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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

May 18, 2000

CHAIRMAN

The Honorable Fred Thompson
United States Senate
Washington, D.C. 20510-6250

Dear Senator Thompson:

I am pleased to respond to your letter of April 6, 2000, requesting information on the status of the Nuclear Regulatory Commission's (NRC's) compliance with the Clinger-Cohen Act of 1996. The NRC is compliant with both the spirit and the letter of the Act. The Commission's answers to the six specific questions you asked us to address are enclosed.

Sincerely,

Richard A. Meserve

Enclosure: As stated

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The Honorable Joseph I. Lieberman
United States Senate
Washington, D.C. 20510-6250

Dear Senator Lieberman:

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1. ***Please provide the name and official title of the individual currently serving as Chief Information Officer (CIO). If the individual is serving in an "acting" capacity, please explain the steps you are taking to finalize an appointment to this position.***

The current Acting CIO, Stuart Reiter, was competitively selected as Deputy CIO in June 1999. Mr. Reiter has been serving as Acting CIO from that time to the present. The Commission intends to make a formal appointment in the near future.

- 1.a. ***Since CCA enactment in February 1996, how many individuals have served in the CIO position for the Nuclear Regulatory Commission, and what were the periods of their service?***

Two individuals have served as CIO at the NRC. In February, 1997, the Commission competitively selected Mr. A. J. Galante for the position of CIO. Mr. Galante retired from Government service in June 1999. Mr. Stuart Reiter, the Deputy CIO, has served as the Acting CIO since that date.

- 1.b. ***Does the CIO have a direct reporting relationship to you? If not, to whom does the CIO directly report on a day-to-day basis?***

The CIO reports directly to me.

- 1.c. ***Is the CIO a member of formal executive-level strategic planning, budget, and program-area process redesign committees, groups, or councils established in the Nuclear Regulatory Commission?***

- (1) ***What are the responsibilities of the CIO on these committees and groups?***

The CIO is one of three members of the NRC's Executive Council (EC). The EC is composed of the Executive Director for Operations (EDO), the CIO and the Chief Financial Officer (CFO). The EC's draft Charter defines its purpose as follows:

Make corporate decisions or recommendations on matters that significantly affect agency strategic plans and related policies and programs and/or resources.

Ensure that program and resource planning and implementation are closely coordinated and integrated.

Facilitate the agency Strategic Planning Process.

Facilitate communications between the EDO, the CIO, and the CFO.

(2) Has the CIO made, or played a vital role in making, strategic business decisions for the department/agency? Please provide several noteworthy examples.

Yes. The EC reviews the agency's budget submission, provides direction and review on strategic planning activities, and reviews the status of all major programmatic initiatives. As one of the three members of the EC, the CIO has played a vital role in the following strategic agency initiatives:

The EC provided ongoing guidance and eventual approval of NRC's first and subsequent Performance Plan as required by the Government Performance and Results Act of 1994 (GPRA). The EC has served as a champion of improvements in strategic and performance planning.

The CIO, working with agency stakeholders, created NRC's Information Technology (IT) Capital Planning and Investment Control (CPIC) process. As part of the process, an agencywide IT Business Council was created to perform investment reviews.

The CIO contributed to planning and the initiation of work on NRC's new financial management system, STARFIRE. When fully implemented, we expect STARFIRE to play a key role in the agency's ability to implement performance-based management as required by the GPRA.

The CIO sponsored the initiation and implementation of NRC's new Agencywide Documents Access and Management System (ADAMS). ADAMS is intended to provide the agency with electronic records management, workflow processing, improved search and retrieval, and improved public access to documents.

The CIO participated in the initiation of a comprehensive evaluation of the efficiency and effectiveness of NRC support services. Arthur Andersen's report identified a number of actions NRC could take to improve efficiency and effectiveness in the management support function.

The CIO sponsored a major business process redesign using the Adams Document Management System to convert the NRC Public Document Room to a more cost-effective and timely electronic reading room. When implemented, the new system will improve the ease of access to the information made available to the public, and make the information available in a shorter time than the traditional reading room could.

The CIO is working closely with the CFO and EDO to plan and implement a cost accounting system at the NRC as part of the STARFIRE project. This system will strengthen compliance with Federal Accounting Standards and improve the ability to implement performance-based management.

The CIO, CFO, and EDO decided to terminate a financial management applications systems contract that was part of the STARFIRE project when the

contractor failed to meet system delivery requirements. The modular contracting strategy employed by the project allowed other components of the system to continue while this component is being restarted.

1.d. What, if any, additional duties or responsibilities does the official designated as Nuclear Regulatory Commission CIO have other than information resources management?

Other than participation in the EC, information resources management (IRM) is the full-time responsibility of the CIO.

1.e. Do the component organizations that comprise the Nuclear Regulatory Commission also have designated CIOs? If so, (1) how are they selected, (2) to whom do they report, and (3) how is their decisional authority defined by agency policy?

The NRC has no independent "component organizations." The CIO is responsible for oversight of IRM functions in all NRC offices.

1.f. In accordance with CCA, has your CIO provided annual reports to you on improvements in information resources and technology management capabilities? If so, please provide copies.

Yes, the CIO provides an annual report on improvements in information resources and technology management capabilities. Copies are attached in Appendix A.

1.g. What percentage of Nuclear Regulatory Commission total information management and technology expenditures are controlled or approved by the Nuclear Regulatory Commission CIO?

As a member of the EC, the CIO approves all information management and technology expenditures. The CIO directly controls a budget of \$31.5M (FY 2000); this figure is 57% of the total IT budget authority of \$55.5M in that year.

2. Has the Nuclear Regulatory Commission implemented complete and comprehensive IT capital planning and investment management processes, as required by CCA section 5122(a) and (b)? If not, what remains to be done and what is the focus of current efforts?

Yes, the NRC has implemented a complete and comprehensive IT capital planning and investment management process as documented in NRC Management Directive 2.2 "Capital Planning and Investment Control," dated May 27, 1999. A copy is attached in Appendix B.

2.a. Please provide the Committee with the Nuclear Regulatory Commission definition for what constitutes an IT investment for purposes of this CCA section.

For purposes of NRC's IT Capital Planning and Investment Control process, an IT investment is a financial activity which creates a capital asset to provide IT functionality, as IT is defined in the Paperwork Reduction Act. Ongoing operating expenses, services that do not create capital assets (e.g., long distance telephone charges), and routine software maintenance are not included. Expenditures less than NRC's minimum threshold for software capitalization (currently set by the CFO at \$50,000) are not considered in this process.

2.b. Approximately how much, and what percentage, of the Nuclear Regulatory Commission total IT budget is subject to the IT capital planning and investment management processes established in your department/agency (including, as always, its major components)?

All IT investments as defined in Item 2.a. above are subject to the processes. The remaining portion of the IT budget is operating expenses. The capital portion of the budget is approximately \$28.9M or 52% of the total IT budget authority in FY 2000.

2.c. Please identify the Nuclear Regulatory Commission top ten investment initiatives (in terms of total acquisition dollars) that were approved by the IT capital planning and investment approval process and are currently in development or acquisition. Also, for each of these initiatives, please (1) describe how the Nuclear Regulatory Commission assessed cost, risk, and return on investment in winning approval (2) provide a 1-page exhibit that summarizes the cost, risk, and return on investment data that were used for the investment decision, and (3) how confident are you in the quality of these data for decision-making?

Table 1 below lists the top 10 investments and their estimated total acquisition costs. A 1-page summary of cost, risk, and return on investment is attached in Appendix C. Before the CCA, we estimated the cost of hardware, software, and development, but we did not include associated costs for softer items, such as modifying procedures, coordinating with stakeholders, infrastructure integration, training, and other items. As we accumulate experience with the new process, we are improving our ability to characterize associated costs fully. We believe that our decision process enables the NRC to prioritize potential investments on the basis of their ability to support the agency's mission or to achieve efficiencies. Through our "lessons learned" post-implementation analyses, we expect to further improve our ability to characterize associated project costs fully and further improve the value of these data for decisionmaking. The CCA brought with it a new discipline of assessing the total cost of a project.

**Table 1
Top Ten IT Investments**

Investment	Total Acquisition Cost (\$M)
Agency Documents Access and Management System (ADAMS)	13.40
STARFIRE Resource Management System	8.40
PC Refresh	8.00
Reactor Program System (RPS)	2.70
General License Tracking System (GLTS)	0.68
Enforcement Action Tracking System (EATS)	0.49
Agency Training System (ATS)	0.37
Performance Indicators (PI)	0.30
Operator Licensing Tracking System (OLTS)	0.28
Automated Performance Measures Project (APMP)	0.25

2.d. *If the NRC uses an executive management level IT capital planning and investment control group (e.g, investment review board, IT investment committee, etc.), does this group recommend or does it make final IT funding decisions for the Nuclear Regulatory Commission? If the group does not make the final decisions, who does?*

Final decisionmaking authority rests with the five presidential-appointed Commissioners. Operationally, the Chairman approves project initiation for investments of \$3 million and above. The EC approves project initiation for investments over \$500,000 and less than \$3 million. The CIO approves investments less than \$500,000. The Information Technology Business Council (ITBC), composed of Senior Executive Service (SES) managers from across the agency's major business offices, review investments and advise the CIO and the EC as a whole. The CIO may ask for EC review of investments of less than \$500,000 that are otherwise critically important to the agency.

- 2.e. What means has your agency provided, in accordance with CCA section 5122 (b) (6), for senior management personnel to obtain timely information on the progress of information system investments? (1) To what extent do these means include a system of milestones, in terms of cost, capability of the system to meet scheduled requirements, timeliness, and quality? (2) How confident are you that the data being used for measuring progress are accurate, reliable, and up-to-date?**

CCA section 5122 (b) (6) requirements are built into the NRC's CPIC process. For a project to win approval, the sponsor must commit to detailed milestones for schedule, performance, and cost. Once an investment proposal has been approved and enters the "project" phase, OCIO staff continue to monitor the project's status. Each project's spending plan is monitored on a quarterly basis and corrective action is recommended as warranted. The project is approved for a baseline budget. When the sponsor believes that the project may exceed that budget by 5 percent, he or she must return to the CIO and/or the EC to request additional approvals. The CIO and/or the EC may grant additional funding approval, request changes to the project, or terminate the project.

Operational experience indicates that the data are accurate and reliable. NRC's CPIC process has approved 32 IT investments. Of those, 7 have reached completion on time and within budget (5-percent ceiling), and 3 ongoing projects have received EC approval to exceed the 5-percent ceiling, but none has reached the 10-percent cost overrun ceiling. The remaining 22 projects are on schedule and within budget, but are not yet complete. A small number of projects have had to make midcourse adjustments because of changing environments or new requirements. In one case, a contractor was not able to deliver a promised module of our STARFIRE financial system. The process facilitated timely cancellation of the contract to minimize the financial impact to the agency. Because of the project's modular acquisition strategy, other components of the project are proceeding and continue to satisfy scheduled milestones.

- 2.f. *Has the Nuclear Regulatory Commission, as required by CCA section 5127, identified in its strategic information resources management plan any and all major IT acquisition programs – or any phase or increment of such programs – that have significantly deviated from the cost, performance, or schedule goals established for the program? (1) If so, which major IT acquisition program(s)? If not, why not? (2) Whether or not your agency has identified such significant deviations in its strategic ARM plans, how does your agency define, for purposes of CCA section 5127, (i) "major IT acquisition program" and (ii) "significant deviation"?***

As defined below, no "significant deviations" from cost, performance, or schedule goals have occurred in periods covered by previous ARM plans. We are continuing to monitor the effect of the cancelled module of the STARFIRE project described in Item 2(e) to determine if this will result in a significant deviation. The NRC defines a "major IT investment" as "[a]n NRC IT investment that requires special management attention because of its cost, risk, or critical importance to the NRC mission or because of its significant role in the administration of NRC programs, finances, property, or other resources." All investments reviewed by the EC are potentially major investments. The CIO advises the EC as to whether the investment should be

considered major and the EC makes the decision. To identify "significant deviations," we maintain an internal threshold of 5% variance in cost, schedule, or progress toward meeting performance goals. This early warning threshold provides the NRC an opportunity to correct problems in a project before they reach our threshold for external reporting of 10% variance. The CIO and the EC identify potential significant deviations in schedule and performance to the Commission, which makes the final decision on whether the schedule and/or performance variations merit reporting as significant deviations. The reporting of significant deviations is integrated with NRC's performance management process and significant IT deviations appear in NRC's performance report.

3. ***As you are aware, CCA requires that executive agencies measure how well IT is being used to support their programs. For each of the top ten investment initiatives (in terms of total acquisition dollars) currently in either development, acquisition, or operation in the Nuclear Regulatory Commission, please provide specific data on realized and expected benefits to major operational or programmatic goals outlined in your latest Government Performance and Results Act strategic plan or annual performance plan. Also include the same type of data for any other investments, currently in development, acquisition, or operation, that you consider critically important.***

The current draft NRC strategic plan organizes our programmatic goals into Strategic Arenas (Nuclear Reactor Safety, Nuclear Materials Safety, Nuclear Waste Safety, and International Nuclear Safety Support). Additionally, we have formulated Corporate Management Strategies to promote efficiency and effectiveness of NRC operations.

The strategic goals of the NRC are as follows:

Prevent radiation-related deaths and illnesses, promote the common defense and security, and protect the environment in the use of civilian nuclear reactors.

Prevent radiation-related deaths and illnesses, promote the common defense and security, and protect the environment in the use of source, byproduct, and special nuclear material.

Prevent significant adverse impacts from radioactive waste to the current and future public health and safety and the environment and promote the common defense and security.

Support U.S. interests in the safe and secure use of nuclear materials and in nuclear nonproliferation.

The corporate management strategies are as follows:

Employ innovative and sound business practices.

Sustain a high-performing, diverse workforce.

Provide proactive information management and information technology services.

Communicate strategic change.

The first three strategic goals are supported by four performance goals:

Maintain safety, protection of the environment, and the common defense and security.

Increase public confidence.

Make NRC activities and decisions more effective, efficient, and realistic.

Reduce unnecessary regulatory burden on stakeholders.

The table below summarizes the linkage of each of the top 10 IT investments to NRC's strategic goals, performance goals, and management strategies.

Table 2
IT Investments Support the Agency Strategic Plan

Investment	Linkage to Agency Strategic Plan
Agency Documents Access and Management System (ADAMS)	ADAMS is intended to contribute to the reactor and materials safety goal by increasing the number of regulatory documents that are available electronically and that are electronically searchable, thereby improving the technical staff's access to safety information. ADAMS is intended to contribute to the agency's public confidence performance goal by improving the accessibility to documents available to the public and decreasing the elapsed time between the creation of the document and its availability to the public. ADAMS is intended to promote the performance goal to reduce unnecessary regulatory burden on our licensees by allowing them the option of submitting regulatory documents electronically. ADAMS is intended to promote the efficiency and effectiveness performance goal by reducing staff requirements for the file center, providing more efficient search techniques for the staff, and replacing as many as 50 duplicate document management and tracking systems.

Investment	Linkage to Agency Strategic Plan
STARFIRE Resource Management System	<p>STARFIRE is expected to directly impact the agency's effectiveness and efficiency performance goal by improving the linkage of budgeting and planning information, by integrating performance management measurements into the financial system, and by implementing cost accounting disciplines that should improve our decisionmaking by tracking the total cost of our activities and their relation to the agency's mission. STARFIRE is expected to support the corporate management strategy to employ innovative and sound business practices.</p>
PC Refresh	<p>The goal of the PC Refresh program is to provide appropriate agency staff with personal computers that are capable of running ADAMS and STARFIRE. Its contribution to agency goals is indirect but important.</p>
Reactor Program System (RPS)	<p>RPS supports key business functions of Reactor Inspection and Reactor Licensing that directly impact the agency's safety and public health goal. The system collects information that can be correlated against facility characteristics with an analytical capability that permits the linking, trending, and analysis of plant performance data for better safety monitoring and to identify cause and effect relationships before they impact safety. RPS' primary linkage is to the Reactor Safety strategic goal. RPS contributes to the Public Confidence performance goal by facilitating the consistency and availability of reactor safety data.</p> <p>RPS contributes to the effectiveness and efficiency performance goal by combining 10 separate, overlapping programs into a single, efficient, and easily maintainable system.</p>

Investment	Linkage to Agency Strategic Plan
General License Tracking System (GLTS)	<p>General License Devices contain small amounts of nuclear material and are designed to be inherently safe. Once acquired, the owners are considered general licensees and take on responsibility for transfer and disposal of the devices. Loss of accountability for these devices could occur because of a loss of knowledgeable licensee personnel, loss of warning labels or illegible warning labels, and the fact that the licensee loses an awareness that radioactive material is present. A contributing factor to licensees losing accountability is the lack of contact between licensees and NRC. GLTS will implement a registration program that will provide an efficient and effective method of providing contact with licensees of general devices that the Commission believes to pose a higher health and safety risk. This improved capability will contribute to both the safety and materials safety strategic goal and to the public confidence performance goal.</p>
Enforcement Action Tracking System (EATS)	<p>The Enforcement business function supports the agency's materials and reactor safety and public health goals by obtaining prompt correction of violations and conditions adverse to safety, deterring future violations, and encouraging improvement of licensee performance. The EATS is vital to managing major enforcement actions and assesses the effectiveness and uniformity of all actions, ensuring that cases are received, reviewed, and executed in a timely manner. EATS additionally supports NRC's effectiveness and efficiency performance goals by replatforming enforcement computing from an expensive mainframe system to a component of an existing cost-effective PC-LAN-based system.</p>

Investment	Linkage to Agency Strategic Plan
Agency Training System (ATS)	<p>Training and development of NRC staff is critical in order to support the mission-related need to obtain new knowledge, skills, and competencies to meet the NRC's organizational, occupational, and individual performance expectations and recruitment goals. While supporting this critical requirement to implement both reactor and materials safety goals, ATS directly impacts the efficiency and effectiveness performance goal by retiring three legacy systems and avoiding the costs of planned interfaces to those systems. The ATS project will support the agency's training management needs through direct use of Commercial Off-The-Shelf (COTS) functionality in our PeopleSoft HR system. ATS supports the corporate management strategy to sustain a high-performing, diverse workforce.</p>
Performance Indicators (PI)	<p>A key strategic initiative in the NRC is to revise the Reactor Oversight Process in a manner that will continue to ensure safety, but will decrease the unnecessary regulatory burden on licensees. As part of this initiative, NRC, licensees, and stakeholders reached consensus on a number of Reactor Performance Indicators that have safety implications. Quantitative thresholds for concern were established and the level of regulatory oversight will be appropriately adjusted so that plants that operate safely may receive less oversight than those that are not operating within thresholds. This system accepts data from licensees and analyzes the data using publicly accepted algorithms to assess levels of concern. The data and the analysis are made publicly available so that the public will be informed of the operating experience of plants and will understand NRC's basis for regulatory oversight actions. The system supports our reactor safety strategic goal and the public confidence performance goal.</p>
Operator Licensing Tracking System (OLTS)	<p>NRC is charged in the Atomic Energy Act of 1954 with the responsibility of issuing licenses to the operators of nuclear power plants and test/research reactors. OLTS is vital to managing the issuance of approximately 400 new licenses per year and the maintenance of 5,000 existing licenses. This project corrects a number of technical problems, improves the user interface, and integrates with RPS. OLTS directly supports the reactor safety strategic goal.</p>

Investment	Linkage to Agency Strategic Plan
Automated Performance Measures Project (APMP)	APMP mines data from the RPS and other databases to provide automated updates of operating plan and performance plan metrics, as well as program plans for licensing, inspection, performance assessment, and license renewal. This activity supports the effectiveness and efficiency performance goal and improves our ability to comply with GPRA reporting requirements.

3.a. As required by section 5123 of CCA, please provide the Committee with a copy of your last three annual reports on progress in achieving goals for improving the efficiency and effectiveness of Nuclear Regulatory Commission operations and, as appropriate, its delivery of services through the effective use of information technology.

