ISO 14001 Environmental Management Systems and Public Policy

Proceedings of a Workshop held on July 29, 1999

Oakland, California

Sponsored by the Pacific Institute for Studies in Development, Environment , and Security

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Summary

On July 29, 1999, the **Pacific Institute for Studies in Development, Environment and Security** hosted a half-day workshop entitled *ISO 14001 Environmental Management Systems and Public Policy*. Approximately 30 people attended the event, with 16 public interest groups and 6 state and federal agency offices represented. Participants from the non-profit sector included state and national conservation organizations, environmental justice groups, and local community-based organizations. Government agencies represented included various offices within Cal/EPA, U.S. EPA Region IX, and U.S. EPA Office of Pollution Prevention and Toxics (see Appendix A for a list of participants).

The purpose of the workshop was to provide a forum for the NGO community and state and federal agencies to discuss the emerging role of environmental management systems (EMSs), such as ISO 14001, within the context of public policy. Specific goals of the workshop were:

1) to bring together leaders of California's environmental community to learn about EMSs and discuss their appropriate role in public policy;
2) to gain feedback from public interest organizations on issues of concern and mechanisms for addressing these concerns, and;
3) to identify and coordinate the way in which public interest groups can meaningfully participate in California's evolving regulatory programs.

Jason Morrison of the Pacific Institute opened the workshop with some welcoming remarks and asked participants to introduce themselves and briefly describe their objectives for the workshop. Following introductions, Mr. Morrison provided a brief overview of EMSs from a public interest standpoint, looking at the potential benefits and limitations of the ISO 14001 standard. Jerry Speir, a representative of the Sierra Club and professor at the Tulane Law School, outlined what is taking place in terms of EMS and regulatory innovation, focusing on the states of Oregon and Wisconsin. Bonnie Barkett of EPA, Region IX provided a federal perspective on the role of EMSs within a policy framework and a description of how EMSs are being integrated into some of Region IX's programs. The final speaker, Bob Stevens of Cal/EPA's Department of Toxics and Substance Control, described Cal/EPA's *ISO 14000 Innovation Initiative* and explained how it fits into the agency's longer-term strategies for environmental protection in the state.

Following the formal presentations, there was a roundtable discussion facilitated by Jim Mayer of the Little Hoover Commission. Overarching themes and outcomes of the discussion were:

- Support for the general goals of EMS-based regulatory innovations, although some participants remained cautious, pending more information on project details.
- General agreement that compliance with current regulations should be the "floor" and that EMSs, in a policy setting should only be used to augment existing regulation.
- Transparency of EMS-based regulatory innovations and access to credible information on the environmental performance of companies are essential to the success of the programs.

Given shrinking agency resources, there is a need for regulators to determine how best to allocate resources on enforcement of existing command and control regulations versus voluntary initiatives, such as promotion of EMSs.

Presentations

Jason Morrison, Research Associate, Pacific Institute for Studies in Development, Environment, and Security, Oakland, California

Mr. Morrison began his presentation with an over view of topics to be covered in his talk:

- a brief background on the history of the International Organization for Standardization (ISO) and the ISO 14000 series standards;
- the potential benefits and limitations of the ISO 14001 EMS standard, and;
- the key components and general requirements of the standard.

ISO 14000 Standards in Context

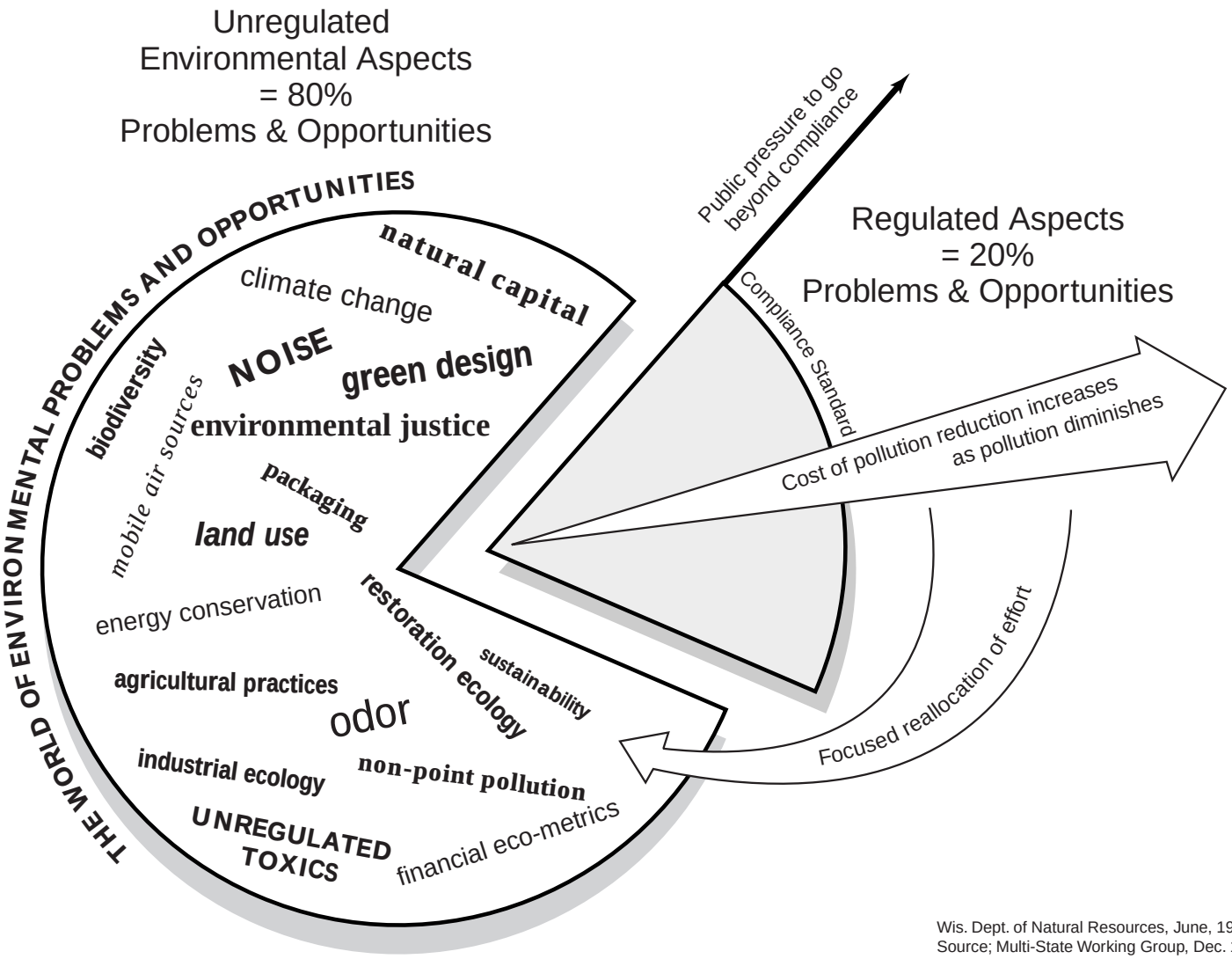
Mr. Morrison explained that ISO is a global federation created shortly after World War II by businesses interested in developing international manufacturing, trade, and communication standards. ISO is composed of member bodies representing over 110 countries, with an ISO Central Secretariat based in Geneva, Switzerland. The U.S. member body to ISO is the American National Standards Institute (ANSI). Since its inception, ISO's focus has expanded from the setting of technical engineering standards, to developing quality control management standards in the early 1990s. Through the work of Technical Committee 207, ISO is now in the process of finalizing a series of standards called "ISO 14000" that will provide businesses around the world with a standardized structure for managing the environmental aspects of their operations. Within TC 207, standards are being developed that focus on environmental management systems, auditing, environmental performance evaluation, ecolabeling, and life cycle assessment. The ISO 14001 EMS standard is the cornerstone of the ISO 14000 series and is the only standard within the series under which organizations can be certified.

