

**Information Technology**  
**Planning, Budgeting and Acquisition of Capital Assets**

OMB Exhibit 300, RPS

**CAPITAL ASSET PLAN**

PART I. A. SUMMARY OF PROJECT INFORMATION									
Agency	U.S. Nuclear Regulatory Commission								
Bureau	N/A								
Account Title	Salaries and Expenses								
Account Identification Code	31-0200-0-1-276								
Program Activity	Reactor Program								
Name of Project	Reactor Program System								
Unique Project Identifier	429-00-01-03-01-1010-00								
This project is <input type="checkbox"/> New or <input checked="" type="checkbox"/> Ongoing									
Project/Useful segment is funded: <input checked="" type="checkbox"/> Incrementally <input type="checkbox"/> Fully									
Did the Executive/Investment Review Committee approve funding for this project this year?	Yes	X	No						
Did the CFO review the cost goal?	Yes	X	No						
Did the Procurement Executive review the acquisition strategy?	Yes	X	No						
Is this project information technology (see Section 53.2 for a definition)?	Yes	X	No						
For information technology projects <i>only</i> . (The CIO must review)									
a. Is this Project a Financial Management System (see section 53.2 for a definition)?	Yes		No						X
If so, does this project address a FFMIA compliance area?	Yes		No						
If so, which compliance area?									
b. Does this project implement electronic transactions or recordkeeping?	Yes		No						X
If so, is it included in your GPEA plan?	Yes		No						
c. Was a privacy impact assessment performed on this project? Although the NRC has not yet conducted a Privacy Impact Assessment, we will be reviewing the Internal Revenue Service best practices sample suggested by OMB. Upon issuance of additional instructions or guidelines by OMB we will assess the applicability for this system and conduct the review as appropriate.	Yes		No						X
d. Does the security of this project meet the requirements of the Government Information Security Reform Act (GISRA)?	Yes	X	No						
e. Were any weaknesses identified for this project in the annual program review or independent evaluation?	Yes		No						X
B. SUMMARY OF SPENDING FOR PROJECT STAGES									
(In Millions)									
	PY-1 and Earlier 97-00	PY 01	CY 02	BY 03	BY+1 04	BY+2 05	BY+3 06	BY+4 Beyond 07 thru 11	Total
<b>Planning</b>									
Budget Authority	0	0	0	0	0	0	0	0	0
Outlays	0	0	0	0	0	0	0	0	0
<b>Full Acquisition</b>									
Budget Authority	2.6	.1	0	0	0	0	0	0	2.7
Outlays	2.5	.2	0	0	0	0	0	0	2.7

A/2

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**OMB Exhibit 300, RPS**

Subtotal (planning and full acquisition) (DME)	PY-1 and Earlier 97-00	PY 01	CY 02	BY 03	BY+1 04	BY+2 05	BY+3 06	BY+4 Beyond 07 thru 11	Total
Budget Authority	2.6	.1	0	0	0	0	0	0	2.7
Outlays	2.5	.2	0	0	0	0	0	0	2.7
<b>Maintenance (SS)</b>									
Budget Authority	1.1	.4	.4	.4	.4	.4	.4	.4/yr	3.5
Outlays	1.1	.4	0	0	0	0	0	0	1.5
<b>Total all phases (DME plus SS)</b>									
Budget Authority	3.7	.5	.4	.4	.4	.4	.4	.4/yr	6.2
Outlays	3.6	.6	0	0	0	0	0	0	4.2

Project Status as of FY2002: SS

### C. PROJECT DESCRIPTION

The Reactor Program System (RPS) is being developed to fulfill program requirements that have evolved over the past several years. RPS is expected to satisfy increasing and critical requirements for improved information management and analytical capabilities associated with reactor oversight. NRC needs a system that collects information once, at the source, and integrates information for both inspections and licensing in one location, which can be correlated and analyzed against facility characteristics. RPS will provide this capability along with an integrated methodology for planning, scheduling, conducting, reporting, and analyzing reactor inspection, licensing and regulatory activities.

RPS is automating areas which have undergone some form of business process redesign and where new policy has, or is being established. Processes to date which have undergone redesign and which are being automated through RPS include the redesign and standardization in the inspection reporting process (as documented in Inspection Manual Chapter 0610), the tracking of inspection follow-up, the development and integration of the Plant Issues Matrix (PIM), and the analysis and assessment of requirements associated with Plant Performance Review (PPR). Other areas, which have undergone reassessment, include job task analysis for inspectors, job task analysis for project managers and licensing commitment tracking. RPS is being designed to fit within NRC's current information technology infrastructure and will be accessible via agency-standard PC workstations using commercial-off-the-shelf (COTS) software for greater flexibility and ease of maintenance in the future. It will reduce hardware and software maintenance cost for the 10 legacy systems that it will replace. It is saving over \$800K per year by allowing the agency to end support of IDMS/R at NIH. IDMS/R was used to support SINET, which was operational until November 1999. It will improve efficiencies by providing easy access to the necessary management information for the effective and efficient planning, scheduling, resource allocation, reporting and analysis of these programs, which is essential to their effective performance.

## **PART II: JUSTIFICATION AND OTHER INFORMATION**

### **A. Justification**

*The need for this capital project should be demonstrated by answering the following questions:*

*(1) How does this investment support your agency's mission and strategic goals and objectives?*

The Reactor Program System (RPS) was developed to fulfill program requirements that have evolved over the past several years. The initial problems to be fixed were highlighted in 1995 with both the staff's and GAO's findings relative to the lack of diagnostic capability displayed by the NRC relative to information contained in inspection program documents, primarily inspection reports.

RPS satisfies increasing and critical requirements for improved information management and analytical capabilities associated with nuclear reactor oversight and security. NRC needed a system that collects information once, at the source, and integrates information for both inspections and licensing in one location which can be correlated and analyzed against facility characteristics. RPS provides this capability along with an integrated methodology for planning, scheduling, conducting, reporting, and analyzing reactor inspection, licensing, security and regulatory activities. The system provides an analytical capability that will permit the linking, trending and analysis of plant performance information on an ongoing basis. This includes automating relationships and searches so that inspection findings, inspection follow-up, and cause codes can be correlated with facility characteristics and other program information to effectively compare plant performance with the norm, and to better identify early causes for concern.

The RPS database includes inspection and licensing information, plant performance indicators, inspection follow-up items, safety issue data, security and other reactor regulatory data. RPS provides information that is consistent, reliable, and readily accessible to approximately 1,300 staff in NRC headquarters and regional offices. RPS was designed to fit within the agency's client/server and local area network infrastructure and is accessible via agency workstations using commercial-off-the-shelf software. RPS replaced 10 legacy systems and provides a seamless interface with other systems including STARFIRE. RPS provides STARFIRE with NRR and regional work assignments.

RPS and its associated components were designed from a geographically indifferent perspective with a uniform user interface focused on the job to be done. A basic premise of the system is that there will be central maintenance of common files, with a single point of data entry and sharing of information so that data can be entered once and used throughout any process where needed. Where possible, inherent data quality design is being installed up-front to preclude the entry of invalid or inaccurate information and the resulting problems and inefficiencies.

*(2) Is this project included in your agency's annual performance plan.*

Yes.

*(3) How does this investment support a core or priority function of your agency?*

RPS provides for information management and analytical capabilities directly in support of core/primary mission functions dealing with reactor regulation. Functions supported include inspection and licensing activities for reactors, plant performance indicators, follow-up issues tracking, safety issues management, security, and other reactor regulatory areas. RPS provides STARFIRE with NRR and regional work assignments. Hours worked are charged against these assignments by NRC staff and license fee bills are generated from this data.

*(4) Are there any alternative sources, in the public or private sectors, that could perform this function?*

The nature of reactor regulatory activities and their associated information management and analysis needs are such that no alternative private sector or governmental source can efficiently support the function that RPS is intended to perform. This conclusion was reached after carefully considering the functions of the 10 legacy systems that RPS replaced.

*(5) How will this investment reduce cost or improve efficiencies?*

RPS automated areas which have undergone some form of business process redesign and where new policy has, or is being established. Processes to date which have undergone redesign and which were automated through RPS include the redesign and standardization in the inspection reporting process (as documented in Inspection Manual Chapter 0610), the tracking of inspection follow-up, the development and integration of the Plant Issues Matrix (PIM), and the analysis and assessment of requirements associated with Plant Performance Review (PPR). Other areas which have undergone reassessment include job task analysis for inspectors, job task analysis for project managers and licensing commitment tracking. RPS is designed to fit within NRC's current information technology infrastructure and is accessible via agency-standard PC workstations using commercial-off-the-shelf (COTS) software for greater flexibility and ease of maintenance in the future. It reduced hardware and software maintenance cost for the 10 legacy systems that it replaced. It is saving over \$800K per year by allowing the agency to end support of IDMS/R at NIH. IDMS/R was used to support SINET, which was legacy system operational until November 1999. The elimination of operations and maintenance costs for the other legacy systems resulted in the savings of an additional \$200K per year. It improved efficiencies by providing easy access to the necessary management information for the effective and efficient planning, scheduling, resource allocation, reporting and analysis of these programs, which is essential to their effective performance.

**B. Program management**

1. *Have you assigned a program manager and contracting officer to this project? If so, what are their names?*

Michael MacWilliams, NRC/NRR is the overall program manager, providing the business knowledge for this system. The contracting officer is Sally Adams, NRC/OCFO. Development of this system was sponsored by and funded through the NRC's Office of Nuclear Reactor Regulation (NRR), working in partnership and close coordination with the NRC's four regional offices and with the Office of the Chief Information Officer (OCIO). William Usilton, from OCIO, is the technical program manager. Charles E. Fitzgerald, Director, Comprehensive Information Systems Support Consolidation (CISSCO) program staff, was responsible for designing and achieving integrated systems development and life cycle management and for management of the agency's interagency agreement with GSA/FEDSIM. The contracting officer was Keith Sandridge, GSA/FEDSIM. This contract ended in August 2001. Guy Wright Director, Comprehensive Information Systems Support Consolidation II (CISSCO II) program staff, is responsible for the Maintenance and Operations Task order which replaced CISSCO in June 2001..