NRC's first annual report on improving efficiency and effectiveness of NRC operations and delivery of services through the effective use of information technology, dated December 9, 1999, is contained in the CIO Stakeholder Report provided as Appendix D.

4. Since enactment of CCA, has the Nuclear Regulatory Commission, in accordance with CCA section 5123, (1) analyzed its missions and (2) based on the analysis, revised its mission-related processes and administrative processes, as appropriate, before making significant investments in IT to be used in support of the performance of those missions?

The NRC has undertaken a comprehensive review of its mission, which has resulted in a new Strategic Plan discussed in Item 3 above. As part of the CPIC process at the NRC, sponsors of each proposed investment are required to demonstrate how the investment supports the revised Strategic Plan and to explain how the project enables business process improvement. As demonstrated below, most projects have addressed process improvement before automation was applied.

For the top ten investment initiatives identified in 2(c) above, briefly summarize these analysis efforts and the revisions made to your Nuclear Regulatory Commission mission-related processes and administrative processes that are to be supported by these top ten IT investments.

**Table 3
NRC Process Improvements Supported Through CPIC**

Investment	Process Improvement Accomplishments
Agency Documents Access and Management System (ADAMS)	ADAMS was planned as an agency-wide process improvement tool. A task force from all mission and support offices identified requirements that would enable the staff to create, manage, and retire documents electronically. The system has vast process improvement potential through implementation of electronic workflow processing. The system will improve the staff's access to information. The administrative process of records management has been dramatically redesigned and improved. The process of disseminating information to the public is expected to achieve significant gains as information becomes available on a much more timely basis.
STARFIRE Resource Management System	STARFIRE will improve agency practices across the board. By implementing a cost accounting system, we will know the full cost of our activities and make more informed decisions. STARFIRE will implement "employee self-service" for many administrative processes.
PC Refresh	The goal of the PC Refresh program is to provide appropriate agency staff with personal computers that are capable of running ADAMS and STARFIRE. Its contribution to process improvement is indirect but important. PC Refresh changed the planning process for PC upgrades. In the past, computers were "refreshed" at a certain age; typically each year the oldest 20 percent of computers were upgraded. PC Refresh changed the paradigm to tie upgrades directly to application requirements so that upgrades were targeted for specific business needs.

Investment	Process Improvement Accomplishments
Reactor Program System (RPS)	RPS has been a key tool for implementing strategic change at the NRC. RPS enables the agency to execute its Revised Reactor Oversight Process (RROP), which measures licensee performance and prioritizes regulatory effort on issues having the highest safety impact. RPS is utilized in conjunction with the RROP, which has replaced the Systematic Assessment of Licensee Performance process.
General License Tracking System (GLTS)	GLTS was created to respond to an improved process for communicating with the agency's general licensees. It implements a new registration process that provides improved oversight of general licensees.
Enforcement Action Tracking System (EATS)	EATS improved the cost-effectiveness of the enforcement process by replatforming enforcement computing from an expensive mainframe system to a component of an existing cost-effective PC-LAN-based system.
Agency Training System (ATS)	The ATS provides logistical implementation of a process improvement that merges the agency's Nuclear Technology Training programs with its other staff training programs. The resulting process efficiencies allowed the agency to retire three automated custom systems and implement the revised process on COTS software.
Performance Indicators (PI)	A key strategic initiative in the NRC is to revise the Reactor Oversight Process in a manner that will continue to ensure safety but decrease the regulatory burden on licensees. As part of this initiative, NRC, licensees, and stakeholders reached consensus on a number of reactor Performance Indicators that have safety implications. Quantitative thresholds for concern were established and the level of regulatory oversight will be appropriately adjusted so that plants that operate safely may receive less oversight than those that are not operating within thresholds. This system accepts data from licensees and analyzes the data on the basis of publicly accepted algorithms to assess levels of concern. The data and the analysis are made publicly available so that the public will be informed of the operating experience of plants and will understand NRC's basis for regulatory oversight actions.

Investment	Process Improvement Accomplishments
Operator Licensing Tracking System (OLTS)	This project was designed to improve the efficiency of the operator licensing process by retiring a mainframe data system and incorporating the process into the RPS client/server framework for improved efficiency and data integrity.
Automated Performance Measures Project (APMP)	APMP automates parts of our new process of performance management for compliance with GPRA reporting requirements.

5. What progress has Nuclear Regulatory Commission made, and what obstacles still remain, in implementing modular contracting, in accordance with CCA section 5202?

(a) What criteria does Nuclear Regulatory Commission use for determining whether a modular contracting approach is appropriate or not?

The NRC has achieved limited success in modular contracting. Sponsors are directed to address procurement strategy in their capital planning and investment control analysis and the management review gives preference to modular approaches.

The primary determinant of the viability of modular contracting is whether a development project can be broken into discrete functional elements for which benefits of implementation and operations will exceed costs.

(b) Since CCA's enactment, what percentage of Nuclear Regulatory Commission major IT systems investments have used modular contracting? Also, please indicate which systems and the dollar value of the contracts.

Two of the three systems identified to the Office of Management and Budget as major NRC systems, the Reactor Programs System (RPS) and the financial/resource system (STARFIRE), have used modular contracting. Such contracting has allowed the RPS to be implemented in an orderly fashion. STARFIRE modules were also under different contracts. The core accounting module contract was canceled when it was realized that the estimated cost and schedule could not be met. The modular strategy allowed the NRC to continue development of other STARFIRE modules in spite of the problems with the Core Accounting module. Another module, Cost Accounting, was initially deferred. A product for this latter module is expected to be selected in the near future. As explained above, ADAMS, the third major system, did not lend itself to modular development and implementation.

The estimated acquisition costs for the three major systems are as follows: ADAMS, \$13.4M; STARFIRE, \$8.4M; RPS, \$2.7M.

- (6) **Approximately how much did Nuclear Regulatory Commission obligate through contract actions for IT products or services during each of the following fiscal years: 1997, 1998, and 1999?**
1. **For each of the three fiscal years, what percentage of the total dollars were obligated by (1) issuing orders under existing indefinite delivery, indefinite quantity (IDIQ) contracts (such as government-wide contracts (GWACs), federal supply schedule contracts, etc.) and (2) awarding new contracts or issuing modifications to those contracts?**

Obligations for IT products/services during for Fiscal Years (FY) 1997-1999:

FY 1997 = \$53.6M
 FY 1998 = \$57.0M
 FY 1999 = \$51.9M

Percentage Distribution Between IDIQ/Interagency Contracts and NRC Contracts

Fiscal Year	GWAC/ Interagency (\$M)	GWAC/ Interagency (%)	NRC Contracts (\$M)	NRC Contracts (%)
1997	26.9	50	26.7	50
1998	26.2	46	30.8	54
1999	32.0	62	19.9	38
Total	85.1	52	77.4	48

- Attachments:
 Appendix A: Annual Reports on Improvements in Information Resources and Technology
 Appendix B: NRC Management Directive 2.2
 Appendix C: Cost Benefit and Risk Data for Top Ten IT Investments
 Appendix D: 1999-2000 Stakeholder Report

Appendix A

Annual Reports on Improvements in Information Resources and Technology

NUREG-1100
Volume 13

BUDGET ESTIMATES FISCAL YEAR 1998

February 1997

U.S. Nuclear Regulatory Commission

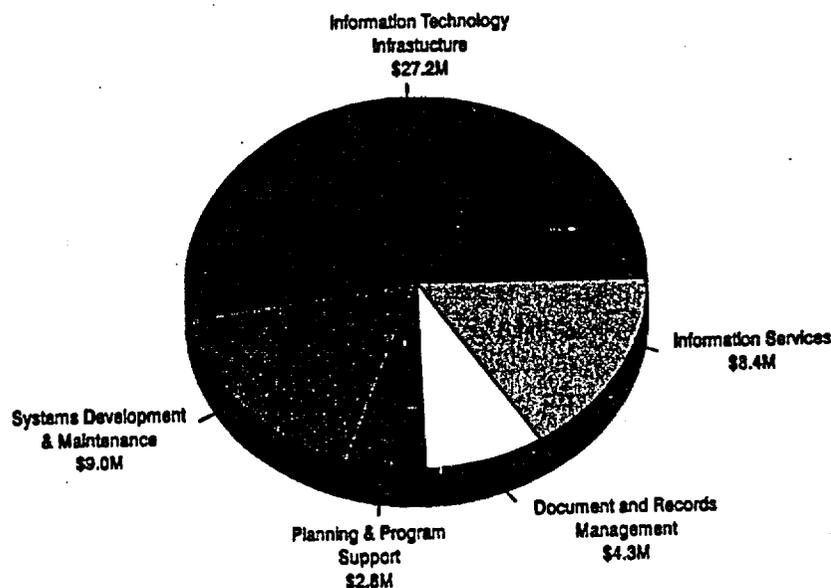


MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration

Chief Information Officer

The Office of the Chief Information Officer provides centralized guidance on and oversight, and coordination of all policy, planning, and execution of information resources management functions, and manages program activities related to the agency's acquisition, management, and use of Federal information processing resources. This activity is responsible for implementation of the Information Technology Management Reform Act (ITMRA) of 1996, in designing and implementing an information technology (IT) capital planning and investment control process for maximizing the value and assessing and managing the risks of IT investments. This activity provides the essential services and technical means used by the agency staff to receive, store, retrieve, manipulate, process, and transmit information in support of the agency's health and safety mission.

Figure 17
CHIEF INFORMATION OFFICER



Information Technology Infrastructure—A robust infrastructure is a critical component that is needed to accomplish the agency's mission. The infrastructure supports NRC's ability to communicate internally and externally with 110 nuclear reactor sites and with the public and other government agencies. Comprehensive, integrated radio, voice, and data communications, networking, and connectivity services are provided for the NRC through this activity.

MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration

Minicomputer, timesharing, and client-server platforms are maintained to provide the appropriate infrastructure for agency computing requirements. Centralized customer support services provide technical assistance for agency office automation workstations and software and assist customers with establishing access and communicating with timesharing facilities and other outside locations.

Systems Development and Maintenance--To meet agency information processing and access requirements, the NRC develops, acquires, and maintains application systems for programmatic and administrative functions. The NRC is assessing systems development methodologies and procedures to ensure that the public's access to NRC information is considered, with the goal that new systems and modifications to systems either preserve or improve the public's access to NRC information. The NRC is also selectively applying work process redesign to agencywide systems to examine and streamline work processes before automation technology is applied.

Information Services--A variety of services are necessary to facilitate NRC staff and public access to information. These services include providing a centralized system for announcing public meetings of the staff and public access to NRC electronic information, operating and managing the Public Document Room, coordinating local public document room activities, managing the Freedom of Information Act program, and providing essential agency library services. This activity also provides centralized agencywide publication control and processing, word processing and scanning services, technical writing and editing services, and translation services for the entire agency.

Document and Records Management--This activity provides for the management of shared data and documents as agency resources to ensure that they are accessible, secure, reliable, and maintained in accordance with government regulations. The NRC plans to improve data quality, reduce paperwork, and increase its capability to access and share data across all agency information systems, through the use of information technology. The NRC is also applying technology to reduce paperwork and improve its ability to communicate and access information both internally and externally.

Planning and Program Support--The NRC conducts an information technology planning and budgeting process that supports the NRC's mission, focuses on information technology throughout the agency, enhances the ability of senior executives to make decisions, and is integrated with the agency's planning process. Efforts to implement ITMRA include establishing performance goals and performance measures and revising agency mission-related and administrative processes as appropriate before making significant investments in information technology. Policies, standards, and architectures are developed and maintained

MANAGEMENT AND SUPPORT PROGRAM: Resource and Administration

to support NRC's information technology strategy and comply with Federal regulations and standards. The assessment of advanced and emerging information technologies and the transfer of appropriate technologies to the NRC environment, with a special focus on high performance computing, are important aspects of NRC's information technology program.

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MANAGEMENT AND SUPPORT**Chief Information Officer**

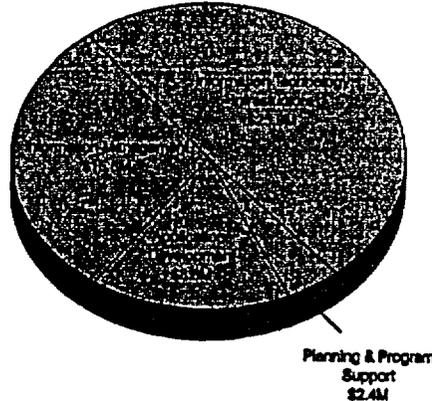
	FY 1997 Enacted	FY 1998 Estimate	FY 1999 Estimate	
			Request	Change from FY 1998
Budget Authority by Function (\$K)				
Salaries and Benefits	14,932	13,904	14,337	433
Contract Support	35,289	38,220	38,225	5
Travel	67	100	100	0
Total	50,288	52,224	52,662	438
Budget Authority by Activity (\$K)				
Information Technology	34,900	37,021	36,816	-205
Information Management	15,388	15,203	15,846	643
Total	50,288	52,224	52,662	438
Full-Time Equivalent Employment by Activity				
Information Technology	89	81	81	0
Information Management	102	95	95	0
Total	191	176	176	0

Chief Information Officer

The Office of the Chief Information Officer (OCIO) plans, directs, and oversees the NRC's information resources, including information technology infrastructure, applications systems, and delivery of information management services, to meet the mission and goals of the agency. The OCIO ensures that information technology resources are acquired and information resources are managed consistent with Federal Information Resources Management laws and regulations, including implementation of the Clinger-Cohen Act of 1996.

MANAGEMENT AND SUPPORT: Chief Information Officer

Figure 13
CHIEF INFORMATION OFFICER



Information Technology

Planning and Program Support--This activity is the focal point for information resource planning and implementation of the Clinger-Cohen Act of 1996 . This includes management of agency technology planning; development and implementation of information technology (IT) architectures; management of the agency's IT Capital Planning and Investment Control process; development of agency IT and information management (IM) policy; and management of administrative, acquisition, personnel and financial matters for the information resources management program. This activity also includes the NRC's computer security program, which implements administrative, technical, and physical security measures for the protection of NRC's information, automated information systems, and information technology infrastructure. The computer security program encompasses special safeguards to protect classified information, unclassified safeguards information, and sensitive unclassified information that is processed, stored, or produced in all types of automated information systems.

In FY 1999, as part of the NRC program to develop and maintain an IT architecture, the staff will evaluate the cost and quality of automation of two NRC business areas and complete the development of a high-level model of the data that supports two NRC business areas. The agency's Technical Reference Model will be updated to provide standards for implementation of 32-bit operating systems required for the Agencywide Document Access and Management System (ADAMS). As part of the FY 1999 computer security program, the NRC will provide computer security awareness training to all employees. The staff will continue its program to detect and prevent virus attacks with a goal of preventing any virus infections of the NRC network.

MANAGEMENT AND SUPPORT: Chief Information Officer

Information Technology Infrastructure-- This activity provides the development, operations, and support of a reliable and robust IT infrastructure which is critical for supporting NRC's mission requirements. The infrastructure supports NRC's ability to communicate internally and, externally, with 104 nuclear reactor sites, the public, and other government agencies. Through this activity, the OCIO provides NRC with comprehensive integrated voice and data communications, networking, connectivity, and computer services. The infrastructure provides the hardware, software, and telecommunications equipment and associated services to support NRC business requirements for developing, maintaining, and operating programmatic and administrative applications systems.

By the end of FY 1999, 80 percent of NRC resident inspector sites will have a direct connection to the agencywide network for access to agencywide applications and network resources. Also, approximately 93 percent of the agency's microcomputers will be upgraded to Pentium class computers.

Applications Development--This activity covers the development and maintenance of the agency's information systems. All agency systems are developed within the structure of a systems development life cycle to ensure adherence to standards, proper documentation, and use of a consistent methodology for project planning and management. Permanent teams are assigned to develop, maintain, and support the NRC applications for each major business area to ensure integrated planning and implementation and increase data sharing. Activities associated with addressing the Year 2000 computer problem will continue to focus on repairing all mission and business critical systems in line with the milestones established by the Office of Management and Budget. The majority of the effort to renovate these systems will take place in FY 1998. Most of the effort in FY 1999 will be directed to the final validation that the systems are corrected and the implementation of repaired systems. Recognizing that NRC's regulatory functions require the preparation, review, receipt, and distribution of large quantities of information and its effective management, the agency continues to develop and implement a core document management system (ADAMS) that is critical to NRC's mission. ADAMS will ensure the integrity of NRC's document repository for recordkeeping, legal uses, and staff retrieval by capturing documents once, at their source, as they are electronically created or received by the agency. This project will put in place a document system and infrastructure that is critical to providing ready access to regulatory information and will ensure the completeness of the agency's document and records collections.

In FY 1999, for those systems meeting the criteria for inclusion in NRC's Information Technology Capital Planning and Investment Control process, the staff will prevent any significant deviations (as defined in the Clinger-Cohen Act) from system development targets.

MANAGEMENT AND SUPPORT: Chief Information Officer

By March 31, 1999, all maintained application systems that are identified as mission-critical or business-essential will be able to process dates beyond January 1, 2000.

Information Management

Publications Services--This activity provides centralized, agencywide publications control and automated reports processing, word processing, scanning services, and technical writing and editing services. It also provides centralized support for professional design and graphics services. To enhance communications with and make information available to the public, NRC is utilizing World Wide Web technologies for significant documents such as NRC Regulations, the NRC Annual Report, the Information Digest, Standard Review Plans, and NUREG-series reports in downloadable files.

Records Management--This activity ensures that NRC records and other documents are managed as agency resources, are retained in accordance with government regulations, and are complete and accurate and accessible. This activity includes management and operation of an automated, centralized agency document system. In order to prepare for the transition to electronic recordkeeping, the staff will submit a comprehensive records disposition schedule in January 1999 needed to gain National Archives and Records Administration approval of ADAMS as the agency's official electronic recordkeeping system.

In FY 1999, the staff will develop and implement an approach for voluntary electronic submission of documents to the NRC that is flexible (accommodates a large variety of electronic formats) and provides for appropriate surety and safeguards (appropriate levels of authentication, verification, and security for various types of document submittals).

Information Services--This activity provides for the search, retrieval, and dissemination of information to the NRC staff and the public, and includes operating and managing the Public Document Room (PDR), coordinating local public document room activities, managing the Freedom of Information Act program, and providing essential library services.

In FY 1999, the staff, through the PDR, will attain an average response time for written requests of 2.5 working days, and will answer 85 percent of onsite and phone requests by the close of business the following working day. The staff annually coordinates the response to approximately 500 to 550 information requests from the public in accordance with the Freedom of Information Act with a goal of responding to these requests within 30 working-days.

**BUDGET
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2000**

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MANAGEMENT AND SUPPORT

Information Technology and Information Management

	FY 1998 Enacted	FY 1999 Estimate	FY 2000 Estimate	
			Request	Change from FY 1999
Budget Authority by Function (\$K)				
Salaries and Benefits	13,997	14,811	15,656	845
Contract Support	40,282	39,560	32,168	-7,392
Travel	106	93	87	-6
Total	54,385	54,464	47,911	-6,553
Budget Authority by Activity (\$K)				
Planning and Resource Management	2,554	2,709	2,861	152
Information Technology Infrastructure	23,332	26,245	23,276	-2,969
Application Development	7,040	7,002	5,554	-1,448
Information Management	21,459	18,508	16,220	-2,288
Total	54,385	54,464	47,911	-6,553
Full-Time Equivalent Employment by Activity				
Planning and Resource Management	25	25	24	-1
Information Technology Infrastructure	35	35	34	-1
Application Development	30	30	30	0
Information Management	86	85	84	-1
Total	176	175	172	-3

The Office of the Chief Information Officer (OCIO) plans, directs, and oversees the NRC's information resources, including information technology infrastructure, applications systems, and delivery of information management services, to meet the mission and goals of the agency. The OCIO ensures that information technology resources are acquired and information resources are managed consistent with Federal Information Resources Management laws and regulations, including implementation of the Clinger-Cohen Act of 1996.