Potential Benefits of ISO 14001

Mr. Morrison suggested ISO 14001's greatest strength is that it provides a systematic plan-do-check-act continual improvement model for organizations. The framework laid out in the standard, he argued, is likely the user-friendliest procedure for comprehensively identifying environmental aspects, setting associated performance goals, and monitoring and documenting environmental performance. In theory, the model of continual improvement can take organizations beyond compliance with existing laws, as the iterative nature of the process can enable environmental performance levels that surpass government standards.

He believed another benefit of the EMS approach is its cross-media nature (i.e., air, water, solid waste are considered collectively), as well as its ability to integrate various business functions (i.e., accounting, procurement, product engineering). The EMS approach can also integrate entire product systems, from resource extraction, to the manufacturing, use, and disposal phases. Assessing the environmental impacts associated with the various phases of a product system, can in turn influence supply chain management decisions of an organization.

Mr. Morrison also expressed interest in the potential for EMSs to address non-regulated environmental aspects, such as energy and raw materials consumption, greenhouse gas emissions, solid waste, and non-point sources of pollution. Many of the environmental challenges that lie ahead, he suggested, can not be adequately addressed by the current regulatory structure; however, EMSs offered a means of addressing some of these challenges. He presented the figure below to illustrate his point.



Wis. Dept. of Natural Resources, June, 1999
Source; Multi-State Working Group, Dec. 1997

Limitations of ISO 14001

Mr. Morrison prefaced the next portion of his discussion by noting that the following points were not necessarily criticisms of the standard, but clarifications of what the standard does and does not entail. He stated his belief that comprehensive EMSs represent one of the most promising and efficient mechanisms for improving the environmental performance of private and public sector organizations. However, he also cautioned that there is a distinction between the EMS approach and what is required in the ISO 14001 standard. His greatest concern was that external stakeholders would misconstrue what ISO 14001 can deliver, as well as what certification to the standard actually means.

Mr. Morrison explained that prescriptive environmental performance levels are not included in ISO 14001. Standard writers justified their exclusion due to differences in national environmental regulations and the fear that specified levels might stifle continual improvement and innovation. He pointed out that the specifications within the ISO 14001 standard do not guarantee 14001-certified organizations will actually improve their environmental performance or be in regulatory compliance. It is conceivable that improvements in environmental performance can be negligible even after full implementation of an EMS. Furthermore, while an organization must take into account "applicable legislative requirements," the ISO 140001 standard does not require the company to be in compliance with these laws.

The justification for the standard's fairly general specifications is that ISO 14001 was never intended to be a stand-alone document, but a framework to be accompanied by state and national regulations that set environmental compliance and performance obligations. Mr. Morrison stressed that given ISO 14001's current limitations, state and federal agencies will have to build "ISO Plus" components around the standard to achieve a range of policy objectives. These components include environmental performance reporting, robust compliance assurance programs, an emphasis on the pollution prevention hierarchy, and stakeholder involvement in the design and implementation of EMSs.

Mr. Morrison concluded his discussion of the standard's "limitations" by portraying ISO 14001 as an engine without a steering wheel. The ISO 14001 framework is a very effective tool for organizations that seek to achieve certain performance objectives and targets, but the standard itself does not provide any guidance or requirements for what those targets might be. The absence of performance levels, in his view, only becomes problematic when coupled with a lack of transparency to external stakeholders. Because certification is of a management system and does not provide information on the environmental performance of an organization per se, he feared that certification could be confusing to external parties.

General Overview of the ISO 14001 Standard

Mr. Morrison provided a summary of the ISO 14001standard's framework and general requirements, outlining the five main elements of the standard:

Environmental Policy

The standard requires top-level management to establish an environmental policy, which at a minimum must include commitments to pollution prevention, continual improvement (of the management system), and compliance with "relevant environmental legislation and regulations, and with other requirements to which the organization subscribes" (ISO 14001:1996(E)). The policy must also provide a framework for setting and reviewing environmental objectives and targets, must be communicated to all employees, and be made available to the public. The remaining specifications in 14001 are largely geared toward operationalizing the environmental policy.