**C. Acquisition strategy**

*(Note: items 1 through 5 deal with acquisitions during the Control or Project Development phase. Item 6 deals with the Evaluation or Operational phase.)*

*Explain how your acquisition strategy will manage or mitigate projects risks:*

1. *Will you use a single contract or several contracts to accomplish this project? If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.*

The acquisition was accomplished through a single contract for development.

2. *What type(s) of contract you will use (e.g., cost reimbursement, fixed-price, etc.)?*

The NRC managed the procurement risk by selecting GSA FEDSIM's multiple-award, indefinite quantity IT services contract, competing its work among the contractors qualified to work under the contract. Given the enterprise-wide standards and scope of the CISSCO contract, statements of work normally specify only functional requirements. In response, the contractor proposes optimal technical solutions, giving specific milestones and schedules and estimated costs. A rigorous project management system was used to track progress, deliverables, and costs for each phase of the system life cycle. A robust quality assurance plan was developed and was cooperatively managed by NRC, GSA, and contractor staff.

RPS was developed using NRC's CISSCO contract, the agency's mandatory-for-consideration and preferred contract for IT/IM support. CISSCO support services were provided by the Computer Sciences Corporation through a single major task order awarded in August 1996

following competition among the GSA/FEDSIM multiple-award, indefinite quantity IT services contractors. Through this single contract, designed and established for agency wide use, the NRC obtained an enterprise-wide perspective and integration of IT/IM projects, standardized tools and life-cycle management methodologies, and systems development, integration, maintenance, and operations services. The CISSCO contractor provided written responses to written NRC requests for each requirement, and proposes technical solutions with estimated schedules and costs.

An Integrated Project Team was established to oversee progress and resolve questions and issues arising during RPS development and the current maintenance phase. This team reports directly to NRR and OCIO management and includes a business and technical contact for each of the system's components. The team also includes a representative from each region to address regional issues. Periodic Project Team and component meetings are held.

3. *What type(s) of financial incentives will you use (e.g., cost reimbursement, fixed price, etc.)?*

The CISSCO contract did not include any unique contractor incentives nor specify any measurable contract performance objectives. Research indicated that the proposed RPS solution was reasonable, affordable and feasible. A rigorous project management system was used to track progress, deliverables, and costs for each phase of the system life cycle. A robust quality assurance plan was developed and was cooperatively managed by NRC, GSA, and contractor staff.

4. *Will you use competition to select suppliers?*

No hardware was purchased under this contract. See answer to question 2 for how the contractor was selected.

5. *Will you use commercially available or COTS products or custom-designed products?*

RPS was designed to fit within the agency's current client/server and local area network infrastructure and be accessible via agency workstations using commercial-off-the-shelf software. Most of the applications software is written using PowerBuilder.

NRC developed some custom code so that the system can cost-effectively support agency business processes. The objectives of RPS is to provide for the effective and efficient integration and analysis of information associated with NRR's programs conducted in headquarters and regions. The RPS database includes inspection and licensing information, plant performance indicators, inspection follow-up items, safety issue data, security and other reactor regulatory data. These specific activities are not supported by COTS.

6. *Acquisition strategy for the Operational RPS.*

A single contract is being used for maintenance. Maintenance for RPS is being provided by OAO Corporation under the CISSCO II contract which was competitively awarded. OAO is

required to perform the effort described in the maintenance and operational support statement of work in a manner that is satisfactory to the NRC and that will ensure program success. A Performance Evaluation Report (Scorecard) attached to the SOW identifies the areas in which performance is critical to the success of this effort and the satisfaction of the NRC as a client, and indicates the manner in which customer satisfaction will be rated. Customer satisfaction will be assessed by the RPS Project Manager on a quarterly basis as it relates to each of the areas in the Performance Evaluation Report.

The RPS Project Manager completes the Performance Evaluation Report to provide a rating recommendation to the BPA Project Officer (PO) for review and approval. Upon approval, the PO will provide the recommendation to the Contracting Officer (CO) (with a copy to the Contractor) for action.

A deduction of 1 percent of the total quarterly RPS Project bill will be taken off for each rating of "unsuccessful" on the Performance Evaluation Report, for up to a total deduction of 9 percent. The Contractor shall address ratings of "marginally successful" and "unsuccessful" in writing within 30 days of receiving a copy of the report and describe the means for improvement in any area receiving these ratings. Customer satisfaction in relation to all critical areas shall be discussed at each monthly status meeting.

#### ***D. Alternative analysis and risk management***

1. *Summarize the results of any life-cycle cost analysis performed for this investment and describe alternatives you considered and any underlying assumptions.*
2. *Summarize the results of any benefits/costs analysis or return on investment analysis of alternatives. (Describe any tangible returns that will benefit your agency even if they are difficult to quantify.)*
3. *Describe the results of your risk assessment for this project and discuss your plans to eliminate, mitigate or manage identifiable risks, e.g. financial, acquisition, technical.*
4. *For IT, explain replaced system savings and savings recovery schedule.*

The following answers questions 1 through 4.

The financial basis for selecting the project was based on a Cost-Benefit-Risk Analysis completed for the RPS project in January 24, 1997 as part of the Capital Planning and Investment Control (CPIC) process. Four alternatives ranging from the "Status Quo" to various degrees of automation were considered as part of the analysis. Alternative 3 was selected and approved by NRC management in 1997 with an understanding that if goals of Alternative 3 were met, that the approval to incorporate the headquarters licensing function (Alternative 4) would be revisited. Alternative 4 was approved by NRC management in 1998 after RPS phase 1 was completed. Alternative 4 was determined to yield over \$5 million in cost savings and the cost avoidance of additional FTE required to support analytical support requirements. (See Cost and Savings Summary Table below)

#### **Assumptions for the analysis**

## **Information Technology**

### **Planning, Budgeting and Acquisition of Capital Assets**

### **OMB Exhibit 300, RPS**

The system development activities funded in FY 1997 will be completed.

Regardless of the RPS alternative implemented, the Safety Information Network (SINET) on the NIH mainframe will be used by other NRC organizations through the end of FY 2000. To realize the total estimated cost savings of an RPS alternative which allows NRR to discontinue the use of SINET, all other NRC use of SINET and the need to maintain it at NIH must be discontinued by the end of FY 2000. (NOTE: Use of SINET ended in November 1999 at a savings of \$800K/yr.)

### **Alternatives**

**Alternative 1** - With the Status Quo alternative, NRR would implement only those parts of the system completed by the end of FY 1997, (i.e., RPS capability for inspection planning/reporting/analysis, inspection follow-up, and open item tracking would be implemented in the regions.)

**Alternative 2** - Building upon the Status Quo, NRR would implement a PC-based (non client-server) workload scheduling/staff assignment capability in the regions and develop interfaces to the events and allegation tracking systems.

**Alternative 3** - NRR would develop and deploy all functions provided in Alternative 2 in headquarters and the regions in a fully integrated client-server environment. The alternative would also incorporate safety issues tracking and full interface to the enforcement action tracking system.

**Alternative 4** - NRR would implement the same capability as Alternative 3, plus fully integrate reactor licensing activities into the system.



## Benefit comparison

Benefit categories and the alternatives' ratings (where A = High and C = Low) are shown in the table below:

**SUMMARY TABLE FOR NON-QUANTIFIABLE BENEFITS**

Description of Non-Quantifiable Benefits	Comparison of Alternatives (A is best result, C is least desirable, duplicate scores allowed)			
	Alt.1 Status Quo	Alt.2	Alt.3	Alt.4
1. More Consistent Data from Single-Source Entry	B	B	A	A
2. More Efficient Sharing of Information	C	C	A	A
3. Better Analysis Capabilities for Licensing	C	C	C	A
4. Better Analysis Capabilities for Inspections	B	B	A	A
5. Faster and more Efficient Reporting Capabilities	B	B	A	A
6. More Flexible Ad hoc Reporting	C	B	A	A
7. More Accurate and Timely Fee Data	C	C	A	A
8. Better Data Integrity	C	B	A	A
9. Better Integration of Licensing and Inspection Information	C	C	C	A
10. Better Information for Decision Making by Management	C	C	B	A
<b>OVERALL BENEFIT SCORE</b>	C	C+	A-	A

As summarized above, using Alternative 1 (Status Quo) as a baseline, the other Alternatives were rated as follows:

- Alternative 2 provides improvement (for regions only) in the two benefit categories, More Flexible Ad hoc Reporting and Better Data Integrity, due to the additional capabilities and integration of information previously provided through separate systems.
- Alternative 3, due to the full integration of previously separate information sources and access being provided to regions and headquarters, delivers a decision support system, e.g., providing the capability to access data and information in inspection

and licensee performance reports and compare it with information available in facility characteristic and facility performance databases.

- Alternative 4, by integrating the licensing information, improves upon decision support system delivered by Alternative 3.

## Cost comparison

A seven year life cycle (FY 1998 - FY 2004) was used to cost alternatives. Estimated undiscounted dollar costs and FTEs are shown in the table below. The last row in the table shows the estimated dollar cost and FTE savings for Alternatives 2, 3, and 4 when compared with Alternative 1 (Status Quo).

### COST AND SAVINGS SUMMARY (UNDISCOUNTED DOLLARS AND FTE FOR FISCAL YEARS 1998 - 2004) (Dollars In Thousands)

Expense Category	Alternative 1 Status Quo		Alternative 2		Alternative 3		Alternative 4	
	\$K	FTE	\$K	FTE	\$K	FTE	\$K	FTE
1. Non-Recurring, One Time Cost	355	2.2	964	4.0	1,210	7.1	1,420	7.6
2. Recurring Cost (Client-Server Operations and Maintenance)	3,185	11.2	3,535	11.2	4,565	25.8	4,565	25.5
3. Recurring Cost (Non-Client-Server)	9,541	199.5	7,121	192.5	2,599	119.2	2,054	77
4. Total Cost (Sum of Rows 1, 2 & 3)	13,081	212.9	11,620	207.7	8,374	152.1	8,039	110.1
5. Cost Savings Over Alternate 1 (Status Quo)	0	0	1,461	5.2	4,707	60.8	5,042	102.8

- Estimated non-client-server recurring cost savings for Alternative 2 are divided equally between mainframe system-related and data entry/data quality-related activities.
- Estimated non-client-server recurring cost savings for Alternative 3 are primarily (about 67%) mainframe operations, maintenance and timesharing costs with another 20% being data entry/data quality-related. Over half the estimated FTEs

saved ("costs avoided" rather than staff reductions) are associated with inspection analysis activities with 27% being associated with data entry/data quality activities.

