

Environmental Management Systems (EMS) and NEPA Adaptive Management

An EMS is an organization's overall management system that may complement the National Environmental Policy Act (NEPA) review process. EMS elements may assist the use of a NEPA adaptive management model when the proposed action is suitable for an adaptive management approach.

EMS Model. Executive Order 13148 of April 21, 2000 "Greening the Government Through Leadership in Environmental Management" requires Federal agencies to implement EMSs at all appropriate facilities. The EMS approach is intended to ensure that all necessary actions are taken to integrate environmental accountability into agency day-to-day decisionmaking and long-term planning processes, across all agency missions, activities, and functions. The International Organization for Standardization established an EMS standard called ISO 14001. The ISO 14001 standard is one of the most widely recognized EMS models, and is the choice of most Federal agencies, including the Federal Aviation Administration (FAA), where the agencies have decided to implement an EMS. The ISO 14001 model contains the following elements:

- ◇ An environmental policy with a commitment to continual improvement, pollution prevention, and compliance with relevant environmental legislation and regulations
- ◇ Procedures to identify an organization's or facility's environmental impacts, legal and other responsibilities, and set objectives and targets with environmental management programs
- ◇ System implementation and operation, including identification of responsibilities, training and awareness, documentation, and operational controls
- ◇ Checking and corrective actions, including monitoring and measuring performance to meet targets for continual improvement
- ◇ Management reviews to ensure that the EMS is suited to changing conditions and information

Using the EMS, an organization identifies the important elements of its activities, products, or services that can interact with the environment. These elements are called "aspects" in the ISO 14001 standard. The organization sets objectives and operational controls regarding those aspects. The organization pursues those objectives and maintains operational controls through programs and procedures and measures actual performance to verify that the EMS is being implemented properly. An EMS provides order and consistency for organizations to address environmental concerns through the allocation of resources, assignment of responsibilities, and ongoing evaluation of practices, procedures and processes.

Adaptive Management. The traditional NEPA model includes predicting the impacts of an action, identifying mitigation measures for those impacts, and then implementing the action along with the mitigation (the "predict, mitigate, and implement" model). The NEPA adaptive management model adds two steps to the traditional model: monitoring environmental conditions following implementation of the action with any mitigation, and adapting the action's implementation or mitigation as appropriate based on the environmental monitoring data (the "predict, mitigate, implement, monitor, and adapt" model). Under this approach, actions are adjusted to foster desired outcomes and reduce undesired ones. Under the NEPA adaptive management model all five steps of the process are considered in the original NEPA review. This process focuses on knowledge regarding activities and impacts within a specific area and

making changes and adjustments based on that knowledge. This includes the impacts of potential options for adjustments in the implementation of the action and/or mitigation. By doing so, it may be possible to provide managers with the parameters to make any necessary adaptations without needing new or supplemental NEPA analyses, unless there are substantial unforeseen changes to the action, or there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. This approach allows continuous improvement in management effectiveness and in reduction of environmental impacts within parameters and processes established by the NEPA-informed decision.

EMS is a specific tool that may be applicable for an adaptive management approach to certain actions subject to NEPA review. In such cases, integrating the NEPA process and EMSs provides a synergy that can encourage a robust analysis when the EMS information is extensive, current, and available for use in the NEPA analyses. In addition, such integration might more effectively prevent environmental degradation, promote sustainability, and further the policy goals contained in Section 101 of NEPA. For example, where applicable, implementation of actions and mitigation measures analyzed during the NEPA process could be integrated into the EMS objectives and targets. The monitoring and adjusting procedures associated with the checking and corrective action elements of the EMS could then be the basis for adaptive management adjustments to meet the EMSs objectives and targets.

EMS Elements. EMSs that are consistent with the ISO 14001 standard may provide a consistent framework and process for managing the impacts of FAA actions in accordance with FAA authorities and other laws. ISO 14001 does not itself define substantive performance measures and outcomes, or specific direction on how to best manage the national air transportation system: that direction is properly provided by laws, regulations, and policies. ISO 14001 provides for the adoption of procedures that can be useful tools for assuring that legal and other obligations are met. For the facilities FAA determines are appropriate for EMS development, and where FAA in its regulatory capacity has experience with other organization's EMSs, the following ISO 14001 EMS elements may be complementary to NEPA processes:

1) Policy. The statement of policy provides the overall direction for the EMS and should be drafted in a manner consistent with the policies of NEPA, the Agency's strategic planning, and the overall FAA mission to ensure aviation safety.