Planning

In the planning phase, the organization is required to identify the environmental "aspects" relating to its activities, products, and services and to "determine those which have or can have significant impacts on the environment" (ISO 14001:1996(E)). Examples of "aspects" are sulfur dioxide emissions, raw material consumption, or noise. Once determined, significant aspects, become the focus of the remaining components of the EMS, including the setting of objectives and targets, the establishment of management programs and operational controls, and the measurement of the performance of the system over time.

Quantifiable objectives and targets and management programs to achieve them are also laid out in the planning phase. The objectives and targets must be consistent with the organization's environmental policy, including the top-management commitments to pollution prevention, compliance, and continual improvement, and must also consider the organization's significant environmental aspects, as well as the views of interested parties. In designing the management programs, the organization must assign responsibility to individuals and establish a timeframe for achieving goals.

Implementation and Operation

During the implementation phase of the EMS, top management further specifies individual roles and ensures that the appropriate resources are provided. Employees are trained on the significant environmental aspects related to their work activities and "their roles and responsibilities in achieving conformance with the environmental policy." Organizations must develop documented procedures for operations and activities relating to the environmental policy and objectives and targets.

Checking and Corrective Action

On a regular basis, the organization must monitor and measure its operations, in order to track the performance of the system. It must also periodically evaluate compliance with relevant environmental legislation and regulations. A procedure to assess non-conformances must be established, as well as a plan for corrective and preventative action. Periodic, comprehensive audits of the EMS are to be performed, with the results of the audits and reviews recorded and maintained for internal use.

Management Review

The EMS audit results are to be periodically provided to top management, who assess the need for changes to the policy or other EMS elements, in order "to ensure its continuing suitability, adequacy, and effectiveness" (ISO 14001:1996(E)).

Jerry Speir, Director, Tulane Institute for Environmental Law & Policy

Professor Speir began his presentation by stating a few basic principles:

- Our present system of environmental regulation, despite its successes, does nothing to encourage the regulated community to do more than the compliance minimums, so that "compliance" becomes a kind of ceiling, as well as a (theoretical) floor.
- Many regulated companies can, in fact, do better than the compliance minimums.
- The present system also does little or nothing to regulate a whole host of environmental impacts, such as energy and water use, unlisted toxic substances, waste production, and other things such as "endocrine disrupters," of which we know very little.
- Our goal is better environmental performance (or lower environmental impacts).

Looking at recent policy developments from a broad perspective, Professor Speir went on to distinguish between the development of environmental management system standards (like ISO 14001) and the governmental drive to "re-invent" environmental regulation. Professor Speir explained that the two are not necessarily linked, but practically they are inseparable given government's tendency to rely on EMSs as a significant part of reinvention. He also discussed the value of an EMS as an internal tool and its potential value in the regulatory sphere, with the latter being substantially more problematic.

Multi-tiered Approaches to Regulation: The Oregon and Wisconsin Examples

Professor Speir discussed his own research, which focuses on state-level innovation programs in Wisconsin and Oregon: Wisconsin's Cooperative Environmental Agreements Program[1] and Oregon's Green Permits Program.[2] Both programs embody a multi-tiered approach to regulation. He explained that Wisconsin's program contemplates a "green tier" in addition to the existing regulatory tier, and Oregon's program actually contemplates four tiers (three in addition to the existing regulatory scheme.)

He pointed out that the idea behind these programs is to distinguish the good or better actors from the poor ones and to treat the categories differently. He explained that these programs would provide incentives for performance at the higher tier level(s) in order to encourage organizations to achieve and maintain that status and its associated privileges. In exchange, the facilities would be required to achieve beyond-compliance performance and greater openness or "transparency" concerning their environmental management practices.

Looking briefly at the Oregon plan, he stated that potential incentives for participation in the program include such things as:

- A single point of contact with the agency
- Technical assistance on EMS development, compliance assistance, and stakeholder involvement
- Maximum enforcement discretion
- Public recognition
- Streamlining regulatory interactions
- Expediting permitting
- A tailored regulatory relationship

According to Professor Speir, EMSs are a substantial element of the movement to reinvent environmental regulation, serving to provide a framework for assessment of an organization's worthiness to participate in a given tier. But because the ISO 14001 standard itself is weak on public information requirements and on the relationship between certification to the standard and regulatory compliance, governments that seek to use the ISO 14001 standard as a part of the regulatory mix find themselves, of necessity, creating their own "ISO-Plus" EMS requirements.

Stakeholder Involvement and Transparency

Professor Speir went on to state that the principal issues are stakeholder involvement and reporting requirements that go well beyond the (almost non-existent) requirements of ISO 14001. He also explained that it is difficult to get a handle on stakeholder involvement. At the level of the Advisory Committee in Oregon that has been working with the state's Department of Environmental Quality

(DEQ) on this program, the involved stakeholders are representatives of environmental organizations in the state, who meet on more or less equal footing with representatives of the DEQ and the regulated industry. But, at a facility level, stakeholder involvement may mean bringing in not only NGOs but workers, shareholders, the Chamber of Commerce, the local school district, municipal officials, insurers, lenders, churches, academics, neighbors across the fence line, the local emergency response committee, and so on. He explained that this continuing uncertainty about who must be involved has led some national NGO spokespersons to express concern that such a "devolution" may undermine the influence of national environmental NGOs on policy developments in the environmental area.

Professor Speir questioned what a meaningful stakeholder process might look like. He stated that it is hard to say, but at a minimum, it would:

- be an open, not an invitation-only process
- provide credible, meaningful information about the performance of the organization that is receiving some kind of regulatory incentive for its participation in the program
- provide some technical support to the NGOs for interpretation of the technical information
- provide NGOs with an opportunity for real input into the process
- where necessary, provide financial and travel support

According to Professor Speir, the success of EMS-based regulatory programs is ultimately tied to the reporting or public information issue. Decisions must be made about what environmental performance metrics are apt to be most useful in a particular case, and considerable attention must be given to assuring that the information generated is credible. He said that there are many initiatives underway to deal with this problem—from the Global Reporting Initiative of the Coalition for Environmentally Responsible Economies (CERES),[3] to the environmental performance evaluation work within the ISO process itself, to the database development project of the Multi-State Working Group on EMSs (MSWG).[4] He also went on to state that there are many avenues for more creative access to and use of all the information that is already collected by regulatory agencies, which typically languishes in 3-ring binders on dusty agency storage shelves.

