmental Stewardship).

performance of participating facilities. Firms are recognized for having met the criteria for acceptance into the program and for making a commitment to achieve excellence in environmental management.

- **Partnerships with EPA, State and Other Regulatory Agencies.** Participating firms form close working relationships with regulatory agencies and environmental group stakeholders.

EPA Region I continues to evaluate StarTrack and consider extending other benefits.

APPLICATION CRITERIA AND PROCESS

Applicants are selected by EPA, state, and local regulatory agency representatives. The key selection factors evaluated for participation in StarTrack include an established compliance auditing program, as well as a demonstrated commitment to compliance, pollution prevention, and continuous improvement of environmental performance. A firm must address each of these factors in its application. (These factors are discussed in more detail below.) If selected, a participant must sign a letter of commitment agreeing to complete certain tasks during the first year of program participation. Continued participation in StarTrack is considered once all first year required tasks are completed and evaluated.

Established Compliance Auditing Program

EPA Region I defines an established compliance auditing program as one that: (1) audits all relevant federal, state, and local environmental requirements; (2) utilizes qualified auditors with knowledge of all major environmental requirements and relevant technical and industry expertise; (3) ensures corrective actions are taken promptly; and (4) ensures that management is involved. Appropriate documentation of a compliance auditing program could include a compliance audit protocol, the auditors' qualifications, and a sample of previous audit findings and corrective action plans (responding to compliance issues found).

Commitment to Compliance

EPA Region I requires that an application demonstrate a commitment to compliance through the following two factors:

- **No open or recent major enforcement action.** Major enforcement actions may include administrative actions, settlement agreements, consent decrees, civil judicial actions and criminal convictions for environmental violations. EPA Region I defines "recent" as occurring within the past three years, but an applicant's full compliance history and the circumstances surrounding non-compliance are also evaluated.

- **Cooperative relationships with environmental regulatory agencies.** EPA Region I looks for positive working relationships between the

applicant and regulatory agencies documented in correspondence indicating cooperative approaches to resolve compliance issues and summaries of joint projects or activities. The selection process includes confirmation with regulatory officials of the firm's relationship with each agency.

Commitment to Continuous Improvement

A facility must demonstrate its upper level management is committed to EMS implementation and continuous improvement in environmental performance. The applicant must describe management involvement in reviewing audits and environmental performance, as well as setting environmental policy and objectives. Documentation for this criterion might include:

- the facility's environmental policy with a description of how it was developed;
- internal memoranda from management on key environmental issues; and
- position descriptions of managers demonstrating accountability for environmental actions and results.

Existence of a mature EMS is not necessarily a requirement of participation. A facility must only demonstrate a commitment to establishing a complete EMS through either existing environmental policy or ongoing EMS implementation and development activities. However, a facility must at minimum have in place an established Compliance Auditing program with upper level management's commitment to the facility's environmental programs.

Commitment to Pollution Prevention (P2)

An applicant must be able to demonstrate that significant P2 efforts have produced quantified results in key areas affecting the firm's environmental impacts, both through required P2 activities as well as voluntary P2 efforts. This can be accomplished by submitting a summary of significant P2 activities with performance measures and data indicating waste reductions achieved through P2, or by participating in voluntary P2 programs.

PROGRAM REQUIREMENTS

Once a facility is notified of its acceptance into StarTrack, it must sign a letter of commitment agreeing to all conditions in the StarTrack Project Agreement. Specifically, the facility must agree to: (1) conduct a compliance audit to identify, disclose, and correct all areas of non-compliance; (2) conduct an EMS audit to identify and address gaps in its EMS; (3) retain a qualified, independent third party to review and certify audits and follow-up actions; and (4) prepare an environmental performance report available to the public.

- **Compliance Audit.** Participants must conduct a comprehensive compliance audit covering federal, state, and local regulatory requirements, company policy requirements, and best management practices. All areas of non-compliance identified during the audit must be reported to the appropriate regulatory agencies, and the facility must develop a Corrective Action Plan outlining required corrections and preventative actions.

- **EMS Audit.** Participants must conduct an audit to assess the facility's overall EMS in accordance with StarTrack EMS audit protocol (based on ISO 14000), identify potential areas for improvement, and develop a prioritized Implementation Plan for addressing those areas.

- **Independent Third Party Review of Audits and Audit Findings.** Participating companies are required to retain a qualified, independent third party to assess the audit process and the facility's overall environmental management and performance. Specifically, third party certification provides an accurate and credible process to review audits, evaluate auditor qualifications, verify completion of corrective actions, and verify compliance status for regulatory agencies.

- **Environmental Performance Report.** Each participant must prepare a publicly available comprehensive annual performance report documenting the company's environmental policy, pollution prevention and auditing programs and results, and areas for improvement. The aim of the report is to provide a communication tool for interaction with the public, employees and regulators regarding the company's environmental programs and performance.

EPA Region I has not finalized program requirements beyond the first year of participation. Currently, a participating facility must successfully complete all first year requirements before being considered for continued acceptance in StarTrack. At a minimum, continuing participants will have to conduct internal compliance and EMS audits, and prepare annual environmental performance reports. EPA Region I is also contemplating third party certification, at least on a triennial basis.

FIRST YEAR REVIEW

EPA Region I has solicited feedback and comments from current StarTrack participants, States, and other stakeholders on their experiences from the first year of the program. Findings from these discussions include the following:

- StarTrack is an opportunity for companies to get public credit for the proactive environmental work that they are already doing.

- Registration and verification audits to national/international EMS standards can play a key role in fulfilling StarTrack EMS audit requirements while conserving resources.

- Companies value State and EPA observers' feedback on their audit programs.

- Inviting environmental groups to observe two StarTrack facility audits was a positive, mutual learning experience for both the facilities and groups involved.

CONTACT INFORMATION

To learn more about the StarTrack program, contact:

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4. EPA REGION I's CLEAN-P2 PROJECT[25]

The Compliance Leadership Through Environmental Audits and Negotiations - Pollution Prevention (CLEAN-P2) pilot project is a voluntary program created in December 1995 by the U.S. Environmental Protection Agency's Region I office through the national Common Sense Initiative metal finishing sector. The CLEAN-P2 project goals are to encourage pollution prevention and to achieve measurable environmental benefits in metal finishing companies in Maine and New Hampshire and in printing companies in Maine. In exchange for enforcement relief, pollution prevention technical assistance, and compliance assistance, companies commit to allowing multi-media compliance and pollution prevention assessments, addressing non-compliance issues, developing a pollution prevention plan, and implementing a pollution prevention project.

CLEAN-P2 represents a partnership of regulatory agencies and "third-party coordinators." EPA Region I, the Maine Department of Environmental Protection (DEP), and the New Hampshire Department of Environmental Services (DES) agree to assist assessment teams and offer enforcement relief provisions when appropriate. The Center for Technology Transfer (for Maine metal finishers), the University of New Hampshire (for New Hampshire metal finishers), and Printing Industries of New England in Maine received grants from EPA Region I to implement CLEAN-P2 in their respective states. These third parties are responsible for recruiting facilities to participate in CLEAN-P2, assembling multi-disciplinary technical assistance teams to conduct the compliance and pollution prevention assessments, and reporting the results of the assessments to program stakeholders.

After the CLEAN-P2 program was announced in December 1995, the program had trouble getting started as the regulatory agencies worked through issues to develop an acceptable legal document to govern the program. Pollution prevention and enforcement staff within the regulatory agencies differed over how much flexibility should be offered to facilities. A legal document was agreed upon in Spring 1996. Since that time, 26 printers and four metal finishing companies have participated in CLEAN-P2, and four more metal finishers are scheduled to participate. The third party coordinators are continuing their marketing efforts to enroll additional participants with the ultimate goal to conduct CLEAN-P2 assessments at 12 to 16 metal finishers in Maine and New Hampshire.

