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Environmental Management Systems in Federal Enforcement Settlements

by Van E. Housman

Introduction

This Article analyzes data and information on the use of environmental management systems (EMS) in federal enforcement settlements. An EMS is an approach to management and system improvements which includes policies, practices, procedures, processes, and resources for developing, implementing, achieving, and reviewing the organization's environmental policy and goals.

The data and information is based on interviews from August 2001 to September 2003 with U.S. Environmental Protection Agency (EPA) personnel who developed and implemented EMS in enforcement settlements (practitioners). To gain an industry perspective, from March to May 2003, interviews were conducted by nine industry parties who developed EMS as part of the enforcement settlement.[1] The author collected information on how EMS have been used in enforcement settlements, tracked the requirements of the settlements and whether these have been fulfilled, examined how EPA and regulated entities are assessing environmental performance, identified where EMS have led to improved management systems and innovative practices, and identified lessons learned and areas for improvements. This data and information may be useful to regulators and regulated entities who plan on using an EMS as part of an enforcement settlement.

How EMS Are Used in Federal Enforcement Settlements

EPA uses the August 2002 Compliance-Focused Environmental Management System (CFEMS) Enforcement Agreement Guidance as a guide for incorporating EMS into enforcement settlements. This model, developed by EPA's National Enforcement Investigations Center (NEIC) in Denver, Colorado, describes an EMS with policies, procedures, and standards addressing 12 key elements. The CFEMS, which is based on EPA's extensive and practical field experience, is used to assist regulated entities in civil, criminal, and administrative cases to prevent and address noncompliance caused by management problems. The CFEMS model is only a guide and is not required in each case. It is intended to supplement, not replace, EMS standards developed by voluntary consensus standards bodies such as International Organization for Standardization (ISO) 14001. It fills potential compliance-related gaps in those standards by actively promoting compliance-focused approaches and results. It can also be used as the basis from which to develop a new EMS.

The data and information was collected on enforcement cases in federal civil consent decrees and criminal plea agreements where the EMS are part of the injunctive relief (part of the remedy that the government requires). In most cases a company will propose an EMS and ask EPA to comment as part of the settlement negotiation process. EPA provides the company with suggestions and technical assistance on the EMS and typically reviews the elements of the proposed EMS against the 12 elements of the CFEMS. EPA's suggestions are typically focused on system-related root causes of noncompliance, such as training and recordkeeping. The EMS may be further modified to suit the needs of the parties.

Generally, an EMS provides ongoing feedback to the company on how well its targets and objectives are being met, which the company then reacts to by amending its environmental policy, plan, operating procedures, and other elements of its EMS. EMS provisions in enforcement settlements are designed to be self-implementing, meaning that they are implemented with minimal government oversight, reviews, or approvals. Initially, EPA's role is to ensure that the company develops an EMS that addresses the violations, help to ensure the violations do not recur, and encourages the company to evaluate its relationship to the environment and respond proactively. Once the EMS is developed, EPA's role is to ensure that the EMS is implemented according to the terms of the settlement agreement.

Typically, a company is liable for stipulated penalties for any failure to comply with the terms of the enforcement settlement, including timely submittal of required documents. Where a company has agreed to implement a comprehensive EMS as part of a consent decree, violations discovered, disclosed, and corrected through that system may be eligible for penalty reduction under EPA's self-audit policies.