MANAGEMENT AND SUPPORT

Planning and Resource Management

OUTPUT MEASURES		
Output	FY 1999 Target	FY 2000 Target
Percent of agency executives and managers who have received IT training.	All NRC senior executives and managers.	All executives and managers within 12 months of hire.
Percent of OCIO employees who completed training.	70 percent of training course slots identified in OCIO employee training plans have been completed.	70 percent of training course slots identified in OCIO employee training plans have been completed.
Percent of high-level data entities in the agency's primary applications systems that are shared. FY 1998: Baseline established as 28 percent. ¹⁵	Thirty-five percent of data entities.	Forty-five percent of data entities.

This activity encompasses the direction and coordination of agency-wide information resources planning, including development of information technology (IT) and information management (IM) goals and measures, development of agency IT architectures and standards, assessment of technology trends and their applicability to NRC business needs, direction of planning for new information technology, and management of the agency's IT Capital Planning and Investment Control process. Also included are coordination of IT and IM program evaluation, development of agency IT and IM policy, and coordination of agency IT training. This activity also covers OCIO general administrative and resource management functions, including budget, financial management, personnel, and acquisition support.

This activity also includes the NRC's computer security program, which implements administrative, technical, and physical security measures for the protection of NRC's information, automated information systems, and information technology. The computer security program encompasses special safeguards to protect classified information, unclassified safeguards information, and sensitive unclassified information that is processed, stored, or produced in all automated information systems.

¹⁵ Entities reflect those identified by formal data modeling. As additional modeling work is done, the list of entities may change. Entities are scored "low, medium or high" in terms of the portion of systems in the business area which share the data. The percentage shared is the portion of all entities modeled which score medium or high.

MANAGEMENT AND SUPPORT

Information Technology Infrastructure

OUTPUT MEASURES		
Output/Baseline	FY 1999 Target	FY 2000 Target
<p>Availability of key infrastructure services which are provided as part of the agency information technology infrastructure.</p> <p>(FY 1998: Baseline established as 1 percent unavailability.)</p>	<p>The unavailability of Infrastructure services will decrease by 10 percent per year until infrastructure services are available 99.5 percent.</p>	<p>The unavailability of Infrastructure services will decrease by 10 percent per year until infrastructure services are available 99.5 percent.</p>
<p>Availability of agency network servers within the agency information technology infrastructure (determined by the percentage of work hours agency network servers are available for staff use exceeding scheduled downtime and scheduled outages).</p> <p>(FY 1998: baseline established as 1 percent unavailability.)</p>	<p>The unavailability of network servers will decrease by 10 percent per year until infrastructure services are available 99.5 percent.</p>	<p>The unavailability of network servers will decrease by 10 percent per year until infrastructure services are available 99.5 percent.</p>
<p>Agency employees have workstation configurations that will support ADAMS and other planned agency-wide applications.</p>	<p>Complete replacement of all 486-based desktop PC workstations.</p>	<p>Replace workstations as required to support new agency applications.</p>

This activity provides for the development, integration, implementation, management, and support of the agency's information technology (IT) infrastructure to support the mission and program activities of the NRC. The activity manages and operates the Customer Support Center which functions as a single point of contact for service questions, service requests, problem reporting, and request status. It provides desktop support which includes the replacement/upgrade of desktop microcomputers to meet agency program and business requirements and maintaining basic desktop workstations and peripheral equipment in operational condition. The telecommunications services and support area of this program provides agency long distance and headquarters local telecommunications services to meet current business needs and the related services necessary to implement and maintain these services. It provides operations and administrative support for agency communications

MANAGEMENT AND SUPPORT

systems including operation of the NRC message center, videoconferencing services, voice mail system, local and long distance voice and data telecommunications services, personnel communications equipment (pagers, faxes, modems, cellular), and support for the NRC Operations Center. This activity provides for development, integration, implementation, maintenance, and support of all agency network, telecommunications, and desktop resources. This activity provides for the operation and systems programming support of agency-wide application systems and timesharing services. It provides technical support for design of the agency's information technology architecture pertaining to IT infrastructure development, standards, and practices. This activity provides technical guidance and direct assistance as needed to headquarters and regional offices concerning implementation of agency-wide application systems and IT infrastructure issues and practices. It provides personnel to serve as a liaison with application development teams to coordinate program office infrastructure development, operations, and support requirements.

Applications Development

OUTPUT MEASURES		
Output/Baseline	FY 1999 Target	FY 2000 Target
Level of staff satisfaction with information in NRC's primary applications systems. (FY 1998: Baseline established as 3.52. ¹⁵)	Improve staff satisfaction level to 3.60.	Improve staff satisfaction level to 3.75.
Renovation and installation of corrected mission-critical and business essential systems to handle dates from January 1, 2000, and beyond.	By March 31, 1999, the Year 2000 renovation, validation and implementation of all maintained mission-critical and business-essential application systems will be completed.	Zero adverse affects on the public, NRC licensees, and other stakeholders.

This activity encompasses the development and maintenance of a comprehensive information technology (IT) applications management program to support the mission and program activities of the NRC, and involves the coordination of all agency IT applications development and support activities to ensure applications are efficiently developed and operationally sound on an agency-wide basis. It includes the formulation of approaches to provide appropriate

¹⁵ The basis question asks for overall satisfaction with reliability, accuracy, and accessibility of information in selected systems

MANAGEMENT AND SUPPORT

information technology solutions to information management problems confronting the agency. Also included are the development and maintenance of methodologies to guide all agency activities throughout the entire applications life cycle, and the development of components of the agency's information technology architecture pertaining to software engineering and development tools, data base management systems, and document management systems.

Information Management

OUTPUT MEASURES		
Output/Baseline	FY-1999 Target	FY-2000 Target
ADAMS will develop demonstrable returns on investment to the agency.	No significant deviations (as defined by Clinger-Cohen Act of 1996).	No significant deviations (as defined by Clinger-Cohen Act of 1996).

This activity provides for the organizational and electronic integration of agency information management (IM) functions and for providing agency-wide IM services. It includes planning, developing policy for, managing, and delivering services related to the Public Document Room; the NRC Technical Library; the File Center; the Freedom of Information Act and Privacy Act programs; the agency's Information Collection Budget; and NRC's records, forms, and correspondence management programs. Additionally, it includes duplicating, copying, printing, editing, writing, and graphic services; centralized receipt, processing, distribution and electronic and paper inventory maintenance of agency documents; and electronic publishing, including NRC's World Wide Web internal and external sites. This activity also provides for the development, implementation and maintenance of ADAMS, the agency's electronic system that supports document creation and capture, workflow maintenance, records management, and search and retrieval by both NRC staff and the public. Efficiencies to be gained from the implementation of ADAMS will be reflected in future budget submissions.

**BUDGET
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FISCAL YEAR
2001**

February 2000
U.S. Nuclear Regulatory Commission



MANAGEMENT AND SUPPORT

Information Technology and Information Management

Summary	FY 1999 Enacted	FY 2000 Estimate	FY 2001 Estimate	
			Request	Change from FY 2000
Budget Authority by Function (\$K)				
Salaries and Benefits	14,352	15,641	16,353	712
Contract Support	40,760	31,748	32,373	625
Travel	73	87	90	3
Total	55,185	47,476	48,816	1,340
Budget Authority by Activity (\$K)				
Planning and Resource Management	2,643	2,872	2,952	80
Information Technology Infrastructure	26,620	23,008	23,614	606
Application Development	6,744	5,407	5,964	557
Information Management	19,178	16,189	16,286	97
Total	55,185	47,476	48,816	1,340
Full-Time Equivalent Employment by Activity				
Planning and Resource Management	25	24	24	0
Information Technology Infrastructure	35	33	33	0
Application Development	30	30	30	0
Information Management	85	84	82	-2
Total	175	171	169	-2

The Office of the Chief Information Officer (OCIO) plans, directs, and oversees the NRC's information resources, including information technology infrastructure, applications systems, and delivery of information management services, to meet the mission and goals of the agency. The OCIO ensures that information technology resources are acquired and information resources are managed consistent with Federal Information Resources Management laws and regulations, including implementation of the Clinger-Cohen Act of 1996.

MANAGEMENT AND SUPPORT

Planning and Resource Management

OUTPUT MEASURES				
Output	FY 1999 Target	FY 1999 Actual	FY 2000 Target	FY 2001 Target
Percent of agency executives and managers who have received IT training.	All NRC senior executives and managers.	All NRC senior executives and managers received training.	All executives and managers within 12 months of hire.	All executives and managers within 12 months of hire.
Percent of OCIO employees who completed training.	70 percent of training course slots identified in OCIO employee training plans have been completed.	Greater than 90 percent.	70 percent of training course slots identified in OCIO employee training plans have been completed.	70 percent of training course slots identified in OCIO employee training plans have been completed.
Percent of high-level data entities in the agency's primary applications systems that are shared. FY 1998: Baseline established as 28 percent. ³⁵	35 percent of data entities.	22 percent of data entities. Major database system development postponed.	22 percent of data entities.	22 percent of data entities.

This activity encompasses the direction and coordination of agencywide information resources planning, including development of IT and IM measures, development of agency IT architectures and standards, assessment of technology trends and their applicability to NRC business needs, direction of planning for new information technology, and management of the agency's IT Capital Planning and Investment Control process. Under the Clinger-Cohen Act, the CIO has responsibility for developing, maintaining, and facilitating the implementation of a sound and integrated IT architecture (ITA). The ITA is composed of the enterprise architecture, technical reference model, and applicable standards profiles. The performance measure for data sharing measures the progress in implementing the enterprise architecture. Also included are coordination of IT and IM program evaluation, development of agency IT and IM policy, and coordination of agency IT training. This activity also covers OCIO general

³⁵ Entities reflect those identified by formal data modeling. As additional modeling work is done, the list of entities may change. Entities are scored "low, medium or high" in terms of the portion of systems in the business area that share the data. The percentage shared is the portion of all entities modeled that score medium or high.

MANAGEMENT AND SUPPORT

administrative and resource management functions, including budget, financial management, personnel, and acquisition support.

This activity also includes the NRC's computer security program, which implements administrative, technical, and physical security measures for the protection of NRC's information, automated information systems, and information technology. The computer security program encompasses special safeguards to protect classified information, unclassified safeguards information, and sensitive unclassified information that is processed, stored, or produced in all automated information systems.

Information Technology Infrastructure

OUTPUT MEASURES				
Output/Baseline	FY 1999 Target	FY 1999 Actual	FY 2000 Target	FY 2001 Target
Availability of key infrastructure services which are provided as part of the agency information technology infrastructure. (FY 1998: Baseline established as 1 percent unavailability.)	The availability of Infrastructure services will increase by 10 percent per year until infrastructure services are available 99.5 percent.	Improved availability by 10 percent with infrastructure services available 99.5 percent.	The availability of Infrastructure services will increase by 10 percent per year until infrastructure services are available 99.5 percent.	The availability of Infrastructure services will increase by 10 percent per year until infrastructure services are available 99.5 percent.

MANAGEMENT AND SUPPORT

OUTPUT MEASURES				
Output/Baseline	FY 1999 Target	FY 1999 Actual	FY 2000 Target	FY 2001 Target
<p>Availability of agency network servers within the agency information technology infrastructure (determined by the percentage of work hours agency network servers are available for staff use exceeding scheduled downtime and scheduled outages).</p> <p>(FY 1998: baseline established as 1 percent unavailability.)</p>	<p>The availability of network servers will increase by 10 percent per year until infrastructure services are available 99.5 percent.</p>	<p>Improved availability by 10 percent with agency network servers available 99.75 percent.</p>	<p>The availability of network servers will increase by 10 percent per year until infrastructure services are available 99.5 percent.</p>	<p>The availability of network servers will increase by 10 percent per year until infrastructure services are available 99.5 percent.</p>
<p>Agency employees have workstation configurations that will support ADAMS and other planned agencywide applications.</p>	<p>Complete replacement of all 486-based desktop PC workstations.</p>	<p>Completed replacement.</p>	<p>Replace workstations as required to support new agency applications.</p>	<p>Replace workstations as required to support new agency applications.</p>

This activity provides for the ongoing development, integration, implementation, management, and support of the agency's IT infrastructure and provides information management services to support the mission and program activities of the NRC. The activity manages and operates the Customer Support Center, which functions as a single point of contact for service questions, service requests, problem reporting, and request status. It provides desktop support, which includes the replacement/upgrade of desktop microcomputers to meet agency program and business requirements and maintaining basic desktop workstations and peripheral equipment in operational condition. The telecommunications services and support area of this program provides agency long-distance and headquarters local telecommunications services to meet current business needs and the 16 related services necessary to implement and maintain these services. It provides operations and administrative support for agency communications systems, including operation of the NRC message center, videoconferencing services, voice mail system, local and long-distance voice and data telecommunications services, personal communications equipment (pagers, faxes, modems, cellular phones), and

MANAGEMENT AND SUPPORT

support for the NRC Operations Center. This activity provides for development, integration, implementation, maintenance, and support of all agency network, telecommunications, and desktop resources. This activity provides for the operation and systems programming support of agencywide application systems and timesharing services. It provides technical support for design of the agency's information technology architecture pertaining to IT infrastructure development, standards, and practices. This activity provides technical guidance and direct assistance as needed to headquarters and regional offices concerning implementation of agencywide application systems and IT infrastructure issues and practices. It provides personnel to serve as a liaison with application development teams to coordinate program office infrastructure development, operations, and support requirements.

MANAGEMENT AND SUPPORT

Applications Development

OUTPUT MEASURES				
Output/Baseline	FY 1999 Target	FY 1999 Actual	FY 2000 Target	FY 2001 Target
<p>Level of staff satisfaction with information in NRC's primary applications systems.</p> <p>(FY 1998: Baseline established as 3.52.³⁶)</p>	<p>This measure changed from annual to biennial to minimize burden on staff.</p>	<p>Not applicable.</p>	<p>Improve staff satisfaction level to 3.75.</p>	<p>This measure changed from annual to biennial to minimize burden on staff.</p>
<p>Renovation and installation of corrected mission-critical and business-essential systems to handle dates from January 1, 2000, and beyond.</p> <p>(FY 1998: Not applicable)</p>	<p>By March 31, 1999, the Year 2000 renovation, validation, and implementation of all maintained mission-critical and business-essential application systems will be completed.</p>	<p>Completed Feb 15, 1999.</p>	<p>Zero adverse affects on the public, NRC licensees, and other stakeholders.</p>	<p>This measure completed in FY 2000.</p>

This activity encompasses the development and maintenance of a comprehensive IT applications management program to support the mission and program activities of the NRC, and involves the coordination of all agency IT applications development and support activities to ensure applications are efficiently developed and operationally sound on an agencywide basis. It includes the formulation of approaches to provide appropriate information technology solutions to information management problems confronting the agency. Also included are the development and maintenance of methodologies to guide all agency activities throughout the entire applications life cycle, and the development of components of the agency's information technology architecture pertaining to software engineering and development tools, database management systems, and document management systems.

³⁶ The basis question asks for overall satisfaction with reliability, accuracy, and accessibility of information in selected systems.

MANAGEMENT AND SUPPORT

Information Management

OUTPUT MEASURES				
Output/Baseline	FY 1999 Target	FY 1999 Actual	FY 2000 Target	FY 2001 Target
ADAMS will develop demonstrable returns on investment to the agency.	No significant deviations (as defined by Clinger-Cohen Act of 1996).	No significant deviations.	No significant deviations (as defined by Clinger-Cohen Act of 1996).	This measure is superseded by the following two measures in FY 2001.
Level of satisfaction with the new agency document management system based on customer survey. FY 1998 baseline for the existing document management system (NUDOCS) is 3.42 on a scale of 1 to 5.	This measure does not have an FY 1999 target.	Not applicable.	This measure does not have an FY 2000 target.	Improve satisfaction level with the new document management system (ADAMS) to 3.75.
Percent of newly created and received unclassified documents routinely made available to the public via the Internet with a standard Web browser and downloading of appropriate software.	This measure does not have an FY 1999 target.	Not applicable.	This measure does not have an FY 2000 target.	95 percent of newly created and received unclassified documents will be made available.

This activity provides for the organizational and electronic integration of agency IM functions and for providing agencywide IM services. It includes planning, developing policy for, managing, and delivering services related to the Public Document Room; the NRC Technical Library; the File Center; the Freedom of Information Act and Privacy Act programs; the agency's Information Collection Budget; and NRC's records, forms, and correspondence management programs. Additionally, it includes duplicating, copying, printing, editing, writing, and graphic services; centralized receipt, processing, distribution and electronic and paper inventory maintenance of agency documents; and electronic publishing, including NRC's World Wide Web internal and external sites. This activity also provides for the development, implementation and maintenance of ADAMS, the agency's electronic system that supports document creation and capture, workflow maintenance, records management, and search and retrieval by both NRC staff and the public.

Appendix B

NRC Management Directive 2.2

"Capital Planning and Investment Control"

U.S. NUCLEAR REGULATORY COMMISSION

DIRECTIVE TRANSMITTAL

TN: DT-99-13

To: NRC Management Directives Custodians

Subject: Transmittal of Directive 2.2, "Capital Planning and Investment Control"

Purpose: Directive and Handbook 2.2 are being issued to establish and implement a capital planning and investment control process for evaluating information technology projects in accordance with the Clinger-Cohen Act.

Office and Division of Origin: Office of the Chief Information Officer

Contact: John Sullivan, 415-5857

Date Approved: Approved: May 27, 1999

Volume: 2 Information Technology

Directive: 2.2, "Capital Planning and Investment Control"

Availability: Rules and Directives Branch
Office of Administration
David L. Meyer (301)415-7162 or
Jeannette P. Kiminas (301)415-7086

Capital Planning and Investment Control

***Directive
2.2***

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U. S. Nuclear Regulatory Commission

Volume: 2 Information Technology

CIO

Capital Planning and Investment Control Directive 2.2

Policy (2.2-01)

It is the policy of the U.S. Nuclear Regulatory Commission to ensure that information resource investments are planned, selected, managed, and evaluated to maximize the value and minimize the risks of those investments, in accordance with Federal statutes and regulations.