[25] Information for this summary was obtained from: EPA's CLEAN-P2 Web site (http://www.epa.gov/region01/steward/clean) on May 20, 1998; personal communication with Stan Eller of the Center for Technology Transfer (September 4, 1997), a May 1998 report prepared by the Center for Technology Transfer, "Evaluation of the CLEAN-P2 Project in Maine and New Hampshire;" and a September 1997 report by the Tufts University Capstone Group, "Evaluation of U.S. EPA Clean-P2 Pilot Project."

INCENTIVES

Currently, CLEAN-P2 offers the following incentives:

- **Compliance assistance.** As part of the facility audit process, members of the audit team agree to make their expertise available to participating companies to evaluate waste minimization, pollution prevention, and other alternatives to achieve compliance.

- **Enforcement relief.** Under certain conditions, EPA and State regulatory agencies refrain from initiating an enforcement action seeking civil penalties, or mitigate civil penalties. A facility is eligible for enforcement relief if the violation: (1) is detected for the first time; (2) has not caused serious harm or risk to public health, safety or the environment; (3) does not present an imminent and substantial endangerment to public health or the environment; (4) does not involve criminal conduct; and (5) is promptly and responsibly corrected.

- **Pollution prevention technical assistance.** Companies can also turn to facility audit team members to assist in addressing waste minimization and pollution prevention recommendations made in the CLEAN-P2 assessment. Drawing on this resource could help a facility go beyond its compliance requirements.

- **Membership in an "environmental network."** Every participating facility agrees to share with all CLEAN-P2 partners the results of projects undertaken in response to the assessment report. This creates a valuable resource of experiences and information for other stakeholders, and facilitates communication between regulators and industry.

PROGRAM REQUIREMENTS

By participating in the CLEAN-P2 project, a facility agrees to identify and correct any violations of environmental requirements identified through the CLEAN-P2 assessment and undertake pollution prevention activities that will put its facility's operations beyond compliance. Specifically, a facility must:

- **Agree to a compliance and pollution prevention assessment.** A team comprised of CLEAN-P2 stakeholders conducts an on-site, comprehensive, multi-media assessment that evaluates non-compliance issues and identifies pollution prevention opportunities.

- **Achieve compliance.** Companies are expected to correct any violations, including remediating any environmental harm associated with a violation,

within the shortest practicable period of time. Specifically, companies may take up to 90 days following detection of a violation to correct it. If a violation cannot be corrected within 90 days, the correction period may be extended by up to 90 days provided the company sets forth any additional steps to be undertaken to achieve compliance. A company has one year from the date a violation is detected to achieve compliance if the company intends to correct it by implementing pollution prevention measures.

- **Implement a facility pollution prevention program.** The participating facility must address in a Pollution Prevention Action Plan, or incorporate into an existing plan, all of the P2 projects recommended in the CLEAN-P2 final report. The company must then develop, test, and implement those recommendations, and share the results of all P2 projects implemented through this pilot project with the other CLEAN-P2 partners.

CLEAN-P2 EVALUATION AND FEEDBACK

EPA Region I and independent evaluators have gathered participant and stakeholder reactions to the CLEAN-P2 project. Comments have focused on several aspects of program including the responsibilities of each stakeholder, the effectiveness of CLEAN-P2, and what stakeholders are hoping to get out of the program.

The CLEAN-P2 Legal Agreement

Some regulators and third party staff believe the legal document, which all facilities must sign prior to the facility assessment, has had a negative effect on the decision of some facilities to participate. Written in the legal language of enforcement staff lawyers rather than a more straightforward style, the agreement may intimidate companies because it is formal and enforcement-oriented, making it seem more focused on violations than partnerships. According to some stakeholders, a less formal legal document that emphasizes the cooperative goals of the program would have facilitated the recruiting process.

Reason for Participating

Companies that did participate wanted to establish a cooperative relationship with regulators. Metal finishers noted the value of knowing their facility is in compliance (i.e., having the regulators stamp of approval), having regulators view industry in a positive way, and knowing they can call the agency if a problem arises. Receiving economic benefits by implementing pollution prevention measures was not a motivating reason to participate.

Role of Third Parties

Both companies and regulators agreed that the involvement of the third parties is a valuable ingredient to the overall effectiveness of the CLEAN-P2 project. The third parties helped connect regulators and companies, provided pollution prevention expertise, and were

advocates for the project. Companies in particular noted that they were more willing to participate with a third party integrally involved in the program.

Measuring Environmental Benefits

Although measurable benefits are a goal of the project, the environmental benefits to emerge from CLEAN-P2 are unclear at this point. A CTT report written in May 1998 indicates that participating facilities are cleaner than they were prior to CLEAN-P2 and measurable environmental improvements were documented for each facility, but no specific detail is provided. One of the project evaluators noted that measuring environmental progress seemed to be impeded by the failure to require detailed materials-use accounting data from facilities at the beginning of the project. Having this information would allow for a comparison of operations before and after pollution prevention and waste minimization recommendations were implemented.

CONTACT INFORMATION

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5. MICHIGAN DEQ's CLEAN CORPORATE CITIZEN PROGRAM[26]

Michigan's Clean Corporate Citizen (C3) program is a voluntary program established in the administrative rules of the Air Quality Division of the Department of Environmental Quality (DEQ). The C3 program is built on the concept that existing facilities which have consistently demonstrated a strong environmental ethic and stewardship can be relied upon to carry out their environmental protection responsibilities without rigorous oversight. These facilities should therefore enjoy greater permitting flexibility than those that have not demonstrated this level of environmental awareness.

The impetus for the C3 program was a State of the State address given by Governor Engler in 1996, in which he introduced the concept of offering regulatory flexibility to good environmental performers. The administrative rules creating the program were finalized in May 1997. Although the program is multi-media in orientation, benefits are currently only available in the Air Quality Division program. DEQ is working to expand the program benefits to include the underground storage tank program as well as the ground water and NPDES permitting divisions. Currently, six facilities are participating (three automobile plants, a furniture maker, an electric power plant, and a paper mill) and two applications are under review. DEQ has recently begun to market the program. DEQ also expects that government units will apply for participation once the Department finalizes NPDES benefits. Membership in the program is good for one year only, after which facilities must apply for a renewal.

INCENTIVES

DEQ has had difficulty developing a list of flexibility incentives for participating facilities. During the formative stage of the program, DEQ assembled a group of stakeholders to discuss possible incentives. One of the challenges in developing this list was selecting incentives that were large enough to make it worthwhile for companies to join yet not so great as to sacrifice environmental protection. Many companies do not feel that the current incentives offered are worth the effort of fulfilling the entry requirements. Companies have acknowledged that, as the program stands now, the only reason they have joined or would join the program is for the public recognition. For this reason and others, DEQ is hoping to expand C3 benefits for participating facilities as it evaluates the program and examines incentives offered by other "flexibility" programs.

Currently, the C3 program offers three incentives to participating facilities: a construction and operation waiver provision for air permits under review, expedited permit application review, and eligibility for a plant-wide applicability limit (PAL).

[26] Information was obtained from: Michigan Department of Environmental Quality's C3 program Web site (http://www.deq.state.mi.us/ead/tasect/c3review.html) on April 6, 1998; Part 14 of the Department's Air Quality Rules; and personal communication with Steve Holmi (MI DEQ).