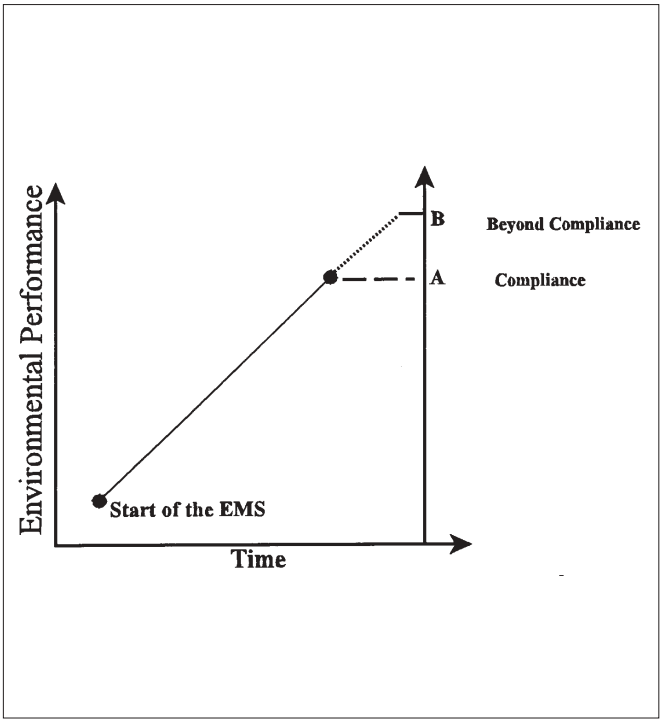
The CFEMS model used in enforcement settlements, like any EMS, is a systematic approach that an organization uses to manage its impacts on the environment, which can include both regulated and unregulated pollution. The goal of the CFEMS guidance is to integrate into a facility's daily operations an EMS that results in the company achieving and maintaining compliance over time, as indicated at Point A in Figure 1. A major added benefit of the CFEMS, and EMS in

Van E. Housman is Acting Associate Director in the Resource Conservation and Recovery Act Enforcement Division, Office of Enforcement and Compliance Assurance (OECA), U.S. Environmental Protection Agency (EPA). The author would like to acknowledge the contributions to this Article by Jon Silberman, Attorney-Advisor, OECA, EPA; Steve Sisk, National Enforcement Investigations Center, EPA; and Laura Herr, Legal Intern, OECA, EPA. The views expressed in this Article are solely those of the author and do not necessarily reflect the views of EPA.

1. This document uses "industry," "company," or "facility" in general terms to identify the defendant to the settlement agreement. The defendants in these cases also include universities, a municipality, and a federal facility.

general is that they have the potential to improve companies' environmental performance beyond what is required under environmental regulations, as indicated at Point B in Figure 1. As part of implementing an EMS, a company may place more restrictive pollution controls on a waste than regulations require because the EMS has revealed the company's environmental impacts beyond its compliance obligations.

Figure 1. Environmental Performance Goals of an EMS



For example, the EMS provisions in an EPA settlement with the American Smelting and Refining Company (ASARCO) require the company to conduct an expedited environmental aspects and environmental impacts review at all ASARCO facilities. In addition to the EMS requirement that ASARCO achieve and maintain compliance with statutory and regulatory requirements, the ASARCO EMS requires the company to develop an assessment, prevention, and control program to assess the environment aspects and impacts of its operations and prevent and control releases. This includes identifying operations and waste streams where equipment malfunctions and deteriorations, operator errors, and discharges or emissions which may lead to or be a threat to human health and the environment. Some of the wastes identified in this process include mining tailings and slag, which are largely exempt from EPA's most stringent hazardous waste regulations.

Regulated Entities With Enforcement Settlements That Require Development or Implementation of an EMS

EPA has entered into 25 settlements since 1993 that require a company to develop and implement an EMS, as shown in Figure 2.

Figure 2. Facilities With EMS in Settlements

1. ASARCO, Inc.
2. B.P. Exploration (Alaska), Inc.
3. Department of Energy, Brookhaven National Laboratory (Brookhaven)
4. Eastman Kodak Company
5. Encycle/Texas, Inc.
6. FMC Corporation
7. Holland Chemical, Inc. (HCI)-Chemtech
8. Massachusetts Institute of Technology (MIT)
9. National Railroad Passenger Corporation (Amtrak)
10. Nucor Corporation
11. City of Roanoke, Va.
12. TRW Vehicle Safety Systems
13. United Technologies Corporation
14. University of Missouri, Rolla, Mo. (UMR)
15. USX Corporation (1998)
16. USX Corporation (2000)
17. Weirton Steel Corporation
18. Willamette Industries, Inc.
19. Safety-Kleen
20. Trustees of Boston University
21. Doyon Drilling, Inc.
22. Wheeling-Pitt, Inc.
23. Cambridge Plating, Inc.
24. Boyong/Oswago, Inc.
25. City of New Bedford, Mass.

