October 1, 1998

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: PROPOSED STREAMLINING AND CONSOLIDATION OF AEOD FUNCTIONS AND RESPONSIBILITIES

PURPOSE:

To propose for Commission approval a plan to implement the Commission's decision in its review of the FY 2000 budget to streamline the Office for Analysis and Evaluation of Operational Data (AEOD) and consolidate its functions in other program offices. The staff's plan would consolidate in other agency offices functions currently performed by AEOD early in FY 1999 in order to begin realizing the savings consistent with the Chairman's memorandum dated September 4, 1998.

BACKGROUND:

AEOD's responsibilities and organizational structure bear only slight resemblance to those it had in 1979 when the office was created. Following the accident at Three Mile Island, Unit 2 (TMI-2), AEOD was created as an independent office whose mission was to coordinate operational data collection, systematically analyze and evaluate operational experience, feed back the lessons of experience to improve operational safety, assess the effectiveness of the agency-wide program, and act as a focal point for interaction with outside organizations on issues pertaining to operational safety data analysis and evaluation. This mission remained at the core of AEOD's activities until 1987 when the NRC reorganized and the functions of the Office of Inspection and Enforcement were reassigned. At that time, the scope of AEOD responsibilities significantly increased as that office was assigned several complimentary functions including the Incident Response, Performance Indicator, and Technical Training Programs.

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As the staff considered streamlining NRC's infrastructure by consolidating AEOD's functions in other program offices, preserving the attributes of AEOD's original mission was of paramount importance in the decision-making process. The staff recognized that maintaining a systematic process for collecting and evaluating operating experience, and communicating the lessons learned to the NRC staff and the regulated industry remains an important NRC responsibility. The staff also recognized that maintaining an independent and credible incident investigation program for investigating significant operational events, assessing root causes and regulatory effectiveness, and disseminating lessons learned remains an important component of the agency's evaluative and self-assessment capabilities. The staff concluded that these fundamental attributes of AEOD can be preserved while consolidating AEOD's functions in other offices. A chronology of events that led to the creation of AEOD, as well as changes that have occurred since, are provided in the attachment to this paper.

As a separate effort, the staff has reviewed the effectiveness of our agency-wide training programs and concluded that consolidation of all training activities in the Office of Human Resources is desirable. (A separate paper on this subject will be provided in the near future.) This action further called into question the cost-effectiveness of a separate AEOD office.

Consequently, as part of the FY 2000 budget, the staff proposed the elimination of AEOD as an opportunity to reduce agency overhead and indirect costs and achieve efficiencies by combining similar functions in other offices. The staff concluded that this could be done while maintaining an independent and credible Incident Investigation Program and a strong process for evaluating operating experience.

DISCUSSION:

In a memorandum to the CFO dated September 4, 1998, the Chairman provided guidance for implementing the FY 2000 Budget and Performance Plan. The memorandum states:

> ..., the Commission supports the streamlining of AEOD and the consolidation of certain of its functions in other program offices. Since this change will result in significant efficiency savings, staff should take steps to accelerate the schedule for the streamlining of the AEOD functions and resources and begin this effort in FY 1999.

In developing the plan to implement the transfer of AEOD responsibilities and functions, the staff recognizes the importance of:

1.Preserving an independent perspective in critical functional areas such as the long term assessment of industry operational experience and the investigation of safety-significant operational events with potential regulatory effectiveness implications.

1. Preserving the quality of the technical training and incident response programs.

2. Eliminating unnecessary redundant functions and reducing overhead and overall agency FTE levels.

Consequently, the staff plan would transfer all AEOD functions (event assessment, incident response, incident investigation, technical training, CRGR, and backfit program oversight) to other agency offices in a manner which will continue the high-priority attention traditionally devoted to them; consolidate and streamline these functions wherever possible with similar work being performed by the NRC staff; and preserve an independent capability to analyze, evaluate, and disseminate operational safety data, which was judged necessary for an effective regulatory program when AEOD was established. In considering how best to transfer these functions, the staff grouped AEOD activities into three broad categories - operational experience evaluation, incident response, and technical training, each of which is described in more detail below.