Waiver Provision

The waiver provision allows companies to begin construction and, if desired, operation of equipment at an existing air source while their air use construction permit is under review. Non-C3 facilities may obtain such waivers only if they can demonstrate that the new process is critical to the company, and that a hardship would be created if the construction waiver were not granted. C3 facilities do not have to demonstrate such a hardship.

The request for a waiver must: (1) be submitted in writing (2) be accompanied by an administratively complete application for a permit to install; (3) not include proposed construction, operation or equipment for which an approved permit for construction and operation is required by federal regulations; and (4) be signed by the owner or the owner's authorized agent. The request for a waiver will be automatically approved 15 calendar days after receipt of the request and required information, unless, within the 15-calendar-day period, either the request is denied in writing for cause by the department or an extension of up to 15 additional calendar days is specified in writing by the department.

Expedited Permit Application Review

This provision requires the DEQ to issue or deny a permit to install within 30 days of receiving a complete application. This time may be extended if the C3 facility agrees to an extension so that DEQ may further address issues that would otherwise make the permit unapprovable. The 30-day period may also be extended if the application is subject to public notice requirements under state or federal law. To qualify for an expedited review, the applicant must submit additional information including an analysis of the applicable control technology requirements (e.g., best available control technology, best available control technology for toxics, and maximum achievable control technology) along with an analysis demonstrating that the operation or equipment covered by the application will comply with applicable requirements.

Plant-Wide Applicability Limit

C3 participants are eligible for a plant-wide applicability limit (PAL) that establishes a federally enforceable emissions cap for one or more pollutants at an existing stationary source. Under a PAL permit a C3 facility is not required to obtain construction permits for new processes, as long as the emissions for the entire facility stay below the established emissions cap. A facility may request that the PAL establish an emissions cap set equal to actual emissions plus the significant emissions for each pollutant being considered in the PAL application. Alternatively, the facility may request that the PAL establish an emissions cap set equal to existing allowable emissions, if the levels are consistent with state and federal requirements.

APPLICATION CRITERIA AND PROCESS

The applicant must provide public notice and a forum for public review of the C3 application and related documentation. After the public review period, the application is

submitted to DEQ accompanied by a summary of the public comments and the applicant's response to the comments received.

To qualify for and maintain C3 participation, a facility must meet three environmental performance criteria. First, a facility must have in place and operate in accordance with a strong and effective environmental management system (EMS). Second, a facility must develop and implement a pollution prevention (P2) program. Third, a facility must demonstrate a strong record of environmental compliance.

Environmental Management System

An interested facility must have in place an EMS that systematically addresses environmental concerns and is integrated into its overall management structure. The facility may either register under an environmental management standard, such as ISO 14001, that is approved by the director, or develop its own EMS that is appropriate to the nature, scale, and potential environmental impact of the operation and comparable to standard EMSs.

Pollution Prevention Program

A C3 facility must develop and implement an effective pollution prevention (P2) program. An acceptable P2 program adopts as written policy a philosophy of P2 that promotes all of the following:

- The elimination or reduction of waste at the source of generation;
- The reuse of waste, including the purchasing of recycled materials; and
- Environmentally sound on-site and off-site recycling.

In addition to developing this written policy, the C3 facility must meet other criteria in its P2 program including:

- Conducting periodic P2 assessments that identify opportunities for eliminating waste at the source, reuse, and recycling;
- Establishing P2 goals that specify the environmental media and types of pollution to be prevented or reduced, implementation activities, and projected time frames;
- Encourage efforts to exchange P2 technologies, such as attending or sponsoring workshops, developing case studies, establishing P2 supplier networks, and providing to the department P2 information for possible publication and dissemination.

Environmental Compliance

An applicant for the C3 program must also demonstrate a consistent and strong environmental record. Specific requirements include:

- Compliance with all applicable federal, state, and local environmental requirements and no outstanding unresolved past or current violations that have not been corrected or resolved by adherence to a binding compliance schedule.

- No conviction of a criminal violation of applicable environmental requirements within a ten-year period before filing the initial C3 application.

- No assessment of a civil fine or penalty of $10,000 or more for violation of applicable environmental requirements within a three-year period before filing the initial C3 application.

- No illegal actions that caused substantial endangerment to the public health, safety, or welfare or to the environment within a ten-year period before filing the initial C3 application.

If a C3 facility applicant does not meet the above requirements, the director may still consider an application for C3 designation if the application includes a binding and significant reduction in wastes below what would otherwise be required by applicable environmental requirements or a significant and permanent retirement of air emission reduction credits.

REPORTING AND OVERSIGHT MECHANISMS

A facility's C3 designation is valid for one year. Over the course of the year a facility should establish recordkeeping and reporting procedures to demonstrate progress on pollution prevention goals and document the environmental status of all operations. To retain a C3 designation, a facility must submit a renewal request within ten days of the anniversary date of the current C3 designation. The renewal application must summarize activities undertaken to:

- Maintain and implement the EMS;

- Identify and implement the P2 program; and

- Set, revise and implement environmental goals.

The C3 designation can be terminated by DEQ if the Department determines that the facility violated any of the provisions set forth in the application criteria.

CONTACT INFORMATION

To learn more about the C3 program, contact:

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6. NEW JERSEY CHEMICAL INDUSTRY PROJECT[27]

The New Jersey Department of Environmental Protection (DEP) has been working with the U.S. Environmental Protection Agency (EPA) and stakeholders representing the batch chemical industry and public interest groups to develop a Flexible Track Program as part of the New Jersey Chemical Industry Project. The Flexible Track Program seeks to reward good environmental performers with less regulatory oversight and increased operational flexibility. By creating this alternative track, other facilities are provided an incentive to improve their environmental performance to qualify for the benefits of the alternative system. Those facilities that are having difficulties complying with their environmental obligations become the focus of increased compliance assistance or enforcement actions as appropriate.

In addition to providing increased flexibility for the batch chemical industry, this alternative regulatory system would require participating facilities to establish a dialogue with the host community and give the public more meaningful and understandable information on their compliance status. By encouraging open communications and providing key information, the alternative system is designed to increase trust between the public and the facilities within their community. As facilities gain a better understanding of the issues and concerns of the community, they will be able to take those steps necessary to ensure they are a good neighbor.

PROGRAM STRUCTURE

The proposed alternative regulatory system creates two tracks beyond regular compliance for the batch chemical industry. Interested companies would apply first for admission to the Silver Track. To qualify, companies must demonstrate a sustained pattern of compliance and a capacity to maintain and improve their performance with the flexibility granted under the Silver Track. They may demonstrate this capacity by developing a facility environmental management system, preparing a community outreach plan, and agreeing to measure and report to stakeholders on key aspects of their environmental performance.

The system proposes several incentives for companies that gain admission to the Silver Track. They become eligible for relief from permit modifications (when they do not increase emissions), expedited permit reviews, integrated permitting options, reduced inspection and reporting burdens, and better access to technical information. These changes should provide a participating facility with increased operational flexibility, enhanced credibility, and improved relations with the community and with regulators.

The Silver Track is designed to encourage companies to improve their compliance efforts so that they can qualify for the reduced transaction costs and operational flexibility that it offers. Once in the Silver Track, companies should be in a position to identify and implement more effective pollution prevention, auditing, and outreach programs. Thus, a company may make

[27] Information for this summary was obtained from "New Jersey Chemical Industry Project: Materials for the Third Stakeholder Meeting," a May 8, 1997 report prepared by Industrial Economics, Incorporated (IEc) for EPA's Office of Policy, Planning and Evaluation (OPPE) and a March 1998 briefing prepared by IEc for OPPE.

changes to its processes or increase productivity, provided it does not exceed emission limits. It is anticipated that this will be a strong catalyst for a company to examine and implement pollution prevention opportunities.