The EMS requirements were often applied on a multifacility or corporatewide basis. EPA found that the EMS provisions in the 25 settlements apply to 258 facilities nationwide. Interviews were conducted for 12 of the 25 cases. In at least 5 of the 25 cases, the EMS was certified to the ISO 14001 standards. ISO 14001 is a voluntary standard for EMS that was issued by the nongovernmental ISO in 1996.

Fulfilling EMS Requirements

An enforcement settlement typically requires tasks or milestones to be completed according to an agreed-upon schedule between EPA and the company. For example, this may include developing an EMS workplan, implementing employee training programs, choosing third-party EMS auditors, reviewing EMS manuals, and submitting progress reports. For each case, Appendix A of this document lists all of the requirements related to EMS and the schedule for completion. For each case, the practitioners were asked whether these requirements were fulfilled in a timely manner. In general, the practitioners reported that the EMS requirements were completed on schedule. In the few cases where some tasks were delayed, in the judgment of the practitioners, the delay did not significantly impact the development or implementation of the EMS.

Environmental Performance

Environmental performance is a broad measure of how well a facility reduces or controls its pollution and impacts on the environment. This term is distinguishable from environmental compliance, which is a measure of how well a facil-

ity complies with environmental laws. EPA's review found that since including EMS requirements in federal enforcement settlements is a relatively new effort, it is difficult to assess whether the EMS requirements correlate with an increase in environmental performance. The major obstacle in assessing environmental performance is the lack of statistically significant measurements and data. Additionally, many facilities do not have a standard set of measurements to use—or the appropriate baseline data from which to measure—environmental performance.

One method to indicate improved environmental performance could be to measure operating changes resulting from the implementation of the EMS. For example, the number of procedures reviewed and implemented could be measured, and the number of employees and contractors trained could be measured. However, according to the practitioners, few facilities track this type of data prior to the development and implementation of an EMS. To measure environmental performance, a comprehensive baseline of environmental data would be needed prior to implementation of the EMS.

Environmental Compliance

Most facilities rely on compliance inspections and internal and third-party audits, and in some cases inspections, to assess the overall behavior of the facilities' environmental performance. Examples of approaches to measure environmental compliance include:

> MIT is working on a self-audit system that will include inspections by lab personnel, audits by MIT's auditing group, and third-party audits;
>
> Amtrak will conduct compliance audits and disclose violations to EPA, with the goal of reducing incidents of noncompliance;
>
> The ASARCO EMS requires the company to develop an assessment, prevention, and control program to assess the environment aspects and impacts of its operations and prevent and control releases;
>
> Eastman Kodak's EMS and continuous auditing has reduced the number and severity of the company's environmental violations;
>
> B.P. Exploration used its EMS to determine that accidental spills on the land are one of its major environmental problems and, through its EMS, the company has developed a spill prevention program; and
>
> HCI-Chemtech and UMR have improved their incidences of noncompliance since the implementation of their respective EMS.

Lessons Learned

Practitioners were asked to identify lessons learned from EMS provisions in enforcement settlements and areas where improvements may be made. Below are discussed highlights.

Benefits to Regulated Entities and EPA: The practitioners indicated that most of the companies benefitted from EMS by having the companies establish, on their own, systematic methods for discovering and correcting environmental compliance problems, and identifying opportunities for pollution prevention. Generally, including EMS provisions in federal enforcement settlements has led to an increased awareness of environmental problems at facilities. Because companies with EMS may conduct more self-assessments and self-policing, EPA may be able to expend its inspection resources elsewhere. An EMS may also result in a company improving its environmental performance beyond what is required by EPA regulations. For example, through its EMS a company may place pollution controls on a waste stream that is not regulated by EPA, because the EMS has revealed the company's environmental impacts beyond its compliance obligations.