Professor Speir contended that this should be a process about superior environmental performance. That is not to say that this process, like any other, is not corruptible, but any talk about lowering the bar of environmental performance requirements would surely corrupt the process. He explained that the issue is to encourage performance beyond compliance, although he suggested there might be some trade-offs in the process — in such things as reduced monitoring and reporting regimes. Those trade-offs will demand close scrutiny, but the real issue is whether there will be enough useful and credible information to assure the public that superior performance is, in fact, being achieved and that the trade-offs constitute good public policy. Professor Speir thought there may even be media trade-offs in limited cases (less emphasis on water for more air reductions, for example, or vice versa), raising much harder questions. He reiterated the importance of openness and dialogue in the context of meaningful information.

Reported Benefits by Pilot Facilities

Professor Speir presented preliminary findings of pilot facilities, reporting the benefits of participation in the EMS pilot programs:

- *A new environmental awareness and energy throughout the organization*. These are very positive signs.
- *A new "relationship" between the regulated organization and the regulatory agency*. Though this may sound a certain alarm among skeptics, in the early stages of the Oregon and Wisconsin projects, this is the single most important factor to the participating organizations. Once again, the appropriateness of that "new relationship" can only be determined from information about the actual performance of the participants.
- *Actual performance improvements and cost savings*. There is a great need for more data on this issue. To date, much of the evidence is anecdotal. One of the few concrete examples of such data comes from the Oki Semiconductor facility in the Oregon program. They reported gross savings for 1997, after ISO 14001 implementation, of $35,750. Most of these savings were tied directly to reductions in environmental im-

pacts. They reduced their production of hazardous wastes by nearly 30 tons, for example, and realized other savings from recycling and reduced water consumption. Quite interestingly, they negotiated an annual reduction of premiums of almost $4,000 with their insurer.

Professor Speir concluded his presentation by stating that there is great potential in the EMS-based innovation programs for devising a method for attacking problems that our present regulatory scheme doesn't address, and for encouraging facilities to perform better than the minimum that the law requires of them. But without substantial public involvement, the process could be easily corrupted.

Notes

[1] For more information see: http://www.dnr.state.wi.us/org/caer/cea/ecpp/ecpp.htm

[2] For more information see: http://www.deq.state.or.us/ under "What's New."

[3] More information about GRI and CERES can be found at http://www.ceres.org.

[4] More information about the MSWG can be found at: http://www.dep.state.pa.us/dep/deputate/pollprev/Tech_Assistance/mswg.htm
For information regarding the ISO 14001 Pilot Project data protocols, go to either: *http://www.eli.org/isopilots.htm* or *http://metalab.unc.edu/villani/isoprojects.htm*

Bonnie Barkett, U.S. EPA, Regional IX

Ms. Barkett opened her remarks by stating that the U.S. EPA supports and promotes the use of EMSs by facilities and is presently exploring how EMSs can be utilized to improve environmental performance and compliance. EPA is currently evaluating if and how EMSs can be used as a more prominent public policy tool at some point in the future.

She provided background on the Merit Partnership for Pollution Prevention, a voluntary and cooperative venture of government, industry, and communities. (For more detailed information on the Merit Partnership, see Appendix B) She explained that the Merit Partnership explores pollution prevention practices and technologies and EMSs by conducting pilot projects with industry. One of the Partnership's goals is to develop an understanding of how EMSs may be helpful in managing traditionally non-regulated environmental issues.

Ms. Barkett discussed what U.S. EPA Region IX sees as the major applications of EMS. First, she explained that EMS can be a vehicle to promote pollution prevention activities. Second, EMS can be used to engage facilities in achieving compliance with existing environmental regulations. She gave an example of a project being implemented in California that addresses the compliance assistance needs of small metal finishing plants in Southern California. And third, EMS adoption can promote salutary activities in traditionally non-regulated areas, such as water conservation and energy use.

Ms. Barkett then discussed the EPA's EMS pilot projects. To a large extent, the projects have been based on the ISO 14001 standard, with an emphasis being given to the following EMS components:

- Regulatory compliance (focusing on beyond compliance performance)
- Pollution prevention
- Community participation/external communications

Examples of the use of EMSs by U.S. EPA include:

- Industrial laundries
- Metal finishers
- Project XL
- Supplementary environmental projects (SEPs)
- National Environmental Policy Act (NEPA)
- Star Track
- Environmental Leadership Program
- Grants and partnerships with states and municipalities

Ms. Barkett emphasized that a substantial amount of agency activity has focused on education and how EMSs can be utilized by small and medium-sized enterprises. Ms. Barkett also stated that the EPA views the EMS framework as a good opportunity to raise the awareness of small companies, while helping them to systemize their environmental activities. She expressed the belief that EMSs can be used as a reinvention tool to help organizations meet and exceed environmental requirements in a "cleaner, cheaper, and smarter" manner.

Ms. Barkett also talked about the federal government's own EMS, a system called the Code of Environmental Management and Practices (CEMP). CEMP is a voluntary program to which federal agencies can subscribe. She described the use of EMSs as supplementary environmental projects (SEPs) in consent decrees, and stated that there have been some federal grants to facilities to help them develop their EMS capacity. Ms. Barkett stressed that that there is no regulatory "rollback" associated with EMS pilots, projects, or efforts.

In conclusion, Ms. Barkett mentioned that EPA's Innovations Task Force Report will be released soon and it will discuss the agency's continuing role in exploring EMSs.