Operational Experience Evaluation

The 16 functions in this category comprise the analysis, evaluation, and reporting activities associated with mapping trends in the overall safety performance of power reactors and use of nuclear materials. Included in this category are the short- and long-term event assessment activities, support for the agency's licensee performance assessment program, the performance indicator program, the program for reporting abnormal occurrences, the accident precursor program, system reliability studies, initiating event studies, the common-cause failure database, the nuclear materials events database, and CRGR. These activities include many of the original functions for which AEOD was created to provide an independent agency perspective.

In reaching a decision on where within the NRC these functions should be transferred, primary considerations were preservation of the independent perspective for which AEOD was originally created, the effectiveness of carrying out these responsibilities upon transfer, and the achievement of efficiencies. In view of these considerations, the staff proposes to assign most of the functions in this category to the Office of Nuclear Regulatory Research (RES). This is consistent with the staff's proposal for the FY 2000 budget. The new responsibility for independent analysis and evaluation of operating experience will complement and reinforce the current role of RES in conducting independent safety research. Similarly, closer proximity to RES experience in the conduct of PRA, IPE, and IPEEE reviews; Generic Safety Issue (GSI) resolution and prioritization; and research on engineering, systems, accident phenomena, human factors, and PRA methods improvements is expected to be of advantage in independent analyses of operational experience and assessment of the effectiveness of NRC programs.

These synergisms will lead to improved effectiveness as well as efficiencies in the conduct of the combined programs. If the transfer of functions is approved, RES plans to maintain the independence and effectiveness of the former AEOD functions and achieve the desired efficiencies by placing the activities currently undertaken by AEOD's Reliability and Risk Assessment Branch in a new division primarily responsible for these AEOD functions and for the current RES PRA research program. The AEOD work on generic nuclear reactor event studies and regulatory effectiveness will be integrated with current RES work on GSI prioritization and regulatory effectiveness assessments in a new division that will focus on regulatory effectiveness. The staff believes that these AEOD functions which were established to provide an independent view of safety events and operational experience are entirely consistent with the statutory role of RES to provide independent capability to conduct confirmatory safety research. It should be noted, however, that while all resources in support of performance indicators, along with development responsibility, have been assigned to RES, under the current performance assessment option being pursued by NRR, the role of indicators may change and become integral to the assessment program. If this should occur, the assignment of these functions to RES may need to be revisited. In any case, it is important to recognize that the RES independent perspective in the development, evolution and use of performance indicators will be important to validate and support the agency's licensee performance assessment process. Three of the 16 functions would be assigned to NRR, one to NMSS, and a fifth, the Committee to Review Generic Requirements, to the EDO. The 16 functions, the offices to which they will be assigned, and the rationale for the assignment are summarized below:

BUDGET ACTIVITY	OFFICE ASSIGNED	RATIONALE
Short term domestic/foreign operating experience review (LER's)	NRR	AEOD funding eliminated in FY 2000; NRR will continue this function
Generic Nuclear Reactor Event Studies	RES	Compatible with Generic Issues work
Accident Sequence Precursor Program	RES	Takes advantage of RES experience in ASP model development
System & Component Reliability Studies	RES	Takes advantage of RES experience in conduct of PRA's, review of IPE's, IPEEE's and PRA's; of RES efforts to improve PRA methods; and of RES research on engineering, systems, accident phenomena, human factors, and RES experience in GSI's
Performance Indicator Program	RES	Same as box above
Risk-Based Performance Indicators	RES	Same as box above
Risk-Based Studies	RES	Same as box above
Risk Databases (LOOP, CCF, ASP, IE, RADS)	RES	Same as box above
IT Support of Operational	RES	Supports functions above

Experience Evaluation (SCSS & EPIX Databases and Systems)		
CRGR	EDO	Delegated responsibility of EDO. Maintains independent perspective
Backfit Program Oversight	NRR	10 CFR Part 50.109 principally focused on reactor licensee requirements
Regulatory Effectiveness (includes Abnormal Occurrences)	RES	Assessing operational experience provides input to evaluating NRC program effectiveness. Also takes advantage of RES experience in conduct of PRA's; review of IPE's, IPEEE's and PRA's; of RES efforts to improve PRA methods; and of RES research on engineering, systems, accident phenomena, human factors, and RES experience in GSI's
Rulemaking (10 CFR 50.72 and 50.73)	NRR	NRR responsible for all reactor-related rulemaking
Integrated Plant Performance Analysis	RES	Ensures that RES can provide strong independent perspective and support for the Senior Management Meeting process
Nuclear Materials Event Database	NMSS	NMSS is user
Generic Nuclear Materials Events Studies	Not applicable	All generic materials events studies have been eliminated starting in FY 1999