There is at least one case where the practitioners believe that the EMS may not be helping a facility improve its environmental performance. This can be attributed to poor economic conditions, including bankruptcy, and lack of willingness of management to devote resources to the EMS. Bankruptcy is cited as an area of concern as to the viability of the EMS in at least one additional case.

Developing the EMS: The decision to include an EMS in a settlement depends on many factors and considerations, on the part of both EPA and the company. While there is no formal guidance as to what factors to consider, EPA practitioners suggest the following factors as helpful: (1) a willingness on both sides to pursue further EMS discussions; (2) an EMS is necessary to address the root cause of the violations, or a major EMS overhaul is clearly needed; and (3) the company is on the verge of overhauling its management system anyway and fixing it through the settlement is an added bonus. For example, where poor environmental management practices were the primary contributor to the defendant's noncompliance, then a compliance-focused EMS would be appropriate.

It would prove more effective in the long term for the parties to disclose their desire for EMS provisions early in the negotiation and settlement process. This would allow the facility more time to plan the scope and design of the EMS. Accordingly, the requirements of the EMS should take into account the size, resources, and nature of the facility's operations, and the root causes of its environmental problems.

EPA should maintain flexibility as to the type of EMS to include in an enforcement settlement. For example, if there are numerous environmental violations that arise from systemic management problems, then the CFEMS model that focuses on compliance would be appropriate. However, if there are relatively minor environmental violations, an EMS with a different focus may be appropriate. Further, there can be cases where the management system problems are limited in scope, such as inadequate training. In such cases, a comprehensive EMS may not be warranted as injunctive relief, especially when other solutions are available.

Where an EMS is part of a federal enforcement settlement, EPA must approve certain critical steps in the development and implementation of the EMS. These steps may include reviewing the first draft of the EMS manual, approving the choice of or giving recommendations for the third-party auditor, and approving the third-party auditor workplan. It is appropriate for the company to develop documents where the company has better knowledge about its operations and capabilities. For example, the company develops the initial EMS action plan since the company has

better knowledge of its business plan, resources, and costs than EPA.

Transaction Costs: EPA's experience is that negotiating settlements with CFEMS provisions can be relatively involved in terms of the government resources required. Including EMS provisions in federal enforcement settlements increases the complexity of the negotiations, and may pose problems in connection with the development of jointly acceptable language. For example, the EMS may require the facility to develop new ways to measure environmental performance. EPA should be prepared to commit the personnel required to carry out the negotiations and follow through on the development and implementation of the EMS. In at least one case, a court appointed a third party to oversee EMS implementation, thereby reducing EPA's burden.

A common issue in EMS negotiations is the need to identify an appropriate role for EPA in reviewing, commenting on, and approving EMS documents associated with defendants' CFEMS. The issue is a case-specific one requiring a weighing and balancing of how much EPA review is appropriate, while taking into account such considerations as EPA's available resources, the impact of potentially delaying the process, and the costs to the company. In some instances, merely commenting on a document is appropriate, whereas formal approval may be appropriate in others. Where EPA approval is required, there are transaction costs to the government in the form of the resources required for the review and approval process. Further, the approval process may cause delays and interfere with schedules. The practitioner must also consider the enforceability of the EMS provisions. For example, if the EMS requires the facility to annually review and update all process flow diagrams, the practitioner must ensure that EPA can assess the facility's compliance with that requirement.

Some of the more important EMS work items that should require EPA approval, or right of disapproval, include the EMS action or workplans; third-party auditor selection; and any first-of-a-kind or benchmark submittals. Practitioners suggested that it is advisable to visit the facility and develop a good working knowledge of its operations before approving EMS items. For example, the consent decree may require the company to perform an audit and then develop and submit to EPA for review and comment an action plan for expeditiously bringing the facility into full conformance with the EMS provisions as indicated in the consent decree. Such action plan may include, for example, the result of any root cause analysis, specific deliverables, responsibility assignments, and an implementation schedule.