Robert Stephens, California Environmental Protection Agency

Dr. Stevens opened his presentation by explaining that his talk would be comprised of simple statements regarding Cal/EPA's basic objectives and some fundamental principles to which Cal/EPA subscribes. In doing so, he hoped to help workshop participants understand why Cal/EPA is involved in voluntary consensus standards, such as ISO 14001. Cal/EPA's involvement is premised on the belief that, at the end of this process, there will be a better environmental outcome, although this has yet to be proven. If EMSs enable facilities to improve environmental performance and move beyond minimum compliance, then government and regulatory agencies need to be involved in this process. This fundamental premise is driving Cal/EPA and many other state agencies within the MSWG that are involved in EMS pilot project efforts. (For more information on the EMS pilot projects in California, see Appendix C.)

Dr. Stevens explained that the basic objective of the Cal/EPA is to enhance environmental protection by encouraging maximum environmental performance and to broaden the agency's approach to environmental protection. He stated that compliance with existing command and control-oriented regulations is the floor and that EMSs are about moving beyond the floor.

Premises for Cal/EPA's EMS Innovations Initiative

- Cal/EPA is an *environmental protection* agency — and possibly an environmental restoration agency — regulation and enforcement is but one tool
- Systematic management of environmental affairs will produce better results — an EMS is an example of such a systematic tool
- The innovation initiative is not about validation of ISO 14001
- Integration of environmental management into business management will produce better results
- Environmental benefits come from outcomes, not the means to achieve outcomes – Cal/EPA should focus on outcomes
- Measurable outcome goals will produce better results
- Environmental performance equates to economic performance with social benefits
- Quality information is the most powerful tool for producing change (internally and external) - considerable improvement is possible in the quality of information about environmental management and aspects
- Environmental aspects/impacts extend far beyond those that are regulated
- Compliance and command and control relate to the bottom tier (minimum) performance level
- Substantial benefit will result from organizations performing beyond the minimum (compliance) level
- Beyond compliance performance must be based on a firm foundation of compliance with existing legal standards
- Achieving an acceptable level of environmental quality in the 21st century will require moving beyond compliance
- Most of what is in the beyond compliance tier would be difficult to address with prescriptive rules
- Incentives will encourage beyond-compliance performance
- Incentives should be based on management and performance characteristics and must be consistent with the law — regulatory relief is a non-starter
- Participation in an excellence tier with incentives should be voluntary and earned
- Understanding EMSs, how they function, what they produce, and their public policy implications should be done in a systematic and transparent manner — pilot projects of the MSWG represent such a systematic approach. When possible, they should be done in collaboration with other government bodies
- Information about EMSs, their performance, and resultant public policy implications should be fully public
- All interested stakeholders must be provided with the opportunity and the means for meaningful participation in the public policy debate
- Future models of excellence tiers will be based on agreements between agencies and facilities with concurrence by the community and with measurable, reportable outcomes

Roundtable Discussion

Jim Mayer, Director, Little Hoover Commission, Moderator

During the roundtable discussion, NGO attendees had an opportunity to respond to the speakers' presentations, express concerns, and raise questions. All participants supported the concept of companies using EMSs to improve their environmental performance. There were a number of favorable comments regarding the general framework and premises driving the EMS-based innovations, although some participants were cautious about endorsing their use within a policy context until more detailed information is available. A major issue of concern was how EMSs would affect existing, command and control-based environmental regulations. Several NGO representatives expressed concerns about the potential for EMSs to undermine the effectiveness of existing regulations or to result in "rollback" of environmental laws.

There appeared to be general agreement that compliance with current regulations should be the "floor," as well as the impetus for EMS-based regulatory innovations. One participant pointed out that voluntary measures are not effective if existing regulatory standards are not adequately enforced. He emphasized that it should not be assumed that compliance with existing regulations is something that is currently being addressed, as many firms are out of compliance today. *After a considerable discussion, the consensus seemed to be that EMSs, in a public policy setting should, only be used to augment existing regulation.*

The discussion also focused on the transparency of EMS-based regulatory programs, as well as access to information on the environmental performance of companies. A widely shared concern was the ability to obtain credible, verifiable environmental performance information through EMS reporting. An attendee expressed the fear that "a la carte" regulatory agreements between facilities and regulators might affect NGOs' ability to obtain environmental performance data and benchmark with it. Also noted was the risk that EMSs would afford businesses the opportunity to create a facade behind which to hide poor environmental performance.

Several participants questioned whether promoting EMS was an appropriate role for government. The premise being, if EMSs make business sense (resulting in cost savings for the company), why do governments have to promote their use? In light of shrinking agency resources, several NGO representatives commented on the need for regulators to determine how best to allocate resources for enforcement of existing command and control regulations versus voluntary initiatives, such as promoting EMSs. A government representative responded that NGOs need to keep in mind the objective of not discouraging the "good guys" from trying new and innovative things in the interest of punishing the "bad guys." One goal of Cal/EPA's innovation initiative is to set up a credible system, where the agency's limited resources can be more effectively focused on industry laggards.

Specific comments and questions:

- Environmental benefits should be the primary objective. Environmental values are intrinsic and shouldn't be sacrificed in the interest of other (e.g., economic) interests. It should be recognized that in some cases environmental and economic values are not consistent.
- The Dutch EMS model for sustainable development and its integration with a national development plan is a good model for California to study. We should look at the premises behind the model and consider them in the context of the U.S. situation. For example, the Dutch put performance incentives on top of compliance requirements. They also coupled this with increasingly stringent environmental regulations over time.
- EMS efforts need to embody environmental and social justice issues (e.g., brownfields). Also, more work is needed to consider how EMSs might impact maquilladora-related issues in the U.S.-Mexico border region.
- Participants should learn more about the environmental regulatory innovation that is ongoing in Connecticut, as the state is trying out a program that combines elements of The Natural Step and EMS.
- If EMSs prove to improve the performance of companies, would EMSs become a future regulatory requirement for firms?

Appendix A: List of Participants

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Appendix B: The Merit Partnership for Pollution Prevention: An Overview, August 1999

Background

The Merit Partnership for Pollution Prevention (Merit) is a cooperative venture of the public and private sectors. Merit is led by a Steering Committee consisting of EPA, industry, and other government representatives, and advised by a Community Advisory Panel consisting of private citizens and community and environmental organization representatives.

