

A Study for the Department of Energy

July 1998

**Managing NEPA
at the
Department of Energy**

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FOREWORD

The National Environmental Policy Act of 1969 - NEPA - requires all federal agencies to consider the environmental impacts of proposed actions before selecting among alternative approaches. Implementing the act has been a challenge at the Department of Energy, which over the last decade has instituted a series of changes to improve its management of the NEPA process. DOE's efforts demonstrate that even a large, fragmented agency with a legacy of serious problems can, with strong executive leadership, strengthen its performance and chip away at old problems.

NEPA made federal agencies responsible for initiating planning processes that would help integrate environmental concerns into a wide range of programs. The subsequent development of environmental impact statements as a vehicle for public access to agency decisionmaking has given NEPA some "teeth" while also making it controversial and challenging for agencies to implement. For example, NEPA's requirement for openness seems antithetical to efficiency, and its presumption of responsiveness seems to compromise decisiveness. The challenge to public management is that Americans want more of all of these things, as evidenced by Congress's adoption of the Government Performance and Results Act of 1993. The Results Act calls for more planning, more integrated thinking, more useful measures of performance, and more transparency to the public. DOE's efforts to strengthen its management of NEPA have succeeded in improving efficiency without compromising public access to the process.

The National Academy of Public Administration appreciates DOE's invitation to analyze and report on its management of the NEPA process. We thank the DOE employees who provided data for this study and their candid assessments of DOE's operations. The Academy also thanks the participants in the roundtable that helped inform this report. We are particularly grateful to Lynton Caldwell, one of the principal architects of NEPA and an Academy Fellow, for overseeing this analysis. Professor Caldwell's commitment to the environment and to improving America's system of governance has spanned some four decades. We hope that this analysis will be helpful to the department.

R. Scott Fosler
President

I. Introduction: 'Managing' NEPA

Efficiency is a prerequisite to effectiveness.

Carol Borgstrom, Director, Office of NEPA Policy and Assistance

U.S. Department of Energy

Over the last 10 years, the Department of Energy has made substantial progress in making its implementation of the National Environmental Policy Act (NEPA) more efficient. This report analyzes those improvements, focusing particularly on administrative changes initiated by secretarial policy in 1994.

The National Environmental Policy Act of 1969 committed the government of the United States to pursue a comprehensive policy of environmental protection. [Pub. L. 91-190, 42 U.S.C. 4321-4347, as amended. This report assumes that the reader has a familiarity with the basic requirements of the National Environmental Policy Act. Appendix I provides a summary of these requirements and an explanation of key terms used in this report.] It made that commitment not by imposing any particular limits, requirements, or substantive goals, but instead by forcing each federal agency to consider the potential environmental impacts of its actions before selecting among alternative approaches. NEPA's congressional sponsors sought to engage federal agencies in a thoughtful, comprehensive planning process to ensure that fundamental policy choices would be informed by the nation's environmental goals. The statute directs agencies to use, "to the fullest extent possible, ... a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment."

In large measure, NEPA is today known as the statute that requires federal agencies to prepare an environmental impact statement (EIS) for every proposed major federal action that may have a significant impact on the environment. Congress required these documents to serve two purposes: to ensure that federal agencies would provide the public an opportunity to learn about and comment on significant proposals, and to change the agencies' behavior by requiring their managers and decisionmakers to work through a sustained process of inquiry, analysis and learning. Environmental assessments and impact statements - and the process the agencies use to prepare them - have eclipsed the law's more general planning goals. Agencies tend to treat the EIS requirements seriously because the law gives citizens the right to sue federal agencies if they fail to meet these procedural requirements.

The success of a federal agency in realizing NEPA's broad policy goals inevitably rests on a foundation of administrative action. NEPA can be effective only if an agency is actively managing its planning, analysis, and decisionmaking processes. If it costs too much or takes too long to prepare an environmental impact statement, agency managers will see the process as a burden to be avoided, rather than as a useful tool for decisionmaking and program management. Costs and time rise when an agency hasn't thought through a proposal and has to correct for inadequate planning midstream. Costs and time also rise when inadequate NEPA documents leave an agency vulnerable to litigation.

The Department of Energy and NEPA

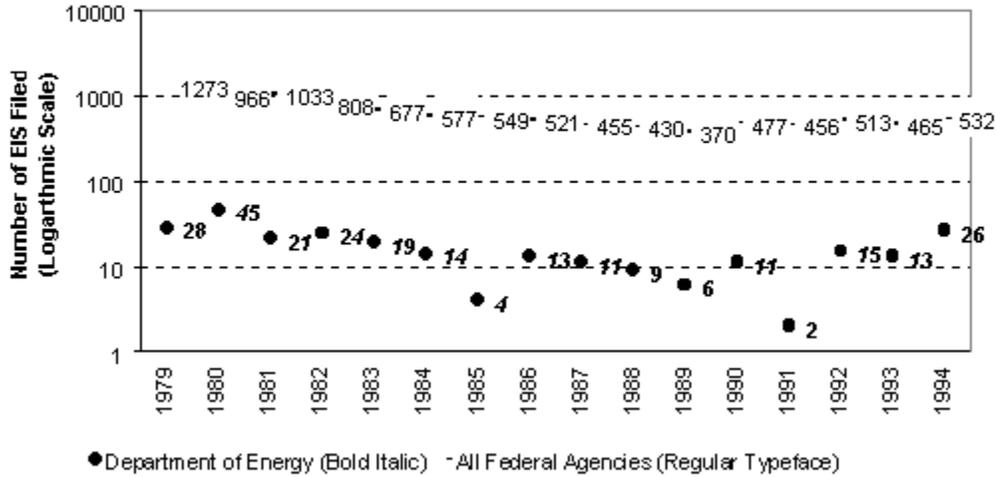
Created in 1977 in the wake of the energy crisis, the Department of Energy is a large and heterogeneous federal agency. The department was a successor to the Atomic Energy Commission, and has inherited a key national security role in building and maintaining America's nuclear arsenal. Today, the department is also responsible for environmental remediation and waste management activities in response to the legacy of environmental contamination from a half century of nuclear weapons development. In addition to its weapons related activities, the department is concerned with many other federal activities associated with energy supplies and energy research and development. The department encompasses several national laboratories that conduct basic scientific research, several power marketing administrations (the largest of which is Bonneville Power Administration), which purchase and distribute electric power; and facilities associated with fossil fuel sources, nuclear energy, renewable energy sources, and the development of energy-efficient technology.

To achieve its mission, the department must undertake a wide range of projects which require environmental assessments or environmental impact statements. These projects range from building power transmission lines to selecting how and where to make and recycle tritium for nuclear weapons. Some of these EISs relate to discrete construction projects, such as a decision on whether or where to build a new facility. Others are "programmatic" EISs (PEIS), which examine the impacts of a range of alternatives for a project that may have components at numerous locations around the country. The White House's Council on Environmental Quality encourages agencies to undertake these programmatic EISs in order to work environmental considerations into broad policy choices. Two programmatic EISs currently underway at the Department of Energy relate to controlling vegetation under the department's electric transmission lines and a decision on how to dispose of surplus plutonium from U.S. weapons. The department also uses the site-wide EIS, a particular type of programmatic EIS, to evaluate independent but geographically contiguous actions, to support decisionmaking about the management of some of DOE's large sites, such as Los Alamos National Laboratory or the Nevada Test Site.

GRAPH1 shows the number of EISs filed annually by DOE and all federal agencies between 1979 and 1994. [These data are based on EPA records, and include the total numbers of final, draft, and supplemental environmental impact statements filed by each agency each year. For this reason,

they are not directly comparable to other statistics presented in this report.] The total number of EISs prepared by all federal agencies dropped significantly during the 1980s, and stabilized in the decade of the 1990s. The DOE data show a similar overall trend, with an increase in EIS preparation in the 1990s.

Graph 1: Environmental Impact Statements Filed By Federal Agencies (Includes Draft and Final EIS)



DOE filed fewer than 3 percent of the total number of environmental impact statements prepared by federal agencies over this 15-year period, a relatively small number in comparison with the Departments of Agriculture and the Interior, for example, as illustrated in **Table 1**. Nevertheless, the DOE environmental impact statements related to the restructuring of the former nuclear weapons complex are highly visible, technically challenging, very costly, and often involve issues of important public policy. For these reasons, it is not particularly instructive to compare DOE statistics with those of other agencies.

Table 1: EIS Prepared by Federal Agencies, 1979 to 1994

Federal Agency	EISs Prepared	Percentage
Department of Transportation	2,230	22%
Department of Agriculture	1,734	17%
Department of the Interior	1,623	16%
Corps of Engineers	1,501	15%
Dept of Housing and Urban Development	664	7%
Environmental Protection Agency	595	6%
Other	535	5%
Department of Commerce	299	3%
Department of Energy	261	3%
Army	175	2%

Air Force	172	2%
Navy	154	2%
General Services Administration	90	1%
Tennessee Valley Authority	33	0%
Department of Defense	12	0%
TOTAL	10,102	100%

This Study

The Department of Energy asked the National Academy of Public Administration to review the impact of a NEPA reform policy issued by then Energy Secretary Hazel O'Leary in 1994. The department asked the Academy to examine whether the reforms have helped make the process of preparing environmental impact statements and environmental assessments more efficient.

This study focuses on DOE's management of the overall NEPA process, not on any specific projects or decisions. The study tracks the costs and time DOE has invested in NEPA analyses over the last decade and considers the impacts of DOE's efforts to streamline review procedures, delegate some authority, and improve its management of contracts and contractors.

This study does not attempt to evaluate the quality of any particular environmental impact statement or environmental assessment. Nor does the study attempt to weigh the impact of the NEPA process on the quality of decisionmaking within DOE or Congress. Exploring those topics would require a much more detailed study. The study team presumes, however, that if DOE can make NEPA reviews more timely and less expensive without compromising the public's access to the process, then the department and the nation will be more likely to reap substantive benefits from the process as well.

Staff of the Academy's Center for the Economy and the Environment researched this report under the guidance of Lynton Caldwell, an Academy fellow and noted expert on NEPA. Staff analyzed DOE and EPA documents and databases, as well as other external evaluations, and interviewed people with a broad range of perspectives on DOE's NEPA process. Interviewees included DOE employees from headquarters and the field, employees of other federal agencies, contractor representatives, and members of non-governmental organizations representing a segment of the public concerned about DOE and its nuclear weapons complex. After preparing a draft report, the Academy convened a roundtable, chaired by Caldwell, to critique the report. Staff revised the report in light of those comments before issuing this final version. The participants of the roundtable and project staff are listed in Appendix III.

