USING STAKEHOLDER INPUT TO DEVELOP ENVIRONMENTAL REGULATORY APPROACHES:
A CASE STUDY

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Many regulated entities today charge that environmental regulations have become inefficient and could be made more cost effective. The U.S. Environmental Protection Agency (EPA) has identified several initiatives to help "reinvent" environmental regulations and address those charges. At the same time, the President and others are pursuing the development and use of new environmental technologies. Reflecting these trends, Argonne National Laboratory is helping develop a prototype multimedia environmental regulatory program for petroleum refineries operating in the future. The project differs from other regulatory reinvention efforts in that it is future-oriented and, as a result, may result in recommendations that depart significantly from those from existing regulatory systems.

This paper notes the importance of communicating environmental information when developing and implementing regulatory approaches. Two approaches — one goal-based and the other risk-based — are being considered for the prototype regulatory program. Both are site-specific, and the implementation of both requires a significant amount of communication among refiners, regulators, and other stakeholders. Of even greater importance, however, is the communication involved in the development of these approaches. Because these new regulatory approaches could fundamentally change the way regulated entities operate, ideas and concerns of groups likely to be affected by the regulatory prototypes need to be considered. This case study focuses on the use of structured workshops involving representatives from three separate interest groups — refiners, regulators, and the environmental community — in developing regulatory approaches.

At the time of this writing, workshops have been held with two groups, and a third is being scheduled. This paper describes the process for eliciting interaction, highlights the results of the workshops, and discusses ways to optimize approaches for obtaining and using environmental communications. Results and lessons learned may be applied to improve regulations in other sectors.

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INTRODUCTION

During the past few years, the White House, EPA, numerous nongovernmental organizations, and several industries have been exploring ways to "reinvent environmental regulation." These efforts recognize that environmental regulations written in the 1970s have resulted in significant improvements in the nation's air and water quality. They also acknowledge problems with these regulations. For example, existing regulations typically focus on one environmental medium (e.g., air) and offer little opportunity or incentive for regulated entities to introduce measures that would limit overall net environmental impact. Also, because many pollutant release limits are established on the basis of limits that can be achieved by using best available technology, there is little incentive to "go beyond" compliance or to employ alternative pollution prevention approaches.

Studies of the petroleum refinery industry, in particular, have concluded that current regulations often ignore the multimedia impacts of particular rule makings, the issues associated with overlapping regulatory programs, and the benefits of coordinated, site-specific approaches to reducing pollution (Raffle and Mitchell 1993). The National Petroleum Council (NPC) has concluded that over the next 20 years, capital and operating and maintenance expenditures made by refiners to comply with environmental regulations will be more than $150 billion. On an annual basis, this amount is more than two times that incurred in the last half of the 1980s. The NPC suggests that policy managers recognize that the costs of regulation will be reflected in the marketplace and will affect competitiveness and the long-term financial health of the industry. It also suggests including U.S. refiners in a constructive process with government and other interested stakeholders to plan strategies and develop cost-effective solutions to environmental and other problems related to the refining industry (NPC 1993).

Responding to these concerns, the EPA and the U.S. Department of Energy (DOE) are sponsoring an effort to develop one or more prototype multimedia regulatory programs for next-generation refineries. The material presented in this report is based on work conducted by Argonne National Laboratory and Analytical Services, Inc., under a grant from EPA with matching support from two offices within DOE: the Office of Fossil Energy and the Office of Policy and International Affairs.

The term "next-generation" means that while no new refineries are expected to be built in the United States in the foreseeable future, the conditions under which existing refineries operate can be expected to change. The prototype regulatory programs must recognize and reflect these changing conditions.

In developing these prototypes, a deliberate and structured approach is being used to involve stakeholders. This involvement incorporates two-way communication between those developing the prototypes and those potentially affected by the prototypes. It also ensures that concerns and ideas expressed by interested stakeholders are reflected in the actual real-time development of the prototypes. Such inclusion is especially important because the prototypes are future-oriented. Unlike other ongoing regulatory reinvention efforts, such as the EPA's Project XL and Common Sense Initiatives, which seek nearer-term

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results, the prototype programs are oriented toward future operating environments. As such, they are to be developed by assuming a "clean slate." That is, they are not to be constrained by existing regulations; the objective is to offer a new approach. If the new approach conflicts with existing laws or regulations, then the laws may need to be changed.