Companies that have demonstrated the capacity to perform in the Silver Track may later apply for the Gold Track. This track is reserved for outstanding performers who perform beyond their legal obligations (i.e., better than compliance), are committed to continuous improvement, and agree to implement specific actions that benefit the community, such as enhanced auditing, increased energy/water efficiency, responsiveness to issues of community concern (e.g., traffic congestion), mentoring or technical assistance for other facilities, or actions to protect local habitat or resources. The Gold Track defines company-specific expectations and flexibility under which a company will operate for a defined time period.

INCENTIVES

During the initial stakeholder meetings, industry representatives identified increased operational flexibility as a key incentive for participation in the pilot project. This operational flexibility would provide a facility with greater economic efficiency and decrease transaction costs for completing permits and other paperwork necessary for meeting federal and state requirements.

Currently, the DEP will most likely offer the following incentives as part of the pilot project:

- **Relief from permit modifications.** Facilities will be exempt from completing applications for permit modifications when they change their processes if their emissions do not increase above their currently permitted levels. This reform is likely to eliminate discincentives that cause facilities to postpone implementing changes until permit renewal and help eliminate production delays related to permitting, thereby speeding the process of introducing new products.

- **Expedited permit review.** Participating facilities will receive expedited permit review when applying for permit modifications (e.g., if production levels increase) or new permits. The benefits of quicker review would enable facilities to bring new products to market more quickly and reduce uncertainty in facility operations over potential delays related to the timing of permit approvals.

- **Integrated permitting.** Integrated permitting would allow participating facilities to obtain permits that apply across all media, either at the production process level or facility-wide. At the production process level, a facility would be allowed to make changes without pre-approval as long the changes do not increase emissions above a permitted level. A facility-wide emissions cap, or "bubble permit," would allow a facility to make

changes anywhere in the facility as long as emissions do not exceed the permitted level. Integrated permitting would give facilities the operational flexibility to determine the most cost-effective means to reduce emissions rather than requiring them to achieve reductions at a specific point(s).

- **Reduced inspection, monitoring, and reporting burden.** NJ DEP intends to offer some combination of less frequent and/or consolidated inspections, monitoring requirements, and reporting.

PROGRAM ELIGIBILITY

To be eligible for the Silver Track, a facility must have demonstrated a pattern of sustained compliance, implemented a system to maintain this level of environmental performance, and prepared a plan for community participation.

Sustained Compliance

Given the number and complexity of environmental regulations, it may be difficult for facilities to attain 100 percent compliance. As a result, a facility with a small number of violations that are of little or no environmental significance may meet the Silver Track criteria for sustained compliance.

In determining whether a facility meets the criteria for sustained compliance, NJ DEP will evaluate three years worth of compliance data and one year of inspection data that the department may not have had time to pursue formally. Using these data, NJ DEP will place companies in one of four categories. These categories, which are described below, indicate whether or not a facility meets the criteria for sustained compliance.

- **No violations.** A facility without violations meets the criteria for sustained compliance.

- **Violations that did not result in civil enforcement actions.** A facility with violations that have not resulted in civil enforcement actions meets the criteria for sustained compliance, unless the violations have occurred repeatedly.

- **Violations resulting in formal civil enforcement actions or inspection violations.** These violations will be considered on a case-by-case basis by DEP and EPA. Generally, if the violations are considered minor, then the facility meets the criteria for sustained compliance unless the violations have occurred repeatedly. If the violation meets the federal definition of significant violation and/or significant non-compliance (SV/SNC), the facility does not meet the criteria for sustained compliance.

- **Criminal Convictions.** A facility that has received a criminal conviction does not meet the criteria for sustained compliance. Such a facility would not be eligible for the Silver Track within three years from date of conviction or five years from date of the criminal activity.

Environmental Management System

Facilities must have implemented the key elements of an environmental management system (EMS) to be eligible for the Silver Track. These elements include: (1) an established environmental policy; (2) a regular planning process; (3) active implementation of EMS practices into operations; (4) an EMS self-review process that addresses weaknesses; (5) upper management review and involvement; and (6) an established community outreach program.

Community Participation

To qualify for the Silver Track, facilities must have a good working relationship with the community and must have a plan for community participation. However, they are not required to have implemented the plan prior to entry in the Silver Track.

APPLICATION REQUIREMENTS

The following items represent the key pieces of information a facility must submit to support their application to the Flexible Track program: (1) A self-appraisal of the facility's compliance history; (2) a narrative list of facility permits and other regulated activities; (3) a copy of the facility's EMS; (4) a plan for community participation/demonstration of community support or endorsement; (5) details regarding specific operational flexibility being sought; (6) specifics regarding other past or planned activities that will benefit the environment and/or community; (7) awards or certificates for environmental or community activities; (8) details regarding any pollution prevention initiatives, sustainable or "green" purchasing or packaging, energy conservation efforts or other activities.

CONTACT INFORMATION

To learn more about the New Jersey Chemical Industry Project, contact:

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APPENDIX B

SAMPLE AGREEMENTS FROM DETROIT MF2000:

MEMORANDUM OF AGREEMENT AND ADMINISTRATIVE CONSENT ORDER

MEMORANDUM OF AGREEMENT
FOR J.D. PLATING COMPANY
METAL FINISHING 2000
DETROIT REGIONAL PROJECT

SECTION I: INTRODUCTION

For over thirty years, federal, state and local environmental agencies have worked to develop and implement regulatory programs to protect human health and the environment. These programs have produced significant results, moving us toward a cleaner environment with safeguards to protect our citizens. As we approach the twenty-first century faced with new environmental and economic challenges, organizations of all kinds are working together to develop new tools and approaches to meet our environmental responsibilities.

The Common Sense Initiative (CSI) is an innovative approach to environmental protection and pollution prevention developed by the United States Environmental Protection Agency. The Initiative seeks to move pilot industry sectors into the next generation of environmental management and regulation through policy actions that are "cleaner, cheaper, and smarter" — cleaner for the environment, cheaper for industry and taxpayers, and smarter in design and implementation. The Metal Finishing sector, among five others, was selected in 1995 to pilot this innovative sector-based approach to environmental protection.

The Metal Finishing 2000 Concept

The CSI Metal Finishing Sector has developed 14 projects that address many of the different barriers metal finishers face in improving their environmental performance. One project, Metal Finishing 2000, is designed to define and test out the concept of a “flexible track” for top environmental performing metal finishing facilities. Under the Metal Finishing 2000 concept, industry environmental performance leaders who meet the program criteria and pursue the industry-wide performance goals developed by this CSI sector, would receive operational flexibility.

Under the traditional regulatory framework, firms typically comply with regulations to the extent necessary to reduce the threat of regulatory enforcement, and there are few incentives to move beyond compliance or to continuously improve. The Metal Finishing 2000 concept changes the traditional framework and relationships by federal, state, and local governments working together to encourage facilities to achieve superior environmental performance and agencies providing for greater operational flexibility, using existing flexibility mechanisms available under current regulations.

The flexible track concept represents an important step away from a "one-size-fits-all" regulatory approach, toward a more flexible, efficient, and incentive-based system. First, flexible track benefits can provide an incentive for improved environmental performance. Second, rewarding improved environmental performance creates incentives for firms just meeting compliance

standards to aspire to a higher environmental performance tier. Third, providing greater flexibility for those metal finishers willing and able to meet higher environmental goals allows regulators to concentrate more of their scarce enforcement resources in areas that can produce greater environmental benefits. In this way, the Metal Finishing 2000 promotes cleaner and cheaper solutions for both industry and regulators.