II. The History Of The Department's NEPA Reforms

A. The Changing Mission of the Department of Energy

In large measure, the history of DOE's compliance with NEPA is associated with the historical changes in the nuclear weapons complex. The nuclear arms race during the Cold War resulted in the development of a vast network of research, production and testing facilities. During half a century of operations, the nuclear weapons complex manufactured tens of thousands of nuclear warheads. At its peak, the complex consisted of 16 major facilities, including vast reservations of land in Nevada, Idaho, Washington, Tennessee, New Mexico and South Carolina.

Building and stockpiling nuclear materials and weapons required an extensive manufacturing effort that generated large volumes of waste and resulted in considerable environmental contamination. Growing concerns about safety and environmental problems caused DOE to shut down various parts of the weapons-producing complex in the 1980s. During these years, the Environmental Protection Agency and state agencies began enforcing environmental regulations at DOE's weapons complex. Public scrutiny of DOE's actions increased sharply as the magnitude of the nuclear weapons program's legacy of environmental contamination became better known.

The shutdowns of the nuclear weapons facilities were at first expected to be temporary, but many facilities were permanently closed in the wake of the dissolution of the Soviet Union in 1991. Although the United States continues to maintain an arsenal of nuclear weapons, the Department of Energy sharply reduced its nuclear weapons production and testing programs, and has begun to downsize the weapons complex as part of the stockpile stewardship and management program.

From its inception, NEPA applied to the Atomic Energy Commission and its successor, the Department of Energy. For many years, however, DOE had a very poor reputation for compliance with the act. [Congressional Research Service, *NEPA Compliance at Department of Energy Defense Production Facilities* (1990).] NEPA review was substantially an after-the-fact review of decisions that had already been made. During the 1980s, DOE was increasingly criticized for its poor NEPA compliance, and was a defendant in several lawsuits. As one DOE official recently put it, DOE practiced "pseudo-NEPA" until the 1990s.

B. Secretary Watkins' Tenure

After taking charge of DOE in 1989, Secretary of Energy James Watkins focused attention on environmental compliance generally, and NEPA compliance in particular. Watkins was concerned with the apparent failure of DOE's field organizations to comply with environmental laws, and reacted by imposing full responsibility within DOE's line organizations. Watkins emphasized strict compliance with NEPA, and pledged to integrate NEPA in DOE decisionmaking generally. [Watkins' directives on NEPA compliance were spelled out in a department-wide directive referred to as SEN-15, dated February 5, 1990.] DOE

managers today say that because Watkins was personally committed to NEPA, his senior managers adopted that commitment as well. **Table 2** presents a list of key changes in DOE's handling of NEPA, beginning with Watkins' tenure.

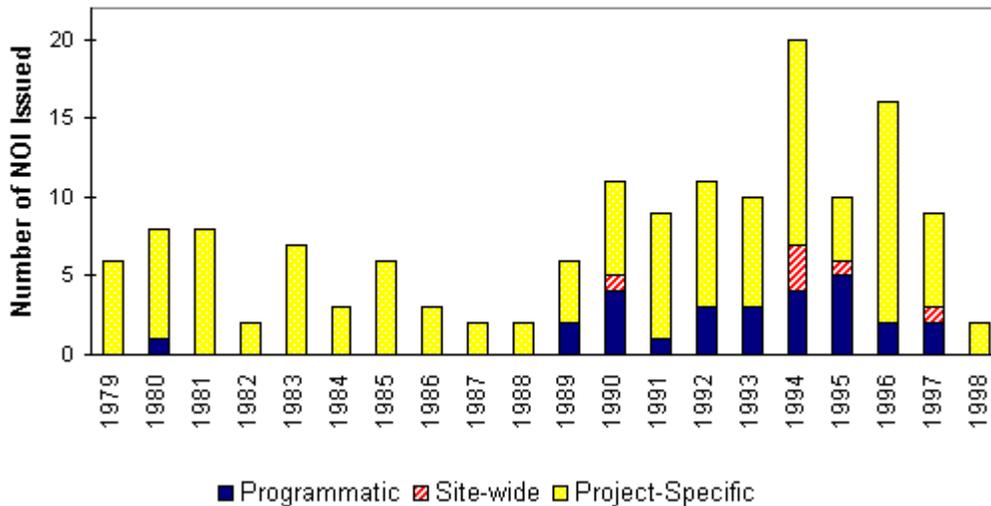
Table 2: Chronology of Key Events	
Feb 1990	Secretary Watkins issues Secretary of Energy Notice 15 (SEN-15) revising departmental procedures to improve compliance with NEPA.
Apr 1992	<i>Federal Register</i> notice of DOE's final rule on NEPA Implementing Procedures
May 1992	Secretary Watkins testifies before the Senate Armed Services Committee that, for the first time since 1945, the United States is not building any nuclear weapons.
Nov 1992	Meeting of the Weapons Production Complex Managers identifies the need to reduce time for preparation and review of NEPA documents, leading to the formation of the Environmental Assessment Process Improvement Team.
May 1993	Assistant Secretary for Environment, Safety and Health (EH) issues Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements
Jan 1994	Report of the Environmental Assessment Process Improvement Team.
June 1994	Secretary O'Leary issues Secretarial Policy on NEPA
July 1994	Secretary O'Leary issues DOE Public Participation Policy under NEPA
Aug 1994	EH issues Environmental Assessment Checklist
Dec 1994	EH issues Guidance on Effective Public Participation
Dec 1994	Office of NEPA Policy and Assistance issues the first <i>Lessons Learned Quarterly Report</i>
Feb 1995	NEPA Contracting Quality Improvement Team issues report.
July 1996	<i>Federal Register</i> notice of amendments to DOE's final rule on NEPA Implementing Procedures
Dec 1996	EH issues NEPA Contracting Reform Guidance (replacing previous guidance)

June 1997	DOE awards DOE-wide NEPA contracts to SAIC, Tetra Tech, and Halliburton NUS.
Nov 1997	EH issues Environmental Impact Statement Checklist
Mar 1998	DOE selects Battelle Memorial Institute as an additional contractor for the DOE-wide contract.

Watkins oversaw the adoption of a formal rule that eliminated some of the discretion managers had used to avoid NEPA reviews. [Watkins eliminated the "catch-all" categorical exclusion with a provision in SEN-15, a change DOE codified in subsequent rulemaking. DOE issued a Notice of Proposed Rulemaking for revision of its NEPA regulations, 10 CFR 1021, in 1990. The final rule was published in *57 Federal Register* 15122 (April 24, 1992).] Watkins also encouraged closer involvement of host states and tribes in DOE's NEPA process by requiring DOE to issue formal notification to them when it intended to prepare an EA. The new rule also required DOE to provide host state and tribal authorities with an opportunity to comment on each EA before DOE approved it. Finally, Watkins directed DOE to make "implementation plans" for each environmental impact statement available to the public. These plans were to lay out the NEPA process in ways that would help the department manage the process. Making the plans public would also help members of the public understand how they could participate in the process.

Secretary Watkins' tenure coincided with a substantial increase in DOE's use of programmatic EISs. **Graph 2** shows the number of EISs DOE began each year, broken down by whether the proposed action called for a programmatic, site-wide or project-specific EIS. (Here, as elsewhere in this report, the starting date for each EIS is measured from DOE's formal publication of a "notice of intent" to prepare an environmental impact statement.) Beginning in 1989 and continuing to the present day, DOE initiated a significant number of programmatic EISs each year. (Appendix II contains a list of all DOE EISs that the department classifies as either programmatic or site-wide.) [Appendix II lists the programmatic and site-wide EISs that have been initiated by DOE. Some EISs do not cleanly fit into one or another category, as several of the "programmatic" EISs also had significant emphasis on a single project.]

**Graph 2: Environmental Impact Statements Begun
By Year and Type (Through 4/98)**



Several different factors contributed to DOE's increased use of programmatic EISs during the 1990s. First, at the start of the decade, public interest groups had sued to compel DOE to prepare a comprehensive environmental impact statement. Second, the nature of many of the decisions confronting the department at this time made comprehensive examinations appropriate. For example, at the turn of the decade, DOE was faced with deciding how to reconfigure major components of the weapons complex. Similarly, planning on waste management issues naturally called for a programmatic approach, as many different parts of the country - and parts of DOE's organization - had interests in the locations of waste treatment, storage, and disposal facilities. Finally, the use of programmatic EISs may have gained further impetus from Watkins' endorsement of "site-wide" EISs to evaluate the cumulative impacts of existing site-wide conditions and proposed actions at various DOE sites.

In summary, the tumultuous changes in the Department of Energy at the beginning of this decade had several important consequences for the department's NEPA process and procedures:

- The department's changing mission posed many new environmental and managerial challenges, and required NEPA reviews of new proposals and alternatives.
- DOE initiated a number of large and exceptionally complex NEPA reviews during the early 1990s. The department's increased use of programmatic and site-wide reviews created new challenges for timely and cost-effective preparation of NEPA documents.

- Growing public awareness of the environmental legacy of nuclear weapons production contributed to heightened public distrust of the department and its proposals. As a result, NEPA reviews today often proceed in a political context that is highly skeptical, if not hostile, to the department and its conduct of the EIS process.

C. The 1994 Secretarial Policy on NEPA

The centralization of authority under Secretary Watkins' leadership appears to have improved the department's compliance with NEPA, but it also caused or contributed to a number of administrative problems. These problems included inefficient methods of document preparation and review, lengthy delays in preparation of final documents, and undue attention to minor problems at the expense of larger issues. Watkins' successor, Hazel O'Leary, attempted to solve those problems while continuing to implement the basic program Watkins had instituted.

Watkins made the line programs and operations offices responsible for preparing NEPA documents, but kept the authority for their final approval in the Office of Environment, Safety and Health (EH). The office had a role in both national and purely local decisions. For example, EH was responsible for approving each environmental assessment for the agency, and passed as well on every decision about the applicability of categorical exclusions. In addition, the Office of General Counsel and respective program offices were closely involved in NEPA documents prepared by and for field offices. The review of documents became somewhat circular: the program office would pass a document to EH, which would pass it on to counsel, which could pass it back to EH and the program, and so on. This sequential multi-office process often resulted in long document review periods.