DEVELOPMENT AND USE OF ENVIRONMENTAL COMMUNICATION

The regulatory prototypes were developed on the basis of environmental information obtained by following six steps. These steps were to (1) identify stakeholder groups, (2) structure the means for obtaining input from stakeholders (e.g., workshops), (3) provide background information to participants, (4) conduct the workshops, (5) capture the results, and (6) refine the prototypes on the basis of the results.

Identifying stakeholder groups

Although communicating with as many stakeholder groups as possible would allow for maximum information exchange, project resources limited the number of exchanges that could occur. Therefore, the project sponsors decided to conduct at least two exchanges — one with refiners and one with EPA. Depending on future funding, stakeholder exchanges with state and local regulators, national environmental and public interest groups, and community grassroots organizations may be held.

Structuring the means for obtaining input

Environmental communication with stakeholders can take many forms. In this case, possible forms included the following:

- Providing detailed reports and asking for comments at one or more stages in the development process,

- Holding a conference to present findings,

- Holding a workshop with members of various stakeholder groups to present findings and ask for comments, and

- Working with small groups representing separate stakeholder groups.

Each approach has advantages and disadvantages. For example, the EPA's Common Sense Initiative (CSI), which was established to recommend changes in environmental regulations, statutes, and programs that will result in "cleaner, cheaper, and smarter" outcomes for entire industries, focuses on six industry sectors, one of which is petroleum refining. The mechanism for developing these changes entailed a series of meetings involving government officials, environmental groups, and industry groups to create

industry-specific strategies to work toward these outcomes to achieve environmental protection through consensus-based decision making. However, although the refinery group met several times, relatively little progress was made. Some observers attributed this lack of progress to the fact that the group, which consisted of multiple stakeholders, was trying to reach 100% consensus and was unable to do so. Refinery representatives found that trying to achieve such consensus among stakeholders can paralyze negotiations and is a key reason why participating in CSI has been costly and labor-intensive for the petroleum industry (GAO 1997). Less interactive and ambitious communication forms also have problems. For example, providing only written reports limits real exchange because the amount of time a participant can devote to reviewing reports may be limited because of other priorities.

Because no single environmental communication form seemed optimal, the next-generation refinery project team attempted to combine the best attributes from several approaches and developed the following structure for obtaining input and enhancing communication:

- Hold a series of workshops with groups of 6 to 10 representatives from a given stakeholder group (e.g., refiners, regulators).

- Before each workshop, provide each participant with a package of background materials and a detailed agenda of what is expected to occur at the workshop.

- At each workshop, summarize the background information, present current thinking on the two draft regulatory prototypes, and solicit comments and suggestions on the work done to date.

- Use the same format to conduct each workshop, so that the results can be compared.

Providing background information

To provide a foundation for developing optimal prototypes, the project team conducted detailed investigations in several refinery and regulatory areas. Thus, the team identified and analyzed the nature and extent of the effects of multiple environmental regulations on refineries operating in the future. It researched the expected operating environment with respect to future demand for refinery product, sources and quality of input crude, new technology developments, and economic considerations. Before prototype development began, the team established a set of guidelines and principles for the prototypes. Also, goals for the prototypes and measures or indicators for determining how well the goals were being met were identified. For each of these investigations, the project team prepared a detailed report of findings.

The project team distributed a package consisting of each of these reports as well as a detailed agenda for the workshop to each participant roughly two weeks before the

workshop. The project team wanted participants to have an understanding of the objectives and methodology before the workshop. At the same time, it recognized that participants would probably not study the reports prior to the workshop.

Conducting workshops

The following format was followed at each of the one-day workshops and will be repeated for any additional workshops.

Background and summaries. After introductions and a discussion of background and objectives for the meeting, the project team summarized each of the background reports (guidelines and principles, environmental laws and regulations governing petroleum refineries, future refinery operating environment, and regulatory goals for the prototype multimedia regulatory program). Comments and questions were solicited from the workshop participants.