- The reductions in estimated non-client-server recurring costs and FTE levels for Alternative 4 result from the same savings realized in Alternative 3 plus additional savings due to the reductions in manual licensing analysis activities.

The deployment of RPS reduced hardware and software maintenance cost for the 10 legacy systems that it replaced. It is saving over \$800K per year by allowing the agency to end support of IDMS/R at NIH. IDMS/R was used to support SINET, which was operational until November 1999. The elimination of operations and maintenance costs for the other legacy systems resulted in the savings of an additional \$200K per year.

### Risk Comparison

The table below shows the risk categories and the alternatives' rankings.

#### RISK RATINGS

Category of Risk	Score (1 = low, 5 = high)			
	Alternative 1 Status Quo	Alternative 2	Alternative 3	Alternative 4
Mission Impact	4	3	2	1
Volatility of Requirement	5	5	2	1
Scope of Project	2	2	3	3
Technical Risk	2	3	4	4
Management Consensus	2	2	3	3
Type of Procurement	4	3	2	2
Total Risk Scores	19	18	16	14

- **Alternative 1 (Status Quo)** was judged to have a high Mission Impact risk because it doesn't provide the integrated information environment necessary for NRR to support the agency mission. It was judged to have high risk in Volatility of Requirements since its capabilities will be "frozen" at the end of 1997. This alternative would continue to have a NRR manpower system maintained by a DOE National lab.
- **Alternative 2**, similar to Alternative 1, was judged to have a high risk in Volatility of Requirements due to its limited capabilities to respond to new, but currently undefined analysis requirements. Maintenance of the NRR manpower system for headquarters would be transferred in-house; however, the new, PC-based, separate manpower system would be maintained in the regions.
- **Alternatives 3 and 4** were judged to have roughly equivalent risk. Both push the envelope in terms of project scope and technical risk associated with client-server environment with which neither NRR nor OCIO has had much experience. Both alternatives received a rating of 3 because there is no management consensus that other NRC offices will move their SINET applications from the mainframe after NRR does. Compared to Alternative 3, Alternative 4 was judged to be slightly less risky in the Mission Impact and Volatility of Requirements, due to the increased access and capability associated with having licensing information integrated into RPS in the latter alternative.

Given that possible scores or ratings for each alternative could have ranged from 6 to 30, differences in estimated risks between the four alternatives are not significant.

### **Sensitivity analysis**

The one key assumption requiring analysis involved costs for mainframe support and usage FY 2001 - FY 2004. While NRR's discontinued use of SINET under Alternatives 3 and 4 will reduce the mainframe workload by approximately 60 to 70% during this period, the mainframe costs will only decrease by about 15% due to the high fixed costs (\$635,000 per year) associated with processing and data storage if other offices continue to use SINET.

If SINET is not shut down after FY 2000, estimated (undiscounted) net life cycle cost savings for Alternatives 3 and 4 would decline (from the estimates shown in Row 3 in the COST AND SAVINGS SUMMARY table) to \$2,167,000 and \$2,502,000, respectively. (NOTE: Use of SINET ended in November 1999.)

Cost estimates for "Year 2000 modifications" were not subjected to sensitivity analysis. These costs were estimated to be \$180,000 for Alternatives 1 and 2 and \$100,000 for Alternatives 3 and 4.

### **Sponsor recommendation**

The sponsor (Office of Nuclear Reactor Regulation) recommended Alternative 4. This alternative would collect inspection and licensing information once, at the source, and would make it available in a single location accessible by all headquarters and regional management and staff.

As an example of RPS's value, it would provide commonality and linkage of inspection-related information now contained in separate, unconnected databases and systems. RPS would provide the capability for inspection reports, Plant Issues Matrix (PIM), and Plant Performance Review (PPR), inspection findings, inspection follow-ups, and cause codes to be correlated with facility characteristics and other program information allowing NRR to more effectively compare a specific plant's performance with the norm, and to better identify early causes for concern. Such an analytical capability will reduce the need for contractor support and additional manual FTE effort required to support this level of comprehensive analysis.

### **Risk Management**

The risk assessment and mitigation plan for this project included a modular development approach, frequent contractor reporting, use of structured work breakdown approach, the assignment of a single project manager who was assigned responsibility for the whole project and direct involvement of the OCIO technical lead and through application of its System Development Life Cycle Management Methodology (SDLCM). The technical risk of transferring the project from CISSCO where CSC was the prime contractor to CISSCO II where OAO Corporation is the prime contractor was minimized by having OAO capture and hire the entire client server team from CSC.

A comprehensive Configuration Management program is being used by the NRC to minimize the risks to operational systems. NRC is mitigating technical risk in operating the system through continuing application of its System Development Life Cycle Management Methodology (SDLCM), use of a Configuration Control Board (CCB) and application of CCB procedures, benchmarking and continuing monitoring system performance, and use and update of system operating procedures. Contractors are required to follow NRC's SDLCM and to conform with NRC's architecture and standards. Strict project management and test procedures are being used. The use of financial incentives to mitigate poor contractor performance was discussed in item 6 of Section C above.

### **E. Enterprise architecture (IT projects only)**

1. *Does this project support your agency's current architecture or is it part of a modernization initiative?*

As discussed below, RPS conforms to the NRC's technology infrastructure and to the NRC Technology Architecture framework. This is accomplished by satisfying NRC mission and business functions and being consistent with NRC's software, hardware, and communications standards. To ensure the former objective, NRC Management Directive 2.2, Capital Planning and Investment Control, requires that all major systems be reviewed by the Information Technology Business Council (ITBC). The ITBC brings an agency wide business and programmatic perspective to IT investment justification. The ITBC review of the business case also focuses on minimizing duplication, maximizing integration, and promoting benchmarking and process redesign before automation. Consistency with technical standards is ensured by Office of the Chief Information Officer (OCIO) review of the technical solution proposed in the business case. RPS was approved by the ITBC and OCIO in December 1997.

RPS is a modernization initiative to provide a modern architecture replacement for 10 legacy systems. It has been implemented using the NRC's client server infrastructure.

RPS is deployed on the NRC's current architecture. The NRC client server architecture is a computing model that provides IT services to employee desktops, designated contractors, external organizations, such as other government agencies, domestic and foreign, nuclear power plants and other clients, laboratories and the general public. Access and connectivity to Computer Center systems (such as RPS) are supported using Wide Area Network (WAN) Architecture and Local Area Network (LAN) Architecture. Access to RPS is limited to NRC employees. Data from RPS is posted on the NRC external Web in a read only format for access by the public.

RPS is fully compliant with the NRC's Information Technology Architecture, the agency's Data Naming Standards and Conventions, and the agency's Consolidated Data Model. RPS was designed to fit within the agency's client-server and LAN infrastructure and accessible via agency-standard microcomputer. RPS and its associated components are designed using client-server technology and agency's approved COTS products.

RPS and its associated components were designed from a geographically indifferent perspective with a uniform user interface focused on the job to be done. A basic premise of the system is that there will be central maintenance of common files, with a single point of data entry and sharing of information so that data can be entered once and used throughout any process where needed. Where possible, inherent data quality design is being installed up-front to preclude the entry of invalid or inaccurate information and the resulting problems and inefficiencies.

2. *Explain how this project conforms to:*
- a. *your agency's information technology architecture; and*
  - b. *the Federal Enterprise Architecture Framework (FEAF), if used for this project. If you are not following the FEAF, explain why and describe which framework you are using.*

RPS conforms to the NRC's technology infrastructure. RPS software is installed on employee desktops, agency application and database servers. It is integrated with the agency web browser, Netscape. It is scalable and interoperates with the agency network and is supported by the agency systems management functions.

RPS conforms to the NRC Information Technology Architecture framework and is compliant with the NRC's Technical Reference Manual (TRM). The TRM is compliant with the FEAF.

#### Business Architecture:

RPS supports Reactor Program arena business processes as defined in the NRC Enterprise Model (EM). The NRC EM is a model of NRC business functions and processes with information technology systems mapped to the business functions they support.

Because RPS is used in both Headquarters and the Regions a detailed business model was developed for it. A working group of NRC managers and users developed a functional model of required and desired capabilities and requirements. This high level functional model was de-composed into separate modules and detailed process models were developed for each of these modules. In addition, workflow processes, security, and access controls were developed. These defined the business architecture for RPS.

#### Data Architecture:

RPS was designed using data administration and modeling techniques as supported in the NRC Systems Development Life Cycle Management Methodology and the NRC Data Administration Reference Manual. The fields and identifiers for RPS are standard and conform to the NRC Data Architecture Naming Standards and Conventions. These were developed and coordinated through an agency Data Administration (DA) function. The agency DA function maintains the NRC Strategic Data Model (SDM) and NRC Consolidated Data Model (CDM). The NRC SDM is a model of NRC data entities with entities mapped to the business functions and application systems they support. The NRC CDM is a detailed inventory of standard data entities and attributes.

#### Applications Architecture:



RPS was implemented using client-server infrastructure to replace 10 separate systems that the NRC had been using. These legacy applications were identified in the NRC inventory of systems and databases. The RPS modules were implemented using client-server technology and agency-approved COTS products which were in the NRC Applications Development Toolkit. The majority of RPS was developed with PowerBuilder. The database is Sybase.

#### Technology Architecture:

RPS conforms to the agency's technology architecture, as documented in the NRC's Technical Reference Model. This is a framework of technical standards used to plan platforms and infrastructure for new systems. It documents the technology and network architecture for the agency. RPS was implemented within the agency's standard client-server and LAN infrastructure and is accessible via agency-standard microcomputers.