2) Environmental Aspects. ISO 14001 calls for identification and prioritization of environmental aspects. The identification of environmental aspects is an ongoing process that determines the past, current and potential impact of an organization's activities on the environment. The relationship between environmental aspects and impacts is one of cause and effect. Aspects addressed by the EMS should be regularly reviewed and updated as new NEPA reviews are completed, as applicable monitoring data becomes available, or when agency strategic plans are revised or amended. NEPA analyses and documentation can help where agencies may have the most trouble with EMS implementation: impact identification and prioritization. In turn, the evaluation of environmental aspects may provide a compilation of information for use in environmental analysis of future project and activity decisions, and may be useful for analyzing cumulative effects in project and activity Environmental Assessments (EAs) or Environment Impact Statements (EISs).

3) Legal and other requirements. The EMS standard requires that organizations identify applicable legal and other requirements. The purpose of this element is to ensure that the plans, projects, and activities of the organization meet applicable legal requirements. The EMS

provides the management structure to help the agency, among other things, address its NEPA requirements. NEPA provides the agency with certain procedures called for by the EMS, such as impact identification. NEPA policy (1500.2 c) requires that NEPA be integrated to the fullest extent possible with other environmental planning and review procedures (which includes the EMS), whereas an EMS requires “uploading” into the system all legal and other requirements that apply to the agency (which would include NEPA).

4) Objectives and targets. Objectives are the overall goals for environmental performance identified in the environmental policy. When establishing its objectives an organization should take into account the relevant findings from environmental reviews, and the identified environmental aspects and associated environmental impacts. Environmental targets can be set to achieve objectives within a specified time frame. Targets should be as specific as possible and measurable. The NEPA process can provide the information necessary to establish relevant objectives and the performance measures needed to assess attainment of objectives and targets. The NEPA process may also provide the procedures necessary to ensure that the views of interested parties are considered (e.g., scoping) when establishing objectives, as required by the standard.

5) Programs. Environmental management programs (EMPs) are essentially a roadmap for how an organization will achieve its objectives and targets. Where NEPA reviews have been completed for new or modified activities or services, EMPs may use the results of the NEPA review or associated environmental monitoring data to update its objectives and targets. Milestones associated with the NEPA review processes may also serve as objectives (or targets) for aspects related to the organization’s mission. EMPs can help an organization improve its environmental performance, and should be revised accordingly to reflect changes in organizational objectives and targets.

6) Roles and responsibilities. Successful implementation of an EMS requires clear articulation of environmental responsibilities across the different elements, programs, and levels of an organization. The responsible official documents and communicates roles and responsibilities within the EMS. Management must ensure that resources essential to the implementation and control of the EMS, are provided. Resources include human resources and specialized skills, technology and financial resources. The responsibility and resources for monitoring activities may assist the NEPA process where monitoring is necessary to allow, for example, an adaptive management approach to the planning and decisionmaking process. A much stronger case can be made for using adaptive management when the responsibilities and resources for carrying it out are clearly identified in the EMS.

7) Training. The ISO 14001 standard requires that all personnel whose work may create a significant impact upon the environment, have received appropriate training. Training that is relevant to the achievement of environmental policies, objectives and targets should be provided to all personnel within the organization covered by the EMS. An appropriate knowledge base would include training in the methods and skills required to perform their tasks in an efficient and competent fashion and knowledge of the impact their activities can have on the environment if performed incorrectly. This need for competency applies to NEPA practitioners where NEPA reviews or their outcomes are linked to the organizations objectives and targets. In this way the EMS can facilitate the NEPA process by supporting adequate training for NEPA practitioners.

8) Communication. Required communication procedures for an EMS include those for internal communication between the various levels and functions of an organization, and others for receiving, documenting and responding to relevant communication from external interested

parties. Internal communication ensures that employees understand the various elements of the EMS and raises awareness of the organization's environmental policies, objectives, targets and programs. External communication facilitates public understanding of the EMS and also informs the organization of the views of interested parties. The EMS model states that the organization must have communication procedures, while NEPA procedures provide specific public comment procedure requirements. Opportunities for public involvement in the NEPA process may be adopted or integrated as some of the communication procedures required for the EMS.