Objectives (2.2-02)

- Ensure that NRC's information technology (IT) investments are aligned with its mission and strategic goals and make measurable improvements to the performance of NRC's mission and supporting administrative functions. (021)
- Ensure that NRC has an IT capital planning and investment control process that maximizes the value and assesses and manages the risk of information technology investments. (022)
- Ensure that NRC's planning and budgeting process for information resources is integrated with the NRC's overall planning, budgeting, and performance management process. (023)
- Ensure that NRC work processes are benchmarked against best practices and are redesigned, where appropriate, before making significant investments in applications or systems to automate those processes. (024)
- Promote accountability of program officials for the information resource investments that support their programs. (025)

Organizational Responsibilities and Delegations of Authority

(2.2-03)

Chairman (031)

- Establishes a budget-linked capital planning and management oversight process for IT investments that: (a)
 - Provides for the selection of IT investments, the management of these investments, and evaluation of the results of these investments (i)
 - Is integrated with the NRC's planning and budgeting process (ii)
 - Maximizes return on investment and minimizes financial and operational risk for investments in IT (iii)
- Reports yearly to the Office of Management and Budget (OMB) any significant variance from project cost, performance, or schedule goals established for *major* IT projects. (b)

The Commission (032)

- As part of the NRC budget process, approves the initiation of *major* IT projects. (a)
- Reviews and approves the *major* projects reportable to OMB as part of its review of the annual NRC Performance Plan. (b)

Executive Council (033)

- Ensures that NRC's planning and budgeting process for information resources is integrated with the NRC's overall planning and budgeting process, including strategic, financial, and human resource planning. (a)
- Ensures that program, financial, and information management resource officials participate effectively in the planning and budgeting process for information resources. (b)

**Executive Council
(033) (continued)**

- Reviews and approves the business case for IT projects with a project cost equal to or greater than \$500,000. (c)
- Reviews *major* IT projects that are at risk for a significant variation from their approved cost, schedule, or performance goals. Decides whether or not to continue, modify, or terminate such projects. (d)

**Chief Financial Officer (CFO)
(034)**

- Coordinates financial systems plans, including the Five-Year Financial Management Systems Plan, with the Chief Information Officer (CIO) to ensure consistency with overall agency IT plans and architectures. (a)
- Seeks the advice of the CIO on information resource planning and budget issues to ensure that proposed expenditures are compatible with agency information resources management (IRM) plans and architectures. (b)
- Obtains CIO approval of IRM-related portions of agency OMB and congressional submittals. (c)

**Chief Information Officer (CIO)
(035)**

- As delegated by the Chairman, and in coordination with the other members of NRC's Executive Council, develops and implements agencywide IRM planning, budgeting, and investment control policies, processes, and procedures that support NRC's mission and meet the requirements of Federal statutes and regulations. (a)
- Develops and recommends goals, strategies, and performance measures for improving agency effectiveness and efficiency through the use of information technology. (b)
- Prepares integrated agencywide IRM plans and related OMB and congressional submittals, ensuring that such plans support the NRC Strategic Plan. (c)
- Approves OMB and congressional submittals related to IRM. (d)
- Reviews and approves the business case for all IT projects, referring those with a project cost equal to or greater than \$500,000 to the Executive Council for review and approval. (e)

**Volume 2, Information Technology
Capital Planning and Investment Control
Directive 2.2**

**Chief Information Officer (CIO)
(035) (continued)**

- Reviews IT projects with a project cost less than \$500,000 that are at risk for a significant variance from their approved cost, schedule, or performance goals. Decides whether to continue, modify, or terminate these projects. (f)
- Establishes review or advisory bodies, as necessary, to involve program officials in planning and budgeting information resources and to ensure agencywide coordination of IRM programs. (g)
- Ensures NRC mission-related processes and administrative processes are revised, where appropriate, before making investments in IT that supports those processes. (h)
- Ensures that proposed new IT projects show sufficient return on investment and an acceptable level of risk. (i)
- Ensures that new IT projects are not duplicative of other planned or ongoing projects or applications systems, unless they are intended to replace these projects or systems. (j)
- Ensures that IT projects and any data they contain are integrated with related activities to meet shared business needs in the most cost-effective manner. (k)
- Ensures that IT projects adhere to the NRC's IT architecture and standards. (l)
- Determines which IT projects should be recommended to the Commission as *major* projects reportable to OMB. (m)
- Establishes progress reporting requirements for IT projects and provides the means for senior managers to obtain timely information regarding the progress of *major* IT projects. (n)
- Provides advice and consultation on proposed projects subject to this management directive. (o)

**Office Directors and
Regional Administrators
(036)**

- Submit information on office or regional IT projects, needs, and plans to the CIO in accordance with Handbook 2.2 or as requested to support agencywide IRM planning, budgeting, and investment control. (a)
- Submit information on the progress and results of IT projects sponsored by their office or region to the CIO or Executive Council, as appropriate, in accordance with Handbook 2.2. (b)
- Benchmark NRC mission-related processes and administrative processes against best practices, and revise them, where appropriate, before proposing investments in IT that support those processes. (c)
- Coordinate proposed projects with the Office of the CIO (OCIO) to ensure that such projects conform with agency IT architectures and standards, are compatible with the IT infrastructure, are integrated with related projects, and do not duplicate existing data and applications. (d)
- Manage IT projects sponsored by their office or region to avoid significant deviations in the cost, schedule, and performance goals established for such projects. (e)
- Participate in IT investment planning and oversight through representation on senior agency review or advisory bodies. (f)

**Applicability
(2.2-04)**

The policy and guidance in this directive and handbook apply to all NRC employees involved in IT planning, budgeting, and project management.

**Handbook
(2.2-05)**

Handbook 2.2 describes the process and procedures for planning and controlling information technology investments and provides other sources of information.

Definitions (2.2-06)

Application system. A discrete set of information resources organized for the collection, storage, processing, retrieval, maintenance, use, sharing, dissemination, or disposition of information. For purposes of this directive, single user, personal productivity applications (e.g., a spreadsheet that is not shared), scientific codes, and any associated high-performance computing equipment are not included.

Information. Any communication or representation of knowledge such as facts, data, or opinions in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual.

Information resources. Information and related resources such as personnel, equipment, funds, and information technology.

Information resources management (IRM). The process of managing information resources to accomplish the agency's mission.

Information technology (IT). The hardware and software operated by the NRC or by a contractor of the NRC or other organization that processes information on behalf of the NRC to accomplish an agency function, regardless of the technology involved, whether computers, telecommunications, or others.

Infrastructure. Hardware, software, services, equipment, and components necessary to support local and enterprise-wide information technology requirements. This includes desktop systems, customer service, network components and services, telecommunications components and services, operational support, and maintenance.

Installed operational system. A project enters into this phase when it has been installed and tested, users are trained, and the sponsor has formally accepted the system, application, enhancement, or infrastructure augmentation. Alternatively, the project has completed Component 5, "Deploy the Solution," of the Systems Development Life-Cycle Management Methodology.

Definitions

(2.2-06) (continued)

Life cycle cost. For purposes of the CPIC analysis, life cycle cost is the project cost (see definition below) plus 5 years of operations and maintenance costs. These costs do not include the pre-project or planning costs, which are considered "sunk" or spent.

Major IT investment. An NRC IT investment that requires special management attention because of its cost, risk, or critical importance to the NRC mission or because of its significant role in the administration of NRC programs, finances, property, or other resources. *Major* projects are reported to OMB.

Major modification to an application system. Changes to an existing application system, hardware or software, that go far beyond slight adjustments to the functionality. Adjustments including significant equipment and/or hardware changes or many data elements, reports, queries and process changes would be considered major. Adding, deleting or changing a few data elements or a few reports/queries would be considered a minor enhancement or maintenance.

NRC information. Information created, collected, processed, disseminated, maintained, used, or disposed of by the NRC.

Performance measures. Quantifiable goals and results that define intended and actual performance of an application system throughout its life cycle. Typical performance measures rate application system aspects such as technical quality, user satisfaction, and return on investment.

Project phase. An IT investment proposal becomes a project when its functional requirements are identified and it has been approved to proceed and is funded with a project team in place and a project workplan defined. It remains a project until all work is completed and the system is an installed operational system.

Project cost. Cost incurred during the project phase, including costs incurred by support offices and full time equivalents (FTEs) as well as costs to ensure business continuity, as appropriate. Project cost differs from Life Cycle Cost, which includes operations and maintenance.

Definitions

(2.2-06) (continued)

Return on investment (ROI). Determining ROI essentially requires answering the questions: "What are we getting for our money and other resources spent on a project?" Is the magnitude of estimated quantifiable and nonquantifiable benefits greater than estimated costs, including FTEs? ROI should take into account the impact of project risk on the likelihood that estimated benefits and costs will be realized.

Risks. Factors that may jeopardize the success of a project or the achievement of its goals.

Sensitivity Analysis. Investigation of whether the relative cost/benefit/risk attractiveness of alternatives might change if assumptions were modified or estimates of one or more of the cost/benefit/risk elements were varied within reasonable ranges. A prime candidate is the time and cost to customize off-the-shelf hardware. Another is the time and cost of integrating the new system with existing systems or applications. It is not unusual for analysts to underestimate the efforts required for either of these activities.

Sponsor. The organization requesting that a proposed IT investment be approved.

Technical risks. Factors that may jeopardize the successful implementation of the chosen technology. Examples are introduction of a technology not currently in use at NRC, level of complexity of the project and number of interfaces, or reliance on obsolete and unsupported technology.

References

(2.2-07)

Clinger/Cohen Act (formerly the Information Technology Management Reform Act of 1996, ITMRA).

Office of Management and Budget (OMB) Circular A-11, "Preparation and Submission of Budget Estimates," revised annually.

— Circular A-130, "Management of Federal Information Resources," Section 8.b.(2), July 15, 1994.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

SECY-98-032, Revised Process for Information Technology Capital Planning and Investment Control.

Capital Planning and Investment Control

**Handbook
2.2**

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Capital Planning and Investment Control

The process and procedures for conforming with the Clinger/Cohen Act of 1996, which requires each agency head to design and implement a capital planning and investment control (CPIC) process, are described in this handbook.

Applicability

Most proposed information technology (IT) projects are subject to the new CPIC process. Projects covered include new application systems, major modifications to existing applications systems, and modifications to local and agencywide IT infrastructure. IT expenditures or projects not covered include single user, personal productivity applications, scientific codes, high performance computing equipment, and ongoing maintenance and operations.

Minor applications or enhancements that total an amount below the agency's software capitalization threshold also are exempt from the CPIC process. Enhancements that exceed the software capitalization threshold will be examined on a case-by-case basis.*

Process

SECY-98-032, Revised Process for Information Technology Capital Planning and Investment Control, describes the CPIC process that was approved by the Executive Council and provided to the Commission for information. SECY-98-032 is available at NRC Web site at <http://irm12.nrc.gov/OCIO/>. The agency's CPIC process covers the three phases in the life cycle of an IT investment:

- Selection or planning phase
- Control or project phase
- Evaluation or operations phase

*See Office of Chief Financial Officer's Accounting Policy Manual, Chapter 7. At the time of the initial approval of this manual chapter (March 1999), the threshold was \$50,000.

Process (continued)

Selection Phase (A)

The process for the selection phase is summarized in a memorandum, New Process for Approving Information Technology Projects, dated June 12, 1998, from A. J. Galante, Chief Information Officer (CIO), to NRC managers and supervisors (see Exhibit 1 of this handbook). This phase includes the preparation of an IT Project Proposal Screening Form (hereafter called the screening form) and a business case for the proposed project.

Process Initiating Document (1)

Sponsors must complete a short screening form to initiate the CPIC process. The screening form is available on the NRC Web site at the Office of the Chief Information Officer (OCIO) homepage. The office director or regional administrator sponsoring the proposed investment should send a transmitting memorandum, together with the completed screening form, to the CIO. An electronic copy of the submission to the CIO should be sent to Chief, Planning and Architecture Branch (PAB), OCIO.

Examples of completed screening forms are available from PAB. **Note:** Sponsors are encouraged to contact PAB to discuss the proposed project before formally submitting the completed form.

Screening Form Processing (2)

The CIO will review proposals with estimated project phase costs of less than \$500,000. The Information Technology Business Council (ITBC), whose charter is available on the NRC Web site at the OCIO homepage, will review those with estimated costs greater than or equal to \$500,000. The CIO may send projects costing less than \$500,000 to the ITBC on the basis of other criteria (e.g., projects with a significant agencywide impact).

Screening Form Review for Projects Less Than \$500,000 (3)

This process includes the following actions:

- The CIO transmits the received memorandum and screening form to the Director, Planning and Resources Management Division (PRMD), OCIO.
- The Director, PRMD, assigns review action to PAB.
- Within 1 week of receipt of the sponsor's memorandum, PAB notifies the sponsor contact (listed on the screening form) that the form has been received and the project is, or is not, a candidate for ITBC review and circulates the form to the appropriate OCIO divisions for review and comment.

Process (continued)

Selection Phase (A) (continued)

Screening Form Review for Projects Less Than \$500,000 (3) (continued)

- Within 1-1/2 weeks of receipt of the sponsor's memorandum, OCIO requests additional information and/or a meeting with the sponsor's contact, if necessary.
- Within 2 weeks of receipt of the sponsor's memorandum, OCIO informs the sponsor's contact as to whether or not a revised screening form is necessary.
- Within 4 weeks of PAB's receipt of the sponsor's memorandum (or 2 weeks of receipt of a revised screening form), OCIO completes a decision memorandum from the CIO to the sponsor.
- Within 4-1/2 weeks of receipt of the sponsor's memorandum, the CIO sends a decision memorandum to the sponsor.

Screening Form Review for Projects Greater Than or Equal to \$500,000 (4)

This process includes the following actions:

- The CIO transmits the received memorandum and screening form to the Director, PRMD.
- The Director, PRMD, assigns review action to PAB.
- Within 1 week of receipt of sponsor's memorandum, PAB notifies the sponsor's contact (listed on the screening form) that the form has been received and the project is, or is not, a candidate for ITBC review and circulates the form to the appropriate OCIO divisions for comment and review.
- Within 1 week of receipt of the sponsor's memorandum, PAB schedules an ITBC meeting to be held within 3 weeks (or as soon thereafter as the members' schedules permit).
- Within 1-1/2 weeks of receipt of the sponsor's memorandum, OCIO requests additional information and/or a meeting with the sponsor's contact, if necessary.
- Within 2 weeks of receipt of the sponsor's memorandum, OCIO informs the sponsor's contact as to whether or not a revised screening form is necessary.

Process (continued)

Selection Phase (A) (continued)

Screening Form Review for Projects Greater Than or Equal to \$500,000 (4) (continued)

- At the next scheduled ITBC meeting, the ITBC reviews the screening form and—
 - The sponsor presents the proposed project.
 - OCIO may comment separately.
 - ITBC may vote to approve going forward with the business case or return the proposed project for more work, or it may take an additional week to consider and then vote electronically.
 - The ITBC secretary keeps the CIO and sponsor informed as to the status of Council's decision.

Focus/Purpose of Review of Screening Form (5)

The following questions will be the focus of the screening form review:

- Does the proposed project appear to have sufficient merit to proceed to prepare the business case?
- If the answer to the above question is "yes," are there any questions and/or issues regarding the scope or potential overlap with other systems or applications that should be conveyed to the sponsor?
- Do the estimates for seed money and project-phase cost seem reasonable?
- Are there any special issues or elements that should be addressed in the business case preparation in order to have enough information to recommend whether to proceed to the project phase?

Approval To Begin Business Case Preparation (6)

Approval to begin the business case preparation will be via memorandum from the CIO to the sponsor, and may include comments from the ITBC. If the proposed investment is judged to have value and to support the agency's mission, the sponsor is given approval to allocate money from his or her budget to scope the proposed project and prepare the business case for initiating the project. The memorandum approving initiation of the business case will alert the sponsor if the CIO is likely to recommend to the Commission that the proposed project be a *major* project reportable to OMB.

Process (continued)

Selection Phase (A) (continued)

Approval To Begin Business Case Preparation (6) (continued)

Offices and regions may budget seed money for building a business case and also may request funds for proposed projects, provided that the CIO or the ITBC have approved the associated screening form in accordance with the CPIC process. Funds will not be released for use until a project is approved via the CPIC process (i.e., the proposed project's business case has been approved). The use of these budget "wedges" is recommended only for large IT projects that require long-range planning and cannot be accommodated through office or agency reprogramming.

Purpose of the Business Case (7)

The business case provides the justification for developing the project. At the completion of the business case preparation, the project scope, cost, and schedule shall be defined in sufficient detail to allow the sponsor to manage the project within 5 percent of the projected cost and schedule. After a project for which the estimated cost is greater than or equal to \$500,000 enters the project phase, the sponsor cannot commit additional funds in excess of 5 percent of the estimate without approval from the Executive Council. After a project for which the estimated cost is less than \$500,000 enters the control phase, the sponsor cannot commit funds in excess of 5 percent of the estimate without approval from the CIO.

Note: Sponsors are strongly encouraged to review Section 3.1, Business Case Issues, of the IT Project Proposal Screening Form before preparing the business case.

Content/Products of the Business Case (8)

The following three elements must be addressed and documented in the business case: requirements identification and definition, cost/benefit/risk analysis of alternatives, and the project management plan (PMP). A synopsis of the three business case elements is provided as a checklist in Exhibit 2 of this handbook.

An abbreviated business case may be prepared for projects estimated to cost less than \$500,000. An abbreviated business case contains the same elements as a standard business case, although in less detail as appropriate to the size of the proposed investment. Additionally, an abbreviated business case may limit the analysis of alternatives to comparing the proposed investment with the status quo, while the standard business case requires comparison of the proposed investment to the status quo and at least one other alternative.

Process (continued)

Selection Phase (A) (continued)

Content/Products of the Business Case (8) (continued)

Requirements Identification and Definition (a)

This element of the business case includes—

- The process benchmarking and redesign review, which may suggest that formal “business process redesign” (BPR) be done, should—
 - Compare NRC business practices and procedures with other organizations with similar processes to identify “best practices” that might be adopted by NRC
 - Consider ways to change NRC operations to improve efficiency and effectiveness
- The requirements analysis should—
 - Identify mission need, project objectives, and information management problem
 - Clarify scope
 - Identify and involve all stakeholders
 - Incorporate results of process benchmarking and redesign review
 - Identify functional, data, and infrastructure requirements
 - Identify data shared with or interfaces with other systems
 - Identify/analyze potential solutions (review must include off-the-shelf software)

The requirements analysis must be sufficient to enable specification of the recommended alternative with enough detail that the sponsor and the OCIO staff (working with the NRC development contractor, if necessary) can provide a PMP with a cost estimate and schedule that will not be overrun by 5 percent. All systems/applications developed for NRC are subject to the Systems Development

PROCESS (continued)

Selection Phase (A) (continued)

Content/Products of the Business Case (8) (continued)

Requirements Identification and Definition (a) (continued)

Life-Cycle Management (SDLCM) Methodology.* For simple systems or those that are similar to an existing one, completion of SDLCM Component 1 (plus a high-level identification and definition of application or system requirements and functions) may provide enough information concerning the requirements to complete the other two elements of the business case (the cost/benefit/risk analysis and PMP). For more complex systems or those with many interfaces, interdependences, or shared data with other systems, a more detailed analysis may be required. The latter cases may require that some or all of SDLCM Component 3 be completed in order to prepare an adequate business case. As a minimum, these latter cases will require the completion of the SDLCM Project Definition and Analysis Document (see SDLCM Standard S-3051).

Requirements information generated must be sufficient to allow OCIO to assess the infrastructure impact and the need for data sharing and integration with other application systems.

Requirements should be firm and not likely to change during the project. If requirements change significantly, it is very unlikely that the project can be completed within budget and on schedule.

Cost/Benefit/Risk Analysis (b)

This document is the primary basis for judging the business case or justifying the proposed project. The length and depth of the cost/benefit/risk analysis should be commensurate with the estimated cost of the investment. Generally, the summary analysis will be a brief document, perhaps 2 to 6 pages. Documents and working papers supporting the summary document should be retained by the sponsor. Detailed guidance for performing a cost/benefit/risk analysis is available from PAB.**

*Systems Development and Life-Cycle Management (SDLCM) Methodology, Handbook Version 2.1, September 1998, OCIO.

**Guidelines for Conducting Benefit-Cost Analysis of Information Technology Projects, December 3, 1996.

Process (continued)

Selection Phase (A) (continued)

Content/Products of the Business Case (8) (continued)

Cost/Benefit/Risk Analysis (b) (continued)

As a minimum the cost/benefit/risk analysis should include—

- Summary
- Objectives
- Background
- Assumptions
- Alternatives (The status quo and the proposed solution for projects costing less than \$500,000 and for project costing \$500,000 or more, the status quo, the proposed solution, and a third alternative.)
- **Costs.** Summary table comparing nonrecurring and recurring costs of alternatives (derived from Appendix B, Cost Estimates)
- **Benefits.** Summary table comparing benefits of alternatives (derived from Appendix C, Benefits)
- **Risks.** Summary table comparing risks of alternatives (derived from Appendix D, Risks)
- Discussion of the return on investment of the alternatives (on the basis of the summary tables for the costs, benefits, and risks)
- Sensitivity analysis (if applicable)
- Results (with sponsor's recommendation of alternative and course of action)
- Appendices (See Exhibit 2 for details on appendices)
 - Appendix A, System/Application Description
 - Appendix B, Cost Estimates
 - Appendix C, Benefits
 - Appendix D, Risks

Process (continued)

Selection Phase (A) (continued)

Content/Products of the Business Case (8) (continued)

Cost/Benefit/Risk Analysis (b) (continued)

Examples of completed cost/benefit/risk analysis are available from PAB.