In 1992, a meeting of weapons complex operations office managers identified the time for preparation and approval of NEPA documents as one of their key managerial challenges. [DOE, *Environmental Assessment Process Improvement Report* (January 1994).] These managers were particularly unhappy with the length of time required for the review and approval of environmental assessments and the issuance of "findings of no significant impact" or FONSIIs. In cooperation with DOE headquarters staff, the managers formed the EA Process Improvement Team, which in early 1994 recommended that DOE delegate EA approval authority to the program and operations offices, rather than keeping the authority at EH.

In June 1994, Secretary of Energy Hazel O'Leary issued a secretarial policy statement on the National Environmental Policy Act that directed DOE to streamline its NEPA process and minimize the cost and time for document preparation and review. [O'Leary, Hazel, *Secretarial Policy on the National Environmental Policy Act* (June 1994).] The policy encouraged team-work in the preparation and review of documents. For example, the policy established management teams from EH, the Office of the General Counsel, and the program offices that replaced the sequential review process with a concurrent review that expedited the resolution of conflicts. The policy encouraged more delegation of authority

to the programs and the field, directed the department to improve its management of contractors involved in NEPA work, and directed the Office of NEPA Policy and Assistance (which, in DOE shorthand, is known as EH-42) to develop additional training and guidance materials, to monitor departmental NEPA performance, and to initiate a "lessons learned" process to capitalize on process improvements. O'Leary's goal was to make the process, and the resulting documents, more useful for DOE decision makers and the public. The policy set the ambitious goal of reducing the median time to complete an EIS to 15 months within two years. Achieving that goal would require cutting the median completion time by more than half.

In July 1994, Secretary O'Leary announced a departmentwide policy on public participation that dovetailed with the secretary's goals for NEPA. [O'Leary, Hazel, Guidance on Implementation of the Department's Public Participation Policy (July 29, 1994).] The new policy declared that "public participation must be a fundamental component of the department's program operations, planning activities, and decisionmaking." The policy defined public participation as open, ongoing, two-way communication, both formal and informal, between DOE and its stakeholders. The secretary directed each DOE site to develop a public participation program in consultation with community representatives. While the public participation strategy should be tailored to the needs of specific sites, each strategy should advance the following broad goals: the department must be open and honest with the public; departmental decision making must be clearly defined, with well-identified points for public input; and linkages between local and national issues must be clarified to facilitate informed public participation.

Delegation of Authority to the Field

The 1994 secretarial policy on NEPA broke with existing DOE practices by directing EH to delegate approval authority for environmental assessments to the field. Prior to 1994, the Office of NEPA Policy and Assistance within the Office of Environment, Safety and Health had reviewed each proposed categorical exclusion, environmental assessment, and environmental impact statement. O'Leary's policy adopted the recommendation of the EA Process Improvement Team to make secretarial officers and heads of organization (generally, the assistant secretaries for the national programs and the managers of the operations offices) responsible for approving EAs and for issuing "FONSI's," the "findings of no significant impact" which allow projects to go forward without an EIS.

[The secretarial officers listed in the policy are: assistant secretaries for Defense Programs, Energy Efficiency and Renewable Energy, Environmental Management, Fossil Energy, Field Management (associate deputy secretary) and the directors of several programs (e.g., Energy Research) and the power administrations. The heads of the field organizations listed in the policy are the people in charge of the operations offices, and field offices such as the Yucca Mountain office.] EH retains the authority to direct a program or operations office to prepare an EA or EIS if, in its judgment, the program or office would not otherwise prepare the appropriate document. By eliminating headquarters involvement in most environmental assessments, the policy eliminated several layers of review (by EH, the Office of General Counsel, and the program offices) and thus appears to have saved both time and money. The change also allows the Office of NEPA Policy and Assistance to stay focused on the more significant issues associated with environmental impact statements.

The policy allowed the assistant secretary for environment, safety and health to delegate to field offices the authority to approve an EIS on a case-by-case basis. Since 1994, however, EH has delegated broad EIS approval authority only to the Bonneville Power Administration, and to a lesser extent, to the Western Area Power Administration. Many power administration actions tend to be relatively straightforward and routine, and stand in contrast to many department actions involving the weapons complex. The assistant secretary delegated approval authority to Bonneville in part because of the nature of the projects it manages and in part because EH has confidence, based on experience, in Bonneville's capacity to do the NEPA work well. In two cases, EH has delegated EIS approval authority to parts of the weapons complex for projects whose impacts were of only local concern. Other operations offices have requested such authority on a case-by-case basis, but EH has not concurred. Nor has EH established generic criteria for determining when EIS authority might best be delegated to the field because EH officials believe that delegation decisions should be based on a case-by-case review.

EH has retained its authority over most EIS approval decisions for several reasons: to maintain quality control over the technical and legal aspects of NEPA documents; to provide a degree of independence and objectivity to internal reviews; and to avoid problems created by DOE's organizational fragmentation and the tension between national and local interests.

The department's complex organizational structure creates complex cross-cutting interests in the outcomes of particular EISs. DOE is organized by function but most of the line programs are actually implemented by geographically based operations offices. The large headquarters programs include Defense Programs (DP, which supervises the production and management of the nation's nuclear weapons), Energy Research (ER, which supervises a wide range of basic and applied research at DOE's national laboratories), and Environmental Management (EM, which manages the department's wastes and runs the nation's largest environmental clean-up program). DOE's operations offices are at places like Aiken, South Carolina; Richland, Washington; and Albuquerque, New Mexico. These "ops offices" may oversee several DOE sites and area offices, each of which may be funded by several program offices and carry out a variety of functions. Historically, the operations offices have enjoyed considerable autonomy from headquarters and its program offices, and have often operated independently of each other.

An action at one operations office may have significant impacts on other parts of the complex. For example, a decision on whether to shut down a reactor or start up a new waste stabilization process at one site may have environmental and social impacts halfway across the country as the flow of nuclear materials, weapons components, wastes, or jobs changes in response to the decision. Moreover, reasonable alternatives to a proposed action at one site may be spread out across the country. By retaining control over the EIS process, the Office of Environment, Safety and Health tries to coordinate these decisions and strengthen the secretary's ability to manage the complex as a whole.

Apart from the challenge of coordinating actions that could affect numerous sites, the Office of Environment, Safety and Health plays a role in balancing parochial and national interests on matters with potential environmental impacts. Operations office managers are under pressure to get specific jobs done as quickly as possible and at the lowest possible cost. NEPA reviews are generally perceived as adding time and cost to the process of making a decision. Thus, project managers in field offices have an incentive to try to make projects fit the definitions of categorical exclusions, or failing that, to try to fit the projects into an EA rather than EIS.

DOE employees in the field counter that headquarters' intervention sometimes adds to the cost and time of complying with NEPA without adding much value. They strongly endorse delegation of EA authority and generally would like delegation of EIS authority as well. [DOE, *Report of the NEPA Quality Improvement Team* (October 1995).] One NEPA employee in an operations office said that any of his counterparts worth their salt should be able to handle the responsibilities that would come from full delegation of EIS authority to the field. Representatives from public interest groups disagree, however, fearing that if DOE gave the field offices more authority, the field managers might increase their use of EAs in lieu of EISs. The interest groups and managers in DOE's national programs interviewed in this study were generally opposed to delegating further approval authority to the field, and believed that EH-42 plays an important role in quality control.

Staffing and Organization Under the Secretarial Policy

The 1994 secretarial policy established a new job description that is central to the EIS process. The DOE "NEPA document manager" is the DOE employee charged with directing the preparation of each EIS and EA. [The organizational framework is now specified in DOE Order 451.1A.] Although the job title suggests that the document manager's role is primarily custodial and concerned with archiving paperwork, the manager plays an active and critical role in designing and directing the environmental review process. The document manager, in concert with local contracting officers, makes decisions about the issuance of contracts for NEPA services.

In creating the position of document manager, the secretarial policy was building on a principle established by Watkins: that the field office or program proposing an action should be responsible for evaluating the action and preparing whatever environmental assessments or impact statements would be required. The document managers are part of these line operations, not EH or the EH analogues in the field offices.

The current DOE NEPA process also relies to a great extent on a pre-existing job description known as the "NEPA compliance officer" (NCO). Each of the headquarters program offices has a designated NCO. Each of the operations offices and some of the more subordinate field offices also has a designated NCO, though in these offices they are typically not part of the line operations but rather part of the environment, safety, and health program. In contrast to the document managers, the NCO's are permanently assigned to NEPA compliance functions, and are very knowledgeable about both the

purposes of the act and the department's procedures. In some cases, the NCO serves as the document manager for a particular EIS or EA. Although the NCO makes the determination that an action falls within a categorical exclusion, the NCO generally serves in an advisory role to the EA or EIS document manager and the document manager's line superiors - the responsible secretarial officer or head of the field organization who have final responsibility for NEPA compliance.

The relationship between the document manager, the headquarters and field compliance officers, and the Office of NEPA Policy and Assistance is both important and difficult. The relationship is important because the department's overall ability to comply with NEPA and to manage the process efficiently depends in large part on the document manager's understanding of NEPA's requirements, management skills, and commitment to public dialogue. Observers note that document managers do not always have those skills. The relationship is difficult because EH-42, which is accountable for improving the NEPA process, has no direct authority over any of the document managers or the NCOs. Moreover, the NCOs in the field have no direct authority over their office's document managers. DOE's usual career track provides few incentives for the document managers to sharpen their NEPA skills. Generally, document managers get the position because they are involved in the programs responsible for the new facility or project. Most see NEPA as a one-time assignment which they would prefer not to repeat. A DOE employee who works with many document managers said that the beauty of NEPA is that it forces managers who might be indifferent or even hostile to the goals of NEPA to learn about environmental impacts and public concerns and thus become better managers.

Regulatory Changes Since the Secretarial Policy

DOE proposed additional changes to its NEPA regulations in 1996, in part to conform the regulations to the policies ordered in the 1994 secretarial policy statement. [DOE published the preliminary rule in 61 *Federal Register* 6414 (February 20, 1996) and the final rule in 61 *Federal Register* 36222 (July 9, 1996). Portions of the final rule pertaining to power marketing activities were published in 61 *Federal Register* 64603 (December 6, 1996).] The final rule implemented two significant changes:

First, the rule eliminated the requirement that DOE officials prepare an "implementation plan" describing how they would go about preparing each EIS. A few years earlier, Watkins had required that DOE make these plans available to the public. In the interim, preparing the plans had become an elaborate process of its own. DOE concluded that the implementation plans were not worth their cost, as they were often issued at such a late date that the draft environmental impact statement was nearing completion.