#### ***F. Security and privacy (IT projects only)***

*NOTE: Referring to security plans or other documents is not adequate.*

*Discuss the security plan for this project and:*

1. *demonstrate that the costs of security controls are understood and are explicitly incorporated in the life-cycle planning of the overall system, including the additional costs of employing standards and guidance more stringent than those issued by NIST;*

NRC's interim Management Directive 2.5, "Application Systems Life-Cycle Management," establishes the policies for developing and maintaining application systems. The SDLCM Methodology Handbook and its companion volume of procedures, standards, and forms implement Directive 2.5 by providing life-cycle structure and guidance for all NRC projects. The SDLCM methodology requires that security controls, as set forth in Office of Management and Budget (OMB) Circular A-130, Appendix III, "Security of Federal Automated Information Resources," and reiterated in NRC Management Directive 12.5, "NRC Automated Information Systems Security Program," be included as an integral part of the systems development and life-cycle management process for both general support systems and major applications (e.g., RPS). The six security controls are as follows:

1. The assignment of responsibility for security - a system security officer
2. Security Planning - Security Plan developed
3. Periodic review of security controls - Certification Testing
4. Management authorization - Accreditation

5. Performance of a Risk Assessment
6. Backup and Recovery Plan developed and tested

In accordance with OMB Circular A-130, Appendix Part III, it is NRC policy that the security controls are reviewed for each system when significant modification are made to the system, but at least every three years.

The Reactor Program System (RPS) provides an integrated methodology for planning, scheduling, conducting, reporting, and analyzing most of the functions performed by the approximately 1,300 people involved with the NRC Office of Nuclear Reactor Regulation programs in NRC Headquarters and NRC regions. It should be noted that there is no classified data in RPS. There is a small amount of information which is not releasable to the public such as information on unannounced inspections of operating nuclear reactors.

The assigned security officer is Conchita S. See.

The first Systems Security Plan for RPS was completed in September 1998 and the Certification Report was issued on September 18, 1998. The security plan for RPS was completely rewritten in 2001 to include the deployment of the phase 3 and minor modifications to the modules deployed in phases 1 and 2. There are no variances from NIST security guidance. The latest revision to the security plan is dated November 13, 2001, the latest periodic review of security controls (e.g., certification testing) including a Security Test & Evaluation Report (ST&E) is dated November 15, 2001, the latest risk assessment is dated November 13, 2001, and the draft backup and recovery plan is dated October 26, 2001. Final system accreditation, which is based on the results of the ST&E report will be completed by the end of January 2002.

*2. demonstrate how the agency ensures that risks are understood and continually assessed;*

The NRC has an aggressive and proactive security awareness program to insure that risks are understood. This program includes a Computer Security Awareness Day, new employee IT security orientation, a mandatory on-line IT security awareness course, and the frequent issuance of all employee alerts and awareness announcements. This is intended to make individuals aware of IT security as a concern that must be constantly attended to.

*3. demonstrate how the agency ensures that the security controls are commensurate with the risk and magnitude of harm;*

NRC Management Directive 12.5 requires system sponsors to assess risks associated with the operation of each NRC general support system or major application that they are responsible for. System sponsors complete risk assessments under any of the following conditions:

- Periodically (at least every 3 years)
- Upon significant change to the system (e.g., software or hardware upgrade)
- Upon discovery of a security breach
- When increases in potential threats to the system are detected
- New system/application development

Subsequently a Security Plan is developed and Certification Testing is conducted to determine the extent to which a particular IT system design and implementation meet a specified set of security standards. Security Plans for RPS were completed in 1998 and 2001.

The NRC also routinely conducts risk assessments of its network and interconnections including assessments of intentional attacks on the network to determine vulnerabilities.

*4. identify additional security controls for systems that promote or permit public access, other externally accessible systems, and those that are interconnected with systems over which program officials have little or no control;*

NRC publically accessible systems and WEB sites are "read only." RPS is only accessible only by NRC employees.

*5. demonstrate how the agency ensures the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access; and*

NRC publically accessible systems and Web sites are "read only."

*6. demonstrate how the agency ensures that the handling of personal information is consistent with relevant government-wide and agency policies.*

The NRC follows the requirements of the Privacy Act, 5 U.S.C. 552a and OMB's requirements for the implementation of the Privacy Act. NRC's policies can be found in NRC's regulations at 10 CFR Part 9, Management Directive 3.2, "Privacy Act," and on the NRC's external Web site.

**G. Government Paperwork Elimination Act (GPEA) (IT projects only)**

*If this project supports electronic transactions or recordkeeping, briefly describe the transaction or recordkeeping functions and how this investment relates to your agency's GPEA plan. Identify any OMB Paperwork Reduction Act control numbers from information collections that are tied to this investment.*

The RPS database includes inspection and licensing information, plant performance indicators, inspection follow-up items, safety issue data, plant security information and other reactor regulatory data. Data from the RPS database is posted on the NRC external Web. The performance indicator data alone had over 25,000 visitors per week during the period from April to June 2000. This project will be compliant with GPEA by October 2003.

**PART III: COST, SCHEDULE, AND PERFORMANCE GOALS**

**A. Performance Based Management System (PBMS):**

1. *Describe the performance based management system you will use to monitor contract or project progress?*

The RPS project team is utilizing Microsoft Project, Lotus and Visio as the management control tools for scheduling and tracking performance against plan. Another system is being used to track project budget for each individual task and component. Cost reports for these are accumulated and tracked against budget plans. Routine meetings are held with the project team, including the business and technical leads and the component contacts, to discuss costs, deliverables and schedule performance and to identify potential problem areas. Management is briefed on an ongoing basis to resolve problem areas that may arise.

**B. Original baseline (OMB approved at project outset):**

*Using the format of your selected PBMS, provide the following:*

1. What are the cost and schedule goals for this segment or phase of this project? [i.e., what are the project milestones or events, when will each occur; and what is the estimated cost to accomplish each one]

Original Cost Goals:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002 & Beyond	Total
Planning:*							
Budget authority	0	0	0	0	0	0	0
Outlays	0	0	0	0	0		0
Full acquisition							
Budget authority	1.1	0.7	0.4	0.4	0.1	0.0	2.7
Outlays	0.9	0.9	0.3	0.4	0.2		2.7
Total, sum of stages (excludes maintenance):							
Budget authority	1.1	0.7	0.4	0.4	0.1	0.0	2.7
Outlays	0.9	0.9	0.3	0.4	0.2		2.7
Maintenance:							
Budget authority	0.1	0.2	0.4	0.4	0.4	0.4	1.9
Outlays	0.0	0.3	0.4	0.4	0.4		1.5

\* Planning and some developmental activities took place prior to FY 1997. CPIC analysis conducted in FY 1997 cost approximately \$35,000.

RPS is being designed and developed in a modular approach tailored to fit the regulatory programs it will support. At the same time, an enterprise approach has been taken with a global view of the entire RPS system so that the overall design, process model, data model and associated tables and naming conventions are in place and fit within the overall agency enterprise design. The overall goal of the project is to meet the development schedule at or below the budget authority outlined in the above table. As shown in the outlays row, RPS is within budget. In November 1999, RPS replaced the functionality provided to agency by the SINET, which was deployed at NIH using IDMS software, which resulted in a savings of over \$800K per year by allowing the agency to end support of IDMS/R at NIH. IDMS/R was used to support SINET. The Time Resource Inventory

Management Module of RPS could not be deployed until STARFIRE was deployed. The delay in fully implementing RPS required about \$50K to maintain two legacy systems.

Original schedule goals:

	<b>Planned</b>	<b>Completed</b>
Overall system conceptualization and design	FY 1997	FY 1997
Requirements determination, design and engineering for Inspection Planning and Reporting	FY 1997	FY 1997
CPIC analysis	FY 1997	FY 1997
Development of Inspection Planning module	Q1/1998	Q1/1998
Deployment of Inspection Planning module	Q2/1998	Q2/1998
Integration of Inspection Planning and Item Reporting modules	Q1/1998	Q4/1998
Development of Item Reporting module	Q1/1998	Q4/1998
Deployment of Item Reporting module	Q2/1998	Q4/1998
Requirements determination, design and engineering for the Time Resource Inventory Management (TRIM) module. The name of this module has been changed from Licensing and Other Planning (LOP).	Q3/1999	Q4/1999
Complete development of Time Resource Inventory Management components.	Q1/2000	Q3/2001
Deployment of Time Resource Inventory Management module.	Q2/2000	Q4/2001
Complete development and deployment of any remaining parts including interfaces with other agency systems.	Q4/2001	Q4/2001

Although there has been some schedule deviation for the completion and deployment of two of the RPS components, these schedule changes did not impact performance goals or the overall milestones projected. The Time Resource Inventory Management module was rescheduled to incorporate best practices, additional benchmarking, a new workload management

approach and integration with STARFIRE, the agency's new time and labor reporting system. The schedule deviations did not impact the budget or effect the agency's Y2K efforts.

2. *What are the measurable performance benefits or goals for this segment or phase of this project? [what are the measurable performance improvements or efficiencies that you expect to achieve with this project?]*

**Agency Strategic Goal(s) supported:**

The RPS project supports the Reactor Arena Strategic Goal: Prevent radiation-related deaths and illnesses, promote the common defense and security, and protect the environment in the use of civilian nuclear reactors. The RPS also supports the following Agency Performance Goals: 1) Maintain safety, protection of the environment, and the common defense and security, 2) Increase public confidence, 3) Make NRC activities and decisions more effective, efficient, and realistic, and 4) Reduce unnecessary regulatory burden on stakeholders.

FY 1998 Performance Goals

RPS is expected to satisfy increasing and critical requirements for improving information management and analytical capabilities associated with reactor oversight. The system is expected to support a number of agency program business areas to include: Compliance Management, Licensing, and the Identification and Assessment of Safety Concerns. There are three project goals for this system. The primary project goal of RPS supports the Nuclear Reactor Safety mission by providing a comprehensive, timely, and accurate integration of inspection, licensing, and other reactor regulation information, and the associated analytical capability to more effectively evaluate plant performance. The secondary project goal is to provide for information management services for the reactor program that yield higher levels of efficiency and reduced longer-term costs. A third project goal has been added to ensure there are no significant deviations from cost, schedule and performance goals. The specific output measures used to measure these project goals are described below:

**RPS Project Goal 1:** Support the Nuclear Reactor Safety mission by providing a comprehensive, timely and accurate integration of inspection, licensing and other reactor regulation information and the associated analytical capability to more effectively evaluate plant performance.