Costs (including FTEs) of development (i.e., the project phase) should be highlighted and presented separately from recurring costs. For purposes of comparing alternatives, the sponsor must estimate the life cycle costs (project or non-recurring plus operations phase or recurring costs) on the basis of 5 years of operations. Summary costs can be presented in the cost/benefit/risk analysis. However, detailed cost tables should be submitted as appendices to the business case. Examples of detailed cost tables are available from PAB.

If possible, expected or anticipated benefits should be presented in quantitative terms.

Benefits that are qualitative or that cannot be meaningfully quantified also should be presented.

Project Management Plan (c)

This document is the basis for judging the readiness of the sponsor to successfully execute the proposed project. The length and depth of the PMP should be commensurate with the estimated cost of the proposed investment. The schedule in the PMP, together with estimated costs presented in the costs/benefit/risk analysis, is the basis of a contract between the sponsor and NRC management.

As a minimum, the following should be included in the PMP, in which all elements refer to the solution/alternative recommended in the cost/benefit/risk analysis:

- A project schedule identifying project activities, milestones, and deliverables
- A spending plan that projects monthly resource expenditures for the project
- A staffing plan identifying the NRC members (by organization) of the project team and the timeframe that will be needed
- Two to five measurable, outcome-oriented performance goals that will be used to evaluate the success of the project during the operating phase (The basis for these goals should be the expected benefits and return on investment documented in the cost/benefit/risk analysis.)

Process (continued)

Selection Phase (A) (continued)

Content/Products of the Business Case (8) (continued)

Project Management Plan (c) (continued)

- A statement as to conformance with the agency's standards for the SDLCM, IT architecture,* infrastructure, data, and network standards
- A statement as to whether the proposed IT investment would or would not result in shared benefits or costs with other Federal agencies or State or local governments (If there would be such results, an estimate or description of the benefits or costs should be included with the statement.)
- Identification of acquisition approach
- For projects greater than or equal to \$500,000, a short, 1 to 2 pages, plan explaining how risks will be managed (An illustrative risk management plan is available on the NRC Web site at the OCIO home page.)
- For *major* projects (A draft of the sponsor's input should be sent to Office of Management and Budget (OMB) per Circular A-11, Exhibit 300B, Section 3.)

Typical Division of Responsibility for Business Case Preparation (9)

Business cases prepared at the NRC will typically have the division of responsibilities listed below. Note: Some activities may be conducted with the assistance of a contractor.

- Best practice and process change investigation performed by sponsor
- Requirements identified by sponsor
- Proposed solution identified by sponsor and OCIO
- Cost/benefit/risk comparison and analysis of alternatives performed by the sponsor
- PMP developed by sponsor and OCIO

*See Management Directive 2.1, "Information Technology Architecture."

Process (continued)

Selection Phase (A) (continued)

Business Case Review (10)

The sponsor will submit the complete business case package to the CIO via transmittal memorandum. The CIO provides the package to the Director, PRMD, who distributes it to the other OCIO divisions for review, and if appropriate, to the secretary of the ITBC. The procedures for ITBC review of the business case package are similar to those for ITBC review of the screening form identified in Section (A)(3) and (4) above. However, the ITBC will have a minimum of 2 weeks to review materials before the meeting to vote on the project.

Focus of OCIO Technical Review of the Business Case Package (a)

OCIO review of a proposed IT investment business case will primarily focus on conformance with data and systems architectures, standards, costing, timing, systems integration, technology selection, redundancy, infrastructure, and project management. OCIO review also will ensure that business process optimization and overlapping requirements are addressed by the sponsor before approval of the IT project.

Focus of ITBC Review of the Business Case Package (b)

ITBC review of a proposed IT investment business case will primarily focus on the goals listed below. Note: The CIO performs this review for projects of less than \$500,000.

- Avoiding risk, maximizing return on investment
- Minimizing duplication
- Maximizing integration
- Promoting benchmarking and process redesign before automation
- Ensuring agencywide perspective

Project Approval for Projects Less than \$500,000 (c)

If the CIO approves the CPIC analysis and alternative recommended and concludes that the business case provides justification for the proposed project, the proposed project enters the normal budget process.

Process (continued)

Selection Phase (A) (continued)

Business Case Review (10) (continued)

Project Approval for Projects Greater than or Equal to \$500,000 (d)

If the ITBC supports the CPIC analysis and alternative recommended, and if the CIO approves the project management plan and agrees that the alternative is consistent with NRC's IT architectures and standards and follows agency guidance for IT acquisitions, the project (via the cost/benefit/risk analysis) is presented by the business sponsor to the Executive Council (EC) to request approval to begin the project phase. If approved by the EC, the proposed project enters the normal budget process.

Project Phase (B)

This is the second phase in the life cycle of an IT investment. An IT investment proposal becomes a project when its functional requirements are identified and it has been approved to proceed, and it is funded with a project team in place and a project workplan defined. The IT investment remains a project until it is an installed operational system. Reporting requirements during this phase depend on whether the IT investment has been designated as a *major* or a nonmajor project.

Reporting Requirements of the Project Phase (1)

Sponsors of all IT projects in the CPIC process must closely monitor progress on cost, schedule, and performance goals. The sponsors also are responsible for maintaining up-to-date records on this progress. For auditing purposes, the sponsors must track actual costs by the original line items presented in Appendix B to the cost/benefit/risk analysis.

Major projects require—

- A separate planned accomplishment in the NRC budget
- Reports to EC, as requested
- Inclusion of project progress in quarterly update of the operating plan with a copy to the CIO
- Reporting to EC (5 percent) and to OMB (10 percent) of anticipated variance in cost, schedule, or progress toward meeting performance goals
- Annual report to OMB via Circular A-11, Exhibit 300B

Process (continued)

Project Phase (B) (continued)

Reporting Requirements of the Project Phase (1) (continued)

Sponsors of projects with estimated costs greater than or equal to \$500,000 in the variance category must explain to the EC the issues involved in causing the expected overrun, request EC approval to continue, and request additional funds from the CFO before the cost or schedule overrun occurs.

Projects estimated to cost less than \$500,000 require—

- Report to OCIO if 5 percent variance in cost or schedule is anticipated
- Brief report to OCIO when project is completed

Sponsors of projects estimated to cost less than \$500,000 in the variance category must ask the CIO for approval to continue, pending additional funds being made available by the sponsoring office, before the cost or schedule overrun occurs. These projects will be stopped pending the consideration of the need for an indepth cost/benefit/risk analysis if the variance would put them over the \$500,000 threshold.

Other Requirements of the Project Phase (2)

All projects must include development of a security plan, and if appropriate, a business continuity plan. These plans must be prepared as part of the development effort and must be implemented at the beginning of the operations phase.*

Operations/Evaluation Phase (C)

Six months after the system becomes operational, the sponsoring office prepares a lessons-learned paper and submits it to the CIO. The sponsor may request an extension of up to an additional 6 months if the sponsor believes that it would contribute to the quality of the analysis. (For *major* projects, copies of the paper also will be sent to other EC members.) The paper should address the following questions:

- How did the project execution and results compare with the baseline cost, staffing, schedule, and performance goals?
- If performance goals were not met, what modifications to the project are now warranted to obtain the originally projected benefits?

*NRC Management Directive 12.5, "NRC Automated Information Systems Security Program."

Process (continued)

Operations/Evaluation Phase (C) (continued)

- What is the estimated cost of warranted modifications?
- What problems were encountered and how were they solved?
- What would the sponsor have done differently?
- What lessons were learned that might help future projects?
- How can the CPIC process be improved to incorporate lessons learned?

OCIO incorporates lessons learned and feedback into the CPIC process, as appropriate.

**Exhibit 1
Memorandum of June 12, 1998**

MEMORANDUM TO: Those on the Attached List

FROM: A.J. Galante
Chief Information Officer

SUBJECT: NEW PROCESS FOR APPROVING PROPOSED INFORMATION
TECHNOLOGY PROJECTS

The Clinger-Cohen Act (formerly the Information Technology Management Reform Act or ITMRA) of 1996 required each Federal agency head to design and implement a Capital Planning and Investment Control (CPIC) process for evaluating information technology (IT) projects. NRC used a prototype CPIC process during the Fiscal Year (FY) 1999 budget cycle. Experience with the prototype provided a basis for improving the process.

SECY-88-032 describes the new CPIC process which has been approved by the Executive Council (EC) and provided to the Commission for information. SECY-98-032 is available on the World Wide Web (WWW) at the NRC internal home page under Program Offices, Office of the Chief Information Officer (OCIO), Capital Planning and Investment Control Process.

Most proposed IT projects will be subject to the new process (exceptions being single user, personal productivity applications, scientific codes, and high performance computing equipment). Therefore, I recommend that you distribute this memorandum to your staffs to familiarize them with the new process.

The revised process requires more disciplined and structured reviews of proposed IT investments. This additional effort at the front end will help ensure that projects have clear requirements, a sound business case justification, and adequate planning for development and implementation.

Highlights of the new process are provided below. You may also wish to refer to the summary flow chart in Attachment 1.

- Sponsors must submit a short screening form to the OCIO to initiate the screening process. A copy of the form is available on the WWW at the OCIO's home page under CPIC SECY-98-032. (Sponsors of potential projects are encouraged to contact John Sullivan at 301-415-5857 or by e-mail at JAS2 for guidance on completing the form). An important new requirement is that prior to submitting the form, the sponsor should investigate potential ways to improve the efficiency and effectiveness of agency operations and compare them with "best practices" at other agencies. Forms can be submitted at any time, not just during the budget period, and may be submitted electronically.
- Based on the preliminary cost estimate on the screening form, the OCIO determines whether the proposal is screened by the newly created Information Technology Business Council (ITBC) or the OCIO and whether a more in-depth or an abbreviated CPIC analysis is required. Projects estimated to cost less than \$500,000 are screened by the OCIO. Projects estimated to cost \$500,000 or more are screened by the ITBC.

Exhibit 1 (continued)

Those on the Attached List

- 2 -

- If the proposed investment is judged to have value and support the agency's mission, the sponsor is given the go-ahead to allocate "seed money" from its budget to scope the project and prepare the business case for initiating the project.
- Preparation of the business case includes:
 - Identifying/defining requirements
 - Identifying one or more alternative approaches to satisfying those requirements
 - Providing evidence that "best practices" have been applied
 - Creating a "CPIC analysis" to evaluate the costs, benefits, and risks of implementing the alternatives in contrast to continuing with the status quo
 - Preparing, in conjunction with the OCIO, a detailed project management plan
- The final CPIC analysis is reviewed by the ITBC and the CIO (or just the CIO if the estimated project cost is less than \$500,000). If the ITBC supports the CPIC analysis and alternative recommended, and if the CIO approves the project management plan and agrees that the alternative is consistent with NRC's IT architectures and standards, follows agency guidance for IT acquisitions, etc., the project (via the CPIC analysis) is presented by the business sponsor to the Executive Council (EC) to request the go ahead to begin the project phase.
- If approved by the EC (or the CIO if the project cost is less than \$500,000), the proposed project is approved to enter the normal budget process.
- Once underway, a project will be held to the development cost and the schedule defined in the business case. If at any point in its development, in the view of the business and the technical project managers, the project development cost is going to exceed 5 percent of the cost estimated at project initiation, the project enters the variance category. Sponsors of projects costing more than \$500,000 must review the issues with the EC that will cause the expected overrun, must request approval to continue, and, if approved, must obtain additional funds through reprogramming or by requesting the funds from the CFO. Projects costing less than \$500,000 in the variance category follow a similar process except that the CIO rather than the EC must approve continuation of the project.

The OCIO contact for the new process is John Sullivan, who can be reached at 301-415-5857.

Attachment: As stated

Exhibit 1 (continued)

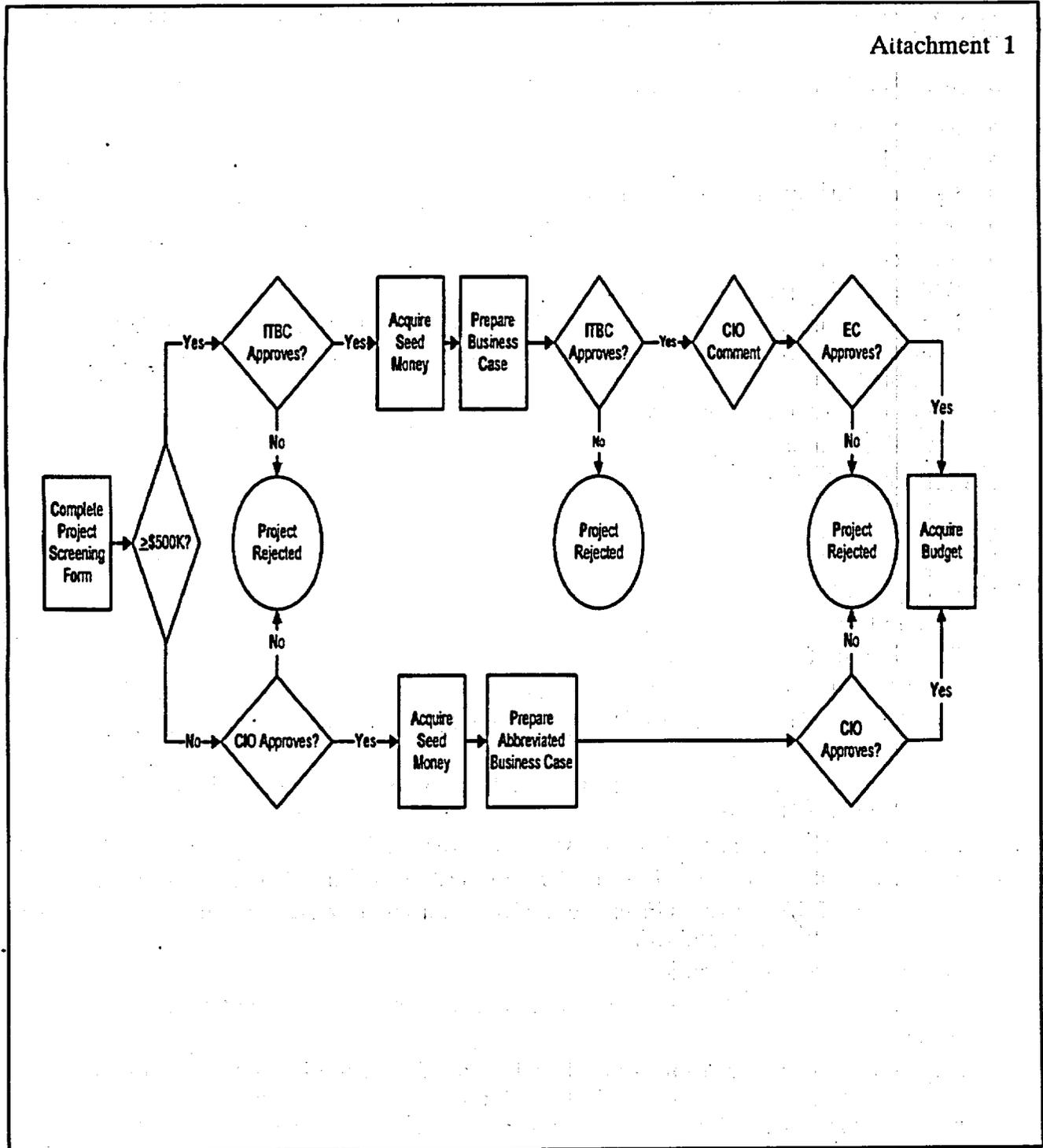


Exhibit 2 Business Case Checklist

Review Section 3.1, Business Case Issues, of IT Project Proposal Screening Form before using this checklist.

Requirements Identification and Definition

- Mission need
- Objectives
- Information management problem
- Scope
- Stakeholders
- Benchmarking/redesign review
- Data, functional, and infrastructure requirements (System Development Life-Cycle Management (SDLCM) Methodology Standard S-3051, Project Definition and Analysis Document, if required)
- Interfaces with other systems
- Potential solutions

Cost/Benefit/Risk Analysis

- Summary
- Objectives
- Background
- Assumptions
- Description of Alternatives
 - The status quo and the proposed solution for projects costing less than \$500,000
 - The status quo, the proposed solution, and a third alternative for projects costing \$500,000 or more
- Summary table comparing non-recurring and recurring costs of alternatives (derived from Appendix B, Costs)
- Summary table comparing benefits of alternatives (derived from Appendix C, Benefits)
- Summary table comparing risks of alternatives (derived from Appendix D, Risks)
- Discussion of the return on investment of the alternatives based on the summary tables for the costs, benefits, and risks
- Sensitivity analysis (if applicable)
- Results (with sponsor's recommendation of alternative and course of action)
- Appendices

Appendix A – System/Application Description. Written or pictorial description or representation of the system/application. Should cover equipment, software, infrastructure connections, and user connections as well as any interfaces with other systems or applications.

Exhibit 2 (continued)

Appendix B – Cost Estimates. A table for each alternative showing the estimated non-recurring and recurring costs (assuming 5 years of operation) for all cost categories identified below. The tables should be followed by a brief explanation, where needed, to clarify how estimates were made, why values differ between alternatives, etc.

Appendix C – Benefits. A table for each alternative showing the quantitative and non-quantitative benefits over 5 years of operations using the applicable benefit categories identified below. For quantitative benefits, show the quantitative value of the benefit for each alternative. For non-quantitative benefits, rate each alternative (1=high level of benefit, 2=medium level of benefit, or 3= low/no benefit) for the benefit category. The tables should be followed by a definition and description of each benefit type or category and a brief explanation, where needed, to clarify how benefits were estimated, why values differ between alternatives, etc.

Appendix D – Risks. A table showing the risks of each alternatives using the applicable risk categories identified below. Rate each alternative (e.g., 1=high risk, 2=medium risk, or 3=low/no risk) on each category of risk. The table should be followed by a brief explanation, where needed, to clarify how risks were estimated, why values differ between alternatives, etc.

Cost Categories for Appendix B

(Costs and FTEs should include sponsor, stakeholders, and OCIO support, and should be separated into non-recurring (one-time) and recurring categories. Zeros should be entered if there is no estimated cost associated with the element. FTEs should be identified by organization. Costs should include all deliverables required by NRC's SDLCM Methodology.

Non-Recurring cost elements

- Software
- Hardware
- Development/integration
- Customized adaptation of commercial off-the-shelf software (COTS)
- Data conversion
- Testing
- Infrastructure upgrades/impact
- Documentation
- Installation/implementation
- Training
- Travel
- Computer security and business continuity planning and implementation
- Policy/procedures development and implementation

Exhibit 2 (continued)

Recurring cost elements (including 5 years of operations)

- Hardware and commercial software licenses and maintenance
- Application operations and maintenance support
- Infrastructure operations and maintenance support
- Data entry/update
- Cost of maintaining interfaces to other applications
- Cost of adapting any custom code to new releases/versions of COTS
- Training for new COTS releases/versions

Benefit Categories for Appendix C

Quantitative

- FTEs saved (identify specific office)
- Monetary savings
- Quantified performance/service improvements
- Other quantifiable benefits

Non-Quantitative (illustrative examples shown below)

- Improved customer/user satisfaction
- Improved data quality and consistency
- Improved access to information by staff, licensees, or the public
- Better information for management decision-making

Risk Categories for Appendix D

- Volatility/stability of requirements
- Scope of proposed project
- Technical risk (unproven versus proven technology)
- Management consensus (related to number of organizations involved)
- Resource commitment (FTE, \$)
- Potential resistance
- Procurement/vendor risk
- Sponsor organization's IT project management experience

Project Management Plan

- Project schedule (showing significant tasks and projected milestone completion dates)
- Spending plan (estimated project costs by month)
- Staffing plan (identify FTEs by organization and when they will be needed)
- Outcome-oriented performance goals and associated metrics that can be used to objectively measure the success of the project
- Statement of conformance with the agency's standards for the SDLCM, IT architecture, infrastructure, data, and network standards

Exhibit 2 (continued)

- A statement as to whether the proposed IT investment would or would not result in shared benefits or costs with other Federal agencies or State or local governments. (If there would be such results, an estimate or description of the benefits or costs should be included with the statement.)
- Acquisition approach

For projects over \$500,000

- A short (1-2 pages) plan explaining how risks will be managed.