In interviews with the study team, DOE officials and members of the concerned public said that the deletion of the requirement to do an implementation plan has not had an adverse effect on the department's NEPA process. As a matter of practice, NEPA document managers still must lay out a plan for the EIS process in order to manage their

contractors. Further, the document managers must also engage in early scoping and careful planning to get the most out of contractors. Consequently, the regulatory change lifted the burden of preparing another formal document, without altering the underlying need to accomplish the substance of the implementation plan.

The 1996 regulations also made numerous changes to DOE's list of categorical exclusions. DOE added a number of new categorical exclusions, expanded or clarified some of the old ones, and removed a few. DOE appears to have done a good job of demonstrating that the proposed expansion of exclusions would have no significant environmental impact. The regulation aroused little controversy and is generally regarded as a positive administrative change, as it allows the agency to focus its resources on more significant problems. Most recent disputes involving categorical exclusions are about whether DOE really deliberated about the applicability of the categorical exclusions to specific proposals, rather than on the legitimacy of the excluded categories themselves. [Neither CEQ nor DOE regulations and orders require NCO's to document their determinations that a proposed action falls within a categorical exclusion, and CEQ counsels against such practices on the grounds that too much documentation detracts from the main purposes of the Act. Nevertheless, litigants have challenged some DOE actions, claiming that DOE failed to consider all relevant factors in making a categorical exclusion determination. In a recent guidance memorandum, the Office of Environment, Safety and Health encouraged NCO's to keep a simple record of categorical exclusion determinations in order to demonstrate that they considered all relevant factors. DOE, *Guidance on National Environmental Policy Act Categorical Exclusion Determinations*, (January 16, 1998).]

III. Assessing the Effectiveness of DOE's NEPA Reforms

A. Impact on Timeliness

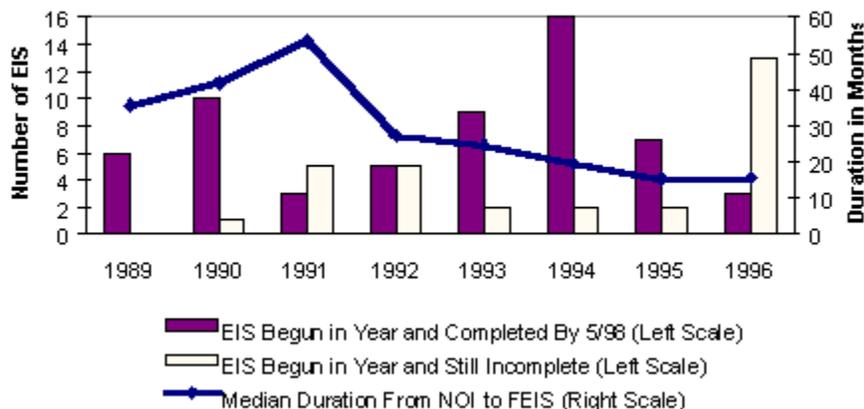
The department is completing its environmental impact statements in substantially less time than it used to.

The Office of NEPA Policy and Assistance has analyzed the length of time it has taken to prepare EISs initiated after the secretary's 1994 NEPA policy statement by examining a cohort of the first 24 such EISs. "Analysis: EIS Completion Times and Costs," *Lessons Learned Quarterly Report*, No 14 (March 3, 1998). Some of the EISs in this cohort are still not final, and the conclusions are still tentative. According to DOE's analysis, the median time to complete an EIS was 14.5 months, with an average duration of 16 months. The median time to complete programmatic and site-wide EISs was 17 months; the median for project-specific EISs was 11 months. Although the summary statistics on this cohort will increase over time (as still pending EISs are completed), DOE estimates that, at most, the median time for completion of the full cohort will be 20 months. In contrast, DOE calculated that the median time to complete an EIS was 33 months in the period from 1989 to 1994.

With an important caveat, the Academy's study team confirmed that in the last decade DOE has decreased the time it takes to prepare both EISs and EAs. The caveat is that a comparison of document preparation times alone cannot assure that the documents compared are comparable in scope or quality. This study was not designed to evaluate individual DOE NEPA documents, and consequently cannot provide an opinion on whether the quality of DOE's NEPA documents has changed over time.

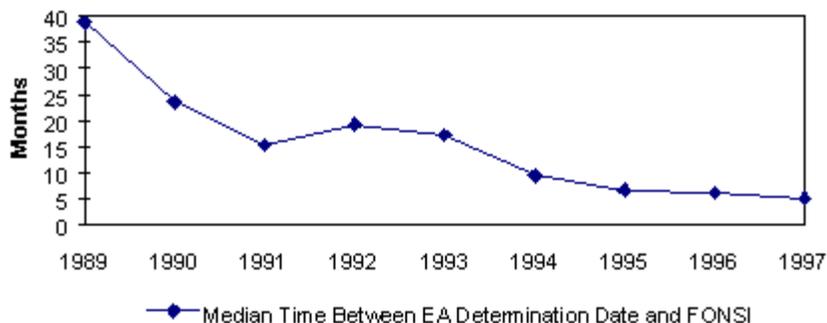
The study team confirmed that EIS completion times have decreased over this decade. Graphs 3 and 4 are based on data obtained from DOE's Office of NEPA Policy and Assistance. The results in Graph 4 exclude EISs that DOE adopted from other agencies. **GRAPH 3** shows the median duration of time for completion of EISs, catalogued by the year in which DOE issued its notice of intent to prepare the EIS. The line and the right hand scale show the median time to complete those EISs, and shows that it has declined since the early 1990s. The two columns show the number of EISs begun in each year that have been completed, and the number of EISs begun in each year that are still incomplete.

Graph 3: Median Completion Times for DOE Environmental Impact Statements



GRAPH 4 demonstrates that the median completion times of environmental assessments has also fallen through this decade. It should be noted that, as with EISs shown in Graph 3, some of the recent EAs are still not complete, and hence are not reflected in this graph.

Graph 4: Median Time to Complete Environmental Assessments



These savings in time are likely to also save the department money. There is anecdotal evidence that three of the administrative reforms in particular - the expanded number of categorical exclusions, the delegation of categorical-exclusion authority to the NCOs, and the delegation of EA approval authority to the field - have allowed operations offices and program offices to avoid costs that they would otherwise have incurred.

B. Impact on Public Participation

Congress intended the National Environmental Policy Act to create an open process that would make it possible for the public to learn about and comment on federal actions that may affect the environment or well-being of communities. The process that has evolved since the passage of the act does that, albeit with some cumbersomeness. DOE appears to

have strengthened its commitment to public dialogue and access to the NEPA process over the last decade. The department has not sacrificed public involvement in NEPA to achieve its goals of a more expedient and efficient process.

The Council on Environmental Quality's regulations establish minimum requirements for public access to the formal NEPA process. Like the CEQ, DOE has established a minimum 45-day public-comment period on each draft EIS. In many cases, however, DOE allows or encourages longer public-comment periods than CEQ requires.

The Academy study team examined a random sample of environmental impact statements completed after January 1989 and found that the comment period exceeded the 45-day minimum for 62 percent of the draft EISs. Furthermore, DOE has often gone beyond its own minimum legal requirement that it conduct one public hearing to discuss a draft environmental impact statement. For programmatic and site-wide EISs, DOE held an average of seven hearings on the draft EISs. The average for project specific EISs was three.

The extent of formal public participation in DOE's draft EISs is highly variable. Programmatic and site-wide EISs elicited an average of 475 submissions of written documents from the public and other governmental agencies, whereas project-specific EISs received an average of only 43 documents. Similarly, many more persons submitted comments of all types (oral and written) for programmatic EISs (an average of almost 1,500 commenters) than for project-specific EISs (an average of about 50 commenters).

These measures suggest that DOE is meeting its legal requirements, but they shed little light on DOE's responsiveness to public comments or skill at engaging the public in a constructive dialogue about decisions with environmental impacts. By most accounts, DOE has made great strides in the last decade to move from a culture of secrecy to one that encourages public involvement in decisionmaking. Some participants at the Academy's June 11, 1998, roundtable made it clear that they believe DOE has a long way to go. That roundtable and other interviews produced the following qualitative assessments of the department's management of NEPA's demands for public access.

Although DOE has set a goal of producing its EISs in about 15 months on average, DOE's managers should gauge the time needed for each EIS by its complexity and the degree of public interest. If the process is too quick, neither the department nor the public will have the time to analyze the problems or think creatively about alternatives. If the process is too slow, the public will lose interest and turnover in key DOE positions will make the whole process less relevant to the final decision. In any case, DOE should not compress the time available to the public to review and comment on documents.

In order to build an administrative record for each EIS that can withstand a legal challenge, DOE must conduct formal hearings and comment periods. Roundtable participants agreed that these formal proceedings are essential yet insufficient. The rigid settings do not satisfy the department's need to freely exchange information and opinions with interested people and organizations. Roundtable participants agreed that DOE and

other agencies need to experiment with new methods of public involvement to supplement - although not replace - more traditional hearing formats.

The department has established other methods of public involvement in recent years, and these may have taken some of the pressure off the NEPA process as the primary public outreach vehicle. As DOE was emerging from its Cold War secrecy, the NEPA process was one of the only avenues by which the public could learn about and comment on the activities at sites around the country. Since then, DOE has established site advisory councils at its major facilities which bring concerned citizens from surrounding communities together to discuss issues of importance to each site. Given the deep reservoir of public distrust and anxiety about nuclear materials and nuclear weapons, however, many of the department's NEPA reviews continue to be flashpoints of controversy.

Those political controversies over DOE's mission have a profound impact on the department's management of NEPA. Because NEPA established procedural requirements for environmental reviews, political disagreements about nuclear weapons policy can be transformed into litigation over the analysis of potential environmental impacts. One participant at the Academy's roundtable said that his organization would use NEPA's legal hooks at every opportunity in order to delay or prevent actions that the group opposed on principle.

The threat of litigation and its delays has forced DOE's NEPA project managers to practice what might be called defensive analysis. Just as medical doctors fearful of malpractice suits may order unnecessary tests, so DOE managers have concluded that the safest course of action is to expand the scope or extend the depth of their EIS analyses. One result has been that EISs become encyclopedic so that DOE can demonstrate that it considered all the options in appropriate detail. The process thus takes more time and costs more money. Ironically, the very completeness of these documents makes them so large and technical that they are less readable by most citizens or DOE managers, and thus of less utility to both.