Metal Finishing 2000 Detroit Pilot

The Detroit pilot project is an effort to begin defining the core elements of a possible future Metal Finishing 2000 program. These elements include criteria for facility participation, how and where to involve local stakeholders, agency resource needs, and types of benefits received. Together, the Metal Finishing 2000 pilot project stakeholders are investigating ways that existing flexibility mechanisms (under current regulations) can be applied under the Metal Finishing Strategic Goals Program to promote improved environmental performance.

The companies participating in the Detroit pilot were identified by their peers and local trade association, the Michigan Association of Metal Finishers, and agreed to commit their time and resources to work with regulators on individual pollution prevention projects. Working with metal finishers on these projects will provide the CSI Metal Finishing Subcommittee with important lessons about what administrative/regulatory obstacles might exist to doing pollution prevention, which regulatory agencies may be significantly involved in implementing a larger program, and what environmental and savings gains can realistically be achieved through Metal Finishing 2000.

Multi-stakeholder participation is a cornerstone of the Common Sense Initiative. Over the course of the Detroit Metal Finishing 2000 pilot project, EPA has held several multi-stakeholder meetings with regional and state environmental officials, publicly owned treatment works (POTW) personnel, industry, environmental, labor, and community group representatives to discuss flexible track concepts, opportunities, and concerns. In addition, the regulatory agencies conducted site visits with participating metal finishers to encourage innovative thinking about project ideas for improving environmental performance. Input from workers also played a role in defining some projects.

The project proposals were reviewed by regulators at EPA Headquarters and Region 5, Michigan Department of Environmental Quality (MDEQ), Detroit Water and Sewerage Department (DWSD), and Ypsilanti Community Utilities Authority (YCUA). They noted any potential regulatory problems, suggested alternative approaches, and highlighted areas where operational flexibility could be offered. These parties were also instrumental in negotiating and developing the MOA with each participant.

In addition to developing individual facility projects, the Metal Finishing 2000 Detroit project promotes training in pollution prevention and health and safety for the industry. In partnership with the American Electroplaters and Surface Finishers, the Michigan Association of Metal Finishers, and the Metal Finishing Suppliers Association, the Metal Finishing 2000 pilot project is launching the first training session for the *Metal Finishing Guidance Manual* in Detroit. The

manual is a product of stakeholder efforts in CSI Metal Finishing to create a shop floor tool for managers and workers.

The remainder of this document addresses issues and conditions specific to each project.

SECTION II: FACILITY DESCRIPTION

J.D. Plating is a family owned barrel zinc job shop that plates metal clips, brackets and fasteners for the automotive, hardware and related industries. The facility has two electroplating lines, one chemical processing line and one dip/spin coating line. J.D. Plating was established in the 1940s and currently employs 36 people.

The facility operates under the following regulatory permits issued by each respective agency:

PERMIT	NUMBER
Air	591-86
Water	DWSD: 029-011

J.D. Plating certifies that to the best of its knowledge and belief, no enforcement action is pending against the facility for any of its permits and that the facility is currently in compliance with its permits.

SECTION III: PROJECT DESCRIPTION AND SCHEDULE

J.D. Plating proposes to install an on-site zinc recovery process for reuse of zinc in plating operations, which would permit (i) reuse of high quality process water, (ii) reduce releases of water containing minimal pollutants to the POTW and environment, (iii) reduce the volume of potable water used, and (iv) minimize treatment chemicals storage & handling. Metal finishing operations require a clean rinsewater to maintain coating quality and integrity.

Using methods such as precipitation or electrowinning, and as part of its long-term strategy, the company intends to recover and/or reuse about 2,000 pounds of the 3,000 pounds (per annum) of zinc currently discharged to the sewer system or disposed of in a landfill. This initial phase of the project will require research on precipitation and electrowinning technologies, selection of an appropriate technology for J.D. Plating's zinc plating process, and testing and engineering to establish the optimal zinc recovery process for J.D. Plating's operations. The J.D. Plating Metal Finishing 2000 pilot project would incorporate this first phase plan of their long-term strategy.

J. D. Plating currently operates a Zn-Co line where the barrel is held in the plating solution, and following drainage, rinsed in a countercurrent bath. The rinse solutions are currently processed through a neutralization/sedimentation system with the metals precipitated as solids and disposed of in a landfill. As a result of a recent MDEQ determination, J.D. Plating's sludge is non-hazardous.

J. D. Plating seeks to develop a method for reducing and reusing its process water and zinc, while minimizing their dependence upon classical treatment methods. J.D. Plating is seeking to develop a means where it will:

- remove Zn from the rinse water,
- recover Zinc through an electrowinning process,
- reduce the flows sent for treatment (neutralization/sedimentation), and
- permit reuse of treated waters for additional rinsing and operation.

Should the process prove successful, J.D. Plating would pursue additional actions (beyond the scope of work addressed by this agreement). In the future, J.D. Plating would like to install a closed loop water conservation process to reduce water use by 50 percent. This task is included as an expression of intent and not part of this agreement.

Pilot Scale Development

J.D. Plating proposes to augment their existing treatment system (neutralization & sedimentation) with a high-volume treatment system to demineralize water before it is released to the wastewater treatment system for reuse as process water. This add-on system would involve the following steps:

1. J.D. Plating proposes to develop and implement a pilot scale project where it will take a portion of its process rinse water and using reverse osmosis (or comparable technology) seek to concentrate the metal salts . This operation would produce a high quality water which could be reused within the process. J.D. Plating believes that this step would require nine months development time.

   It is currently not known what the specifications for the reverse osmosis unit and any holding/storage tank requirements would be. However, this would be done as part of the implementation and development work.

   J.D. Plating proposes a twelve (12) month schedule for development, implementation and installation of the above system within thirty (30) days after completion of the investigation. A report on the investigation conclusions and results shall be prepared and submitted to DWSD, MDEQ and EPA-Region V. A report on the conclusions and results of the implementation shall be prepared and submitted to the Control Authority, 30 days after completion of the installation.

   Copies of these reports shall also be provided to EPA-Region V and the MDEQ during the period of this agreement.

2. Plating plans to eventually use electrowinning and/or precipitation technologies, and seeks to perform in-process zinc recovery, with the objective being to produce a material which could be added directly to the plating tank. J.D. Plating proposes an eighteen (18) month schedule for development, implementation and installation of the above system. A

report on the conclusions and results of the implementation shall be prepared and submitted to the Control Authority, 30 days after completion of the installation.

Copies of these reports shall also be provided to EPA-Region V and the MDEQ during the period of this agreement.

The new system may affect the nature of J.D. Plating's sludge. As a result, J.D. Plating will have to re-analyze its sludge to determine its new waste characteristics for disposal purposes. J.D. Plating will submit its new analysis to MDEQ for confirmation of its findings and will seek a suggestion of an appropriate disposal facility.

SECTION IV: CONDITIONS OF REGULATORY RELIEF SOUGHT

J.D. Plating will take appropriate actions and steps to maintain or exceed current compliance levels; however, it realizes that minor upsets are always a possibility when evaluating and scaling a treatment system. J.D. Plating requests up front flexibility from DWSD, which would provide an operating window inclusive of Permit excursions, that would allow a complete evaluation to occur. Should the process exceed the bounds set by the Control Authority, J.D. Plating would terminate further discharges from the system until approved to continue the project.

During the engineering and testing phases of developing the water treatment system, J.D. Plating seeks a grace period from their effluent limits to allow for possible discharge exceedances without incurring or initiating the escalated enforcement provisions of the Industrial Pretreatment Program. All future excursions during the project will be dealt with in accordance with the POTW's approved enforcement response plan.