### **FY 1998 Output Measures:**

- Percent of inspectors, technical reviewers and project managers in Nuclear Reactor Regulation programs (headquarters and regions) who access RPS or use RPS information routinely in performing their responsibilities. This number should increase progressively and should be measured against the population affected by the various RPS components being implemented in accordance with the baseline schedule.

Target: Percentage should increase progressively and measured against the population affected by the various RPS components being implemented, 30 percent for FY 1998.

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 1998 Milestones	0%	10%	20%	30%
FY 1998 Actuals	0%	14%	18%	27%

- Percent of managers in Nuclear Reactor Regulation programs (headquarters and regions) who access RPS or use RPS information for the purposes of performing management functions pertaining to programs within their purview.

Target: Percentage should increase progressively and measured against the population affected by the various RPS components being implemented, 40 percent for FY 1998.

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 1998 Milestones	0%	10%	25%	40%
FY 1998 Actuals	0%	21%	28%	53%



- The integration of information supporting inspection, licensing, and other reactor regulatory programs as measured by the percent of data entities used in the management and operation of Nuclear Reactor Regulation programs which are maintained and accessible in RPS in an “open architecture” environment.

Target: Percentage of data entities used in the management and operation of NRR programs which are maintained and accessible in RPS in an “open architecture” environment, 50 percent for FY 1998.

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 1998 Milestones	0%	40%	40%	50%
FY 1998 Actuals	0%	45%	45%	60%

#### **FY 1999 Output Measures:**

NOTE: The usage of RPS modules increased from 221 users in the fourth quarter of FY 1998 to 414 users during the first quarter of FY 1999. First quarter actuals exceed the projected fourth quarter milestone goals. Neither of the following two measures was reported on after the first quarter in FY 1999.

- Percent of inspectors, technical reviewers and project managers in Nuclear Reactor Regulation programs (headquarters and regions) who access RPS or use RPS information routinely in performing their responsibilities. This number should increase progressively and should be measured against the population affected by the various RPS components being implemented in accordance with the baseline schedule.
- Target: Percentage should increase progressively and measured against the population affected by the various RPS components being implemented, 35 percent for FY 1999.

FY 1999 milestones:	1 <sup>st</sup> Quarter	30 percent
	2 <sup>nd</sup> Quarter	30 percent
	3 <sup>rd</sup> Quarter	35 percent

4<sup>th</sup> Quarter 35 percent

FY 1999 actuals: 1<sup>st</sup> Quarter 49 percent (see note above)

- Percent of managers in Nuclear Reactor Regulation programs (headquarters and regions) who access RPS or use RPS information for the purposes of performing management functions pertaining to programs within their purview.

Target: Percentage should increase progressively and measured against the population affected by the various RPS components being implemented, 60 percent for FY 1999.

FY 1999 milestones:	1 <sup>st</sup> Quarter	50 percent
	2 <sup>nd</sup> Quarter	50 percent
	3 <sup>rd</sup> Quarter	55 percent
	4 <sup>th</sup> Quarter	60 percent

FY 1999 actuals: 1<sup>st</sup> Quarter 66 percent (see note above)

- **(New FY 1999 Measure)** The Inspection Reporting (IR) and Analysis Module (AM) of RPS were deployed on September 28, 1998. Actual usage of RPS increased from 221 users through September 30, 1998, to 414 users by December 31, 1998. Since the FY 1999 percentage goals listed above have already been exceeded, and no new RPS modules are planned for deployment in FY 1999, the actual number of users by category will be reported. The fourth quarter FY 1998 is shown as a baseline.

Target: Usage should increase by about 15 individuals per quarter during FY 1999.

RPS Users	FY 1998 Quarter 4	FY 1999 Quarter 1	FY 1999 Quarter 2	FY 1999 Quarter 3	FY 1999 Quarter 4
Admin personnel	77	139	106	117	128
Inspectors	79	176	214	228	256
Managers	42	66	70	72	85
Other	23	33	37	47	54
Total	221	414	427	464	523

**RPS Project Goal 2:** Provide for information management services for the reactor program that yield higher levels of efficiency and reduced longer-term costs.

**FY 1998 Output Measures:**

- Levels of "single entry" and sharing of information, and commensurate reductions in the maintenance of duplicative data. This measure will be based on the percent of data elements entered once and shared throughout the entire RPS spectrum, compared to all data elements in the database.

Target: Percent of data elements entered once and shared throughout the entire RPS spectrum, compared to all data elements in the database, 50 percent for FY 1998.

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 1998 Milestones	0%	40%	40%	50%
FY 1998 Actuals	0%	45%	45%	55%

- Number of current older systems replaced by RPS and associated savings and other benefits. The current goal is the replacement of 10 older legacy systems. Progress on their replacement should be commensurate with the implementation schedule of the various RPS components.

Target: Replacement of 10 legacy systems with RPS components.

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 1998 Milestones	0	4	4	5
FY 1998 Actuals	0	5	5	7

#### FY 1999 - FY 2001 Output Measure:

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 1999 Milestones	7	7	7	7
FY 1999 Actuals	7	7	7	7

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 2000 Milestones	7	7	7	8
FY 2000 Actuals	8	8	8	8

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
FY 2001 Milestones	8	10	10	10
FY 2001 Actuals	8	8	8	8*

\*The deployment of STARFIRE in FY 2002 will delay the replacement of the final two legacy systems until FY 2002.

**RPS Project Goal 3:** Demonstrate a return on investment to the agency from the RPS project.

**FY 1998 - FY 2002 Output Measure:**

- Develop demonstrable returns on investment to the agency.

Target: No significant deviations in the cost, schedule and performance goals for the RPS project (as defined by the Clinger-Cohen Act of 1996).

FY 1999 milestone              No deviations

FY 1999 actual	1 <sup>st</sup> Quarter	No deviations
	2 <sup>nd</sup> Quarter	No deviations
	3 <sup>rd</sup> Quarter	No deviations
	4 <sup>th</sup> Quarter	No deviations

FY 2000 milestone              No deviations

FY 2000 actual	1 <sup>st</sup> Quarter	No deviations
	2 <sup>nd</sup> Quarter	No deviations
	3 <sup>rd</sup> Quarter	No deviations
	4 <sup>th</sup> Quarter	No deviations

FY 2001 milestone	No deviations	
FY 2001 actual	1 <sup>st</sup> Quarter	No deviations
	2 <sup>nd</sup> Quarter	No deviations
	3 <sup>rd</sup> Quarter	No deviations
	4 <sup>th</sup> Quarter	No deviations
FY 2002 milestone	No deviations	
FY 2002 actual	1 <sup>st</sup> Quarter	
	2 <sup>nd</sup> Quarter	
	3 <sup>rd</sup> Quarter	
	4 <sup>th</sup> Quarter	

#### **FY 2002 Reactor Performance goals and measures for RPS.**

FY 2002 Performance Goal # 1 : Provide reactor program information to the staff, stakeholders and the general public.

FY 2002 Performance Measure # 1: Provide updated information via the NRC internal and external Web quarterly

FY 2002 Performance Goal # 2: Provide capability for NRR and regional staff to plan, schedule and assign work.

FY 2002 Performance Measure # 2: Provide staff ability to update work assignments and schedules (new assignments, changes and completions) on a daily basis.

#### **FY 2003 Reactor Performance goals and measures for RPS.**

FY 2003 Performance Goal # 1 : Provide reactor program information to the staff, stakeholders and the general public.

FY 2003 Performance Measure # 1: Provide updated information via the NRC internal and external Web quarterly

FY 2003 Performance Goal # 2: Provide capability for NRR and regional staff to plan, schedule and assign work.

FY 2003 Performance Measure # 2: Provide staff ability to update work assignments and schedules (new assignments, changes and completions) on a daily basis.

**C. Current baseline (applicable only if OMB approved the changes):**

1. *What are the cost and schedule goals for this segment or phase of the project?*

No changes to the original baseline have been requested or approved by OMB.

2. *What are the measurable performance benefits or goals for this segment or phase of this project?*

No changes to the original baseline have been requested or approved by OMB.

**D. Actual Performance and Variance from OMB approved baseline:**

1. *Actual cost and schedule performance. Using the information from your PMBS, explain:*

- a. *What work you planned (scheduled) to accomplish and how much you budgeted to complete the work.*
- b. *What you actually accomplished and how much you actually spent.*

All work will be completed within the original budget. As noted above in the original schedule goals chart, the Time Resource Inventory Management module has been rescheduled to incorporate best practices, additional benchmarking, a new workload management approach and to interface with the agency's new time and labor system STARFIRE. RPS software development was completed in Q3 2001, and RPS/TRIM was put into a limited operational mode to support the STARFIRE pilot. Full

implementation of RPS, which included a production interface with STARFIRE, did not occur until STARFIRE was deployed. The schedule deviations will not impact the budget and did not affect the agency's Y2K efforts.

2. *Cost and schedule variance. If either the actual work accomplished or costs incurred vary from your baseline goals by 10 percent or more, explain:*
  - a. *The variance between planned and actual costs or planned and actual schedule, expressed as a percentage of the baseline goal.*
  - b. *The reason for the variance.*

No cost variance. Schedule changes discussed above are within 10 percent of baseline.

3. *Performance variance. Explain whether, based on work accomplished to date, you still expect to achieve your performance goals. If not, explain the reason for the variance.*

All performance goals will be met.

**E. Corrective actions:**

*If actual work accomplished or costs incurred to date vary from the planned baseline goals by 10 percent or more, explain:*

- a. *What you plan to do, if anything, to correct project performance.*
- b. *What effect your action will have on overall projects cost, schedule, and performance benefits.*

All work will be completed within the schedule and budget. No corrective actions are needed or expected.