C. Delivering Better Guidance, Training, and Performance Measurement

In addition to developing NEPA policy and conducting and coordinating EIS reviews, the Office of NEPA Policy and Assistance has assumed the responsibility for creating a well-trained, well-informed cadre of NEPA compliance officers and NEPA document managers throughout the DOE complex. The office's efforts constitute a commitment to continuous improvement of the NEPA process and are highly regarded throughout the complex. The office uses a variety of tools to this end, including guidance documents, training and conferences, performance measurement, and communication through a quarterly publication, *Lessons Learned Quarterly Report*, and a World Wide Web site on the Internet. The DOE managers interviewed for this study gave consistently high marks to EH-42 for its assistance programs.

Guidance

A common criticism in early 1990s was that DOE officials in charge of NEPA had no guidance on how to do NEPA reviews and so used inconsistent methods that yielded inconsistent results. Beginning in 1993, EH-42 has issued a wide variety of guidance documents on the NEPA process in an effort to create a more standard approach and to help people outside the department understand the department's policies and methods. **Table 3** lists these documents.

Table 3: NEPA Guidance Documents Issued by EH-42	
1993	Recommendations for the Preparation of EAs and EISs
1994	Environmental Assessment Checklist
1994	Guidance on Effective Public Participation Under the National Environmental Policy Act
1994	NEPA Compliance Guide Reference Book
1996	NEPA Contracting Reform Guidance
1997	Environmental Impact Statement Checklist
1997	Guidance for NEPA Review for Corrective Actions Under RCRA
1998	Guidance on National Environmental Policy Act Categorical Exclusion Determinations
1998	Directory of Potential Stakeholders for Department of Energy Actions Under the National Environmental Policy Act, Ninth Edition (updated twice each year since 1994)
1998	Guidance on Dates for Department of Energy NEPA Documents

The checklists are designed to help the NEPA document managers ensure that each EA or EIS is complete. The contracting reform guidance was designed to help the many people throughout the complex with responsibility for NEPA contracts to improve their contract management. The directory of stakeholders was intended to make it easier for NEPA

managers to reach out to interested parties. DOE is converting that document to a database and has put it on the NEPA web page to make it even easier for managers to find those people or organizations most likely to have an interest in a proposal.

Training

Many of DOE's more senior NEPA specialists, the NEPA compliance officers, have years of experience with NEPA both in DOE and other agencies. The NEPA document managers, however, tend to be relatively new to the process when they take on the role of supervising the preparation of a specific EIS or EA. The NCOs have generally assumed the responsibility for training the document managers, though EH-42 provides training on request and encourages participation in training offered by a DOE center called the National Environmental Training Office. As a regular feature, *Lessons Learned Quarterly Report* lists training opportunities at a variety of universities and conferences.

The secretarial policy of 1994 raised the possibility that DOE would develop a certification program for NEPA practitioners. EH has evaluated that proposal but has not yet decided how to proceed, in part because of a debate within DOE about whether the document managers should be NEPA specialists who would make a career of NEPA projects or program specialists whose career would stay focused on the site or program for which the NEPA review happened to be a temporary activity. However the department resolves that debate, it is clear that the responsibilities placed on the document managers require not only an understanding of NEPA but also excellent skills in project management, contractor management, and public involvement. Those general skills should be at least as valuable to a DOE facility manager as to a NEPA compliance officer so the debate about the career track of document managers should not get in the way of more appropriate training.

Performance Measurement

In the last five years, the Office of NEPA Policy and Assistance has dramatically improved the quality and range of data that the department collects on NEPA compliance. The office uses that data to track NEPA performance and publishes the data in *Lessons Learned Quarterly Report* and on the EH-42 web site.

EH-42 obtains the data through an online questionnaire. At the conclusion of an EA or EIS, the NEPA document manager or the NCO completes the questionnaire, providing information on the cost of the evaluation process, how effective the process appears to have been (on a scale of 1 to 5), and how long it took. Other persons from the agency, the contractor and the public can comment on the process as well.

By tabulating the resulting statistics, EH-42 creates a management tool that it can use to identify progress or problems. By publishing them quarterly, the office helps managers from across the complex see what the norms are for EIS and EA production. *Lessons Learned Quarterly Reports* identify specific projects by name and aggregate the data to show trends and averages. The data tracking and publication reinforce the message that

the department expects costs and preparation time to go down. EH-42 encourages this result by highlighting success stories in *Lessons Learned Quarterly Reports* and reprinting comments about "what worked and didn't work" in the process.

The measures EH-42 uses are important and helpful but ultimately not sufficient. They track administrative aspects of NEPA reviews, but do not collect types of information that would be especially relevant to performance evaluation. For example, the data to date do not allow one to assess how often the EIS process results in a significant change in the preferred alternative. Because DOE's managers now develop project proposals with their environmental consequences in mind, one should not expect NEPA reviews to change all proposed agency actions. Nevertheless, it is reasonable to inquire how often the NEPA process, in itself, did result in a change or reorientation of agency behavior.

EH-42 could continue to improve its NEPA monitoring system by trying to capture additional performance data. Measures that characterize outcomes, the quality of the documents, the extent of public involvement, and the relevance of the documents to the public or decision makers are far more difficult to establish and use consistently than measures like the dates of *Federal Register* notices. However, further development of such measures would likely pay dividends in the form of a more textured and robust understanding of the contribution of NEPA reviews to departmental actions.

Mechanisms for Continual Improvement

EH-42's efforts to set policy, clarify expectations, gather and publish data, and build a network of competent managers are parts of a strategy that seeks continual improvement of the NEPA process.

EH-42 convenes members of DOE's "NEPA community" - the compliance officers, document managers, legal staff, and others - at least once a year to discuss issues of importance, to share lessons learned, and to build a sense of common purpose. *Lessons Learned Quarterly Report* extends the impact of those conferences. In its reviews of federal programs, the Academy often notes that the program or agency fails to learn from its actions and thus fails to improve. *Lessons Learned Quarterly Report* is an excellent example of what a program can do to gather and use information to support continual improvement. DOE's NEPA web site carries the approach one step farther by being available to anyone with a connection to the Internet. (The URL for the DOE NEPA web site is <http://tis-nt.eh.doe.gov/nepa/>.)

IV. NEPA Costs and the Use of Contractors

In 1995, Secretary O'Leary informed Congress that DOE was spending approximately \$20 million to \$30 million per year for its routine NEPA compliance program. In addition, the department was spending \$50 million per year to prepare several major, one-time programmatic environmental impact statements, and \$30 million per year for several site-wide EISs. [Letter from Hazel O'Leary to Senator Peter Domenici (June 2, 1995). Similar information was provided to Congress in the testimony of Robert Nordhaus, DOE General Counsel, before the Senate Energy and Natural Resources Committee, Subcommittee on Oversight and Investigations (June 7, 1995).] The perception that these costs were excessive gave an impetus to many of the reforms that are discussed in this report.

Many of DOE's NEPA costs are attributable to the agency's extensive use of contractors. Of the 39 EISs completed since July 1994 for which detailed cost information is available, only one was completed without incurring any contractor costs, and more than 90 percent of the aggregate EIS costs were contractor costs. (These percentages are based on cost data collected, on a project by project basis, by DOE's Office of NEPA Policy and Assistance.) DOE also uses contractors to prepare EAs, although to a less marked degree than for EISs. Ninety percent of the EAs completed since July 1994 were prepared with the assistance of contractors, and two thirds of overall EA project costs were contractor costs. While other federal agencies also use contractors for NEPA document preparation, DOE's use of contractors stands at the far edge of the continuum. Much of the department's efforts to improve the management of NEPA has focused on reforming the contracting process.

A. DOE's Efforts to Improve Its NEPA Contracting Practices

In the secretarial policy of 1994, Secretary O'Leary established a quality improvement team to make recommendations on how to improve the NEPA contracting process. A team, formed with members from all major DOE programs and major operations offices, subsequently reviewed DOE's practices. Their report criticized the department's NEPA contracting practices in strong terms:

The cost of DOE EISs is frequently too high, EIS preparation time is often too long, and document quality is often too low. Although the Team recognizes that these problems are related in some degree to the complexity of the decisions that are the subject of many NEPA analyses, the Team concludes that the more significant part of the problem lies in poor planning and management of the EIS process by DOE, along with the results of using cost-plus-fixed fee contracting mechanisms. DOE, *Report of the NEPA Contracting Quality Improvement Team* (Feb 1995).

The team concluded that a variety of changes were needed and recommended, among other things, that the department:

- use contract types that would place a greater financial risk on the contractor and contain performance incentives
- use indefinite delivery/indefinite quantity master task contracts
- use detailed statements of work and separate task orders or contracts for scoping and for document preparation
- adopt a DOE-wide NEPA contractor evaluation system
- develop a DOE-wide NEPA database to track NEPA compliance

The pressure for changes in NEPA contracting received a second impetus from the department's 1995 Strategic Alignment Initiative to streamline the department and reduce costs. The Strategic Alignment Initiative for NEPA reform established a goal that the department would save \$26 million in NEPA costs within five years. Within those cost savings, DOE estimated that it would save \$2.5 million each year through FY 2000 by better contracting for NEPA support.

DOE has traditionally relied on cost-reimbursement contracts to acquire goods and services. Although this contracting vehicle allowed significant technological advances in defense and civilian scientific work during the Cold War, the contract statements of work were very broad and the government assumed virtually all of the financial and performance risks for projects. DOE, Office of Contract Reform and Privatization, *Contract Reform Self Assessment Report* (September 1997). By adopting this relationship with its contractors, DOE bought hours of work without any certainty that the product will be useable, and without certainty about the timing of the delivery of the product.

In recent years, DOE has announced that it will shift more of its procurement to mechanisms that place more responsibility on the contractor, and provide the department with greater financial certainty. In addition to fixed price contracts, cost-plus-award-fee and cost-plus-incentive-fee pricing arrangements allow DOE to encourage better contractor performance than the traditional cost reimbursement approach.

The success of fixed-price and incentive approaches depends on the department's ability to develop a strong statement of work and communicate a clear expectation of work products and procedures to the contractor. There are at least three ways that NEPA reviews can involve uncertainty that may be troublesome from a contracting point of view. First, the extent and depth of analysis required may change over the life of the NEPA process due to external factors. For example, congressionally mandated budget and program changes can dramatically affect the direction and purpose of the proposed actions needing NEPA review. Second, the office proposing the action does not always define the scope of work precisely. Third, new information is sometimes discovered in the course of the review that necessitates a new direction or additional analysis. Each of

these types of uncertainty makes it harder to get good results from a fixed-price contract. However, some of these uncertainties can be minimized through better planning and management.