J.D. Plating would enter into an Administrative Consent Order with the Control Authority which would specify the size of the operating window, the responses and/or its reactions to any pollutant exceedances, and the reporting and monitoring requirements during the evaluation period. Prior to execution, EPA and the Michigan Department of Environmental Quality will review the Order for compliance with federal and state law, and will assure that such requirements are met. J.D. Plating will not be a priority for federal enforcement if it meets the requirements of the Order.

If DWSD determines, based upon established criteria in the ACO that the project is successful, then DWSD will consider a long-term relief petition from J.D. Plating for self-monitoring and modification of the wastewater discharge permit.

SECTION V: STATUS REPORT

Since this project will last up to two years, J.D. Plating will prepare and submit Periodic Status Reports at six month intervals and a Final Status Report. The Periodic Status Reports will consist of a brief update to be submitted to all stakeholders via EPA-HQ, approximately six months after the project commences. (The project will be deemed to have commenced upon all appropriate parties signing this agreement.) The Final Status Report, to be completed within 60 days of

completion of the project. The project will be deemed completed at the end of two years from commencement, or upon successful testing of the recovery system, whichever comes first. The Final Report shall address any benefits (cleaner and/or cheaper) that J.D. Plating has realized over the course of the project and any recommendations for improvements to the project. The Status Reports shall include a description of the tasks begun and completed, any results and/or successes, and any modifications to the original project plan.

SECTION VI: PUBLICITY GUIDELINES

Metal Finishing 2000 is a pilot project, not an EPA program; therefore, any use of the EPA or Metal Finishing 2000 logo by J.D. Plating is strictly prohibited. J.D. Plating may only identify itself as a participant in the Metal Finishing 2000 pilot project.

SECTION VII: EFFECTIVE DATE AND TERMINATION

A. This agreement takes effect by signature by all parties on October 23, 1997. This agreement does not apply to exceedances that occurred prior to October 23, 1997.

B. This agreement terminates on October 23, 1999, unless extended by the parties.

C. Parties may terminate their participation in the MF 2000 pilot project upon written notice to the other participants, to be provided thirty (30) days prior to termination.

SECTION VIII: SIGNATURES

"We have read and concur with the terms of the Memorandum of Agreement for the Metal Finishing 2000 - Detroit Regional Pilot Project."

_____ _____

Maryann Froehlich, Director
Office of Policy Development — Date
U.S. Environmental Protection Agency

_____ _____

Michelle Jordan, Deputy Regional Administrator
U.S. Environmental Protection Agency — Date

_____ _____

Paul Zugger, Director
Environmental Assistance Division — Date
Michigan Department of Environmental Quality

_____ _____

Kathleen Leavey, Deputy Director
Detroit Water and Sewerage Department — Date

_____ _____

George A. Wines, President
J.D. Plating Company — Date

ADMINISTRATIVE CONSENT ORDER:
J.D. PLATING COMPANY METAL FINISHING 2000 PROJECT

I. INTRODUCTION

On October 23, 1997, representatives of the U.S. Environmental Protection Agency ("EPA"), the Michigan Department of Environmental Quality ("MDEQ"), the Detroit Water and Sewerage Department ("Department"), and J.D. Plating Company entered into a Memorandum of Agreement. This agreement describes a project which J.D. Plating Company has agreed to conduct as a participant under the Metal Finishing 2000 concept of the Common Sense Initiative, and for which the regulatory agencies have agreed to support.

J.D. Plating proposes to install an on-site zinc recovery process for reuse of zinc in plating operations, which would permit (i) reuse of high quality process water, (ii) reduce releases of water containing minimal pollutants to the POTW and environment, (iii) reduce the volume of potable water used, and (iv) minimize treatment chemicals storage & handling. Metal finishing operations require a clean rinsewater to maintain coating quality and integrity.

Using methods such as precipitation or electrowinning, and as part of its long-term strategy, the company intends to recover and/or reuse about 2,000 pounds of the 3,000 pounds (per annum) of zinc currently discharged to the sewer system or disposed of in a landfill. This initial phase of the project will require research on precipitation and electrowinning technologies, selection of an appropriate technology for J.D. Plating's zinc plating process, and testing and engineering to establish the optimal zinc recovery process for J.D. Plating's operations. The J.D. Plating Metal Finishing 2000 pilot project would incorporate this first phase plan of their long-term strategy.J. D. Plating currently operates a Zn-Co line where the barrel is held in the plating solution, and following drainage, rinsed in a countercurrent bath. The rinse solutions are currently processed through a neutralization/sedimentation system with the metals precipitated as solids and disposed of in a landfill. As a result of a recent MDEQ determination, J.D. Plating's sludge is non-hazardous.

J. D. Plating seeks to develop a method for reducing and reusing its process water and zinc, while minimizing their dependence upon classical treatment methods. J.D. Plating is seeking to develop a means where it will:

- remove and recover Zn from the plating tanks through the methods of precipitation and/or electrowinning.
- reduce the flows sent for treatment (neutralization/sedimentation), and
- permit reuse of treated waters for additional rinsing and operation.

In accordance with the authority granted under the City of Detroit Ordinance 34-96, the Department is authorized to enter into Administrative Consent Orders. J.D. Plating Company and the Department, with the concurrence of the regulatory agencies, hereby enter into this Administrative Consent Order to carry out the terms and intent of the Memorandum of Agreement dated October 23, 1997.

II. CONSENT ORDER TERMS & CONDITIONS

A. J.D. Plating Company and the Detroit Water and Sewerage Department hereby give their respective consent to comply with the terms and conditions of this Administrative Consent Order, the October 23, 1997 Memorandum of Agreement, and its Wastewater Discharge Permit 029-011 (Attachments A & B respectively).

B. The schedule for the project shall be as follows:

1. Phase I: Bench Investigation: Before installing the appropriate technology, J.D. Plating shall conduct a bench investigation to evaluate the effectiveness of the system. The bench investigation shall be completed by April 30, 1998.

   A final report on the Bench Investigation conclusions and results shall be prepared and submitted to the Department, 30 days after completion of the Bench Investigation. Copies of these reports shall also be provided to EPA-Region V and the MDEQ during the period of this agreement.

   The Department, and other agencies will provide their comments to J.D. Plating's report within thirty (30) days of receipt.

2. Phase II: Pilot Scale Investigation: Based upon the information generated in Phase I, and an indication that the project is viable, pilot scale system would be constructed.

   a. A development period, which shall not exceed nine (9) months from the date of completion of the bench investigation, shall be allowed to determine and plan the operations needed to produce high-quality water. Construction is anticipated to require 12 months beyond the development period, but would begin within thirty days after completion of the development investigation.

   b. Upon completion of the construction activity specified in paragraph 2a. above, J.D. Plating shall provide the Department with a written notice at least fourteen (14) days prior to the date of commencement, indicating that operations are ready to commence. The Department shall inspect the operations and system and the parties shall agree to sampling locations and protocols. The parties stipulate that upon confirming the location and sampling protocol issues, that these shall be documented and automatically made part of this Administrative Consent Order. The pilot scale system would be operated for a minimum six (6) month period prior to any expansion of the system.

c. During the operating period, the following activities will be monitored by J.D. Plating**:**

(i) Operational conditions (flow rate of recycled water, flow rate of potable water, pH) will be monitored daily throughout the 6 month test periods;

(ii) The wastewater from the high-quality water system will be monitored at a minimum frequency throughout the 6 month test period to evaluate any effects on the treatment system, at the minimum sampling frequency of two samples per week for the Zinc (Zn).

3. Any modifications made to the neutralization/sedimentation system or maintenance work involving a temporary shutdown of the processes in excess of twelve (12) hours (e.g. replacement of filter media), shall require notification to the Department at the time of shutdown and advance notification, of at least eight (8) hours, prior to resuming operational discharges.