## CAPITAL ASSET PLAN

PART I. A. SUMMARY OF PROJECT INFORMATION									
Agency	US Nuclear Regulatory Commission								
Bureau	N/A								
Account Title	Salaries and Expenses								
Account Identification Code	31-0200-0-1-276								
Program Activity	Management and Support								
Name of Project	Agencywide Financial and Resource Management System (STARFIRE)								
Unique Project Identifier	429-00-01-01-1010								
This project is <input type="checkbox"/> New or <input checked="" type="checkbox"/> Ongoing									
Project/Useful segment is funded: <input checked="" type="checkbox"/> Incrementally <input type="checkbox"/> Fully									
Did the Executive/Investment Review Committee approve funding for this project this year?	Yes	X	No						
Did the CFO review the cost goal?	Yes	X	No						
Did the Procurement Executive review the acquisition strategy?	Yes	X	No						
Is this project information technology (see Section 53.2 for a definition)?	Yes	X	No						
For information technology projects <i>only</i> . (The CIO must review)									
a. Is this Project a Financial Management System (see section 53.2 for a definition)?	Yes	X	No						
If so, does this project address a FFMIA compliance area?	Yes	X	No						
If so, which compliance area?	SSFAS No. 4								
b. Does this project implement electronic transactions or recordkeeping?	Yes	X	No						
If so, is it included in your GPEA plan?	Yes	X	No						
c. Was a privacy impact assessment performed on this project?	Yes		No					X*	
d. Does the security of this project meet the requirements of the Government Information Security Reform Act (GISRA)?	Yes	X	No						
e. Were any weaknesses identified for this project in the annual program review or independent evaluation?	Yes		No					X	
B. SUMMARY OF SPENDING FOR PROJECT STAGES									
(In Millions)									
	PY-1 and Earlier	PY	CY	BY	BY+1	BY+2	BY+3	BY+4 Beyond	Total
<b>Planning</b>									
Budget Authority	0.5	0	0	0	0	0	0	0	0.5
Outlays	0.5	0	0	0	0	0	0	0	0.5
<b>Full Acquisition</b>									
Budget Authority	10.1	3.3	0.1	0	0	0	0	0	13.5
Outlays	8.0	4.1	1.1*	0	0	0	0	0	13.2

**Information Technology****Planning, Budgeting and Acquisition of Capital Assets****OMB Exhibit 300, STARFIRE**

Subtotal (planning and full acquisition) (DME)	PY-1 and Earlier	PY	CY	BY	BY+1	BY+2	BY+3	BY+4 Beyond	Total
Budget Authority	10.6	3.3	0.1	0	0	0	0	0	14.0
Outlays	8.5	4.1	1.1**	0	0	0	0	0	13.7
Maintenance (SS)									
Budget Authority	0.3	0.2	1.7	1.7	1.7	1.7	1.7	0	9.0
Outlays	0.3	0.2	1.7	1.7	1.7	1.7	1.7	0	9.0
Total all phases (DME plus SS)									
Budget Authority	10.9***	3.5	1.8	1.7	1.7	1.7	1.7	0	23.0****
Outlays	8.8	4.3	2.8	1.7	1.7	1.7	1.7	0	22.7****

\* Although the NRC has not yet conducted a Privacy Impact Assessment, we will be reviewing the Internal Revenue Service best practices sample suggested by OMB. Upon issuance of additional instructions or guidance by OMB, we will assess the applicability for this system and conduct the review as appropriate.

\*\* Includes accrued expenditures from previous year of approximately \$1M.

\*\*\* Approximately \$300K of budget authority had expired.

\*\*\*\* Budget Authority and Outlays include out-year estimates through FY 2006.

**C. PROJECT DESCRIPTION**

In Fiscal Year 1998, the NRC awarded a contract for an agencywide integrated financial management and resource management system called STARFIRE. It was to be comprised of ten separate modules, plus an executive information system and data warehouse. The modules included human resources, time and labor, payroll, cost accounting, travel management, core accounting, debt management/fee billing, budget formulation, procurement, and property.

On July 23, 1999, the contract with the vendor supplying the core accounting system as well as the STARFIRE modules for cost accounting, travel management, debt management/fee billing, budget formulation, and procurement was terminated by the NRC due to failures of the commercial off-the-shelf (COTS) core accounting software functional requirements. As part of the termination settlement, the NRC received the GELCO, Inc. "Travel Manager" software that was to be the travel management module of the terminated contract. The termination of the core financial management system contract required the NRC to rethink its strategy for the deployment of the STARFIRE system.

With the concurrence of the agency's Executive Council, the STARFIRE system implementation has been downsized in an effort to focus on the modules of the project which were immediately most important to the agency. The project has been focused on the modules for human resources, time and labor, payroll, cost accounting, and travel. The remaining modules initially part of STARFIRE, such as core accounting, procurement, and budget formulation, have been postponed and a determination on future procurement will be made after FY 2002, with implementation beyond FY 2003. Any decision to proceed with these remaining modules will be dependent upon a future and separate Capital Planning and Investment Control (CPIC) analysis.

When and if fully completed, the system will completely update the NRC's business capability and will serve as the single, authoritative source of financial and resource information for the entire agency. It will eliminate the need for individual offices to maintain the current mix of aging systems which minimally meet reporting and functional requirements of the agency and its program managers. The system will, in some way, directly impact every NRC employee.

A significant goal of the new system is to improve the efficiency and effectiveness of financial and resource management in the agency and, at the same time, provide the NRC with a system that will be easily modified to comply with the changing governmentwide laws, regulations and guidance.

The expected performance outcome is that all five of the performance goals described in Part III of this Exhibit 300 for the downsized STARFIRE system are expected to be achieved.

## **PART II: JUSTIFICATION AND OTHER INFORMATION**

### **A. Justification**

*(1) How does this investment support your agency's mission and strategic goals and objectives?*

NRC's existing financial and mixed financial/administrative systems do not meet all of the agency's future requirements. An agency project team documented a significant and immediate need for a new and integrated Agencywide Financial and Resource Management System (STARFIRE). The project team's report, "Agencywide Financial Management System Development Plan" (March 1997), provides the foundation for the STARFIRE business case.

This system supports the agency mission and goals by making available human capital and financial information to NRC managers to help them effectively and efficiently implement NRC programs. The current mix of aging systems falls significantly short in meeting the functional requirements of the agency and its program managers. The Office of the Inspector General has also noted NRC's financial system deficiencies in the annual audit of financial statements. Modification of existing systems to provide the necessary information to meet current requirements would prove more costly than the STARFIRE project and would not provide the added business process efficiencies anticipated through this modernization initiative.

*(2) Is this investment included in your agency's annual performance plan.*

Yes.

*(3) How does this investment support a core or priority function of your agency?*

The overarching goal of STARFIRE is to eliminate the need for multiple financial tracking systems, which may ultimately result in a unified financial management system that will serve as the single, authoritative source of financial and resource information. By providing for a single point of data entry, this integrated system will improve the efficiency and effectiveness of financial and resource management in the agency. STARFIRE will provide for an automated and integrated approach to conduct agencywide financial, human capital, and other resource functions, including travel management, cost accounting, payroll, labor cost distribution and human resources. The system will comply with governmentwide laws, regulations, and guidance.

STARFIRE will provide key support to NRC managers and staff conducting the agency programs in pursuit of NRC's Strategic Plan and Performance Plan. STARFIRE is linked to the Performance Plan's corporate management strategy to employ innovative and sound business practices by strengthening "our financial systems and processes to ensure that our financial assets are adequately protected consistent with risk and that our financial information is better integrated with decision-making." This strategy underlies the performance goals to make the NRC activities and decisions more efficient and effective, and to increase public confidence.

*(4) Are there any alternative sources, in the public or private sectors, that could perform this function?*

We are not aware of any private sector alternatives available for the performance of federal financial management. However, even though the federal budget, accounting practices and requirements are in many ways quite different from those of the private sector, the commercial market has developed a variety of off-the-shelf software products and implementation services to meet financial management program needs for federal agencies. In addition, there is some opportunity for agencies to work with one another through "cross-servicing" arrangements. The NRC considered cross-servicing, however cross-servicing options would not provide a means for achieving the agency's goal of providing an "integrated, single-source" system approach and would obstruct an objective to integrate financial and other program information within the NRC's technical and systems infrastructure.

*(5) How will this investment reduce cost or improve efficiencies?*

The modules currently being implemented will replace many of the fragmented, incomplete and costly financial systems currently in use within the agency. These modules will reside on agency infrastructure, and some modules will be accessible by all NRC personnel. Acquisition and deployment of STARFIRE has been focused on following a best-practices approach, utilizing commercial off-the-shelf software with as little customization as possible. This approach will assure work processes receive sufficient examination to maximize the automation advantages

available through STARFIRE. Also, the system has an emphasis on a single point-of-origin entry, capturing information once, thereby eliminating costly duplicate entry. It will also provide improved financial information for program managers to use in deciding what program to implement.

***B. Program management***

1. *Have you assigned a program manager and contracting officer to this project? If so, what are their names?*

A dedicated Project Team has been established to assure the successful implementation of STARFIRE. Full-time team members have been assigned from key functional areas within the NRC. This central team is led by a Project/Business Manager, John E. Bird, from the Office of the Chief Financial Officer (OCFO). A Technical Manager and Contracting Officer's Technical Representative, George M. Mathews III, has been assigned from the Office of the Chief Information Officer. Also, a Contracting Officer, Sharon D. Stewart has been assigned to support this effort. Other dedicated supporting team members provide a broad and diverse perspective on this initiative.

2. *How do you plan to use an Integrated Project Team to manage this project?*

NRC has established a central STARFIRE team and a number of full-time Applications Teams to focus on specific components of the system: Cost Accounting, Transition and Training, Payroll/Human Resources/Time and Labor, and Travel. Each of these teams coordinate with the central team. Team members from throughout the agency have been carefully chosen to assure success of the project.