Overview of prototypes. The next part of the workshop consisted of a general overview of the prototypes developed to date. This overview included a description of how the prototypes were developed and explained that the process resulted in two prototypes, each with a different theme. One prototype was goal-based, and the other was risk-based. Both could be compared with the existing approach, which can be characterized as primarily "end of pipe" or "command and control." Each prototype (and the existing approach) can be viewed as having three components. These are:

1. Establishing a baseline,

2. Setting limits for releases of pollutants, and

3. Assuring compliance with the limits.

The project team explained what elements make up the components of each approach. For example, setting the limits in the goal-based approach is achieved by negotiation between the refiner and the regulator, with input from stakeholders. The limits are presented as percentages or absolute reductions from current levels and are linked to current and projected regulatory requirements. In the risk-based approach, the limits are based on risk and do not consider existing regulations. Table 1 illustrates the key differences between the two approaches. During these explanations, the project team clarified questions but asked that participants provide their comments during the third and most important part of the workshop.

Working session. The third part of the workshop was a detailed working session on the prototypes. The working session was facilitated, and participants were urged to comment freely. The project team told the participants that they should not feel constrained by what had been done to date; because this was a future-oriented program, the workshop participants

could craft a prototype completely different from either of the two approaches. The work session was divided into three parts.

In the first part, the project team solicited comments on the overall three-component structure (establishing the baseline, setting the release limits, and assuring compliance). The team sought feedback on whether the structure was appropriate for viewing and developing prototypes and how it could be optimized. The project team recorded comments on flip charts.

In the second part, the project team solicited comments on the goal-based approach. After reviewing the elements of the approach, participants were asked to add any elements they thought could improve the approach. Finally, they were asked to react to all of the elements — that is, those developed by the project team as well as those added by the workshop participants. This was also a facilitated discussion, with ideas recorded on flip charts.

The third part repeated the second part for the risk-based approach.

Summary of workshop. In the final portion of the workshop, the project team summarized what it had heard and asked participants to indicate whether they agreed with the conclusions. Participants were also asked to provide any additional comments or data they believed would be useful in refining the prototypes.

Capturing the results

Within a day or two of each workshop, once all input was received, the project team prepared written summaries of the comments received during the workshops to use in refining the prototypes. Reports of workshop findings are also being distributed to workshop participants, allowing them an additional opportunity to comment.

Refining the prototypes on the basis of results

After the final workshop, the prototypes will be refined to reflect input obtained during each of the workshops. For example, any suggestions to provide more detail or examples would be incorporated. Also, implementation issues will be addressed. For example, because of the project's future orientation, implementation of one or more of the prototype elements could conflict with existing laws and regulations. Part of the prototype refinement process will include analyses of conflicts that might occur and the kinds of statutory changes needed to enable legal implementation of the prototypes.

The project team intends to present the refined prototype(s) and solicit additional comments at a conference attended by a variety of stakeholders with potentially differing perspectives. At that time, these stakeholders will be able to interact with each other and the project team and react to the revised prototypes. The project team will use the information

obtained in this larger exchange to make a final round of revisions to the prototype approach(es).

RESULTS

To date, two stakeholder workshops have been held. The project team had no preconceived notions of how either group would react to the draft prototypes. In general, both groups provided constructive criticism and candid observations that will aid in developing realistic approaches that can be thoughtfully considered by broader audiences.

Perhaps the most striking result from the workshops was that although differences between the two groups (refiners and regulators) were expected, there were more differences among participants within a workshop than there were between workshops. For example, refiners do not have a common perspective on regulatory reform. Some actively seek major reform, some would prefer minor changes to improve specific parts of the regulatory system, and some would prefer maintenance of the status quo. Some see different areas as needing reform. For example, while the current study focuses on environmental regulations at the refineries themselves, several refiner representatives noted that the larger and potentially more costly environmental regulations pertain to reformulation of fuels.

Several comments were common to both workshops. These are highlighted below:

- *Refineries may not be the best industry to attempt a new regulatory approach.* Both refiners and regulators recognized the need for at least some change in the current regulatory approach but suggested that because refineries were such complex operations, perhaps another manufacturing sector would be a better target for a prototype regulatory reform effort.

- *State input is critical.* Because regulations are administered increasingly at the regional and state levels, input should be obtained from state regulators as well as from EPA headquarters.

- *Program success measures need to be developed.* Both groups agreed that the ability to measure the success of the program was important, and both stressed the need to recognize that interpretations regarding enforcement vary. As a result, any prototype approach needs to define enforcement mechanisms clearly.

- *The prototype approaches may be costly to implement.* Refiners and regulators also agreed that both prototypes in their current forms could be very costly. For example, conducting a comprehensive baseline inventory of all pollutants generated in a refinery could be so expensive that it could overwhelm any cost savings that might otherwise accrue from the approaches. Both groups suggested that ranking or screening pollutants to focus resources could help reduce costs.