9) Documentation and records. These two required elements of the ISO 14001 standard are related in that EMS documentation describes what is to be done in carrying out the EMS, and the records are the evidence that the activities actually were done. The ISO standard requires that the organization covered by the EMS maintain procedures for controlling all documents related to the implementation of each EMS element, and how the various elements relate to each other. Records for an EMS can cover a complex range of information. This includes, among other things, legislative and regulatory requirements, environmental aspects and their impacts, and monitoring data. Effective management of these records is essential to the successful implementation of the EMS. To the extent that EMS documentation and records are developed in the consideration of proposals for agency actions covered by the NEPA review process, agency NEPA documentation should be used to support these EMS elements. This process would be similar to document tiering, adoption, and incorporation by reference used in the NEPA process to avoid unnecessary redundancy.

10) Operational controls. Operational control procedures are established and maintained to cover situations where their absence could lead to deviations from and organizations environmental policy and its objectives and targets. The organization covered by the EMS should consider the different operations and activities contributing to its significant aspects when developing or modifying operational controls and procedures. Operational controls are intended to ensure that the projects and activities of an organization are consistently implemented in a way that minimizes environmental impacts. NEPA-related activities would be part of the organization's EMS operational controls. For activities encompassed by the EMS for which there may be some uncertainties regarding the potential environmental impacts, an adaptive management approach defined and analyzed by the NEPA review process may be an appropriate type of operational control.

11) Monitoring. The primary purpose of monitoring in an EMS is to track relevant operational controls, and measure an organization's progress toward achievement of its environmental objectives and targets. Similarly, the essential component of the NEPA adaptive management model is monitoring to assess whether predictions of environmental effects are correct, and that any mitigation implemented is functioning as intended. Without monitoring, there would be no basis for making corrections or adjustments to either the EMS or the action covered under the NEPA process. EMS monitoring activities also include the evaluation of compliance with relevant environmental legislation and regulations. Results of EMS monitoring are used to determine areas of success and to identify activities requiring corrective action and improvement. In addition, monitoring may provide information the agency could use to keep the public informed on the agency's environmental performance. Monitoring activities implemented for an EMS may subsume or complement the monitoring needed to accomplish adaptive management in the NEPA process. The availability and use of EMS and NEPA monitoring activities provides one of the most important examples of the potential for synergy between NEPA and EMS.

12) Preventive and corrective action. The ISO 14001 standard requires that an organization establish and maintain procedures for taking action to mitigate any impacts caused, and for initiating and completing corrective and preventive action. The purpose of this program is to prevent problems from occurring, to fix problems that are detected, and to take the actions necessary to avoid the recurrence of problems. Findings, conclusions, and recommendations reached as a result of monitoring and audits of the EMS are the basis for corrective and preventive actions and the systematic follow-up to ensure their effectiveness. This is essentially the same approach as adaptive management under the NEPA process. For agency actions reviewed under NEPA and also covered by an organization's EMS, monitoring and adaptation associated with the NEPA adaptive management process may fall squarely within the purview of an EMS's preventive and corrective action program. Like the EMS monitoring requirements, this is another prime example of the complementary nature of NEPA and EMSs.

13) Auditing. Periodic audits of the EMS are a requirement of the ISO 14001 standard. The EMS audit verifies whether the EMS conforms to the ISO standard and is properly implemented and maintained. These are not simply paper audits; conditions are observed, individuals are interviewed, and records are reviewed. Results of an EMS audit are part of management review. Commitments for mitigation made pursuant to the NEPA process may be part of the EMS audit where such commitments are linked to objectives and targets or operational controls in the EMS. In these cases, the EMS audit is another means for ensuring that agency commitments made under NEPA are appropriately implemented.

14) Management review. Where an FAA organization has developed an EMS, to be consistent with the ISO 14001 standard, FAA management is responsible for reviewing the EMS to ensure its continuing suitability, adequacy and effectiveness. This internal management review is separate from the EMS audit described above. The review involves examining monitoring information, audit findings, program accomplishments, changes in circumstances and the environment, the concerns of interested parties, other relevant information, and the commitment to continual improvement. Based on this assessment, the responsible manager will determine if there is a need for changes in the EMS. This review is an opportunity to adjust procedures to take advantage of NEPA/EMS synergy, and enhance areas where NEPA and EMS procedures are complementary.

In summary, the ISO 14001 EMS and NEPA processes include many elements and provisions that are complementary. This is particularly evident with regard to the adaptive management approach under NEPA, where monitoring and adaptation may be essentially the same as the monitoring and corrective action elements of the EMS. By taking advantage of the complementary nature of NEPA and EMSs, FAA managers and NEPA practitioners have the opportunity to improve the quality of environmental analysis, decisionmaking, and further the policy goals of Section 101 of NEPA.