Since its inception, selected senior managers have been heavily involved in STARFIRE. Management has and continues to fully participate in the development process. A formal project charter has been developed which delineates the membership and roles of the managerial structure overseeing STARFIRE: Team Members, Team Managers (Project, Business, Technical), and Steering Committee. Communication between these tiers of the project's organizational structure is frequent and effective.

***C. Acquisition strategy***

*Explain how your acquisition strategy will manage or mitigate projects risks by answering the following questions:*

- 1. Will you use a single contract or several contracts to accomplish this project? If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.*

The STARFIRE project initially intended to obtain all envisioned modules in one integrated package from one vendor. Because one of the modules was core accounting, The NRC was required to obtain the software only from the Joint Financial Management Improvement Program approved vendors under the General Services Administration (GSA) Financial Management System Software (FMSS) schedule. When we solicited bids from the GSA FMSS schedule, no vendor had all the desired modules in one integrated package. All were required to interface their product with other vendor products to achieve the desired results. Therefore, STARFIRE required the products of several vendors to be implemented under one contract. With the termination of the core financial management system contract, the NRC has had to initiate standalone contracts for the acquisition of COTS software and implementation services that were included as part of the original, single contract. The NRC has five contracts in place for implementing the downsized STARFIRE project including: two for acquisition of software, and three for implementation services.

The purchased software, along with the software received as part of the termination settlement, is being integrated and interfaced with the agency's existing core financial system by the implementation contractors. When implemented, the software will partially meet the initial project goals by providing staff and dollar savings. However, meeting all of the initial goals will be dependant on the implementation of the remaining modules that will be addressed after FY 2002.

- 2. For each planned contract, describe:*
  - a. What type of contract you will use (e.g., cost reimbursement, fixed-price, etc.).*
  - b. The financial incentives you plan to use to motivate contractor performance (e.g., incentive fee, award fee, etc.).*
  - c. The measurable contract performance objectives*
  - d. How you will use competition to select suppliers.*
  - e. The results of your market research*
  - f. Whether you will use COTS products or custom-designed products.*

The underlying STARFIRE software is comprised of COTS components, which are fixed-price in nature and were acquired under the GSA schedule program. It is primarily the third party software proposed in the original, terminated contract, which was awarded through competition among GSA schedule contractors. The cost accounting software was selected after a thorough analysis comparing software capabilities with agency needs. Implementation services, including conversion of selected existing data, have been acquired competitively through cost reimbursement contracts using various GSA schedules. Past performance and vendor capability were an important aspect to the acquisition strategy. The NRC had not used incentive type contracts for the purchase of software or implementation services.

Software to implement STARFIRE's labor cost distribution (payroll, time and labor, core human resources processing), cost accounting and travel functionality has been acquired using COTS products. Except for the time and labor, and payroll modules which are fairly new to the public sector, the selected COTS providers have extensive experience in the public sector and the software modules are widely used and well-proven in both the public and private sectors. Past performance is a critical factor in assuring successful implementation and integration of this software. Accordingly, NRC considered past performance as a key evaluation factor in selecting support for this aspect of the project. The Office of Federal Procurement Policy's (OFPP) *Guide to Best Practices for Past Performance* was incorporated into NRC's acquisition of implementation services. Past performance evaluation factors included:

- Quality of Services
- Timeliness of Performance
- Cost Control
- Business Practices
- Customer Satisfaction
- Key Personnel Past Performance

The framework/system for evaluating past performance contained within the OFPP guide provided NRC with an excellent foundation for weighing implementation proposals. Specific experience and past performance in the federal environment is also of importance and received the appropriate level of attention in the evaluation of proposals.

#### ***D. Alternative analysis and risk management***

1. *Did you perform a life-cycle cost analysis for this investment? If so, what were the results?*
2. *Describe what alternatives you considered and the underlying assumptions for each*
3. *Did you perform a benefits/costs analysis or return on investment analysis for each alternative considered? What were the results for each? (Describe any tangible returns that will benefit your agency even if they are difficult to quantify.)*
4. *For IT, explain replaced system savings and savings recovery schedule.*
5. *Describe your risk assessment and mitigation plan for this project.*

The following answer pertains to questions 1 through 5.

Two Capital Planning and Investment Control analyses were performed in planning for STARFIRE. They included a life-cycle cost analysis and a benefits/costs analysis. The initial analysis encompassed the core accounting system and its related financial/resource systems. This analysis was later supplemented with a review of the costs and benefits related to the essential ("Basic") human resources system (HRIS) component needed to support the achievement of STARFIRE's complete functional objectives (namely, labor cost distribution). In both instances, alternatives (including Status Quo) were identified and costed out, resulting in NRC selecting not only the lowest cost alternatives, but also those which are expected to deliver the most benefit to the agency.

Implementation of STARFIRE has been planned with minimal modification to the basic software itself. NRC intends to alter business processes where necessary to avoid costly modifications. This in turn will reduce short-term and long-term costs, enable more stringent configuration management and take full advantage of future product enhancements that might otherwise be more difficult to implement in a customized environment.

#### **Assumptions for the analysis**

Alternatives 2 and 3 involved the competitive acquisition of COTS financial management products using the General Services Administration (GSA) Financial Management Systems Software (FMSS) Multiple Award Schedule (MAS) program that is mandatory for obtaining core accounting systems.

STARFIRE will utilize the agency's existing/planned hardware and software infrastructure, and other new capabilities such as document and workflow processing, and where appropriate electronic signature, that are being implemented under other agency initiatives.

COTS products will only be customized to meet Federal regulations or specific requirements of NRC senior management approved changes.

The payroll module will be implemented concurrently with the Basic HRIS, thereby eliminating the costs associated with interfacing with existing systems.

Initially, human resource processing will be centralized. However, a framework for subsequent distribution of selected human resource processing functions to provide managers with critical, decision-making data and tools is expected to be in place once full HRIS is deployed under a separate project.



The NRC will comply with the federal government and agency policy governing human resources systems and other related management laws.

NRC's Office of Human Resources will maintain the agency's detailed organization tables.

### **Alternatives**

The initial CPIC included an analyses of three alternatives as follows:

**Alternative 1 - Status Quo System.** NRC would continue to maintain the existing OCFO financial management systems and approximately 100 office automated, semi-automated, and manual systems, without any functional upgrades or enhancements. Modifications would be limited to those required to make the systems Year 2000 compliant, and other maintenance modifications that may be required to keep the systems operational.

**Alternative 2 - COTS Software using SYBASE for Database Management.** NRC would implement a COTS-based solution which utilizes SYBASE for the database management functions (NRC currently owns a license for the SYBASE relational database management system). This would entail the purchase of a suite of software from a single vendor. This suite would include a module that will meet the Core financial requirements, and other modules for as many other processes and requirements that the NRC determines can be met cost effectively by the selected vendor. When necessary to meet remaining requirements, the NRC would either purchase COTS-based solutions from other vendors or build custom applications. The existing NRC financial systems, including approximately 100 automated, semi-automated, and manual systems, would be eliminated after an initial transition period is completed. The NRC would also implement a management policy requiring that all financial and resource needs be satisfied through STARFIRE, its associated components, and interfaced systems.

**Alternative 3 - COTS Software using ORACLE for Database Management.** NRC would implement a COTS-based solution which utilizes ORACLE for the database management functions, and custom development when required, to support the same requirements as those identified in Alternative 2.

The second analysis (implementation of basic human resources) focused on the following two alternatives:

**Alternative 1a - Status Quo.** Maintain the existing human resources systems and interface them as necessary with STARFIRE. No functional upgrades or enhancements will be made that are not a direct need and result of the interface requirements or needed to achieve Year 2000 compliance, or to comply with changes in legislation and other mandated-type requirements.

**Alternative 2a - Implementation of COTS Software for Basic HRIS.** Implement COTS software purchased under STARFIRE to replace core human resources processing functionality currently performed by legacy systems.

### **Other Alternatives Considered**

**Modification of Existing Systems.** The current systems only minimally meet all of the NRC's current information needs. In an August 26, 1996, survey conducted by the NRC's Financial Managers Council, offices noted that only minimal information needs were being met. In addition, the Office of the Inspector General has noted financial system deficiencies regarding interfaces with payroll in the annual audit of the financial statements. It would be difficult and costly to modify the current systems to provide the data required in today's environment, especially since there are a number of financial and mixed financial/administrative systems in use in the agency outside the core financial system that use varied software and hardware for a variety of purposes.

**Custom Development.** Market surveys determined that there were COTS systems available to meet many of the agency's needs. In addition, the CFO Council Financial Systems Committee guidance advises agencies to use COTS products; and, agencies are prohibited from developing their own core accounting system. Furthermore, custom software could not be developed and deployed within the agency's aggressive implementation schedule.

**Custom Modifications of COTS Systems.** When Federal agencies buy commercially developed financial software, they traditionally modify that software to meet "unique agency requirements." This practice has been very costly, and complicated, especially when vendors upgrade or release new versions of the software. Private sector experience has shown that instead of raising the costs of operations and systems maintenance, businesses should modify or improve their business practices in order to reduce or eliminate the need for system modifications, and therefore eliminate the need for custom modifications by the vendor. Additionally, on June 9, 1997, the NRC Office of the Inspector General issued a Special Evaluation Report (97E-10), Evaluation of the Best Practices for Developing and Implementing an Integrated Financial Management System, and one of the best practices cited in this report is "minimizing software modification."

Software will only be modified to bring it into compliance with Federal laws and regulations or for senior management approved changes.

Other alternatives were considered and discussed with management prior to the approval to proceed with the purchase of COTS software.

**Benefit comparison**

The following non-quantifiable benefits associated with implementation of the chosen STARFIRE alternatives (2 and 2a) were identified:

- 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 decision making.

The baseline performance goals for STARFIRE have been established and will be monitored to assure achievement of these added benefits as they can have substantive positive business impacts on the NRC.

**Cost comparison**

The potential cost savings associated with Alternative 2 were significant. Alternative 3 provided lower life cycle cost savings because it included significant additional expenditures to acquire ORACLE products and build STARFIRE in a different relational database management system and operating environment than that currently used by the agency. In both alternatives, major savings accrued because of efficiencies that can be realized in processing and applications maintenance. The NRC also will realize savings by reallocating FTE that become available due to STARFIRE efficiencies and using these FTE to perform financial management functions previously performed by support contractors.