The mission of Merit is to develop and promote pollution prevention (P2) practices and technologies that both protect the environment and contribute to economic growth. Merit does this primarily by developing and facilitating the implementation of pilot projects that demonstrate new and innovative P2 practices and technologies. Merit projects vary widely in scope of effort and in the industries involved, but the one criterion they all have in common is a focus on the environmental and economic impacts of the technology or practice being tested.

When Merit was initiated, government and industry leaders were just beginning to realize that it was both possible and imperative for government and industry to work together to achieve their respective goals of environmental protection and economic growth. The creation of Merit was the outcome of the realization in Region 9 that working together with the private sector and communities was the most effective way to move toward environmental excellence (environmental protection that exceeds regulatory compliance). The creation of the "partnership" was both an acknowledgment of the necessity of setting priorities together and a commitment to take the risk of working together to achieve our goals.

Current projects involve the development of an environmental management system (EMS) template and EMS demonstration projects based on the international ISO 14001 standard, and demonstration projects with the metal finishing industry, and alternative fuel vehicle proponents.

Environmental Management Systems Projects

Merit's mission of developing and promoting P2 practices and technologies has led the partnership into an exploration of the potential of EMSs to both protect the environment and contribute to economic growth. Merit is conducting a series of pilot projects to evaluate the environmental and economic impacts of ISO 14001-based EMSs in various industries. The Merit EMS projects seek to explore questions such as:

> *can EMSs improve environmental performance and, if so, what elements of an EMS are necessary to that end; are EMSs economically sound for small and medium-size businesses; can the implementation of an EMS result in economic benefits to a company and, if so, are those economic benefits the result of specific elements of the EMS; what elements of EMSs are necessary to assure compliance with environmental laws; can an EMS improve a company's compliance record and, if so, should EMSs be encouraged by regulatory agencies; can EMSs form the basis for an alternative regulatory path for "environmentally excellent" companies?*

Merit began working on EMS projects to assist in answering some of the above questions.

a) The Small Business EMS Project

One of Merit's EMS financial incentives projects focuses on potential internal financial impacts of implementing an EMS at a small business. This project is underway at Best Washington Uniform and Linen Supply, Inc. in Long Beach, California. The project is exploring the impacts of developing an EMS at a small business that is in the midst of expansion planning. The EMS is being developed in conjunction with the expansion planning. Using

cost-accounting tools, the project is looking at whether an EMS can assist a small business in increasing its production and profits while at the same time reducing its environmental impacts and environmental costs. This project also incorporates health and safety measures into the EMS. In addition, the project is exploring the elements of an EMS that may be unique to SMEs.

b) The Financial Incentives/EMS Roundtable

In September 1998, Merit and the President's Council on Sustainable Development (PCSD)-Environmental Management Task Force hosted a Financial Incentives Roundtable which included representatives of companies that are developing EMSs, financial analysts, and environmental management specialists. The purpose of the Roundtable was to share information about EMS implementation experiences, financial and other incentives and other drivers that impact decision-making regarding EMSs, and both the environmental and financial performance impacts of EMS implementation. In conjunction with the Roundtable, Merit gathered information from companies to learn more about their EMS decision-making process and implementation. A report analyzing and summarizing the information collected, entitled "Discussions with Industry about Environmental Management," is publicly available.

c) The EMS Template Project

Merit is developing an EMS template focussed on the metal finishing industry. Merit is trying to determine whether an industry-specific EMS template can help SMEs implement EMSs, when they might otherwise be prohibited from doing so because of cost and lack of experience. Merit has experience, success, and contacts with the regional metal finishing industry. Merit also worked on a project that involved the tailoring of an existing EMS to the ISO 14001 standard at a Northrop Grumman manufacturing facility in southern California. Therefore, Merit selected metal finishing as the focus for a project designed to develop EMS tools and address EMS implementation issues. This metal finishing EMS (MFEMS) template is designed to help metal finishers create and implement a streamlined EMS that improves compliance and promotes pollution prevention (P2).

The template is not an EMS primer or general guidance document. The concept behind the MFEMS template is to provide an implementation tool for companies developing EMSs. Merit will test the EMS Template at small and mid-sized metal finishing facilities.

Metal Finishing P2 Project

Merit, the Metal Finishing Association of Southern California (MFASC) and the California Manufacturing Technology Center (CMTC) established a P2 program that involved working directly with southern California metal finishing facilities to implement P2 techniques and technologies.

Merit completed seven demonstration projects and the associated technical transfer activities, which included workshops, fact sheets, and videos. This P2 project has been successful in terms of demonstrating cost effective P2 techniques and technologies that are applicable to a large number of metal finishers and actively transferring this information throughout southern California, and in demonstrating the power of true partnership efforts to achieve results and build trust.

The demonstration projects resulted in a decrease in emissions and, in most cases, payback periods of less than 2 years. For example, the **Reducing Dragout with Spray Rinses** project reduced dragout from the facility's nickel plating lines by 58 % compared to dragout from the lines operating with no spray rinses. The spray rinse over the chrome-plating tank reduced dragout by 64 % compared to the system operating with no spray rinse. Based on the savings associated with recovery and reuse of the nickel and chrome plating solutions and the corresponding rinse water reduction possible, the payback period for the rinses installed was 0.6 years.

The success of the southern California program prompted the P2 Team to use the Merit model for a metal finishing project in South Phoenix. In late 1997 Merit and the P2 Team combined the results from the South Phoenix and Merit metal finishing projects to expand to include northern California metal finishing facilities. Currently, Merit is conducting mini-assessments and workshops in southern California. Merit is also working with the P2 Team conducting mini-assessments and workshops for north-

ern California metal finishers. In addition, Merit continues its technical transfer efforts in order to promote P2 to other metal finishers. The metal finishing projects quantify: 1) reductions in chemical use, air emissions, water discharges, and sludge generation, and 2) cost savings. Active information transfer is key to the success of this program. This includes distribution of 8 fact sheets, a technical transfer video, which highlights 3 case studies, a drag out worker training video in Spanish and English, and technology transfer and worker training workshops. In addition, Merit projects are available electronically through resources such as the national Metal Finishing Resource Center.