4. J.D. Plating shall submit a quarterly report summarizing the operational and analytical information collected throughout the test period. The first report will be submitted three (3) months after written notice, specified in section 2.b. is submitted to the Control Authority. The report shall be reviewed during a meeting between J.D. Plating and the Department within 14 days of receipt.

   Copies of these reports shall also be provided to EPA-Region V and the MDEQ during the period of this agreement. The parties agree to share any comments received from the agencies, and review them.

5. By October 23, 1999, a final report shall be prepared by J.D. Plating summarizing the project, its effectiveness and the results. The Department shall also contribute their analysis and perspectives to this report.

   Copies of these reports shall also be provided to EPA-Region V and the MDEQ during the period of this agreement. Any comments received from the agencies shall be reviewed by J.D. Plating and the Department.

6. J.D. Plating shall comply with all requirements and obligations of the Wastewater Discharge Permit 029-011 and any succeeding permits issued while under this Administrative Consent Order, including its obligation to provide notification or conduct monitoring or investigations for any instances of noncompliance.

7. Notwithstanding the terms of this agreement, the Department shall continue to conduct its independent monitoring as it deems necessary to carry out its obligations and requirements under applicable law, and in accordance with its Industrial Pretreatment Program.

III. CONSENT ORDER: ENFORCEMENT

A. This Administrative Consent Order does not grant relief to J.D. Plating from its obligations to comply with its wastewater discharge permit 029-011, the Wastewater Discharge Ordinance 34-96, or any of its obligations under federal state or local law, rules or regulations.

B. The Detroit Water & Sewerage Department, in furtherance of the commitments and its understanding of the Memorandum of Agreement signed with the Environmental Protection Agency and the Michigan Department of Environmental Quality, recognizes the efforts of J.D. Plating in implementing and modifying its treatment system, and to exercise restraint in its enforcement responses to minor excursions of applicable Pretreatment Standards and Requirements by providing an operating window. The Department shall exercise sufficient care to accurately document and provide appropriate notations on analytical data to indicate any such exercise of enforcement restraint, commencing with the operation of the pilot scale system described in Section II. B. 2. This operating window shall be narrowly defined as followed:

1. At all times, the Department shall cite any exceedance (i.e. Notice of Exceedance) of a daily maximum and/or 4-day average for every pollutant parameter identified in Section B of its Wastewater Discharge Permit 029-011. Enforcement actions shall not be escalated beyond this notice unless more than two consecutive 4-day average determinations exceed the established limitation or any individual Daily maximum event exceeds 10% of the defined limitation.

2. Pollutant excursions beyond this operating window shall be dealt with in accordance with the Department's approved Enforcement Response Plan. In Addition, it is understood that J.D. Plating would not be a priority for federal enforcement if it operates within this window and meets the other requirements of this Order.

C. J.D. Plating shall provide notification to the Department of any self-monitoring exceedance within 24 hours of becoming aware of the exceedance, take corrective actions to prevent further exceedance, and shall use sufficient care to identify the cause(s) for the exceedance. Exceedances of Zinc shall not require additional sampling beyond the requirements of this Administrative Consent Order.

D. J.D. Plating shall provide adequate self-monitoring results in support of any alleged noncompliance, or as may otherwise be necessary to demonstrate compliance, including but not limited to the analysis of split samples collected by the Department.

E. This agreement shall not preclude enforcement action for violations which result in environmental damages or effect public health.

F. Except as provided herein, entry of this order does not preclude any enforcement action which might be taken by any federal, state or local agency.

G. Entry of this Administrative Consent Order does not create any rights in any third parties who are not signatories to the agreement

H. This Administrative Consent Order is not transferable without the approval of the Detroit Water and Sewerage Department.

I. The Department, in accordance with Ordinance 34-96, may exercise its emergency authority and order the partial or complete termination of discharges at any time.

J. This Administrative Consent Order shall be interpreted in a manner consistent with applicable law.

IV. TERMINATION

The terms and conditions of this Administrative Consent Order shall terminate on October 23, 1999.

In the event that a Party to the MOA elects to terminate their participation in the Metal Finishing 2000 project through the thirty (30) day written notice specified in the MOA, the undersigned may terminate this Administrative Consent Order upon a written thirty (30) day notice.

As a result of any federal or state agency action, the Detroit Water and Sewerage Department may terminate this Administrative Consent Order by written notice to J.D. Plating.

V. REPORTS

All reports and correspondence relating to this Administrative Order shall be submitted to the following:

Detroit Water & Sewerage Department
303 South Livernois
Detroit, Michigan 48209

Attn.: Stephen J. Kuplicki

Representatives of the Environmental Protection Agency and the Michigan Department of Environmental Quality have reviewed this agreement for compliance with applicable federal and state law. The undersigned are authorized to enter into this Administrative Consent Order and agree to the terms and conditions specified herein.

_____ _____

Detroit Water & Sewerage Department Date

_____ _____

J.D. Plating Date

APPENDIX C

APPLICATION FOR
RHODE ISLAND MF2000

APPENDIX D: METAL FINISHING INDUSTRY OVERVIEW

Important aspects of the metal finishing industry include the metal finishing process, geographic distribution of firms, industry segmentation and firm size, metal finishing emissions, and the industry's environmental "performance tier" structure. Each of these elements is discussed briefly below.

Metal Finishing Process

The metal finishing industry alters the appearance and/or performance of parts through the application of a metallic coating. The industry also provides electropolishing services, using physical processes to polish part surfaces. Metal finishing includes three primary production steps: surface preparation, surface treatment, and post-treatment processing. Parts are often rinsed between processing steps in order to prevent contamination of parts and plating solutions.

- **Surface preparation** includes cleaning the metal part and creating the proper chemical conditions to improve the adherence of surface coatings. Emulsion, alkaline and acid cleaning are the most common cleaning processes used.[28]

- **Surface treatment** involves the application of the surface coatings that alter the appearance or performance characteristics of the part. The plating process varies substantially depending on the type of surface treatment performed.

- **Post treatment** begins with a rinse bath prior to application of a finishing treatment (such as etching and corrosion protection) and ends with a final rinse to ensure that no chemical residues remain to corrode the coating or inhibit its functioning.

[28] U.S. Environmental Protection Agency, *Profile of the Fabricated Metal Products Industry*, September 1995. p 15.

Metal finishers typically plate parts through barrel or rack processes. In barrel plating, parts are loaded into a perforated container that is rotated during processing. Barrel plating tends to be used for plating large quantities of small parts. In rack plating, parts are hung on hooks for processing. Rack plating is generally used to plate larger parts or parts with a complex shape.

Geographic Distribution

Metal finishing operations are located throughout the United States, with heavier concentrations in regions where major industries require plating services, such as the Great Lakes region (automotive manufacturing) and Northeast (jewelry making). Other significant clusters can be found in Texas and California. Recently, movement and growth of manufacturing operations to other parts of the U.S., such as North and South Carolina, has led to increased plating activity in these regions, though the older clusters remain much larger.[29]

Industry Segmentation and Firm Size

The metal finishing industry consists of more than 3,000 "job shops," which provide contract plating services, and over 7,000 "captives," which operate within larger manufacturing operations.[30] The metal finishing industry is dominated by small businesses. Over 70 percent of the job shops in the electroplating industry have less than 20 employees, and nearly 30 percent have four employees or less.[31] As a result, the standard challenges for small businesses -- obtaining investment capital and understanding complex government regulations -- are particularly acute within the industry.