Incident Response

The 9 activities in this category ensure that NRC is prepared to respond appropriately as the Lead Federal Agency (LFA) to significant reactor, fuel cycle facility, and nuclear materials events involving NRC and Agreement State licensees, to support Federal responses to other significant radiological events for which the NRC is not the LFA, and to investigate safety significant events independent of the staff previously involved in licensing and inspection of the involved licensee. As such these activities are most closely related to the emergency preparedness licensing and inspection activities of NRR, although approximately 25% of this effort involves preparation for events involving NMSS licensees. The staff believes, however, that movement of AEOD's IR activities to NRR does not directly complement NRR line activities, might divert NRR's focus on line activities, and would not produce any notable resource economies. Consequently, the staff believes that this group of AEOD activities should be maintained in a separate organization reporting to the EDO (DEDE), for the specific reasons noted below:

BUDGET ACTIVITY	ENTITY ASSIGNED	RATIONALE
Facility and Equipment	Incident Response Operations	This function should be assigned to the organization with overall responsibility for the agency's incident response programs.
Program Development and Response Coordination	Incident Response Operations	Assignment to a separate organization enhances the stature of the program and ensures a balanced and efficient approach to reactor, fuel facility, and nuclear materials incident response programs, without unnecessary distractions of any one program office
Federal Coordination	Incident Response Operations	Same as box above
State Outreach	Incident Response Operations	Assignment to a separate organization would enhance stature of the program as perceived by the States and ensure continued prompt agency responsiveness to incidents and events
Responder Training, Exercise, and Event Response	Incident Response Operations	Same as box 2 for assignment to a separate organization. Assignment to NRR or NMSS would divert attention from line functions
HQ Operations Officer	Incident Response Operations	Assignment to either a separate organization or NRR would be compatible with daily events monitoring activities; assignment to a separate organization would retain all IR function in a single organization and ensure independent control of IR activities
Regional Response Coordinators	Incident Response Operations	Assignment to a separate organization consistent with retaining all IR functions in a single location
Maintain IT Support for Emergency Response	Incident Response Operations	Consistent with retaining all IR functions in a single organization
Incident Investigation:	Incident	Assignment to a separate organization ensures independence and stature of investigation program

Program Maintenance/Implementation and Training (IIT's)	Response Operations	and agency responsiveness to incidents

Technical Training

AEOD activities under this category encompass technical training in the areas of reactor technology, probabilistic risk assessment, radiation protection, engineering support, safeguards, fuel cycle, and regulatory skills to provide the necessary technical and regulatory foundation to support staff activities and decisions. Training is provided for inspectors, license reviewers, operations center duty officers, licensing project managers, technical reviewers, reactor technology instructors, and other NRC staff. Technical training for the NRC staff is highly dependent on the full-scope simulators, classroom information technology systems, and office technology systems that constitute the infrastructure at the NRC Technical Training Center (TTC) located in Chattanooga, Tennessee. Technical training courses that are dependent on the TTC infrastructure (about 43% of the total) are presented at the TTC. Technical training courses that are dependent on specific contractor facilities and specialized equipment (about 23% of the total) are presented at these contractor sites. Technical training courses that are not dependent on specialized infrastructure or equipment (about 34% of the total) are presented at locations near the majority of the students (i.e. in headquarters or in the vicinity of a regional office).

Consideration was given to placing the technical training function either within another technical organization or within the Office of Human Resources (HR). The staff concluded that the overall benefits of consolidating agency training within a single organization outweigh the challenges that are presented by separating the technical training function from a technical organization. The primary benefits perceived by the staff by combining the agency formal training providers within HR are as follows:

- Placement of all agency training activities under the direction of a single Deputy Director to the EDO
- Integration of technical and non-technical training within one organizational unit;
- Development of a consolidated and prioritized agency training budget and planning process
- Increased prioritization and control of staff resources devoted to receipt of training; and
- Training expertise would be combined within the office with classical human resource responsibilities.