Self-Implementation: Traditionally, EPA exercises a significant degree of control in ensuring the implementation of the provisions of enforcement settlements. EPA must balance the need to assure future compliance through effective oversight of the defendant's injunctive relief and EMS activities under the settlement, with freeing up these resources for use in focusing on other problem areas. Self-implementing and self-policing EMS can increase a company's capacity for addressing future environmental impacts, and potentially reduce the resources needed from EPA. This assumes that the EMS is of high quality and likely to function at a high level of performance. However, a self-implementing and self-policing EMS may not be appropriate, for example, where likelihood of repeat violations is high, where there is high potential for serious environmental harm, or in situations where the company has not performed in good faith. In these cases, greater EPA control and oversight is warranted.

Incorporating EMS Documents Into the Settlement Agreement: The manner in which EMS provisions are incorporated into the settlement agreement is an important consideration. When negotiating and writing a federal enforcement settlement, EPA will either attach or reference a relevant document. Documents that are attached to the agreement become part of the agreement itself, i.e., binding, and are difficult to change or modify because approval is required. Documents that are included as attachments typically will not require alteration. Examples of such documents in enforcement settlements are compliance checklists. Documents that are referenced in the agreement may be altered with greater ease and typically include procedures or processes for accomplishing the changes. Examples of such documents in enforcement settlements are best practice manuals.

EPA Training and Assistance: EPA personnel with EMS settlement responsibility should receive auditor training and have practical knowledge of EMS development. Such training is necessary to enable the personnel to competently and efficiently identify the need for the EMS, and negotiate its terms. In addition, practitioners should be provided with the necessary EPA programmatic support, especially when reviewing defendant submissions.

The current CFEMS guidance is generally well received by practitioners, although there are indications that practitioners want additional EPA guidance, especially as the Agency's policy toward EMS evolves. One good source of information is found at EPA's website.[2] Some practitioners believe that there needs to be better directions as to how and when to use an EMS. Some practitioners believe that flexibility is needed in the negotiations to allow for site-specific considerations. For example, while many EMS are straightforward, some must be developed in phases and can take up to five years to implement and become fully operational.

Practitioners suggested EPA should develop a central clearinghouse for EMS models and documents. Some believe that coordination and cooperation between different government offices and personnel for obtaining EMS assistance could be improved. EPA media-specific program personnel are often called in to fill the gaps on an ad hoc basis, and these individuals may be difficult to access.

Auditor Qualifications: The use of EMS in enforcement settlements is evolving. When implementing the EMS components of consent decrees, EPA's practice is to require system auditors to meet the ISO 19011 standard and be familiar with local environmental requirements. Experience with the consent decrees negotiated to date, however, reveals that the auditors reviewing the development and implementation of the EMS need to be familiar with the facilities and the processes to which the EMS will apply and have a working knowledge of the type of industry involved than is minimally required under ISO. More recent settlements require that the auditor also have at least a bachelor's degree from an accredited institution. These skills allow the auditors to ask the right questions and more effectively assess the efficacy of the EMS.

Conducting Audits: Conducting multiple facility audits for a single company can be a time- and resource-intensive

2. *See* www.epa.gov/compliance/incentives/ems/index.html.

process. Audits should be spread out over time to allow a learning curve for the auditor. Continuity with the same auditor can ensure that lessons learned will be applied to the next facility audited and communicated back to previously audited facilities. Through their experiences, practitioners found it more effective to have the same auditors conduct multiple audits rather than have many auditors conduct single audits, even if the result is that the total time period required to complete the audits is significantly longer. This would allow the primary auditor(s) to apply what he/she has learned from initial audits to later audits at similar facilities. For instance, in some cases it would be preferable for one to three auditors to conduct audits at 20 facilities over the course of a few years rather than have 20 auditors conduct audits at 20 facilities in one week. As they become increasingly familiar with the facility, auditors can find the more pervasive problems and can note if the facilities' EMS have a common ground.

During the auditing process of multiple facilities within a single company, EPA also finds it more effective when audits are conducted at the more complex facilities first. The auditor tends to be more attentive to the first couple of audits and will be able to set high standards for the subsequent audits. At least one practitioner believes that EPA should be present during the first few audits to ensure the audits get off on the right start.