- *From a timing perspective, the goal-based program may be easier to implement.* Because it departs less from the existing regulatory approach, the goal-based approach could be implemented more quickly than the risk-based approach, for which more data, research, and analysis would be required to develop the risk-based levels and to assess and develop risk-based trading options.

- *Regulatory approaches could be tested on a subset of regulations.* Some participants suggested that the approach could be implemented for a set of environmental regulations (e.g., proposed effluent guidelines for discharges to surface water) rather than for all regulations.

Several other points were raised. In general, workshop participants suggested ways to improve the prototype approaches. They also provided "cautionary" observations, which, from their perspectives, may require attention before the final draft of the approaches.

DISCUSSION

The use of formal communication exchange programs (workshops) has provided valuable input to the prototype development process. Key items contributing to the success include the following:

- *A deliberate, structured format.* The structured format of the workshops helped ensure consistency, so that although the stakeholder groups were separated, the information provided and the manner in which responses were solicited were common to both. Reviewing the reports during the workshop (even though all participants had received them ahead of time) helped ensure that all participants had a common understanding of the goals and objectives of the study.

- *Continual solicitation of comments and feedback.* The project team candidly emphasized that the prototypes were drafts and that it sought ways to improve them. Workshop participants were the experts; the project team needed their input.

- *Workshop size.* Six to 10 participants seemed optimal. This range was large enough to provide for a variety of perspectives and small enough to provide for meaningful exchange.

- *Documentation of results.* Capturing participants' comments in real time on flip charts, summarizing them in the break, presenting them to the participants, and asking for their validation during the same day helped ensure their accurate recording. Documenting summaries while "fresh in the mind" helped maximize "group memory." Providing the results to

participants after the conclusion of the workshops helped ensure that the project team obtained a reasonable reflection of actual comments.

- *Use of results.* Conducting the workshops implies that use of input obtained from the workshops can require changes in basic assumptions. For example, some refiners (as well as other stakeholders) may not want to implement the kinds of fundamental changes offered in these two approaches. As a result, the project team must be prepared to offer the prototypes as alternatives to the existing regulatory system rather than as substitutes for it.

By including environmental communication as an integral part of the prototype development process, the project team expects that potential issues and concerns can be addressed before they are presented to broader audiences.

REFERENCES

GAO, 1997, *Challenges Facing EPA's Efforts to Reinvent Environmental Regulation*, GAO/RCED-97-155, U.S. Government Accounting Office, June.

NPC, 1993, *U.S. Petroleum Refining — Meeting Requirements for Cleaner Fuels and Refineries, Volume I, Analyses and Results*, National Petroleum Council, August 30.

Raffle and Mitchell, 1993, *Effective Environmental Strategies: Opportunities for Innovation and Flexibility under Federal Environmental Laws*, Amoco Corporation and Hutcheson & Grundy, June.

TABLE 1 Elements of Goal-Based and Risk-Based Regulatory Prototype Approaches

Establish Baseline	Set Limits	Assure Compliance
Elements Common to Both Prototype Approaches		
Identify all facility-specific residuals	Use joint refiner/regulator approach	Base on incentives
		Provide flexibility in compliance
Use joint refiner/regulator approach	Develop facilitywide limits	Assess penalties for exceeding limits
		Streamline reporting
		Use facilitywide permit
Elements Unique to Goal-Based Approach		
Identify current costs of environmental management	Use current releases, current regulatory requirements, and anticipated regulatory requirements as basis for negotiation	Use baseline to measure progress
		Assess penalties if reduction goals are not met
	Negotiate limits for individual pollutants	Compensate affected interests if negotiated limits or reduction goals are not met
	Negotiate total release reduction goal	Send disputes to predesignated arbitration panel
	Ensure public participation	
Elements Unique to Risk-Based Approach		
Reflect site-specific environmental conditions, risks, and receptors	Establish residuals of concern	Allow for cross-pollutant and cross-media trading, based on risk
	Establish acceptable cumulative health and ecological risk on the basis of site-specific receptors and conditions	
Solicit data from potentially affected parties		Link monitoring of releases to risk models
	Establish pollutant-specific release levels by using dispersion and risk modeling	
	Reexamine limits periodically	

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