Implementation Schedule

Consistent with the Chairman's September 4, 1998, memorandum, the staff believes the transfer should be made as soon as possible in FY 1999. The longer the time interval between the decision to abolish the office and the actual transfer of functions, the more likely the decision will produce uncertainty and some anxiety among the existing AEOD staff, leading to the loss of productivity and potentially to the loss of key personnel seeking more secure employment outside the agency. Moreover, the abolition of AEOD in FY 1999 is consistent with NRC's implementation of the agency-wide streamlining plan, which emphasizes reducing the supervisor to employee ratio to 1:8 and reducing the overall number of SES members. Transferring AEOD functions early in FY 1999 would facilitate implementation of the streamlining plan, scheduled for completion by March 1999.

RESOURCES:

As a result of efficiencies from realigning AEOD functions, we expect to save approximately 10 FTE in FY 2000 by reducing overhead and redundant functions. While some of these savings may accrue in FY 1999, full savings will be dependent upon personnel attrition and/or realignment. In addition to savings from realignment, two additional FTE reductions are reflected below because of workload reductions in technical training and incident response.

FY1999 resources would be transferred to the EDO, the program offices, and to HR in FY 1999 as noted below.

RECEIVING OFFICE	FUNDS	FTE
EDO (CRGR)	NA	1
Incident Response Operations	$1,989K	25 (plus 5 FTE staff years assigned to regional offices)
RES (Operational Experience)	$3,025K	30
NRR (LER's and Rulemaking)	$150K	3
NMSS (Nuclear Materials Data Base)	$490K	1
HR (Technical Training)	$4,208K	28
TOTAL	**$9,862K**	**88** (plus 5 FTE staff years assigned to regional offices

In FY 2000, the dollar and personnel resources in EDO, NRR, NMSS, RES, and HR that were transferred from AEOD would be as follows:

RECEIVING OFFICE	FUNDS	FTE
EDO (CRGR)	NA	1

Incident Response Operations	$2,105K	21 (plus 5 FTE staff years assigned to regional offices)
RES (Operational Experience)	$3,061K	24
NRR (LER's and Rulemaking)	$150K	3
NMSS (Nuclear Materials Data Base)	$401K	1
HR (Technical Training)	$3,320K	26
TOTAL	**$9,037K**	**76** (plus 5 FTE staff years assigned to regional offices

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections. The Office of the Chief Information Officer has reviewed this paper for information technology and information management implications and concurs in it. The Offices of AEOD, NRR, NMSS, RES, and HR concur in the recommendations of this paper.

RECOMMENDATIONS:

The staff recommends that the Commission approve the plan for transferring AEOD functions and responsibilities with accompanying resources to the appropriate program offices, the EDO, and HR early in FY 1999 as presented in this paper. Upon approval of this plan, the affected offices will begin appropriate partnership discussions to finalize and implement these organizational changes.

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Attachment: As stated

ATTACHMENT

Chronology of AEOD's Creation and Development

In the late 1970's, the NRC was primarily focused on the review and approval of reactor designs, the licensing of new plants, and the inspection of plant construction and testing. NRR had a single Division of Operating Reactors and each region had a single branch focused on operating reactors. The Office of Operations Evaluation, established by the AEC in 1972 to evaluate licensee event reports and to perform other analyses, had been dismantled in an NRC staff reorganization in 1975, and as a result, the level of attention afforded to evaluating operating experience and communicating lessons learned to the industry was significantly reduced. While NRC requirements for reporting operating experience resulted in an enormous amount of data being provided to the NRC, there was no systematic method for evaluating this information. In addition, NRC reporting requirements varied from plant to plant and did not differentiate the significant from the trivial. As a result, the reported data exceeded the limited capability of the NRC to identify, evaluate, and disseminate potential safety concerns. Also, at that time, individual utilities did not have the resources to systematically evaluate operating experience, nor was there any industry group such as the Institute of Nuclear Power Operations (INPO) in existence then to perform such a function.

In 1978 the General Accounting Office (GAO) evaluated the NRC's program for collecting, assessing, and disseminating operating experience information. The GAO found that the NRC had no systematic, defined, or dedicated program to analyze and feed back the lessons of experience to licensees and to the nuclear industry. The GAO identified the need for the NRC to establish uniform reporting requirements and a system to "promptly identify all safety-related problems from licensee event and/or incident reports." In response to the GAO report, the Commission, in February 1979, requested a briefing on the NRC's program for operational data collection, assessment, and feedback. Before this briefing could be held, the accident at Three Mile Island, Unit 2 occurred on March 28, 1979.