System Improvements and Innovative Practices Due to EMS

Practitioners provided examples of where EMS development and implementation has resulted in improvements in a facility's management system or otherwise resulted in innovative environmental practices. Below are presented highlights.

Assessing and Improving Environmental Processes: Including EMS provisions in enforcement settlements has prompted facilities and companies to take a closer look at their processes and the resulting impacts on the environment. Facilities have made improvements in a number of areas as a result of EMS implementation. For example:

> MIT has improved its training programs and recordkeeping and is considering automating its audit process and inventory systems. Lines of authority and responsibility are improved;
>
> Amtrak has discovered that it lacked a system to track the environmental requirements of individual facilities and created a system to address the issue;
>
> The city of Roanoke has improved how it was managing its waste streams related to public works;
>
> The UMR credits its EMS in increasing communication, accountability, responsibility, awareness training, and culture regarding environmental compliance; and
>
> Through its EMS, B.P. Exploration has found that many of the environmental violations were caused by B.P. Exploration's contractors, and the company has significantly improved its process of overseeing contractors.

Creating New Programs: Including EMS provisions in enforcement settlements has prompted facilities and companies to create new programs, a majority of which are related to training employees, and devote significant resources toward EMS implementation or toward enhancing environmental performance. For example:

> MIT has developed a web-based training program for hazard communication, chemical hygiene, and hazardous waste management;
>
> B.P. Exploration has invested heavily in developing its EMS and is attempting to make it a benchmark for the industry;
>
> Brookhaven plans to teach other parties how they implemented their EMS; and
>
> As part of its supplemental environmental project, the city of Roanoke is conducting training programs for 100 municipal government teams regarding implementation of EMS programs.

Changing Personnel Structure: Including EMS provisions in enforcement settlements has prompted facilities and companies to assess and change corporate culture and personnel structure. A company may have significant staff turnover, posing difficulties in implementing the EMS. Practitioners expressed opinions that an EMS can change corporate culture from one of adversarial relationships to one of working together and stewardship. Typically, changes in personnel structure included adding personnel to the environmental compliance teams or elevating environmental professionals to management teams. For example:

> MIT has created a senior position responsible for environmental management, hired other environmental professionals, and integrated its health and safety functions;
>
> Amtrak has noted deficient staffing and leadership and increased staffing from 8 environmental compliance employees to 35, including 18 field personnel and has created an assistant vice president of environmental compliance position;
>
> The city of Roanoke has hired a full-time environmental compliance manager; and
>
> Through environmental training, HCI-Chemtech has made chemists into environmental managers, which expands technical expertise and environmental awareness at higher levels of management.

Industry Perspective on EMS in Enforcement Settlements

Industry perspectives on EMS in enforcement settlements were gathered from nine industry interviews conducted by EPA. The nine industries contacted for the interviews varied in industry type, size, operating and organizational structures, and EMS design.

Industry representatives were asked whether their EMS were helping to improve environmental compliance and how they were measuring environmental impacts and improvements. Additional questions focused on the negotiation process between EPA and industry representatives and where this process could be improved. Below are highlights from the interviews.

Environmental Improvements Resulting From the EMS: All industry representatives found that EMS helped identify and correct environmental problems. Even those industries

that already had new environmental projects in place prior to implementation of the compliance-focused EMS showed improvements. Brookhaven, B.P. Exploration, Encycle, and ASARCO all noted specific improvements as a result of their respective EMS. For example, Brookhaven credits its EMS with reducing the frequency of leaks in storage tanks and preventing groundwater contamination.

Most industry representatives reported an increase in communication between lower level and upper level employees. This open forum for communication was found to facilitate employee feedback on environmental issues and this information reached upper level management. As a result, management was able to adjust and make faster changes in its environmental operations.

EMS resulted in a raised level of awareness and interest in environmental matters companywide. Some industry representatives remarked that management's increased involvement was the key to the success of the EMS in their industry operations and that managerial guidance with respect to environmental issues did more to bring industry operations on track than the EMS alone.