For major projects*

- A draft of sponsor's input to Office of Management and Budget, Circular A-11, Exhibit 300B, Section 3

*The memorandum approving initiation of the business case will alert the sponsor if the CIO is likely to recommend to the Commission that the proposed project be designated as a *major* project reportable to OMB.

Appendix C

Cost Benefit and Risk Data for Top Ten IT Investments

PROJECT TITLE: Agencywide Documents Access And Management System (ADAMS)
SPONSORING OFFICE: Office of the Chief Information Officer
DESCRIPTION: Documents Management, Workflow, Official Records System

Alternative 1: Status Quo (NUDOCS - Limited search capability, paper-based official records)
 Alternative 2: Mod NUDOCS - Add full text search for new documents
 Alternative 3: New System - Document management plus workflow capability
 Alternative 4: New System - Alternative 3 plus electronic records management

COSTS, BENEFITS, AND RISKS

Criteria	Alt 1 Status Quo	Alt 2	Alt 3	Alt 4 Sponsor's Recommendation
Life Cycle Costs* (\$M)	\$49.7	\$50.1	\$61.8	\$59.5
Benefits - Grade Distribution**	A = 0 B = 0 C = 8	A = 0 B = 3 C = 5	A = 3 B = 4 C = 1	A = 7 B = 1 C = 0
Risk Scores *** (Lower score less risky)	18	16	22	21

Notes: * Non-recurring plus 5 years of recurring
 ** For example: On grade range of A,B, or C, Alternative 1 received a "C" for all 8 of the benefit categories
 *** Sum of 6 risk categories, rated on a 1 to 5 scale

PROJECT TITLE: Agencywide Financial and Resource Management System (STARFIRE)
SPONSORING OFFICE: Office of the Chief Financial Officer
DESCRIPTION: Develop system to automate and integrate agencywide financial and resource functions, including core accounting, cost accounting, payroll, and labor cost distribution

NOTE: There were two capital planning and investment control analyses conducted for STARFIRE. The first (Alternatives 1, 2, and 3) addressed financial functions, and the second (Alternatives 1a and 2a) addressed moving payroll and associated core human resources (CHR) to the PeopleSoft environment and integrating them with the financial functions.

COSTS AND RISKS

Alternative	Life Cycle Cost * (Discounted \$M)	Risk Scores ** (Lower score less risky)
Alt 1 - Status Quo Financial Systems	\$25.9	10
Alt 2 - New system using SYBASE environment	\$18.1	12
Alt 3 - New System using Oracle environment	\$23.7	14
Alt 1a - Status Quo payroll/core human resources (CHR)	\$8.7	11
Alt 2a - Move payroll/CHR to PeopleSoft environment	\$4.6	10

Notes * Non-recurring plus 5 years of recurring
 ** Sum of 4 risk categories, rated on a 1 to 5 scale

BENEFITS -- Associated with Sponsor's Recommended Alternative 2 and Alternative 2a:

- Better management control by integrating financial/resource planning and execution data.
- More accountability for expenditures through implementation of cost accounting and performance measures.
- More consistent data from single-source entry.
- More timely and efficient sharing of information.
- Better data integrity.
- Support the collection of labor cost information.
- Easier compliance with new and changing Federal laws and regulations.
- Support for fully distributed human resources.
- Process improvements from adopting recognized best practices.
- Better analysis capabilities for management decisionmaking.

PROJECT TITLE: PC Refresh
 SPONSORING OFFICE: Office of the Chief Information Officer
 DESCRIPTION: Replacement of desktop computers agencywide

Alternative 1: Status Quo - Continue 15% per year replacement
 Alternative 2: Replace 20% per year
 Alternative 3: Replace 30% per year
 Alternative 4: Replace as new major applications require

COSTS, BENEFITS, AND RISKS

Criteria	Alt 1 Status Quo	Alt 2	Alt 3	Alt 4 Sponsor's Recommendation
Life Cycle Costs* (\$M)	\$7.0	\$7.5	\$8.3	\$7.9
Benefits - Grade Distribution**	A = 0 B = 0 C = 7	A = 0 B = 7 C = 0	A = 7 B = 0 C = 0	A = 4 B = 3 C = 0
Risk Scores*** (Lower score less risky)	17	14	8	11

Notes: * Costs over 2 fiscal years. Lower procurement costs of lower replacement rates are offset somewhat by higher maintenance costs
 ** For example: On grade range of A,B, or C, Alternative 1 received a "C" for all 7 of the benefit categories
 *** Sum of 5 risk categories, rated on a 1 to 5 scale

PROJECT TITLE: Reactor Program System (RPS)
SPONSORING OFFICE: Office of Nuclear Reactor Regulation
DESCRIPTION: System that consolidates and integrates numerous individual legacy reactor regulation applications and systems

Alternative 1: Status Quo - continue existing, non-integrated legacy systems
Alternative 2: Integrate 25 % of existing systems
Alternative 3: Integrate 50% of existing systems
Alternative 4: Full integration of existing systems

COSTS, BENEFITS, AND RISKS

Criteria	Alt 1 Status Quo	Alt 2	Alt 3	Alt 4 Sponsor's Recommendation
Life Cycle Costs* \$M	\$13.1	\$11.6	\$8.4	\$8.0
Benefit Rating** (Avg of A,B, C)	C	C+	A-	A
Risk Scores*** (Lower score less risky)	19	18	16	14

Notes: * Non-recurring plus 5 years of operations
 ** Average of 10 benefit categories
 *** Average of 6 risk categories, rated on a 1 to 5 scale

PROJECT TITLE: General License Tracking System (GLTS)
SPONSORING OFFICE: Office of Nuclear Material Safety and Safeguards
DESCRIPTION: Used for annual registration of 6,000 general licensees and maintains information on 47,000 licensees, licensed devices, and vendors

- Alternative 1: Status Quo - Use existing system, General License Data Base (GLDB)
- Alternative 2: Enhance GLDB
- Alternative 3: New System (PowerBuilder and Sybase)
- Alternative 4: Adapt State of Virginia System State's X-Ray Registration System
- Alternative 5: Adapt International Atomic Energy Agency's Universal Licensing System (RAIS)
- Alternative 6: New System (Visual Basic and MS SQL Server 7.0)

COSTS , BENEFITS, AND RISKS

Criteria	Alt 1 Status Quo	Alt 2	Alt 3 Sponsor's Rec.	Alt 4	Alt 5	Alt 6
Life Cycle Cost *	\$18.6	\$5.8	\$2.1	\$2.6	\$2.6	\$2.3
Benefits** Quant. (Avg)	3	2	1	1	1	1
Benefits*** Non- Quant. (Avg)	2.8	1.7	1.1	1.1	1.1	1.2
Risk**** (Avg)	1.5	1.2	2.5	2.2	2.0	2.2

- Notes: * Non-recurring plus 5 years recurring
 ** Rated 1= High, 2 = Medium, or 3 = Low for 3 benefit categories
 *** Rated 1 = High, 2 = Medium, or 3 = Low for 15 benefit categories
 **** Rated 1 = High, 2 = Medium, or 3 = Low for 10 risk categories

PROJECT TITLE: Enforcement Action Tracking System (EATS)
SPONSORING OFFICE: Office of Enforcement
DESCRIPTION: EATS is the agency's primary system for tracking NRC's pending enforcement actions

Alternative 1: Renovate EATS to use combination of PC, Web, and paper-based, manual components

Alternative 2: Rehost EATS - Move from time-sharing facility to in-house client/server environment

Note: Status Quo is not Y2K compliant and, therefore, is not considered to be a viable alternative.

COSTS AND RISKS

Criteria	Alt 1 Status Quo	Alt 2 Sponsor's Recommendation
Life Cycle Cost* (\$K)	\$102	\$575
Risk Scores ** (Lower score less risky)	13	15

Notes: * Non-recurring plus 5 years of recurring

** Risk range 1= Low, 2 = Medium, 3 = High, average of 8 risk categories

BENEFITS

Benefit Category	Comparison of Alternatives	
	Alt 1: Renovate	Alt 2: Rehost
1. Ability to decommission mainframe-based SINET (5-year cost of almost \$4M) *	Yes	Yes
2. Ability to comply with the recommendations of the recent General Accounting Office (GAO) Report (GAO/HEHS-97-51) by integrating data among EATS, AMS, and OIMIS.	No	Yes
3. Ability to integrate EATS with the Reactor Program System (RPS).	No	Yes
4. Ability to reduce Office of Enforcement labor-intensive activities.	No	Yes
5. Ability to reduce data entry effort with the use of drop-down boxes.	No	Yes

Note: *EATS is one of several systems that must be rehosted or terminated in order to decommission SINET (the safety information network) and realize maximum savings.

PROJECT TITLE: Agency Training System (ATS)
SPONSORING OFFICE: Office of Human Resources
DESCRIPTION: Replace the current ATS (three systems on different hardware), which maintains records of all employee training

Alternative 1: Modify current ATS to interface with agency's PeopleSoft Human Resources (HR) environment
Alternative 2: Rehost ATS - transfer to the PeopleSoft HR environment

COSTS AND RISKS

Criteria	Alt 1	Alt 2 Sponsor's Recommendation
Life Cycle Cost * (\$K)	\$740	\$500
Risk Scores ** (Lower score less risky)	31	14

Notes: * Non-recurring plus five years recurring
 ** Sum of 8 risk categories, rated on a 1 to 5 scale

BENEFITS

Benefit Category	Comparison of Alternatives	
	Alt 1:	Alt 2:
1. Ability to integrate ATS with the PeopleSoft HR System .	No	Yes
2. Ability to reduce timeshare costs and provide more expedited service.	No	Yes
3. Ability to reduce data entry effort by consolidating three systems to one.	No	Yes
4. Ability to introduce users to basic employee self-service and responsibility and accountability for their own data.	No	Yes

PROJECT TITLE: Performance Indicators (PI)
SPONSORING OFFICE: Office of Nuclear Reactor Regulation
DESCRIPTION: Develop automated system that uses reactor performance data to support agency's regulatory oversight decisions

Alternative 1: Status Quo - Continue to manually generate summary information
Alternative 2: Develop new system that integrates external Web (to receive data from licensees) with internal NRC databases

COSTS, BENEFITS, AND RISKS

Criteria	Alt 1 Status Quo	Alt 2 Sponsor's Recommendation
Life Cycle Cost * (\$K)	\$550	\$460
Benefits ** (Avg) (Lower score greater benefits)	3	1
Risk Score *** (Avg) (Lower score less risky)	2.8	2

Notes: * Non-recurring plus 4 years recurring costs
 ** Average of 6 benefit categories, rated on a 1 to 5 scale
 *** Average of 4 risk categories, rated on a 1 to 5 scale

PROJECT TITLE: Operator Licensing Tracking System (OLTS)
SPONSORING OFFICE: Office of Nuclear Reactor Regulation
DESCRIPTION: Develop system that maintains and tracks approximately 5,000 reactor operator licenses.

Alternative 1: Renovate OLTS to make it Y2K compliant
Alternative 2: Rehost OLTS from mainframe to in-house client/server environment that supports the office's other major systems

Note: Status Quo is not Y2K compliant and, therefore, is not considered to be a viable alternative.

COSTS AND RISKS

Criteria	Alt 1	Alt 2 Sponsor's Recommendation
Life Cycle Cost * (\$K)	\$435	\$442
Risk Scores ** (Lower score less risky)	13	9

Notes: * Non-recurring plus 5 years of recurring costs
 ** Total score for 7 risk categories, rated on a 1 to 5 scale

BENEFITS

Benefit Category	Alt 1	Alt 2
1. Ability to remove OLTS from mainframe, thereby allowing NRC to shut down those operations *	No	Yes
2. Ability to integrate OLTS with the Reactor Program System (RPS), the primary reactor regulatory support system	Yes	Yes
3. Ability to reduce the office's labor-intensive activities	No	Yes
4. Ability to reduce data entry effort with use of drop-down list boxes	No	Yes

Note: * OLTS is one of several systems which use the mainframe and therefore must be terminated or rehosted in order to cease mainframe operations and realize maximum savings

PROJECT TITLE: Automatic Performance Measures Project (APMP)
SPONSORING OFFICE: Office of Nuclear Reactor Regulation (NRR)
DESCRIPTION: Develop an application for uniform reporting of Regional and Headquarters-based activities that support the reactor-related annual Operating Plan

Alternative 1: Status Quo - Continue with manually developed reports with each organization's using different formats and data sources

Alternative 2: Develop an application for uniform, consistent reporting from data residing in the reactor client server environment

COSTS

Criteria	Alt 1: Status Quo	Alt 2: Sponsor's Recommendation
Life Cycle Cost: 7 years (\$K)	\$7	\$360

BENEFITS

A key success factor for NRR is information management and the best way to obtain this capability is through a systematic approach so that management is not overwhelmed with unnecessary, conflicting, or irrelevant information. This approach must stress information that is timely and accurate and available in a useable, readable format. Quality, not quantity, is critical. NRR needs information derived from the same source, in a consistent format, that integrates information for both inspections and licensing. The result is better information for decisionmaking by management. The APMP will significantly decrease NRC's reliance on manual effort to assimilate the information used in its decisionmaking process by providing timely access to relevant inspection and licensing information through increased automation and by improving the consistency and prioritization of plant performance information.

The APMP will provide the ability to analyze regulatory and administrative information for all aspects of the NRR program, which would be a significant benefit to the agency. The APMP will have access to data from sites and regional offices as well as Headquarters. This capability would also reduce the current burden on staff and management to compile, review, and report information which is needed to evaluate the effectiveness of regulatory programs.

RISKS

This project does not involve up-front system development activities normally associated with a data processing application, so risks are minimal. We anticipate the first reports will be available within a month of the start of the project. This project can be incorporated into the Office of the Executive Director for Operations (OEDO) reporting project or terminated at any time with little or no loss in investment. There is some risk involved in developing reports for performance metrics that change. While this is a risk, reports from this system may lead to the modification of existing metrics or to the development of new ones after analyzing the data based on current metrics. Also, the project will use a modular approach to prevent significant programming changes in the advent of the OEDO performance measurement system or STARFIRE.

The risk of the status quo is the continued development of reports in various non-standard formats from different databases resulting in incompatible, inconsistent, and sometimes incorrect data.

Appendix D

1999-2000 Stakeholder Report

Office of the
Chief Information Officer



**1999-2000
Stakeholder Report**

December 15, 1999



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 27, 1999

MEMORANDUM TO: Those on the Attached List
FROM: 
Stuart Reiter
Acting Chief Information Officer
SUBJECT: OCIO 1999-2000 STAKEHOLDER REPORT

To further the collaboration and dialogue between the Office of the Chief Information Officer (OCIO) and other NRC offices (our stakeholders), I am providing this summary report on Information Technology and Information Management activities across the agency. The report provides an overview of OCIO's function, organization, funding, and outcomes with focus on FY 1999 and FY 2000 drivers, program accomplishments, and goals.

The NRC is in a process of change, re-baselining its performance goals and focusing on defining the appropriate strategies needed to accomplish these goals. Additional emphasis is being placed on outcome orientation and establishing performance measures to form an overall framework for judging NRC performance. As this re-baselining continues, OCIO has, and will engage in a dialogue with program and support offices to explore strategic and tactical opportunities to achieve office goals through the use of information technology.

As NRC's funding and resources are under increasing pressures, we must all look to more efficient ways of conducting the agency's business. OCIO will continue to look to technology drivers to improve our service and decrease our costs. While continuing to provide our baseline services effectively and efficiently, in FY 2000 OCIO will assess our service offerings to ensure they are economically competitive and are well aligned with our stakeholder's needs.

Our IT/IM programs for applications, infrastructure, and information management provide services that support NRC's ability to carry out the agency's mission. While we recognize that significant challenges lie ahead of us, we are pleased with the progress that we have made to date.

Applications

We were one of the first agencies to complete Y2K remediation programs and to comply with the requirements of Clinger Cohen. We have reduced cost as we have eliminated or replaced legacy mainframe applications. We have improved the effectiveness of new application deployments through better coordination across offices. ADAMS, our Agencywide Documents Access and Management System, started production operations in the first quarter of FY 2000 with its full implementation to be phased in during the second quarter of FY 2000. ADAMS positions NRC to take advantage of the benefits from this Agency wide initiative to modernize our document management processes.

IT Infrastructure

Our IT Infrastructure was upgraded this past year to meet agency application and business requirements. We completed development and implementation of new IT infrastructure in areas of video teleconferencing, agency workstation and operating systems environment, and network upgrades including improved connectivity for resident inspectors. In FY 2000 we have major planning efforts ahead of us to replace the agency's long distance voice and data services contract, assess mobile remote computing needs, and acquire a new network infrastructure services and support contract for the agency. Successful agency wide infrastructure efforts reflect the successful partnering between OCIO and regional IT/IM staff.

IM program

Our information management programs have expanded to improve NRC's communication with the public and to improve our own internal Web site. We have piloted a public broadcast capability and in FY 2000 will look at web casting commission public meetings. We are introducing a new public electronic reading room to support public access to agency documents from November 1, 1999 forward. We are improving timeliness and accuracy of agency data on our agency external web page and planning other improvements during FY 2000. For our internal web site, we are looking at best practices and will implement these during FY 2000.

In addition to the above focus areas, within OCIO we have continued initiatives to improve our internal practices. We are continuing to institutionalize modern management practices for information technology, such as data administration, configuration management, standardizing on products and tools and the skill development needs of OCIO staff:

In summary, we look forward to this next year as we continue to work in partnership to align our agency resources in support of NRC's mission. I encourage you to widely distribute this OCIO Stakeholder Report. I look forward to discussing with you how we can work together to find more efficient and effective ways of conducting the agency's business.

Your comments, thoughts, and questions are welcome. Please contact either Jesse Cloud, Chief, Planning and Architecture, or myself.

Restricted Distribution: Please note that this report includes some predecisional funding information and is restricted to internal distribution only.

cc: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan, Jr.
Commissioner Merrifield
Executive Council Members
IT Business Council Members
Office Directors
Regional Administrators
Office of the Inspector General

Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan, Jr.
Commissioner Merrifield
Executive Council Members
IT Business Council Members
Office Directors
Regional Administrators
Office of the Inspector General

MEMORANDUM TO THOSE ON THE ATTACHED LIST DATED: December 27, 1999

SUBJECT:

Mail Stop

B. John Garrick, Chairman, Advisory Committee on Nuclear Waste	T-2	E26
Dana A. Powers, Chairman, Advisory Committee on Reactor Safeguards	T-2	E26
John T. Larkins, Executive Director, Advisory Committee on Reactor Safeguards/Advisory Committee on Nuclear Waste	T-2	E26
G. Paul Bollwerk, III, Chief Administrative Judge, Atomic Safety and Licensing Board Panel	T-3	F23
Karen D. Cyr, General Counsel	O-15	D21
John F. Cordes, Jr., Acting Director Office of Commission Appellate Adjudication	O-15	D21
Jesse L. Funches, Chief Financial Officer	O-17	F3
Hubert T. Bell, Inspector General	T-5	D28
Janice Dunn Lee, Director, Office of International Programs	O-16	C1
Dennis K. Rathbun, Director, Office of Congressional Affairs	O-16	C1
William M. Beecher, Director, Office of Public Affairs	O-2	A13
Annette Vietti-Cook, Secretary of the Commission	O-16	C1
William D. Travers, Executive Director for Operations	O-16	E15
Frank J. Miraglia, Jr., Deputy Executive Director for Reactor Programs	O-16	E15
Carl J. Paperiello, Deputy Executive Director for Materials, Research and State Programs	O-16	E15
Patricia G. Norry, Deputy Executive Director for Management Services	O-16	E15
James L. Blaha, Assistant for Operations, OEDO	O-16	E15
Michael L. Springer, Director, Office of Administration	T-7	D57
Richard W. Borchardt, Director, Office of Enforcement	O-14	E1
Guy P. Caputo, Director, Office of Investigations	O-3	F1
Paul E. Bird, Director, Office of Human Resources	T-3	A2
Irene P. Little, Director, Office of Small Business and Civil Rights	T-2	F18
William F. Kane, Director, Office of Nuclear Material Safety and Safeguards	T-8	A23
Samuel J. Collins, Director, Office of Nuclear Reactor Regulation	O-5	E7
Ashok C. Thadani, Director, Office of Nuclear Regulatory Research	T-10	F12
Paul H. Lohaus, Director, Office of State Programs	O-3	C10
Frank J. Congel, Director, Incident Response Operations	T-4	D18
Hubert J. Miller, Regional Administrator, Region I	RGN-I	
Luis A. Reyes, Regional Administrator, Region II	RGN-II	
James E. Dyer, Regional Administrator, Region III	RGN-III	
Ellis W. Merschoff, Regional Administrator, Region IV	RGN-IV	

**Office of the Chief Information Officer
1999–2000 Stakeholder Report**

December 15, 1999

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1.0 INTRODUCTION

The Office of the Chief Information Officer (OCIO) is responsible for the effective and efficient use of information technology and information management resources in support of the Nuclear Regulatory Commission's (NRC's) mission.