The investigations into the TMI-2 accident found that two virtually identical precursor events had occurred, one in 1974 at a Westinghouse reactor at the Beznau plant in Switzerland, and the other in September 1977 at the Davis-Besse plant in Ohio, a Babcock and Wilcox (B&W) reactor similar to TMI-2. The NRC did not learn of the foreign reactor incident at the Beznau reactor until after the TMI-2 accident. The event at Davis-Besse was analyzed by the licensee, B&W, and the NRC. The NRC's analysis was not comprehensive and, because there was no effective system for communicating operating experience, the lessons learned were not provided to the TMI licensee. These failures to adequately evaluate operating experience and disseminate safety-significant information pointed out the need for a systematic, effective program for collecting, evaluating, and communicating the important lessons of operating experience.

On April 19, 1979, the staff briefed the Commission on its data collection, assessment, and feedback program. The Commission placed a high priority on developing the capability to do systematic trends analyses. There was agreement among the Commission and the staff that this would require a separate group, and there was much discussion concerning the necessary degree of independence of that group from those involved in day-to-day licensing and inspection activities. In July 1979, the Commission approved the creation of an agency-wide Operational Data and Analysis Group reporting directly to the EDO with responsibility for analyzing and evaluating operational safety data associated with all NRC activities, including those of NMSS. The

Commission also directed that each program office have an operational data analysis and evaluation capability to allow them to make input to the agency-wide office. (This consciously established duplicate capabilities and efforts for operational data evaluation because it was perceived to be necessary at the time.) Accordingly, the Office for Analysis and Evaluation of Operational Data was created as an independent office to coordinate operational data collection, to systematically analyze and evaluate operational experience, to feed back the lessons of experience to improve the safety of licensed operations, to assess the effectiveness of the agency-wide program, and to act as a focal point for interaction with outside organizations for operational safety data analysis and evaluation.

The need for an independent organization to investigate significant operational events was also debated for many years both before and after the TMI-2 accident. The 1985 NRC Appropriations Act Amendment required the NRC to perform a feasibility study of an independent safety organization. The study was performed by Brookhaven National Laboratory (BNL). BNL concluded that NRC investigations of operational events have been conducted in a proficient and technically competent manner, but suggested a number of improvements for event investigations. These suggestions were incorporated in a new Incident Investigation Program (IIP) established by the NRC in 1985 to provide an independent, structured NRC investigative response for safety-significant operational events. The existence of the independent IIP was subsequently cited by the NRC, in response to continuing Congressional interest in establishing an independent nuclear safety oversight organization, to demonstrate that the NRC already had such a capability.

A variety of changes have occurred in NRC and industry operations which caused the staff to reassess the AEOD organization and functions. Today, the event reporting rules and practices have been substantially enhanced. NRR and the regions are principally focused on operating reactor oversight, license maintenance, inspection, performance assessment, event response and assessment, and the communication of lessons learned. The inspection and assessment processes have improved since the TMI-2 accident with greater emphasis on operating experience and events assessment. The resident inspection program has expanded and matured with increased emphasis on events assessment. The Senior Management Meeting process has been refined to facilitate better integration of information regarding operating nuclear reactors and materials licensees. The internal dissemination of information has improved through such mechanisms as the Preliminary Notification and Morning Report processes, periodic event review briefings between NRR and the regions, and Commissioner Assistants briefings. The NRC has also improved its external dissemination of information pertaining to significant events, operational experience, and technical issues through a mature generic communication process (Information Notices, Bulletins, and Generic Letters). The NRC has expanded its international activities to ensure insights regarding significant events and important technical issues are shared. The industry has also enhanced its capabilities to assess operational experience and respond to significant safety issues. For example, each of the Owners Groups now has a regulatory response group which can be activated to rapidly respond to significant events and technical issues having serious generic safety implications for plants of a particular design. In addition, INPO, which was created in 1979, now provides a strong, credible, and independent capability to evaluate operational experience and feed back lessons learned to licensees. As a result, the rationale for an independent AEOD of its current size is not as strong today as it was 20 years ago.