Alternative Fuel Vehicles Project

For the alternative fuel (AF) and alternative fuel vehicles (AFVs) project, Merit has selected as its primary focus the prevention of pollution arising from vehicular traffic in and out of airports. To this end, for example, Merit developed a brochure, destined for wide distribution in April, which will provide easily accessible information concerning alternate transportation to the single car arriving with, or picking up, airport travelers at the Los Angeles Airport. Using this as a model, Merit will develop similar brochure for other California airports.
The following projects are being considered for further development: a program of nominations and awards for start-up companies who are engaged in the development of new technologies focused on alternative fuels and alternative fuel vehicles; and an investigation into a potential collaboration with car rental companies whereby AFVs would be available at airports for federal employees when traveling on EPA business.

Development of Future Directions

a) NEPA/CEQA Project

The National Environmental Policy Act ("NEPA") requires an Environmental Impact Statement ("EIS") that, in part, identifies significant environmental impacts from federal actions and a methodology to mitigate such impacts. In practice, federal acres may result in the use of land for commercial purposes causing continued impacts on the environment after the EIS process has concluded.
The proposed demonstration project calls for the implementation of an environmental management system ("EMS") at base closure facilities where the Department of Defense ("DOD") is planning to lease land for commercial operations that would result in the generation of hazardous waste or the emission of hazardous air pollutants, The purpose of the EMS would be to develop a comprehensive plan for managing those impacts. The EMS would serve to mitigate risk from the use of chemicals, thus protecting human health and the environment and minimising environmental harm.

The Statute authorising the lease of land requires that DOD in consultation with EPA find that the use of the land being leased is "protective of human health and the environment." See Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") § 120 (h) (3) (b). In addition, the federal action to lease the land would also be subject to NEPA which requires that the federal agency has adopted "all practical means to avoid or minimise environmental harm..." See 40 C.F.R. § 1505.2 (c).

b) SEC Project

The Securities and Exchange Commission ("SEC") requires that companies that file Form 10Ks and other disclosure forms must report: a) environmental penalties that exceed $100,000 where the government is a party and b) potential significant material environmental liabilities. The purpose of this project is to determine whether companies are complying with their disclosure obligations or, if not, to make appropriate recommendations. For example, one recommendation may be to suggest the need for non-compliant companies to adopt an environmental management system ("EMS") in order to identify potential material liabilities and to disclose to the shareholders their willingness to mitigate the possibility of additional significant penalties in the future.

Appendix C: CAL/EPS EMS Innovative Initiative: Proposed Pilot Projects, July 1999

Anheuser-Busch Incorporated (A-BI)

Anheuser-Busch, Incorporated (A-BI) is a brewer of beer, and the operator of subsidiaries that conduct various other businesses including theme parks and the manufacture and recycling of aluminum beverage containers. The company employs more than 24,000 employees in the United States and overseas. A-BI and its parent company, Anheuser-Busch Companies are headquartered in St. Louis, Missouri. Operations at A-BI's Fairfield, California facility include brewing, packaging and the distributing beer. The Fairfield facility has approximately 500 employees.
The Fairfield facility began development and implementation of its EMS as part of A-BI's company-wide initiative in 1992. Since 1992 A-BI has progressively enhanced its EMS through a continual improvement process. A-BI's Fairfield facility has been selected as the pilot plant for A-BI's ISO 14001 EMS integration effort. This Fairfield facility is currently working to align the corporate EMS with the ISO 14001 standard.

Because its current EMS is believed to be close to meeting the ISO 14001 standard, the Fairfield facility can offer significant information and insight regarding the environmental and economic impact associated with establishing a comprehensive EMS. A-BI anticipates certifying this facility to the ISO 14001 standard in early 2000. As part of the project, opportunities for regulatory innovation will also be explored with respect to environmental reporting.

A Northern California Working Group is being formed with several of the pilot projects, including A-BI, to serve as a forum for pilot project participants, stakeholders and the Cal/EPA to learn about the development of EMSs.

Please contact the Cal/EPA EMS Project Manager Richard Corey at (916) 323-1079 or by e-mail, at rcorey@arb.ca.gov for more information about the Northern California Working Group or the A-BI project.

Artistic Plating (Artistic) and Gene's (Gene's) Plating

Artistic Plating is a medium-sized, 100 employee metal finishing facility in Anaheim, California. The facility performs copper, nickel, brass, and chrome electroplating. Artistic specializes in electroplating zinc die-cast parts and aluminum wheels for commercial customers.
Gene's Plating is a medium-sized, 350 employee metal finishing facility in Los Angeles, California. The facility performs copper, nickel and chrome electroplating and various polishing operations. Gene's Plating specializes in electroplating aluminum and steel wheels for commercial customers.

Both Artistic and Gene's have volunteered to test an EMS template developed by US EPA as part of the Merit Partnership Metal Finishing EMS Template (MFEMS) project. Cal/EPA is working together with US EPA and the Metal Finishing Association of Southern California (MFASC) to test a template that small- to medium-sized metal finishing companies can use in developing and implementing an EMS that is based on ISO 14001. The MFEMS Template is intended to provide a simplified and industry specific template that can form the basis for a company's EMS, and that could, when implemented, serve as an initial step towards ISO 14001 certification.

In addition, Artistic and Gene's, along with Cal/EPA, U.S. EPA and the Southern California Working Group (see below) will explore regulatory innovation in the areas of permitting, reporting and inspections.

A Southern California Working Group is being formed with Artistic and Gene's to serve as a forum for pilot project participants, stakeholders and Cal/EPA to learn about the development of EMSs.

Please contact Cal/EPA EMS Project Director Jennifer Smith Grubb at (510) 540-3315 or by e-mail at smithjen@ix.netcom.com for more information about the Southern California Working Group or the pilot projects.