Emissions from Metal Finishing Operations

The metal finishing sector releases a wide variety of pollutants, as shown in the exhibit. The most obvious source of waste produced by the industry is wastewater generated during rinsing operations. These wastewaters are often treated on-site, producing a hazardous sludge that must be disposed of as hazardous waste. In addition, wastewaters generally contain residual

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[29] Waste Reduction Institute for Training and Applications Research (WRITAR), *Profile of the Metal Finishing Industry*, DRAFT, February 10, 1995, p 14.

[30] U.S. Department of Commerce, Bureau of the Census, *Census of Manufacturers, 1992*, estimates 3,296 facilities in SIC 3471. The Surface Finishing Market Research Board estimates 7,212 captives in "Metal Finishing Industry Market Survey, 1992-1993."

[31] Job shops are included in the Census of Manufactures under standard industrial code (SIC) 3471. Most captives are not represented by SIC 3471; their data are included under the primary SIC code of their manufacturing operation. Therefore, data on employment levels within captives are not readily available.

levels of metals. In the United States, most metal finishers discharge their waters to municipal sewer systems rather than directly to water bodies.

Exhibit 2-1

MAJOR METAL PLATING WASTES AND CONSTITUENTS

Air Emissions	Key Constituents
Solvent releases from degreasing operations Chromium	Solvents • 1,1,1-Trichloroethane • Trichloroethylene • Perchloroethylene • Chlorofluorocarbons • Methylene chloride • Acetone • Toluene • Methyl Ethyl Ketone • Methyl Isobutyl Ketone
Wastewaters Rinse Water Spent Baths Scrubber Blowdown Cooling Water	
Solid and Hazardous Wastes Solvent Wastes • Spent or contaminated solvents • Still bottoms from solvent recovery	Metals • Cyanide • Chromium • Cadmium • Nickel • Aluminum • Copper • Iron • Lead • Tin • Zinc
Spent Process Solutions • Alkaline cleaners • Acid etching solutions • Plating solutions	
Wastewater treatment sludge	

Source: *Waste Streams Case Studies*, OECD Waste Management Policy group, Draft, September 30, 1994.

The "Performance Tier" Structure of the Metal Finishing Industry

Not all metal finishers manage their environmental issues with the same degree of responsibility. To differentiate across firms in this area, EPA worked with the industry and other stakeholders to develop a series of environmental performance tiers. This tier structure is meant to provide a general context for classifying segments of the metal finishing industry by their level of environmental performance; no surveys have been undertaken to determine the number of metal finishers in each tier.

- **Tier 1** firms are consistently in compliance with regulations and are proactive in making environmental improvements to move beyond compliance.

- **Tier 2** represents the largest industry segment, with firms that routinely seek to comply with regulatory requirements. Most firms in this tier are in compliance, but lack the motivation and/or resources to improve beyond that level. A subset of these firms are not in full compliance, but are seeking to improve their performance to that level.

- **Tier 3** firms are old and outdated shops that are not sufficiently profitable to support investment in new pollution controls. These firms may want to shut down, but cannot do so because of fear of clean-up liability.

- **Tier 4** firms are "renegade" shops that are out of compliance, make no attempt to improve, and seek to escape enforcement attention. These firms gain competitive advantage over the higher tier firms by avoiding the costs of environmental compliance.

This four-tier structure has served as a framework for understanding the industry and a tool for targeting policy options in ways that meet the unique needs and opportunities of each performance tier. In particular, EPA has used the tier structure as a basis for developing several projects (including MF2000) under its Common Sense Initiative.

APPENDIX E: MF2000 CONTACT LIST

U.S. EPA OFFICE OF POLICY

David Gardiner	Assistant Administrator
Maryann Froehlich	Office of Policy Development
Robert Benson	Industry Sector Program Division
Mindy Gampel	Project Manager, Metal Finishing 2000-Detroit

Detroit Pilot

INDUSTRY

Frank Buono	Ajax Metal Processing, Inc.
Robert Burger	Chemetco
William DesJardins	Reilly Plating Company
Beth Gotthelf	Seyburn, Kahn, Ginn, Bess, Deitch & Serlin, P.C.
Robert Groom	Reilly Plating Company
Scott Hoensheid	Curtis Metal Finishing Company
Kelly Keesling	J.D. Plating
Mary Ann Krupa	Michigan Association of Metal Finishers
Matthew Marsh	Marsh Plating Corporation
David Marsh	Marsh Plating Corporation
Jeffrey Myles	Curtis Metal Finishing
Jim Sigman	K.C. Jones
George Wines, Jr.	J.D. Plating
Gregory Wronkowicz	Ajax Metal Processing, Inc.

EPA REGION 5

Robert Tolpa	CSI Team Leader
Susan Perdomo	Office of Regional Counsel

Matthew Gluckman	Office of Water
Janet Murray	CSI Team *(formerly)*
Newton Ellens	Office of Air and Radiation
Cathy Scudieri	Office of Water

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY AND STATE OF MICHIGAN

Paul Zugger	Environmental Assistance Division
Frank Baldwin	Environmental Assistance Division
Lawrence AuBuchon	Waste Management Division
Robert Babcock	Surface Water Quality Division
Mike Person	Surface Water Quality Division
Bryan Roosa	Office of the Governor, State of Michigan

LOCAL GOVERNMENT

The Honorable Dennis Archer	Mayor, City of Detroit
Sarah Lile	Department of Environmental Affairs, City of Detroit
Andrew Schmidt	Southeast Michigan Counsel of Governments

POTWS

Kathleen Leavey	Detroit Water and Sewerage Department
Beverly Ingram	Office of Program Management Assistance, Detroit Water and Sewerage Department
Stephen Kuplicki	Industrial Pretreatment Program, Detroit Water and Sewerage Department
Larry Thomas	Ypsilanti Community Utilities Authority
Steve Wyzgoski	Ypsilanti Community Utilities Authority

NON-GOVERNMENTAL ORGANIZATIONS (ENVIRONMENTAL AND COMMUNITY GROUPS)

Andrew Comai	United Automobile Workers

Tracey Easthope	Ecology Center
Marta Hoetger	Southeast Michigan Commission on Occupational Safety and Health
Guy Williams	National Wildlife Federation, Great Lakes Natural Resource Center

U.S. EPA HEADQUARTERS

Patrick Bradley	Office of Water
Mary Beth Gleaves	Office of General Counsel
Kurt Lamber	Office of Regulatory Enforcement
Cassandra Rice	Office of Water Enforcement
Scott Throwe	Office of Enforcement and Compliance Assurance

CONSULTANTS

Bruce McKenney	Industrial Economics, Inc.
James Ridgway	Environmental Consulting and Technology, Inc.
Rebecca Spearot	Lear Corporation

Rhode Island Pilot

INDUSTRY

Lori Bicki	Rhode Island Contract Electroplaters
Anthony Boscia	Lutone Plating
Harold Gadon	Providence Metallizing
Hank Lachance	Excell Manufacturing
Dennis Pichette	ESI
Frank Puglia	ESI
Bob Ricci	Tri-Jay Co/RICE
Jay Sussman	Metfab Sales

EPA REGION 1

John DeVillars	Regional Administrator
Mark Mahoney	Project Manager, Metal Finishing 2000-RI

Linda Darveau	CSI Team
Beverly Fletcher	
Robert Mendoza	

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Edward Szymanski
Richard Enander
Gina Friedman

NARRAGANSET BAY COMMISSION

Juan Mariscal
Jim McCaughey
Kerry Britt
Howard Hadfield
John Motta
Tom Uva

NON-GOVERNMENTAL ORGANIZATIONS

Eugene Park	University of Rhode Island
Curt Spalding	Save the Bay