This report offers a brief summary of OCIO's function, organization, funding, and outcomes. The report focuses on FY 1999 and FY 2000 drivers, program accomplishments, and goals.

2.0 FUNCTION AND ORGANIZATION

2.1 The OCIO Function at the NRC

The Office of the Chief Information Officer (OCIO) plans, directs, and oversees the delivery of centralized information technology (IT) infrastructure, and information management (IM) services, and the development and implementation of IT and IM plans, architecture, and policies to support the mission, goals, and priorities of the agency. The CIO (Chief Information Officer) represents the NRC on the Federal CIO Council and serves as a member of NRC's Executive Council. OCIO advances the achievement of NRC's mission by assisting management in recognizing where IT can add value while transforming or supporting agency operations. The CIO provides principal advice and assistance to the Chairman, the Commissioners, and other agency executives to ensure that agency IT and IM resources are selected and managed in a manner that maximizes their value, manages risks, and is consistent with Federal laws and regulations.

2.2 Organizational Structure and Roles

The OCIO is organized around four functional areas of activity:

1. Information Technology Infrastructure—Provides for the development, integration, implementation, management, and support of the agency's IT infrastructure which supports the mission and program activities of the NRC.
2. Applications Development—Provides for the coordination of all agency IT applications development and support activities on an agencywide basis.
3. Information Management—Provides information management for the agency; maintains public accessibility to agency information, manages statutory

compliance programs, and supports mandatory external reporting requirements to other agencies (Office of Management and Budget and National Archives and Records Administration).

4. **Planning and Resource Management**—Manages the agency's Capital Planning Investment Control process, including reviews and decision making on IT investments by the IT Business Council and Executive Council. Proactively assesses and introduces new technologies to agency. Manages agency-wide technology standards and architectures. Within OCIO, provides administrative services, plans and executes the budget, and administers HR functions, including IT training programs.

2.3 Strategies

The OCIO is a service organization to both NRC internal customers and the public. The OCIO plans and executes its activities to provide benefits and values to its customers, reduce costs to the agency, and enable NRC to be more effective in meeting its mission.

The OCIO's strategies used in accomplishing the agency's information and streamlining goal are documented in the "Budget Estimates and Performance Plan, Fiscal Year 2001" issued in September 1998. The OCIO is now in the process of updating these strategies to ensure continued alignment with program and support office's performance goals and strategies evolving from the PBPM (Planning, Budgeting, and Performance Management) process. Current strategies have focused on improving the delivery of information to stakeholders, institutionalizing the framework of the Clinger-Cohen Act, remediations for Y2K issues, establishing a robust and reliable infrastructure, and instilling performance-based management and effective capital planning and investment control practices for IT investments.

3.0 MANAGING INFORMATION AT THE NRC

3.1 Information Technology Function

Managing the agency's information technology (IT) is key to enabling staff to effectively use and communicate information and improve or streamline agency processes. The OCIO maintains and updates a robust and reliable IT infrastructure that includes desktop workstations, networks, applications, timesharing services, and telecommunication support for the NRC Operations Center. To manage agency IT resources effectively in a technical and business environment that is rapidly changing, OCIO supports numerous business and technology assessment and planning procedures. These procedures include a Capital Planning and Investment Control (CPIC) process for new investments in applications and infrastructure, an agency IT

Standards process documented in the Technical Reference Model (TRM), an applications Systems Development Life Cycle Methodology (SDLCM) process, a business alignment process supported by business area teams, a technical assessment process for emerging technologies, a Data Administration process, an Architecture planning process, and a Configuration Management process. The public interests are factored into these assessment and planning procedures as requirements for public access, protections, and interfaces to the agency IT environment are included.

3.2 Information Management Function

Information management (IM), the ability of NRC staff and stakeholders to prepare, access, communicate, disseminate, and use information, is essential to meeting the agency's performance goals. The OCIO provides IM services to NRC staff through a variety of media and access points, including support for the technical library, agency document and records management, editorial proofing, printing, graphics, reproduction, and Web pages. Additionally, the OCIO serves the public through statutorily mandated programs (such as Freedom of Information Act (FOIA), Privacy Act, records management, and information collections) and non-statutory programs (such as the Public Document Room and the ADAMS (Agency Documents Access and Management System) on-line public reading room).

3.3 Partnering Framework

Over the last few years the NRC, under the leadership of the OCIO, has established and institutionalized roles, responsibilities, and processes designed to ensure the effective and efficient functioning of the IT function on behalf of the NRC's mission. These roles, responsibilities, and processes reflect industrywide "best practice" and are consistent with regulatory guidance (e.g. Clinger-Cohen Act). This partnering framework includes the Executive Council, Information Technology Business Council, and standard procedures for managing IT.

3.4 Executive Council

The Executive Council is a senior management group that reports directly to the NRC Chairman. The Executive Council reviews and approves all major agency IT investments. It provides planning guidance to ensure agency investments are driven by business needs and represent best benefit to the sponsoring office and agency.

3.5 Information Technology Business Council

The Information Technology Business Council (ITBC) is an advisory group made up of senior managers from each NRC office. It provides a forum for partnering information with offices, managing technology change, and better aligning business needs with technical solutions. The ITBC reviews office investment proposals as part of the CPIC process and provides guidance to the CIO.

3.6 Capital Planning and Investment Control Process

The CPIC process is a set of working procedures used by the agency to manage the life cycle of all IT investments in the agency that exceed \$50,000. The OCIO coordinates the CPIC process, which includes review and approval procedures for business cases, project management plans, issues, and lessons learned.

3.7 Managing Applications Development and Business Sponsorship

Application investments are proposed and agreed upon by the individual offices. Offices are responsible for presenting the business case for approval by the Executive Council, creating the project management plan, and managing and reporting on the implementation through the project management plan.

3.8 Managing Applications Development With Business Area Teams

Business area teams within the OCIO are focused on business goals, functions, and procedures relevant to a specific business area. Our customers will develop a longterm working relationship with a single OCIO team that participates in sponsor office planning sessions and other key management meetings.

3.9 Managing Technology Change

Agency technology standards and architectures are maintained by the OCIO and the ITBC to provide an integrated, consistent technology environment and to manage technology changes incrementally for the agency.

4.0 BUSINESS ENVIRONMENT: BUSINESS DRIVERS AND CHALLENGES

Alignment With Agency Goals

The NRC is in a process of change, re-baselining its performance goals and focusing on defining the appropriate strategies needed to accomplish these goals. Additional emphasis is being placed on outcome orientation and establishing performance measures to form an overall framework for judging NRC performance. As this re-baselining completes, OCIO has, and will continue to, engage in a dialogue with program and support offices to assess effectiveness and completeness of the current use of, and future needs for, applications and technology.

During this year, both the Nuclear Reactor Arena and the Nuclear Materials Arena have adopted similar performance goals which rely on improving the use of regulatory information. OCIO will be working closely with these program offices to explore strategic and tactical opportunities to use information technology to achieve their goals.

5.0 BUSINESS ENVIRONMENT: TECHNOLOGY DRIVERS AND CHALLENGES

The information technology (IT) industry is in the midst of major changes caused by new technologies, competitive pressures, rapid adoption of the Internet and Electronic Commerce networked technologies, skills shortages, and increased threats from cyber attacks.

Six drivers that have and will continue to influence NRC's direction in technology are highlighted here:

- Continued demand for robust IT infrastructure,
- Increased movement to Web-based computing,
- Increased movement to electronic commerce on the Internet,
- Increased reliance on commercial software,
- Continued uncertainty in long term viability of our agency office suite, and
- Increased demand to protect agency IT assets.

(1) Continued demand for robust IT infrastructure

As IT becomes fully integrated into the agency's business, a robust IT Infrastructure is key to sustaining essential services (e.g. e-mail) and applications. Additionally, the infrastructure must provide a foundation for the adoption of new services over time.

Impact: NRC has established a robust IT Infrastructure to support client requirements. The agency must continue to budget and fund upgrades to its infrastructure to prevent the risk and costs from obsolescence. We will continue to monitor the efficiency and effectiveness of the infrastructure to ensure reliable and efficient operations. We will plan for orderly growth of the infrastructure to accommodate new business needs.

(2) Increased movement to Web-based computing

Web-based computing is reducing the cost of ownership by using thin-clients at the desktop. This has the potential to change the architecture of our infrastructure over time. The Web interface has been widely accepted by the staff and our commercial software vendors are beginning to introduce products with a Web browser interface.

Impact: As programs standardize on the Web interface, we will see transition efforts over time to take advantage of the improved consistency and easy-to-use interface which requires less training. Additionally, the Web browser model places fewer demands on the desktop PC, moving most of the processing to servers. In future years, we may be able to use simpler, cheaper PCs and reduce the cost of maintenance and software upgrades.

(3) Increased movement to electronic commerce on the Internet

Our licensees, the public, and our oversight agencies have embraced 'E-Commerce' and expect us to interact with them electronically.

Impact: NRC has implemented a public Web site to disseminate information to the public. Continued attention will be required in FY 2000 and beyond to improve both the public and internal web sites. We will soon implement Electronic Information Exchange (EIE) technology to securely exchange documents with our licensees and other business partners. Additional demands for public access to NRC regulatory information may require extensions to our IT architecture and services.

(4) Increased reliance on commercial software

Large software vendors are beginning to "federalize" their software products to make them work in a Government environment.

Impact: NRC can use "off-the-shelf" software for common administrative functions such as human resource management, financial management, and document management. Some customizing is still required, but the burden of creating and maintaining original software is reduced. On the other hand, once we are committed to commercial vendors, we will need to follow their lead in technology and business strategies. Routine updates and technology changes may be required. Incremental costs will be incurred when we adopt business practices that cannot be implemented using off-the-shelf software.

(5) Continued uncertainty in long-term viability of our agency office suite

Over the years, NRC has adopted a wide variety of office automation software from several different vendors. One of the vendors, Corel (manufacturer of WordPerfect), has been experiencing market difficulty and is no longer a leader in the office suite marketplace. It is becoming increasingly difficult to integrate products from other vendors with Corel's suite.

Impact: NRC has a significant investment in providing office suite capabilities to all employees. Any transition to another vendor office suite will be costly to the agency and require new staff skills and training. We need to periodically review options for near and longterm requirements.

(6) Increased demand to protect agency IT assets

NRC needs to increase our security efforts as we provide wider public access to agency information, e.g. public access to agency records now provided via ADAMS. Additionally, NRC and other Government agencies are frequently the target of cyber attacks from malicious computer hackers or destructive viruses. The attacks are becoming more sophisticated and contribute to concern over potential "cyber terrorism".

Impact: NRC maintains a "hard outer shell" to protect its regulatory information. We will continue to invest in this protective defense. We will maintain an aggressive program to keep the staff aware of the need for maintaining computer security and we will ensure that key systems are well protected and have contingency plans to respond to security issues.

6.0 OCIO FUNDING TRENDS

The OCIO has focused on reducing the cost of current information technology (IT) functions while providing new services such as network infrastructure to support electronic interfaces and connectivity, and implementing an electronic records system (ADAMS) to streamline agency document management business practices and regulatory work with our licensees.

6.1 Overall Trends

As shown in Table 1, the current OCIO budget for FY 2000 is \$31.4 million. From FY 1997 to FY 2001, the OCIO's budget decreased by 26 percent (by \$10.8 million) and our full time equivalent (FTE) allocation decreased by 11 percent (by 22 FTE).

Table 1. OCIO Resource Allocation

Resource	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
OCIO FTE	191	177	174	172	169
OCIO Budget (\$M)	41.3	40.4	41.9*	31.4*	30.5

* Reflects adjustments to expedite ADAMS backfit and infrastructure upgrades. \$1.5 million retrofit funds deducted in FY 99 and \$1.3 million readded in FY 00.

Note 1: The OCIO IT budget was approximately 67% of the overall agency IT budget in FY 1999.

6.2 Trends for FY 2000

As shown in Table 2, from FY 1999 to FY 2000, our budget decreased by 25 per cent (\$10.5 million) and our FTE allocation decreased slightly (down 2 FTE). The declining cost profile going into Year 2000 is primarily due to the completion of infrastructure programs, the completion of the Year 2000 (Y2K) program, and the completion of ADAMS development.

Table 2. Declining Costs From FY 1999 to FY 2000
(\$M)

OCIO Division	FY 1999	FY 2000	Change	Comments
IT Infrastructure	24.5	18.6	(5.9)	Completed programs
Applications Development	4.4	2.3	(2.1)	Completion of Y2K program
Information Mgt	12.4	9.8	(2.6)	Completion of ADAMS
Planning & Resource Mgt	0.6	0.7*	0.1	--
Total	41.9	31.4	(10.5)	25% cost reduction

* includes Reimbursable Work Item for \$0.1 million.

6.3 FY 2000 Allocation of Resources by OCIO Division

The OCIO budget allocates expenses in terms of contract dollars and FTE support. Table 3, below, shows both cost and FTE breakouts by division within OCIO. IT Infrastructure and Information Management Division allocations include contractor support for new development and ongoing services. In FY 2000, as development of infrastructure programs and ADAMS are completed, contract and FTE dollars will shift to support production services.

Table 3. Divisional Resource Allocation

OCIO Division	FY 2000 Expense	FY 2000 FTE
IT Infrastructure (%)	59.1	19.7
Applications Development (%)	7.5	17.3
Information Mgt (%)	31.2	49.1
Planning & Resource Mgt (%)	2.2	13.9
FY 2000 Baseline (\$M/FTE)	\$31.4M	172 FTE

6.4 FY 2000 Trends for Division-Specific Programs

Funding requirements for each OCIO division for FY 1999 and FY 2000 are detailed below. Funding data is contrasting the current fiscal year with previous funding levels, showing an overall downward trend.

(1) IT Infrastructure Division

Table 4 shows the program funding for the IT Infrastructure Division used to support desktop, network, and data center operations for headquarters and the four regional offices. Much of the operational work is done by contractors under the direction of OCIO program staff.

Table 4. IT Infrastructure Program Funding
(units = \$K)

Program	FY 1999	FY 2000	Difference	Comments
Customer Support Center (hotline)	778	640	(138)	Consolidation complete
Desktop Infrastructure (PCs, moves, repairs)	6,586	1,971	(4,615)	Upgrade complete
Telecomm Svcs (voice, data, ops, maint)	8,071	8,392	321	FTS 2000 transition costs
Network Svcs (integration, test and troubleshooting)	6,284	5,235	(1,049)	Upgrade complete
Production Services (data center, servers, backups)	2,782	2,310	(472)	Move from mainframe
Total Infrastructure	24,501	18,548	(5,953)	

(2) Applications Development Division

Table 5 shows the program funding for the Applications Development Division used to provide access to contractor support for applications development and maintenance and develop and maintain the agency's Systems Development Life Cycle Management Methodology and applications configuration management programs.

Table 5. Applications Development Program Funding
(units = \$K)

Program	FY 1999	FY 2000	Difference	Comments
Year 2000 Activities	2,337	0	(2,337)	Year 2000 activities completed
Application Support & Integration	2,034*	2,341*	307	Follow-on CISSCO contractor activities
Total Applications Development	4,371	2,341	(2,030)	

* Funds general management support for the CISSCO program, general data base administration for agency applications, and some applications problem resolution activities.

(3) Information Management Division

Table 6 shows the program funding for the Information Management Division used to support the agency's internal business practices for managing agency information and official agency records. Significant transitional support is required for ADAMS; when it is in full production, it will require ongoing operations and Help Desk support.

**Table 6. Information Management Program Funding
(units = \$K)**

Program	FY 1999	FY 2000	Difference	Comments
Information Services (FOIA, Privacy, Library, PDR)	645	540	(105)	BRS at PDR ended LPDR program closed
Publishing Services	3,606	2,981	(625)	Reduction due to ADAMS
Records Management	3,550	3,726*	176	Decreased estimate for document processing
ADAMS	4,665	2,558	(2,107)	Development completed
Total Information Management	12,466	9,805	(2,661)	

*Included FY 99 commitments of \$1.3M for retrofit of historical documents

(4) Planning and Resource Management Division

Table 7 shows the program funding for the Planning and Resource Management Division used to support technology planning, standards, Capital Planning and Investment Control process, Data Administration and Performance Measures programs, and Computer Security Oversight programs. Note: the division also supports OCIO HR and budgeting functions.

**Table 7. Planning and Resource Management Program Funding
(units = \$K)**

Program	FY99	FY00	Difference	Comments
Planning and Architecture	472	602	130	Strategic Plan activity
Admin and Resource Mgt	0	0	0	
Computer Security Oversight	100	40	(60)	Training initiative completed Penetration Study completed Independent rws deferred
Total Planning and Resource Mgt	572	642	70	

6.5 FY 2000 Trends for Computer Security

The Computer Security Oversight program is conducted primarily with in-house resources. The OCIO Planning and Resource Management Division manages the agency's computer security policy, provides assistance to IT application sponsors in developing computer security and business continuity plans, conducts a computer security awareness program, responds to computer security incidents, and performs independent reviews of the security of agency IT infrastructure and applications. IT application sponsors in each NRC office are responsible for funding appropriate applications-specific computer security and business continuity initiatives to protect their applications. The OCIO funds for security initiatives relating to the IT infrastructure and OCIO-sponsored applications, like ADAMS, are covered in the appropriate OCIO division budgets.

7.0 APPLICATIONS PROGRAM

This section presents a description of current active projects by program and management support offices and their budgets for these new systems. They are grouped by Nuclear Reactors arena, Nuclear Materials arena, and Management Support area.

7.1 Applications Portfolio Cost Distributions

Funding for applications, development, and maintenance is provided by the sponsoring office. NRC's IT funding carried in program and support office budgets for currently active application initiatives is \$28.5 million. Table 8, below, provides a summary by program area and management support.

**Table 8. Cost Distribution by Program Arena and Mgt. Support Area
(units=\$M/%)**

Program	Total Cost Estimates (\$M)	% of Total
Nuclear Reactors	4.2	14.8
Nuclear Materials	.7	2.4
Management Support	23.6	82.8
Total	28.5	100.0

7.2 Nuclear Reactors Program

The Office of Nuclear Reactor Regulation (NRR) continues to develop and implement applications to support the Reactors Oversight Program. Table 9, below, is a brief summary of the current Nuclear Reactor Arena projects.