Most industry representatives credited the EMS with increased monitoring, recordkeeping, and reporting of environmental issues. Improvements in compliance with environmental laws and regulations were specifically noted.

Measuring Environmental Results: Industry uses a wide range of measures to assess environmental performance. These include assessing the number of environmental goals achieved each year, measuring environmental data such as groundwater contaminants and national pollutant discharge elimination systems effluent, tracking the number of employees taking environmental training, measuring the frequency of environmental releases, and measuring waste and energy reductions.

It should be noted that only four out of the nine industries contacted had baseline environmental data prior to the implementation of the EMS. Among the four companies, Brookhaven and B.P. Exploration had extensive environmental data compiled prior to putting their EMS in place. MIT and UMR also had environmental data, but not in the detail or with the organization of the former companies.

Lessons Learned: All industry representatives reported that their respective EMS resulted in increased self-discovery of environmental problems as well as increased awareness of environmental issues. In addition, the majority of industries contacted had found community outreach programs to be instrumental in their own awareness of environmental issues, and had consequently instituted some form of mentoring program whereby they could speak with other industry representatives on EMS.

Most noteworthy were the findings of the two university representatives from MIT and UMR, both of whom found that faculty involvement was a necessary element of their EMS. University faculty are often granted considerable autonomy. Without faculty support and collaboration on environmental problems arising on campus, efforts to make environmental improvements suffered.

Industry Impression of the Negotiation Process: Overall, EPA was seen as appropriately flexible throughout the EMS negotiation process by industry representatives. However, B.P. Exploration reported that EPA was perceived as inflexible by B.P. representatives. It should further be noted that some industry representatives, e.g., UMR and HCI-Chemtech, voiced the concern that the degree of flexibility implemented by EPA was determined by what the company was willing to concede as part of the negotiation.

Industry Suggestions/Comments on the Negotiation Process: The most frequently mentioned comment among industry representatives was that EPA often failed to take into account the nature of the business with which they were negotiating. Industry representatives felt that a business' particular needs and environmental priorities should be taken into account before developing the parameters for the EMS. Such action was thought by industry representatives to keep the EMS tailored to its particular business, and to consequently ensure that the EMS would continue to be seen by management as a helpful tool and not as a form of punishment.

Other Suggestions and Comments: Another suggestion made by industry representatives was the idea that more incentives are needed to encourage EMS, generally. For example, Brookhaven suggested innovative programs like EPA's premier recognition program "performance track" as an effective means of encouraging companies to voluntarily act in an environmentally beneficial manner. Performance track companies have existing EMS or develop EMS. EPA recognizes performance track companies as good performers because of their EMS and compliance history. As an incentive, EPA performs routine inspections at a lower frequency at performance track companies.

Built-in incentives were also thought by industry representatives to encourage industries currently without EMS to unilaterally implement an EMS. Some industry representatives believed that intrinsic motivation, fostered by EPA oversight, was an important aspect in having a successful EMS.

Appendix A—Methodology and Data Collection

This data and information collection effort used a four-step process to develop appropriate information.

1. Using ShadowLaw, LEXIS databases, and contacts throughout EPA and the U.S. Department of Justice, the author identified and compiled the case name and identification number, plaintiff, defendant, type of action, court, statute(s), standard industrial classification, number of facilities affected, data source, type of EMS, as well as compliance, ISO 14000, audit policy and audit disclosure information. These cases were identified through ShadowLaw and LEXIS databases, contacts within EPA, and the publication by William L. Thomas, Bertram C. Frey, and Fern Fleischer Daves, *Crafting Superior Environmental Solutions*, Environmental Law Institute, August 2000.
2. EPA compiled the specific provisions pertaining to the terms, requirements, and time frames for both plaintiff and defendant in the EMS development and implementation, and all other EMS-related requirements.
3. Using a similar set of questions for each case, the author solicited the views and opinions of appropriate EPA personnel and obtained information on how the EMS requirements were fulfilled.
4. The author interviewed nine regulated entities that have used EMS as part of enforcement settlements to solicit their perspectives.