The 1994 secretarial policy directed that all future contracts for NEPA services should contain incentives to improve contractor performance. Since that time, the Office of Environment, Safety and Health has issued contracting guidance that includes model statements of work and discussions of contract types and incentive structures. DOE, *NEPA Contracting Reform Guidance* (Dec 1996). The guidance documents encourage NEPA document managers to prepare detailed statements of work and to include incentives in the contracts that encourage good performance. The guidance also encourages document managers to prepare separate statements of work for the public scoping process and document preparation. Phased contracting practices can make it easier to prepare more detailed statements of work.

With the exception of certain DOE-wide NEPA contracts discussed below, it is very difficult to assess the extent to which the department's aspirations for contract reform have in fact materialized in the NEPA contracting setting. This is in part due to the very decentralized nature of the procurement process. NEPA support contracts can be let by any of the operations or program offices, and the terms and conditions of the contracts can vary greatly. DOE's contract-reform process is underway but far from complete. Successful navigation of this transition will depend on DOE's general ability to manage its contractors, which is a subject more far-reaching than the matter of NEPA contracting alone. The General Accounting Office has followed DOE's contracting reforms in detail. E.g., *Department of Energy: Contract Reform is Progressing, but Full Implementation Will Take Years*, RCED-97-18 (Dec. 10, 1996); *Department of Energy: Opportunity to Improve Management of Major System Acquisitions*, RCED-97-17 (Nov. 26, 1996).

Second, there is evidence that the document managers continue to use very general statements of work in seeking contractor bids. One contractor representative stated that the task orders issued to date under the DOE-wide master contracts have been very open and non-specific.

Finally, the contractor evaluation system appears to remain a largely unfulfilled promise. The 1994 secretarial policy statement ordered the NEPA document manager to evaluate contractor performance at the conclusion of each environmental assessment or environmental impact statement. The Office of Environment, Safety and Health has provided standard forms for the evaluation of NEPA contractors. At the same time, the DOE procurement system requires annual reviews of all contracts in excess of \$100,000. While the forms designed by EH are compatible with the evaluation forms used by the procurement system, the study team was unable to determine that the systems were in widespread use. Some NCO's send copies of the contractor evaluation forms to EH-42, but others do not, and there does not appear to be a systematic method for capturing and using the evaluations, or for assessing whether the evaluations are useful and effective.

B. Agency-Wide Master Contracts for NEPA Services

While the status of DOE's overall contracting reforms is hard to assess, DOE has made significant progress in the development of NEPA support contracts. In the past, each DOE program or operations office had to negotiate and issue its own contracts for NEPA-related professional services. The NEPA Contracting Quality Improvement Team recommended that the department explore the feasibility of a "master contract" for NEPA services to reduce the time spent in the procurement process. In June 1997, the department awarded contracts to three environmental services contractors to provide NEPA document preparation services to any part of the department at an established rate. The master contracts are administered by the Albuquerque operations office, but can be used by any DOE program, operations office, or field office. The master contracts are intended to allow maximum flexibility in the pricing mechanism for each contract, and task orders can be structured on a firm-fixed-price, cost-plus-fixed-fee, or cost-plus-incentive-fee basis. To use this contracting vehicle, the local contracting office merely prepares task orders that include a statement of work, and otherwise relies on the terms of the master contract. The contractors in the pool respond to the task orders with task proposals. The local contracting office, in consultation with the NEPA document manager, selects one of the proposals and can immediately put the contractor to work.

The DOE source evaluation panel selected three large and experienced environmental services contractors from among eight bidders for the contract: Science Applications International Corporation, Tetra Tech, Inc., and Halliburton NUS. After the selection of these contractors, Tetra Tech purchased Halliburton NUS. In response, the DOE source evaluation panel added another contractor, Battelle Memorial Institute, to the contractor pool. Each of these contractors has experience in performing NEPA work for both DOE and other federal agencies.

To date, seven field offices have used the master contracts to issue 14 task orders (see **Table 4**). None of the tasks has been completed. Some of the task orders were issued as fixed-price contracts, while others were structured as cost-reimbursement contracts plus incentive fee, and a few cost-plus-fixed-fee contracts. Observers have stated that the three contractors have submitted task proposals that are very close in terms of dollar values.

**Table 4: DOE-Wide NEPA Contracts
Task Order Listing as of 6/17/98**

Description	Value	Type	Awardee	Completed	Date Awarded	Days to Award
Document Production for the LANL SWEIS	\$331,872	FFP	Tetra Tech	No	7/3/97	15
Draft SNL/NM SWEIS	\$2,758,259	CPIF	Halliburton NUS	Yes	8/15/97	31

SNL/NM SWEIS Public Relations	\$827,762	CPFF	Halliburton NUS	Yes	8/15/97	31
Final SNL/NM SWEIS	\$1,212,239	FFP	Halliburton NUS	Yes	8/15/97	31
Commercial Light Water Reactor Tritium Extraction Facility	\$600,038	CPFF	Halliburton NUS	No	9/16/97	14
Los Alamos Nonproliferation and International Security Center EA	\$34,582	FFP	Tetra Tech	No	11/13/97	16
Hanford Remedial Action EIS	\$232,476	CPFF	Halliburton NUS	No	11/17/97	28
INEEL Advanced Mixed Waste Treatment Facility EIS	\$795,000	CPIF	Tetra Tech	Yes	11/14/97	18
INEEL High Level Waste and Facilities Disposition EIS	\$2,933,204	CPFF	Halliburton NUS	Yes	11/25/97	29
High Flux Beam Reactor EIS	\$1,617,903	CPFF	Tetra Tech	Yes	12/17/97	30
Supplement Analysis of EIS for Container System for the Naval SNF	\$174,523	CPFF	SAIC	No	3/11/98	33
LANL Land Transfer EIS	\$1,284,200	CPIF	Tetra Tech	Yes	4/10/98	15
Nuclear Materials Integration Project, NEPA Compliance Assessment	\$75,000	FFP	Tetra Tech	Yes	6/1/98	19

Habitat Management Plan Overview Document	\$28,589	CPFF	SAIC	No	6/12/98	10
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KEY: FFP: Flat Fixed Price; CPIF: Cost Plus Incentive Fee; CPFF: Cost Plus Fixed Fee. A "No" in the "Competed" column indicates that the task was issued to a single contractor based on the Ordering Contracting Officer's determination as provided by the contracts.

The new DOE-wide contracts for NEPA support offer several advantages over existing procurement approaches. Some have already been demonstrated, while others must await further validation:

- The time needed to select a contractor to do specific types of work will be considerably less than would be needed to award a similar contract through conventional practices. As Table 2 shows, all 14 tasks to date have been awarded in 33 days or less. One of the tasks issued under the master contract was for a site-wide EIS for Sandia National Laboratory. DOE issued the \$5 million task order in one month under the master contract, whereas it would have taken about a year under the conventional contract bidding process. (Each of the task's three components is shown separately in Table 2.)
- As noted above, EH-42 measures the time required to prepare an EIS or EA from the date the department publishes a formal notice of intent to proceed. DOE selects its contractors *before* filing the notice, however, so the dramatic reduction in time required for the administrative step of bidding a contract will not show up in the department's other statistics. It seems likely that of all the department's management changes to make the NEPA process more timely, the DOE-wide master contracts will have the biggest benefit.
- The master contract reduces the administrative burdens on local contracting offices. This may help DOE to locate the contracting decisions closer to the place of work. For example, the Chicago Operations Office handles almost all procurement decisions for Brookhaven Area Office. Because the DOE master contracts lifted many administrative burdens from the local contracting process, however, the Chicago office permitted Brookhaven directly to issue the task order for an EIS for the High Flux Beam Reactor.
- Since the NEPA contractors in the DOE-wide pool were selected based upon their expertise and qualifications, there may be greater assurance of securing a more qualified contractor than through conventional contractor selection processes. It is also true that the DOE-wide contractor pool is limited to three contractors - who may or may not have the best qualifications for a particular task. However, DOE managers may still use other contractors or their own staff to do the work.
- In theory, the cost to the department for using one of the DOE-wide NEPA contracts will be lower due to the price competition that arose in the nationwide bidding process. There is some anecdotal evidence supporting this point. One NCO who issued a task

order under the master contract stated that costs for the task were 20 percent lower than they were under a separate contract. Cited in "DOE-Wide NEPA Contracts Provide Quick Access, Lower Costs," *Lessons Learned Quarterly Report*, No. 15 (June 1998). It remains to be seen how well the contractors deliver on quality, total cost, and overall value.

- Since a small number of large contractors will have repeat experience, the contractors may develop a better understanding of DOE's needs and expectations and thus be able to operate more efficiently and deliver consistently higher quality. Conversely, there is also a possibility that the selected contractors will "capture" the agency's business. Observers think this is unlikely because the very competitive market that now prevails in the environmental services industry will arrest oligopolistic tendencies.
- The master contracts include contractor performance evaluation as an integrated component. The close connection of performance reviews with subsequent contracting decisions may be a powerful inducement for the contractors to do good work. There has been no experience with this yet, since no tasks have been completed.

C. Evaluating the Costs of Preparing NEPA Documents

Assigning a dollar value to "NEPA" is very hard to do. First, each program office or operations office is responsible for paying the costs of preparation and review of NEPA documents for actions proposed by that office, and the complicated and cross-cutting relationships between these different offices makes it practically impossible to establish "department-wide" budgets for NEPA compliance.

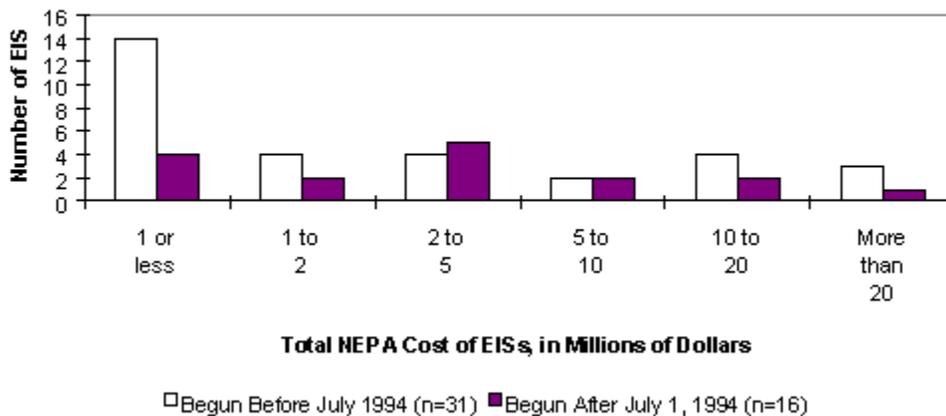
Second, even on a project-by-project basis, it is often difficult to determine which of the costs associated with a project are properly attributable to NEPA, and which are more properly attributable to program planning and general departmental administration. In a number of EISs prepared in recent years, the department did not have an adequate empirical understanding of the dimensions of the problems that its proposed action was intended to address. In the case of the waste management programmatic EIS, DOE did not have any reliable accounting of the volumes and characterization of the wastes that were distributed across the complex. Such information was a prerequisite to understanding the environmental impacts of waste-management options so DOE incurred substantial costs - and attributed them to the EIS - simply to conduct a basic audit and inventory of the department's wastes.