Central Marin Sanitation Agency (CMSA)

Central Marin Sanitation Agency (CMSA) owns and operates a regional wastewater treatment facility, treating sewage from San Rafael Sanitation District, Sanitary Districts No. 1 and No. 2 of Marin County, and San Quentin State Prison. CMSA currently employs 40 individuals.

CMSA has decided to implement an ISO 14001 Environmental Management System (ISO 14001 EMS) to improve the management of its environmental aspects and the management of its regulatory requirements. This ISO 14001 EMS will include a set of Standard Operating Procedures (SOPs) for environmental management. After implementation of the CMSA ISO 14001 EMS is underway, CMSA will develop a "template" for an ISO 14001 EMS, or similar system, which may be used by auto repair facilities. If successful in developing a suitable template, CMSA will investigate revisions of its regulatory procedures to encourage auto repair facilities to use an EMS to manage their regulatory compliance and environmental impacts. CMSA will work with other regulators of these facilities to implement a coordinated regulatory approach to recognize and encourage the use of an EMS. As part of the project, CMSA will explore regulatory innovation in the areas of monitoring and reporting, audits and inspections, and permitting.

A Northern California Working Group is being formed with several of the pilot projects, including CMSA, to serve as a forum for pilot project participants, stakeholders and Cal/EPA to learn about the development of EMSs. The Northern California Working Group will meet quarterly. CMSA also has a local advisory group, specific to their project, composed of local and regional government, non-governmental organizations, and other stakeholders. Please contact Cal/EPA EMS Project Manager Bryan Brock at (916) 227-4574 or by e-mail at brockb@cwp.swrcb.ca.gov for more information about the CMSA Local Advisory Group or the project. Please contact Cal/EPA EMS Project Manager Richard Corey at (916) 323-1079, or by e-mail at rcorey@arb.ca.gov, for more information about the Northern California Working Group.

City of San Diego, Metropolitan Wastewater Department, Operation and Maintenance Division

San Diego operates and maintains several wastewater collection and treatment facilities. These facilities include the:

- Point Loma Wastewater Treatment Plant;
- North City Water Reclamation Plant;
- Fiesta Island Sludge Dewatering Facility (currently being decommissioned);
- Metro Biosolids Center;
- San Pasqual Water Reclamation Plant; and
- PS1, PS2, PS64, PS65, East Mission Gorge, and Penasquitos Pump Stations.

San Diego has decided to implement an ISO 14001 EMS to improve the management of its environmental aspects and the management of its regulatory requirements. This ISO 14001 EMS will include a set of Standard Operating Procedures (SOPs) for environmental management. The scope of the EMS will be limited to those environmental aspects that are within the authority of the Operation & Maintenance (O & M) Division to control.
San Diego has over 300 employees in the O & M Division. San Diego has recently been certified to the ISO 14001 Standard in May 1999.

San Diego has a local advisory group, specific to their project, composed of local and regional government and a non-governmental organization.

Please contact Cal/EPA EMS Project Manager Gina Kathuria at (916) 657-1052 or by e-mail at kathg@dwq.swrcb.ca.gov for more information about the San Diego Local Advisory Group or the project.

International Business Machines (IBM), San Jose

International Business Machines (IBM) creates, develops and manufacturers advanced information technologies, including computer systems, software, networking systems, storage devices and microelectronics. The company employs close to 270,000 people in over 150 nations. The San Jose Storage Systems Division site employs 11,000 workers who develop, manufacture, and market storage components and systems. Manufactured products include thin film magnetic recording heads, thin film storage disks, and disk drive systems. In June 1997, as part of IBM's program to register all of its' manufacturing and development sites worldwide, the San Jose Storage Systems Division site became the first IBM facility in the U.S. registered to ISO 14001.
Because IBM is already certified to ISO 14001, they provide a unique opportunity for California and the MSWG to see pre- and post-EMS data much earlier in the pilot project process. In addition, IBM is eager to share its knowledge with other pilot projects. At part of the IBM pilot project, opportunities for regulatory innovation are being explored in the areas of air emissions reporting, record keeping, and permitting.

A Northern California Working Group is being formed with several of the pilot projects, including IBM, to serve as a forum for pilot project participants, stakeholders and Cal/EPA to learn about the development of EMSs. Please contact Cal/EPA EMS Project Manager Richard Corey at (916) 323-1079 or by e-mail at rcorey@arb.ca.gov for more information about the Northern California Working Group or the IBM project.

Lockheed Martin Skunk Works (Skunk Works)

Lockheed Martin Skunk Works is a private aerospace company within Lockheed Martin Corporation. The Skunk Works specializes in the rapid development of advanced aerospace prototypes, technology, and systems. The Skunk Works was created to design and develop the P-80 Shooting Star, America's first production jet aircraft. Its work continued with development of the U-2, SR-71 Blackbird, and low-observable technology aircraft like the F-117A stealth fighter, F-22 advanced tactical fighter, and the Joint Strike Fighter. Approximately 5,400 employees work at the Palmdale, California facility.

The Skunk Works Environmental, Safety and Health Management System (ESH-MS) has been in place since 1992. This system combines occupational health aspects with environmental compliance and pollution prevention. The Skunk Works self-declared conformance to the ISO 14001 Standard in 1998. The ESH-MS in place at the Skunk Works is part of a corporate-wide EMS program. Corporate audits are integral to the Lockheed Martin EMS program. The Skunk Works has invited Cal/EPA to participate in the next corporate audit of its ESH- MS.

Historical information generated through the ESH-MS will be shared in the pilot project, including progress made in preventing pollution since 1992. Through the pilot project, the Skunk Works and Cal/EPA will explore regulatory innovation, especially in the area of regulatory reporting. The Skunk Works is investigating environmental performance issues related to their supply chain.

The Skunk Works has an environmental community outreach program with local government, non-governmental organizations, and other stakeholders, which includes a yearly stakeholder forum. It also works with businesses and schools in surrounding communities to share its knowledge in pollution prevention and environmental management.

Please contact Cal/EPA EMS Project Manager Tom Lanphar at (510) 540-3925, or by e-mail to tlanphar@dtsc.ca.gov