Table 9. Application Projects, Nuclear Reactors Arena
(units = \$K)

Active CPIC Projects—Nuclear Reactors (000)				
Project	Office	Due Date	Total Estimated Cost	Project Description
RPS - Reactor Program System	NRR	12/01	\$ 2,700.0	Reactor Planning, Inspection, Reporting, and Licensing Functions
Automated Performance Measures	NRR	9/00	\$ 250.0	Automate the standard data and graphs for NRR program performance reporting.
OLTS - Operator License Tracking System	NRR	12/31/99	\$ 280.0	Tracking of operator licensing data.
EATS - Enforcement Action Tracking System	OE	2/00	\$ 489.7	Implemented in October 1999.
Performance Indicator (PI) Project	NRR	1/1/00	\$ 300.0	Automate a reactor performance data collection for the new Reactor Oversight process; delayed until April 2000.
ETS Portable Satellite Phones	IRO	10/30/99	\$ 205.3	Portable satellite telecommunications units to supplement the Emergency Telecommunications System at nuclear power plants.
Total			\$ 4,225.0	

Investments in the Reactor Program System (RPS) continue as additional modules are brought up. The new Reactor Performance Indicator System will support reactor oversight processes with performance data submitted electronically by the licensees. Performance indicators will be calculated from these data, which will influence oversight activities and be made available to the public via the Internet. Improvements to the Operator License Tracking System are planned for a user-friendly interface and better performance.

In FY 1999, OCIO provided ongoing technical support through the OCIO Business Area team and the ITID infrastructure staff; this support will continue through FY 2000 and FY 2001.

7.3 Nuclear Materials Program

The Office of Nuclear Materials Safety and Safeguards (NMSS) is sponsoring a new application to resolve Commission concern with agency regulation of general device licensees. Table 10, below, is a brief summary of the project.

**Table 10. Application Projects, Nuclear Materials Arena
(units = \$K)**

Active CPIC Projects, Nuclear Materials (000)				
Project	Office	Due Date	Cost	Project Description
GLTS - General License Tracking System	NMSS	6/30/00	\$ 682.5	<i>User/device registration program containing specific information about 10 CFR general licensees, and the devices they possess</i>
Total			\$ 682.5	

The new GLTS system will be a key tool in increasing regulatory oversight and accountability of generally licensed devices by improving our ability to maintain communications with our general device licensees.

In FY 1999, the OCIO Business Area team provided ongoing technical support; this support will continue through FY 2000 and FY 2001.

7.4 Management Support Program

Table 11, below, summarizes projects in the Management Support Program area.

Table 11. Application Projects, Management Support Area
(units = \$K)

Active CPIC Projects, Management Support				
Project	Office	Due Date	Cost**	Project Description
ADM Space Planning System	ADM	10/31/99	\$ 277.0	Office space utilization and requirements, and scenario planning.
STARFIRE*	OCFO/HR	FY04*	\$ 9,200.0	Core Accounting, Cost Accounting, Travel Management, Procurement, Payroll and Personnel systems.
ADAMS-Agency Documents Access & Mgt System	OCIO	4/00	\$13,700.0	Document creation, workflow, search/retrieval, records management, and electronic submission of regulatory documents.
ATS Training System	HR	11/30/99	\$ 369.0	Consolidate three existing systems having redundant data on employees training history
Total			\$23,546.0	

*STARFIRE schedule and cost estimates are being revised after termination of a contract to develop the core accounting system.

ADAMS Project: The OCIO is completing the implementation of the agency document management system. NRC will be one of the first Federal agencies to deploy an agencywide system for maintaining official agency records electronically. The new capability supports document creation, work flow, document search and retrieval, and records management. It is expected to have an impact on all agency procedures for managing official agency records. Research using agency documents will be improved and the probability of losing documents will be minimized. ADAMS supports public online access to agency documents and provides a powerful search engine as a research tool. Access to the agency will be improved for our licensees who will be able to submit official documents electronically to the NRC.

In FY 1999, the OCIO completed technical customization, integration, and installation activities; the OCIO tested the pilot system, which was working during the spring of FY 1999. The OCIO developed a training plan and carried it out throughout FY 1999. All NRC staff completed training and started using the new system during the fall of FY 1999. The OCIO has started activities to institutionalize and create a production environment for ADAMS. The OCIO developed draft policies and procedures that will evolve into a management directive once NRC has operational experience with ADAMS.

The OCIO started activities to redefine agency business practices with ADAMS capabilities. Other offices started analyzing and changing their business procedures.

In FY 2000, we plan to make additional progress in establishing a production environment, in re-engineering procedures to use electronic documents and implementing ADAMS as an official record keeping system. Cost savings have been incorporated into the OCIO's FY 2000 and FY 2001 budgets due to projected reductions in document distribution, reproduction, printing, and facilities costs. In addition, there is a cost savings in the Office of Administration's budget as a result of moving the Public Document Room to the White Flint complex. The move is a direct result of the changes in the public document room (PDR) program brought about by ADAMS. The PRC/EC recommended and the Commission approved a cut of 24 FTE from the FY 2001 budget to reflect projected ADAMS efficiencies. These cuts came from across the agency.

STARFIRE Project: The OCFO is sponsoring a new financial system for NRC to be able to support financial reporting required by the Government Performance and Results Act (GPRA). NRC's current financial management system is limited and doesn't support required cost accounting functionality. For example, the NRC cannot report the total cost of activities; although payroll data are available, they can't be linked to activities and the agency is unable to report percentage of payroll costs for specific activities (such as preparing a strategic assessment or acting on a licensing application). The new system, STARFIRE, will be able to link cost accounting and integrate source data. A first step for STARFIRE will be to capture time and attendance (T&A) data and assume payroll process functions.

In FY 1999, this multi-year project completed requirements definition. Due to default by a prime contractor, and accommodation of competing agency priorities, STARFIRE has been rebaselined.

In FY 2000, the project will continue with a phase 1, which includes using the existing accounting system and interfacing it with a human resources, time and labor, payroll, cost accounting, and travel modules. It is planned to have T&A and payroll operational by the end of FY 2000.

Automated Training System Application: The Office of Human Resources is planning to implement a new system to track training and integrate it with the new STARFIRE financial management system. The Automated Training System (ATS) would replace three older legacy systems and would track training.

In FY 1999, a business case was created and approved for the project. In FY 2000, this project is planning to implement the employee training and benefits modules.

Administrative Services Application: The Office of Administration is planning to implement an Administrative Services System to provide the staff with improved access to administrative services and improve the tracking of service delivery.

In FY 1999, work was started on the business case. In FY 2000, this project will present the business case for approval and, if approved, it will start its implementation.

7.5 Cross Cutting Programs

The OCIO sponsors cross-cutting projects that affect all applications in the agency; see Table 12, below.

Table 12. Cross Cutting Programs

Cross Cutting Programs	
Project	Project Description
Year 2000 Transition	Prevent system failures on January 1, 2000
Business Planning	Support PBPM process and goals of NRC offices

Year 2000 Transition: The NRC needed to evaluate all systems and prepare for potential failures resulting from date changeover on January 1, 2000.

In FY 1999, NRC completed assessment, system testing, and implementation of any needed changes. The NRC was the first federal agency to meet Year 2000 (Y2K) compliance with our mission-critical systems. The project was completed early and \$2.6 million under budget (\$8.3M actual vs. \$10.9M budgeted).

Although our agency has completed testing, changes, and preparations for Y2K, we are only part of an interconnected web of systems and there is a statistical probability some outages or failures may occur. In FY 2000, the agency has a "Day One" plan in place and is prepared to handle any contingencies occurring on January 1, 2000.

Business Planning: The OCIO continues to work with NRC offices to support the Planning, Budgeting, and Performance Management (PBPM) process, and align OCIO projects to support NRC office goals and needs.

In FY 1999, OCIO formed business area teams to collaborate with NRC offices in planning their application portfolios and in providing consultative services. These teams will assist offices to use information technology to streamline their business activities, to improve use of IT capabilities, to develop effective business solutions and vision statements for IT. The OCIO assigned a team leader to participate in strategic planning for the Nuclear Materials arena. The OCIO has used the NRC Enterprise Model (which documents the key functions, processes, and applications within each business area) and the NRC Strategic Data Model (which documents the agency's high level entities) to encourage shared data and systems within each business area.

In FY 2000, these teams will focus on helping business areas realize the full potential of integrated commercial-off-the-shelf software. This includes consultation on and support of STARFIRE, ADAMS, HRIS, and RPS. We will also help develop a vision for an integrated system to address the unique needs of the materials business area.

8.0 INFRASTRUCTURE AND INFORMATION MANAGEMENT PROGRAMS

The OCIO sponsors Infrastructure and information management programs which are driven by business needs; see Table 13, below.

Table 13. Infrastructure Initiative

IT and IM Projects, OCIO	
Project	Project Description
Communication With Public Public Broadcast Agency External Web Page Public Electronic Reading Room	Use Internet to improve public access to NRC
Agency Internal Web Site	Review "best practices" and improve agency Web site
Electronic Information Exchange	Use network to exchange electronic data with NRC
Computer Security Oversight	Protect agency resources
Telecommunications Upgrade	Long term service agreements
Resident Inspector Connectivity	Connect to NRC network, data, and systems
Mobile Remote Computing Study	Review agency needs and build business case
Infrastructure Services Support Study	Benchmark, establish strategy for acquiring service, and implement
Office Suite Study	Assess options
IT Training for NRC Executives	Provide IT training for all NRC executives and managers

8.1 Communication with the Public

The OCIO continues to use technology to improve NRC's communications with the public:

- **Public Broadcast Capability:** NRC is planning to broadcast all public meetings on the Internet and archive them for one year for public access. In FY 1999, the OCIO completed a technology assessment and piloted a public broadcast

capability. In FY 2000, the OCIO will complete a CPIC business case; if approved, this capability will be implemented for all public meetings.

- **Agency External Web Page:** The public site is increasing in strategic importance, but the current structure is not optimal and some information at the site varies in currency and accuracy. We are addressing these concerns. By January 2000, all offices have committed to review their information for currency and accuracy, to date pages and sites, and to provide an e-mail link for public comments. Most of these initiatives have been completed. In conjunction with these efforts to improve the external web site, the OCIO will review other major web sites as models for improvements to the NRC site; solicit the views of stakeholders who frequently use NRC's and other sites; actively consult with these users; work with the NRC communications manager to identify and implement goals for the public site to support NRC's Strategic Plan; and redesign the site for ease of navigating the site and locating information. The plan will be implemented in FY 2001. The site redesign, alignment with strategic goals, and stakeholder input focus on the goal of increasing public confidence.

- **Public Electronic Reading Room**

As part of the ADAMS project, the OCIO is making all new publicly available documents created or received by NRC after October 30, 1999 accessible in full text through its' Public Electronic Reading Room, or PERR. The PERR will broaden and improve public access to agency documents. Further improvements will be implemented in FY 2000 in response to stakeholder comments.

8.2 Agency Internal Web Site

The OCIO is currently undertaking a "best practices" review of Intranet sites at other Federal agencies and at selected private sector firms. This review is focusing on ways of improving the content, navigability, functionality, and the look and feel of the NRC Intranet site. Although the existing site contains indispensable information of use to employees, it is not well organized or uniformly designed. The OCIO will collaborate on the implementation of the "best practices" findings of this review. This initiative will be implemented in FY 2000.

8.3 Electronic Information Exchange

The OCIO is implementing an Electronic Information Exchange (EIE) Program that will allow our business partners (licensees, vendors, stakeholders, etc.), to electronically send and receive information such as regulatory information, invoices, and license applications securely. This capability will be a powerful tool for improving business processes and reducing regulatory burden and cost.

In FY 1999, the Electronic Information Exchange Initiative defined requirements for exchanging information electronically, and selected a product for digital signing and authentication.

In FY 2000, digital signing capability will be implemented with ADAMS.

8.4 Computer Security Oversight

The OCIO continues to monitor and prepare for the threat of cyber attacks by working closely with other agencies and our own NRC offices (especially the Incident Response Operation). We are committed to protect basic functions of the agency and ensure continued operations. Our agency is bombarded routinely by hackers who would enter our network. For example during September 1999, of the 51 incidents recorded, 2 attempts to relay e-mail messages to other sites through NRC's network, and 1 was an attempt to break into a password file.

In FY 1999, the OCIO conducted an agencywide security briefing to raise the awareness of agency staff, conducted security assessments of regional equipment and facilities, and monitored and responded to virus alerts and firewall attacks. In FY 1999, NRC computer security operations won awards for excellence in computer security awareness education; we also passed an independent security review.

In FY 2000, the OCIO will increase internal security activities to protect the agency from cyber attacks; we will complete a detailed plan for disaster recovery/business continuity of ADAMS and our network.

8.5 Telecommunications Upgrade

The agency's long-distance voice and data services contract, FTS2000, expires in December 2000. Since GSA did not award our current FTS2000 provider, AT&T, a new follow-on contract for government telecommunications, we will be required to change to a new carrier. Since 1998, the OCIO has been actively participating in transition planning activities. We have evaluated procurement alternatives and vendor alternatives for acquiring the needed telecommunications services for the agency.

In FY 2000, the OCIO will complete the contract and acquisition support activities so the service is available at the start of FY 2001.

8.6 Resident Inspector Connectivity

Until 1999, the resident inspectors had only low-speed, dial-up access to the agency network and a restricted set of agency applications. During FY 1999, the OCIO completed the Resident Inspector Site Expansion (RISE) project to expand the agency's network infrastructure and provide 70 resident sites with a desktop operating environment and a local area network (LAN) configuration, high-speed connectivity similar to that available at headquarters and the regional offices, and direct digital

network access to agency applications and network resources. This project was completed more than a year ahead of schedule and within the planned budget.

8.7 Mobile Remote Computing

The agency has supported remote users outside our office network facilities using the Citrix dialup access. As our workforce becomes more mobile, and technologies are more cost effective, the agency will need to expand mobile remote computing. A new OCIO project will assess the agency needs and build a business case.

8.8 Information Services Support Study

The current Next Generation Network (NGN) services and support contract expires in April 2001. An acceptable solution must be in place well in advance of the expiration date to maintain continuity of operations and provide transition time. The OCIO plans to contract for support services for continuation of maintenance and operation of its business-critical information technology infrastructure systems. The goal of the Infrastructure Services and Support Contract (ISSC) project is to identify and categorize the services, support, and development efforts required to meet the NRC's expanding IT business requirements and to develop a solution to continue infrastructure support and operation.

During FY 1999, the OCIO established goals and objectives and started a new program to identify, validate, and analyze requirements that will form the foundation for acquiring contractor support. This project work will continue through FY 2000 on a schedule that will permit the award and implementation of the Infrastructure Services and Support Contract (ISSC) in a time frame permitting an orderly transition in services in the third quarter of 2001. The study will include benchmarking our current services and assessing best practices such as performance-based contracting.

8.9 Office Suite Study

The OCIO has noted some risk and cost burden related to continuing to use the Corel Office Suite at NRC.

In FY 1999, the OCIO monitored trends and risks and defined an assessment study project. In FY 2000, the Office Suite Study will evaluate alternative office suites for future NRC-wide expansion, upgrade, or replacement of the existing word processor, spreadsheet, graphics functions, and standard office automation software. The study will complete a phased assessment of alternative options for office suite support considering vendor health, commercial software packages, cost, and organizational impact.

8.10 IT Training for NRC Executives

The OCIO has noted a need to train NRC executives in how to successfully apply IT to an organization's business. Industrywide, as many as 75 percent of IT projects overrun

their budgets, fail to deliver planned benefits, or simply fail completely. NRC's success rate has been significantly higher than this industry average. The agency's CPIC process has also contributed to managing projects more successfully. For example, projects have been stopped at an early stage as the business case is explored and projects are monitored more closely as schedules or costs do not track to project plans.

In FY 1999, the OCIO offered IT training to all NRC executives and managers on applying IT to the business, roles of the business offices and OCIO, and successful project management strategies. The OCIO observed a substantial improvement in systems justifications and plans prepared by graduates of the class; for example, the business cases for GLTS and RPS/PI were of good quality.

9.0 OCIO INTERNAL EFFICIENCY AND EFFECTIVENESS PROGRAMS

The OCIO internal efficiency and effectiveness programs are summarized in Table 14, below.

Table 14. OCIO Internal Efficiency and Effectiveness Programs

OCIO Internal Efficiency and Effectiveness Programs	
Project	Project Description
Best Practices	Provide improvements to internal OCIO practices
OCIO Service Level Agreements	Provide OCIO internal improvement to customer service
OCIO Morale	Provide improvements to internal OCIO

9.1 Best Practices

The OCIO continues to make internal improvements in OCIO operating practices and to introduce "best practices" from the private sector. The Clinger-Cohen Act directed agencies to adopt modern information technology (IT) management practices, including (1) assigning a Chief Information Officer; (2) implementing a capital planning process; (3) building IT skills throughout the staff; (4) formulating an IT Architecture and a framework of standards; and (5) creating a business stewardship for the function. In FY 1999, NRC was one of only two Federal agencies to have fully complied with the Clinger-Cohen Act. Five projects are defined:

- **Data Stewardship:** The OCIO is implementing procedures for managing shared data within agency systems. In FY 1999, the Data Stewardship Charter was reviewed and approved by offices and the IT Business Council, Data Stewards were assigned for financial and human resource data entities. In FY 2000,

additional Data Stewards will be assigned and software tools for Data Administration will be selected.

- **Standardizing Products and Tools:** The OCIO continues to reduce agency support costs and consistency across systems by encouraging agency standards for products and tools. The OCIO maintains a document of agency standards, supports a control board for review and approval of products used in the agency, and monitors vendors and products used by the agency.

In FY 1999, the agency's Technical Reference Model (TRM) document was updated, a product control board was established, three product reviews were handled by the control board and approved, and four issues of the Vendor Watch Report were issued. In FY 2000, the OCIO is planning an update of the TRM document, additional control board reviews, as needed, and is continuing to issue the quarterly Vendor Watch Report.

- **Configuration Management practices:** The OCIO has noted the need for a formal system to manage version control and major software releases within the agency. A configuration management (CM) system is expected to improve quality and reduce software maintenance costs.

In FY 1999, the project was scoped and funded. In FY 2000, the staff is planning to introduce CM practices, complete a CM tool assessment, and establish internal procedures.

- **Capacity Planning practices:** The OCIO has noted the need for a state-of-the-art network and server capacity planning capability. In FY 1999, the project was scoped and funded. In FY 2000, staff will complete an assessment, acquire management monitoring and reporting tools, and define internal procedures for capacity planning.

- **Technical Skills Upgrade:** As a result of a 1998 skills assessment by Booz, Allen and Hamilton Co., the OCIO has noted a technical skills gap in OCIO staff that may affect ability to effectively plan projects and oversee contractors.

In FY 1999, the OCIO worked with the Office of Human Resources' (OHR's) training division to define skill gap areas, approve individual training plans, and increase funding for staff technical training. In FY 2000, this initiative for improving in-house IT skill sets will continue to monitor skill upgrades and report to management on progress on closing the skills gap.

9.2 Service Level Agreements

The OCIO continues to build closer ties with its customers and look for ways to improve OCIO customer services. The OCIO is planning to work with customers to formulate internal targets for timeliness, quality, and cost of OCIO services. These metrics will be

included in "Service Level Agreements". This project also includes identifying and eliminating services with little demand or benefit.

In FY 1999, the OCIO defined this new project. In FY 2000, OCIO will collaborate with customers and define a set of Service Level Agreement metrics.

9.3 OCIO Morale Initiative

The OCIO has noted a need to improve its office morale. This need is documented in a 1999 report prepared by the Inspector General which surveyed safety climate and culture at the NRC.

In FY 1999, the OCIO conducted more frequent all-hands meetings to emphasize the importance of OCIO staff work to the agency, improved communication to staff through distribution of Chairman's Daily Reports, created technical training opportunities, improved recognition of professional achievements through awards programs and performance appraisals. In FY 2000, the OCIO will continue to focus on improvements. Each OCIO manager will have an element and standard in the manager's FY 2000 performance plan to improve morale in the manner most appropriate for the manager's organization.