In other cases, steps in the NEPA process overlap with other aspects of the proposed project. For example, some reviews are necessary for compliance with other environmental laws, such as the Endangered Species Act or the Clean Air Act. Other NEPA-related inquiries may be needed for permit applications. In a number of cases, the NEPA review process includes elements that also satisfy these other programmatic interests. These "mixed" costs make it difficult to compare DOE's NEPA projects.

DOE's office of NEPA Policy and Assistance began to track the costs of completed EISs and EAs after the secretarial policy in 1994. Faced with pressure to control NEPA costs, and the absence of department-wide NEPA accounting procedures, EH-42 developed a method for gathering cost information on a project-by-project basis. Prior to these efforts, the department did not collect or monitor the costs associated with specific NEPA reviews. At the completion of each EIS or EA, the NEPA compliance officer or document manager now provides information on the contractor costs and the costs of using federal employees to prepare and review the NEPA documents. The sum of these are called "total NEPA costs." With a few exceptions, EH-42 only has cost data on EISs and EAs that were completed after mid-1994. The cost data collected by EH-42 and used in this report are denominated in current U.S. dollars, and are not adjusted for inflation.

Variability in proposed actions severely limit the ability to reach conclusions about trends in NEPA process costs, especially for EISs. The data collected to date do not reveal any clear trend in the cost of EISs prepared over the last few years. The study team analyzed the cost of EISs prepared during two time periods. A group of 31 EISs that were initiated prior to July 1994 had an average cost of \$6.3 million, compared with an average cost of \$5.1 million for 16 EISs initiated after July 1994 and completed by the report date. When median costs are compared, however, the relative positions are reversed: the earlier group had a significantly lower median cost than the later group (\$1.2 million compared with \$2.7 million). This result can be explained by **GRAPH 5**, which compares the cost distributions of the EISs in the two groups. In the earlier group, there were many more EISs costing less than \$1 million dollars than in the later group, even after adjusting for the difference in the sizes of the two groups.

Graph 5: Histogram of the Costs of EISs Begun Before and After July 1994, and Completed By May 1998



Analysis of the costs of environmental assessments shows that costs of EAs has declined since 1994. The average cost of 59 EAs begun before July 1994 was \$153,000, compared with an average cost of \$103,000 for 78 EAs commenced after July 1994. (The median cost also dropped, from \$78,000 to \$52,000).

As one would expect, programmatic and site-wide EISs are relatively costly compared to project-specific EISs. The average total NEPA cost of programmatic and site-wide EISs is about \$12.5 million. In contrast, the average cost of project-specific EISs is \$1.5 million. In large measure, this difference is attributable to the more expansive breadth and complexity of the programmatic and site-wide EISs.

The resource demands of programmatic and site-wide EISs underscore the importance of using these reviews in a careful and strategic manner. On the one hand, the comprehensive perspective that is gained through programmatic approaches can greatly help departmental planning, and may lead to strategies that minimize environmental harm on a nationwide scale. In addition, programmatic and site-wide EISs may reduce the cost of subsequent project-specific EISs because much of the general research may be applied to the specific proposals. On the other hand, a badly managed programmatic EIS can consume great resources without commensurate benefit. DOE officials and persons outside the agency have stated that there are occasions where the programmatic and site-wide documents are too inclusive, and too abstract, to be useful to decision makers. In order to be most effective, EIS documents must be closely tied to real proposals for departmental action.

Measuring or monetizing the benefits of a process like NEPA is a difficult and controversial task which DOE has not attempted. Some benefits are relatively obvious and appear quite large, such as when a NEPA review process helps to avoid a major environmental problem or leads to an unexpected and less expensive alternative. DOE gives credit to the NEPA process for steering decision makers toward a course of action at the Hanford tank waste system that saved an estimated \$435 million, a sum vastly greater than the cost of preparing the EIS for the action. DOE, "A NEPA Success Story: Environmental Impact Statement for the Safe Interim Storage of Hanford Tank Wastes," *Lessons Learned Quarterly Report* (March 1, 1996).

DOE data suggest that the costs of EISs completed after July 1994 are about one-sixth of 1 percent of the total cost of the proposed actions, and a similar ratio applies to EAs. At that rate, the direct and indirect benefits do not need to be very large to outweigh the direct costs.

From the existing data, it is not possible to draw any firm conclusions that the NEPA process changes resulting from the 1994 policy have reduced costs. EISs are not readily comparable, and it is not feasible to identify what an EIS "should" cost, because the scope, purpose, and value of each document is unique. It is nevertheless very useful to track these costs, as the mere act of monitoring them helps to demonstrate the agency's overall commitment to cost control. Tabulation of these statistics, and the examination of comparable cases, can encourage NEPA personnel and field and program offices to be aware of costs and to identify management practices and NEPA procedures that are cost-effective.

D. Redefining the Role of Contractors in the NEPA Process

Some observers believe that the extensive use of contractors to prepare EISs and EAs stands at odds with the original intent of the National Environmental Policy Act. The statute was conceived as a vehicle for reorienting agency policies through careful scientific analysis of the environmental consequences of proposed actions. Caldwell, Lynton K., *Science and the National Environmental Policy Act: Redirecting Policy Through Procedural Reform*, University of Alabama Press (1982). To gain the desired benefit from the process, agencies must wrestle with the issues presented by their proposals, draw their own conclusions, and incorporate those lessons in its continuing policies. To some extent, the Department of Energy does just this through its cross-program EIS management teams. Nevertheless, the practice of contracting out NEPA reviews places a barrier between the department and those conducting the reviews, and deprives the department of the institutional understanding that would come from more direct involvement.

Roundtable participants widely agreed that the department would benefit if DOE personnel were more closely involved in EISs and EAs. Many thought that it would be easier to connect environmental considerations to departmental policy if DOE employees were doing more of the analysis themselves. Several participants stated that the costs of preparing NEPA documents in house would be less - some said substantially less - than relying on contractors.

Pressure throughout the federal government to reduce the number of federal employees makes it unlikely that DOE would have the staff resources to take on NEPA responsibilities that it can now contract out. Moreover, many of the issues dealt with in DOE EISs are often highly technical, and it is economically efficient to use specialized contractors on these components. Even with these constraints, roundtable participants described ways the department could do more to connect departmental managers with reviews performed by contractors. In particular, the department could fully implement the hybrid model that EH recommended in its contracting guidance of 1996. The hybrid approach would shift key NEPA responsibilities back to department staff while leaving most of the technical work to contractors.

In the hybrid model, which is being used in some cases now, federal managers and staff would write the background and purpose sections of each EIS, explain the proposed action, and identify the preferred alternatives. With much of the project definition work spelled out, contractors would then carry out technical analyses and prepare the documents. Having invested in the EIS up front, the department's managers would feel greater "ownership" of the resulting documents, and would engage more fully in the

back-and-forth dialogue with the contractors and the public that is important to fulfilling the purposes of the statute. The intellectual challenge of drafting the purpose and need, proposed action, and alternatives sections of the documents would also enable the DOE managers to draft their contractors' task orders with the kind of precision that the new contracting methods require to succeed.

V. Conclusion

The Department of Energy is making steady and incremental improvements in its management of the NEPA process. The secretarial policy of 1994 announced a productive set of changes in approach and regulation that have contributed to DOE's ability to streamline the production and review of environmental impact statements and environmental assessments without reducing opportunities for public involvement in the process. The policy effectively consolidated progress that had been made on NEPA compliance earlier in the decade.

The department's implementation of the policy has reduced the time it takes to prepare environmental impact statements and environmental assessments. The implementation has probably helped reduce costs as well, though these savings cannot be quantified.

The Office of NEPA Policy and Assistance (EH-42), the corporate manager of DOE's NEPA process, has played an instrumental role in implementing the policy. Observers from throughout the DOE complex and the federal "NEPA community" recognize the work of the office and its career staff as exemplary. EH-42 has developed a set of useful, albeit incomplete, performance measures which it applies quarterly to ongoing NEPA projects. By publishing the results in *Lessons Learned Quarterly Report* and on a comprehensive web page, EH-42 not only helps NEPA practitioners around the complex learn from each other's successes and failures, but also defines and reinforces the department's expectations for professional management of NEPA reviews.

Several of the administrative reforms of the secretarial policy - in particular, the delegation of EA approval authority and categorical determination authority to the field and program offices, and the elimination of the need to publish implementation plans - have reduced costs. These savings are impossible to quantify, but there is evidence that costs have been avoided. Other contract reforms undertaken in the wake of the secretarial policy have been less clearly effective. The department needs to sharpen its definition and use of contract incentives. The department also needs to strengthen and coordinate its contractor evaluation process.

The DOE-wide contracts for NEPA support are very promising but still unproved. The recent adoption of a streamlined contracting system promises to save months at the front-end of each NEPA review and eliminate much of the staff time that gets consumed in the complex process of federal contracting procurement. The competition that led to DOE's selection of the firms eligible for the fast-track procurement may help drive down the cost of some services. Even so, this contract vehicle cannot be a substitute for good DOE planning, scoping, and process management. To gain maximum benefit from these contracts, DOE must work hard to define a tight scope of work, and use the fixed price and incentive fee mechanisms to best advantage.

Finally, the department needs to do more to make its NEPA reviews its "own." The department should strive to prepare the crucial introductory materials - the statement of purpose and need for agency action, and the description of the alternatives - in order both

to better direct the contractors, and to create a dynamic relationship in which the department's programs and operations offices truly learn from the process.

DOE's mission leaves it no choice but to continue to make extremely difficult decisions - decisions that are technically complex, politically charged, and often expensive to implement - so the implementation of NEPA will probably continue to be complex, politically charged, and expensive as well. The department's efforts to manage the NEPA process as efficiently as possible should help make it more credible, stable, and useful.

APPENDIX I

A Primer on the National Environmental Policy Act of 1969

The National Environmental Policy Act is one of the core modern environmental statutes. NEPA requires federal agencies to foster "productive harmony" between man and nature in order to "fulfill the social, economic and other requirements of present and future generations of Americans." [Pub. L. 91-190 (January 1, 1970), 42 U.S.C. Sections 4321-4347, as amended.] NEPA also specifically directs agencies to take specific steps before taking actions that would have a significant impact on the human environment. In particular, it directs all agencies in the federal government to:

- include in every recommendation or report on any major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on
 - (i) the environmental impact of the proposed action,
 - (ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented,
 - (iii) Alternatives to the proposed action,
 - (iv) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity,
 - (v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. [Section 102(2)(C).]

This statement has come to be known as an environmental impact statement (EIS). Federal regulations requires agencies to seek the input of state, local, and tribal governments, other federal agencies, and the public at large when considering a proposal for a major federal action, and to prepare an environmental analysis. NEPA procedures are intended to insure that environmental information is available to public officials and the public before decisions are made and actions are undertaken.

As interpreted by federal courts, the procedural elements of NEPA have come to be regarded as the crux of the Act. If agencies fully comply with procedural requirements, courts are typically very deferential to the conclusions reached and the actions selected by the agency. However, challengers are more likely to prevail if agency fails to prepare an EIS, or does so in a manner that is procedurally deficient.

Title II of NEPA created the Council on Environmental Quality (CEQ) to review and appraise the activities of the Federal Government in light of the policy set forth in the Act. Pursuant to an executive order [Executive Order 11514 (March 5, 1970)], the Council on Environmental Quality issued regulations [40 CFR Parts 1500 through 1508]

that establish the minimum requirements for the NEPA procedures of federal agencies. Individual agencies have promulgated additional regulations that supplement the CEQ regulations. The DOE regulations relating to NEPA are codified at 10 CFR Part 1021.

Key NEPA Terms

An environmental impact statement (EIS) is a detailed, written statement required by Section 102(2)(C) of NEPA. The statement must be prepared when the proposed action may significantly affect the quality of the human environment. The EIS must include explicit discussion of alternatives to the proposed action. The formal process begins when the sponsoring agency publishes a Notice of Intent (NOI) to prepare an EIS in the *Federal Register*. After a scoping process, the proposing agency prepares and issues a Draft Environmental Impact Statement, and files it with the Environmental Protection Agency (EPA). EPA then prepares a notice in the *Federal Register* that informs the public of the public comment period. At the close of the comment period, the agency reviews and considers the comments, and makes changes as appropriate. The Final Environmental Impact Statement (FEIS) is then issued with an EPA notice in *Federal Register*. The FEIS is then used by the agency in selecting the action that it will pursue (which may be different from the preferred alternative in the EIS), and this decision is documented in a Record of Decision.

A programmatic environmental impact statement is a broad scope EIS that identifies and assesses the reasonably foreseeable impact of a proposed agency program. DOE defines a site-wide environmental impact statement as an EIS that is programmatic in nature and identifies and assesses the individual and cumulative impacts of ongoing and reasonably foreseeable future actions at a particular DOE site.

An environmental assessment (EA) is a concise public document that analyzes the environmental impacts of a proposed action. If the agency determines that the proposed action will not have a significant impact on the human environment, the agency will issue a Finding of No Significant Impact (FONSI). In this case, there is no need to prepare an Environmental Impact Statement. However, if a potentially significant impact is found, the agency must issue a Notice of Intent and complete an EIS before deciding to undertake the proposed action.

A categorical exclusion exempts an agency from the need to perform an EA or an EIS for a certain type of action. To qualify for a categorical exclusion, the type or class of action must not individually or cumulatively have a significant effect on the human environment. An agency may establish a categorical exclusion only after establishing, through rulemaking, that the actions of that type normally have no potential for significant impact. As a result, each agency's list of categorical exclusions is unique.

Subpart D of the DOE NEPA regulations includes four lists of typical classes of agency actions. [10 CFR 1021.400 *et seq.*] Appendix A contains a list of categorical exclusions of general application, and Appendix B contains a list of categorical exclusions applicable

to specific agency actions. Subpart C contains a list of actions that normally require environmental assessments but do not necessarily require environmental impact statements. Finally, Appendix D lists classes of agency actions that normally require Environmental Impact Statements.

Role of the Environmental Protection Agency

Under section 309 of the Clean Air Act of 1970, the Administrator of the Environmental Protection Agency reviews and publicly comments on the environmental impacts of federal activities. [42 U.S.C. Section 7609.] Federal agencies must file their draft environmental impact statements (DEISs) with the EPA. EPA then rates the document, and consults with the agency (if it has not already done so) to resolve any concerns. If the EPA determines that the DEIS is "unsatisfactory from the viewpoint of public health or welfare or environmental quality," EPA is empowered to refer the matter to the Council on Environmental Quality. EPA rarely exercises its referral power, and instead attempts to resolve its differences with the other agency through a series of discussions up to and including the participation of top agency officials.

APPENDIX II

DOE Programmatic and Site-Wide Environmental Impact Statements

Title	Type	Notice of Intent	Draft EIS	Final EIS
Cumulative Production/ Consumption Effects of the Crude Oil Price Incentive Rulemakings, Programmatic	Programmatic			5/78
Waste Isolation Pilot Plant (WIPP), Carlsbad, NM	Programmatic			10/80
Kenetech/Pacificorp Windpower Program (ADOPTED)	Programmatic		1/95	8/95
Development Policy Options for the Naval Oil Shale Reserves in Colorado, Programmatic	Programmatic	7/80		8/82
Clean Coal Technology Demonstration Program, Programmatic	Programmatic	2/89	6/89	11/89
Waste Isolation Pilot Plant (WIPP), Carlsbad, NM, Supplemental	Programmatic	2/89	4/89	1/90
Resource Programs (BPA)	Programmatic	4/90	4/92	1/93
Salt Lake City Area Integrated Projects Marketing and Allocation Criteria, Salt Lake City, UT	Programmatic	4/90	2/94	6/95
Columbia River System Operation Review	Programmatic	7/90	7/94	11/95
Site-wide for Continued Operation of Lawrence Livermore/Sandia National Laboratory, Livermore, CA	Site-wide	10/90	3/92	8/92
Waste Management Programmatic	Programmatic	10/90	8/95	5/97
Energy Planning and Management Program,	Programmatic	2/91	3/94	6/95

WAPA Programmatic				
Business Plan, BPA (Programmatic)	Programmatic	4/92	3/95	6/95
Hanford Remedial Action Program, Richland, WA	Programmatic	8/92	8/96	
Programmatic EIS for the Uranium Mill Tailings Remedial Action (UMTRA) Groundwater Project	Programmatic	11/92	5/95	10/96
Sacramento 2004 Power Marketing Program (Central Valley Project)	Programmatic	8/93	5/96	2/97
Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Lab Environmental Restoration and Waste Management Programs, ID	Programmatic	9/93	6/94	4/95
Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel (Programmatic)	Programmatic	10/93	3/95	2/96
Tank Waste Remediation System (TWRS), Richland, WA (Programmatic)	Programmatic	1/94	4/96	8/96
Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components	Site-wide	5/94	3/96	11/96
Storage and Disposition of Weapons-Usable Fissile Materials (Programmatic)	Programmatic	6/94	2/96	11/96
Fish Hatchery Programmatic EIS (DOE Cooperating Agency)	Programmatic	7/94		
Rocky Flats Environmental Technology Site-wide, Golden, CO	Site-wide	8/94		
Site-wide EIS for the Nevada Test Site and Other Off-site Locations in the State of NV	Site-wide	8/94	1/96	8/96
Tritium Supply and Recycling Programmatic	Programmatic	10/94	3/95	10/95

Disposition of Surplus Highly Enriched Uranium	Programmatic	4/95	10/95	6/96
Los Alamos National Laboratory, Los Alamos, NM Site-wide	Site-wide	5/95	5/98	
Stockpile Stewardship & Management Programmatic	Programmatic	6/95	2/96	9/96
Wildlife Mitigation Program, Idaho, Montana, Nevada, Washington, Oregon	Programmatic	6/95	8/96	3/97
Geologic Repository for the Disposal of Spent Nuclear Fuel and High-level Radioactive Waste at Yucca Mountain, Nye County, NV	Programmatic	8/95		
Waste Isolation Pilot Plant (WIPP) Disposal Phase Supplemental (SEIS II), Carlsbad, NM	Programmatic	8/95	11/96	9/97
Programmatic EIS for the Long-term Management and Use of Depleted Uranium Hexafluoride Resources at Several Geographic Locations	Programmatic	1/96	11/97	
Watershed Management Program in Oregon, Idaho, Washington and Montana (OR, ID, WA, MT)	Programmatic	3/96	2/97	6/97
Surplus Plutonium Disposition Programmatic	Programmatic	5/97		
Sandia National Laboratory Site-wide	Site-wide	5/97		
Transmission System Vegetation Management Program	Programmatic	6/97		

APPENDIX III

Study Team And Roundtable Participants

Lynton K. Caldwell, Arthur F. Bentley Professor Emeritus of Political Science and Professor of Public and Environmental Affairs at Indiana University, is a Fellow of the National Academy of Public Administration and chair of the study team that produced this report. Caldwell is noted as one of the principal architects of the National Environmental Policy Act of 1969 and an "inventor" of the environmental impact statement. He is author of more than 250 articles and monographs and 12 books.

Richard A. Minard, Jr., was the project director. He is the associate director of the Center for the Economy and the Environment at the National Academy of Public Administration.

Stephen Coye was a senior research associate for the project. He is an attorney with a background in labor law and has worked with the Academy on issues related to the external regulation of worker safety and health at the DOE complex.

Jennifer Thangavelu was a research assistant for the project as a member of the staff of the Center for the Economy and the Environment.

Benita Carr provided administrative support to the project as a member of the staff of the Center for the Economy and the Environment.

Roundtable Participants

Carol Borgstrom, Director, Office of NEPA Policy and Assistance, U.S. Department of Energy

Ray Clark, Associate Director, NEPA Oversight, Council on Environmental Quality

Brian Costner, Director, Energy Research Foundation

Robert Cunningham, Office of Polar Programs, National Science Foundation

William Dickerson, Office of Federal Activities, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency

Lisa Ledwidge, Associate Director of Security Programs, Physicians for Social Responsibility

Stan Lichtman, Director, Waste Activities Division, Office of NEPA Policy and Assistance, U.S. Department of Energy

Stephen Sohinki, Director, Office of Commercial Light Water Reactor Production,

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Janine Sweeney, Office of Assistant General Counsel for the Environment, U.S. Department of Energy

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