Cost comparisons were developed for alternatives analyzed under both STARFIRE CPICs. Non-recurring (i.e., one-time software purchases, Y2K fixes) and recurring (i.e., timesharing, maintenance) costs were computed. The following life-cycle discounted costs were projected in STARFIRE's CPICs:

(Dollars in Millions)

Alternative	Cost Estimate	FTE Estimate
Alternate 1 - Status Quo	\$25.9	570
Alternative 2 - SYBASE Core	\$18.1	547
Alternative 3 - Oracle Core	\$23.7	550
Alternative 1a - Status Quo	\$8.7	78
Alternative 2a - Basic HRIS	\$4.6	78

### Risk Comparison

The STARFIRE project management plan established a process to manage two key facets of risk: assessment and control. Risk mitigation activities are planned to reduce the occurrence of risks. Four categories of risk are associated with implementing STARFIRE alternatives. Each category was rated for each alternative with the following results:

### RISK RATINGS

Category of Risk	Score (1=low, 5=high)				
	Alternative 1 Status Quo	Alternative 2 SYBASE Core	Alternative 3 Oracle Core	Alternative 1a Status Quo	Alternative 2a Basic HRIS
Mission Risk	4	2	2	5	1
Financial Risk	2	3	4	2	3
Project Execution Risk	2	4	5	3	4
Operation and Acceptance Risk	2	3	3	1	2
Total Risk Scores	10	12	14	11	10

- **Alternative 1** had a moderate degree of overall risk, but a high degree of mission risk. The lack of timely and accurate resource information in the current environment would continue to impact management decision-making about how to best deploy available resources to effectively support the agency mission.
- **Alternative 2** had a slightly higher overall risk than Alternative 1, primarily because it had a higher risk for project execution and will require several million dollars in investment funding.

- **Alternative 3** had the highest overall risk, primarily because of its higher execution risk associated with integrating ORACLE software into a predominantly SYBASE environment and the greater phase-up investment funding.
- **Alternative 1a** has a slightly higher risk score than Alternative 2a. The mission risk category is significantly higher than the other alternative because the complexity inherent in the current operating environment makes it difficult, if not impossible, to modify the software to comply with new mandated requirements. Alternative 2a is slightly higher risk in three of the four risk categories, however, its low mission risk results in the lower overall rating.

The risk assessment and mitigation plan for this project includes weekly meetings with staff and contractor reporting, use of structured work breakdown approach, the assignment of a single project manager who was assigned responsibility for the entire project, and weekly meetings with agency top management to facilitate steering, guidance and information transfer.

**E. *IT modernization and architecture (IT projects only)***

1. *Does this project support your agency's current architecture or is it part of a modernization initiative?*
2. *Explain how this project conforms to:*
  - a. *Your agency's information technology architecture (current or target, as applicable)*
  - b. *your agency's technology infrastructure*
  - c. *the Federal Enterprise Architecture Framework (FEAF), if used for this project. If the project does not follow the FEAF, explain the reason for the decision and discuss the framework used.*

The following answers questions 1 and 2.

Since its inception, the technical requirements of STARFIRE have been given priority consideration. NRC's established Technical Reference Model (TRM) was provided to potential software vendors during the initial software solicitation phase of the project. The TRM contains the NRC's architecture and infrastructure environment, and is compliant with the FEAF. Products not adhering to the TRM were appropriately noted and costed-out during the review of software proposals. Technical interface requirements are documented to detail information on data that will be passed between STARFIRE and other NRC systems (either way), identify data edit requirements for completing the interfaces and provide information for error reports. Other technical aspects, such as certifying Year-2000 compliance and having the ability to run under NRC's existing and future operating systems were also carefully considered in the evaluation of

proposals and products. "Portability" of data and information to other COTS applications throughout the NRC's desktop computing environment was included in the evaluation and this has been demonstrated with the modules we are currently implementing. This will help further ensure that unique office-specific data manipulation and reporting needs can be met with minimal software modification, thus enabling STARFIRE to achieve an important deployment goal: minimize customization.

The STARFIRE software is composed of COTS products. STARFIRE will be fully integrated and/or interfaced with the NRC's existing core accounting system (FFS). The system is designed to fit within the agency's client-server and LAN infrastructure and is accessible via agency-standard microcomputer.

***F. IT Security (IT projects only)***

*Demonstrate that the security plan for this project:*

- 1. Includes security controls for components, applications, and systems that are consistent with your agency's IT architecture;*
- 2. Is well-planned;*
- 3. Manages risks;*
- 4. Protects privacy and confidentiality; and*
- 5. Explains any planned or actual variance from NIST security guidance.*

An in-depth security methodology has been developed. It includes the following: risk assessment, system security plan, disaster recovery (contingency) plan, and certification and accreditation of the STARFIRE system.

All security controls are consistent with NRC architecture, will manage risk and protect privacy and confidentiality. The System Security Plan, along with the Security Test and Evaluation, documents the security features of the system. Any variances are explained in these documents and in the Certification and Accreditation Document.

***G. Government Paperwork Elimination Act (GPEA) (IT projects only)***

*If this project supports electronic transactions or record keeping:*

- a. Briefly describe the transaction or record keeping functions; and*
- b. Explain how this investment relates to your agency's GPEA plan.*

The following answers questions a and b.

The downsized STARFIRE data base will include human resources information on all NRC employees, travel authorization and voucher information, and labor-cost distribution information. The information in these systems is not routinely released to the public. Financial information, however, will be posted to the Treasury FFS system electronically consistent with the terms of the NRC/Treasury cross-service agreement. This project will be compliant with GPEA.

### **PART III: COST, SCHEDULE, AND PERFORMANCE GOALS**

#### **A. *Description of performance-based management system (PBMS):***

*1. Describe the performance-based management system you will use to monitor contract or project performance.*

The STARFIRE project team has been utilizing the Microsoft Project software program to control the project's schedule. Cost monitoring is being accomplished through the use of spreadsheets and accounting reports. A detailed project management plan and Gantt chart has been established to depict the numerous tasks and subtasks necessary to complete the project and to baseline the resources and time allocations to complete each step. This document will be refined as the project phases are initiated. From this tool, milestone status reports can be generated.

Performance-based service contract (PBSC) approaches have been incorporated in the STARFIRE project including:

- Workload analysis;
- Use of process-oriented requirements;
- Competitive acquisition methods; and
- Use of existing industry (and federal) performance standards.

#### **B. *Original baseline (OMB-approval at project outset):***

*Using the format of your selected PBMS, provide the following:*

*1. What are the cost and schedule goals for this segment or phase of the project?  
[What are the major project milestones or events? When will each occur? What is the estimated cost to accomplish each one?]*

Original cost and schedule goals

Background: The following "original cost and schedule goals" were developed for the entire STARFIRE system. Since the contract for the core financial management system was terminated, the project has been downsized to include the software modules for human resources, time and labor, payroll, cost accounting, and travel. As stated in the Exhibit 300B accompanying the FY 2001 budget request, resources identified in the "original" cost and resource goals will be focused on completion of the modules included in the downsized project. Therefore, subsequent reports will focus on cost and schedule variances from the Current Baseline associated with those modules currently being implemented. The remaining modules will be the subject of a future and separate CPIC and OMB Exhibit 300.

(Dollars in Millions)

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	TOTAL
OBLIGATION	\$0.0	\$6.0	\$1.3	\$1.1	\$0.0	\$8.4
COSTING PLAN	\$0.0	\$2.7	\$4.4	\$1.3	\$0.0	\$8.4

As indicated, the project management plan contains the complete schedule of the actions and steps required for STARFIRE. Following NRC's SDLCM methodology will also enable viewing this initiative by the following categorizations: Requirements Design, Acquisition of Resources, Design, Engineering, Deployment and Servicing. Significant functional milestones in the STARFIRE schedule were as follows:

Core components	FY 1999
Labor cost component	FY 2000
Complete system	FY 2001

2. *What are the measurable performance benefits or goals for this segment or phase of this project? [What are the project performance objectives?]*

STARFIRE's project charter and related background materials detail several specific goals and objectives such as high functionality, geographic indifference, improved data quality and decision support, and intuitive user interface ("friendliness"). As indicated in the charter, financial and programmatic success largely hinge upon STARFIRE's ultimate utility: enabling the agency to function in a more efficient and effective manner. Though the relationship/linkage between STARFIRE and the NRC Strategic Plan and Performance Plan has already been established, an investment of this magnitude warrants additional performance goals:



**STARFIRE Project Goal 1:** Reduction in NRC resources required to maintain financial and related resource information systems. Demonstrate a return on investment to the agency from the STARFIRE project.

Output Measure:

- Staff and dollar savings projected through the STARFIRE planning process are obtained.

**STARFIRE Project Goal 2:** Agency program managers have ready access to current financial and performance information.

Output Measure:

- Percent of Program managers able to obtain and utilize financial and performance data in their day-to-day decision-making.

**STARFIRE Project Goal 3:** Elimination of fragmented agency and office financial and related systems.

Output Measure:

- Number of agency legacy systems replaced by a single integrated system that NRC program offices can rely on for resource and program management information.

**STARFIRE Project Goal 4:** Increase user/customer satisfaction.

Output Measure:

- Deficiencies cited in past information/systems surveys are eliminated. Level of satisfaction to be measured with customer survey. Benchmark already established.

**C. *Current baseline (applicable only if OMB approved the changes):***

*Using the format of your selected PBMS, provide the following:*

- 1. What are the cost and schedule goals for this segment or phase of the project? [What are the major project milestone events and the estimated costs to accomplish each one?]*

The following costs and schedules for the downsized STARFIRE project were submitted as a part of the agency's FY 2002 Budget, OMB Exhibit 300B, STARFIRE, Part III. D. "Actual Performance and Variance from OMB-approved baseline." In the FY 2002 submission, the NRC stated that a new baseline was being established to reflect the downsized STARFIRE system. That new baseline follows:

**Information Technology****Planning, Budgeting and Acquisition of Capital Assets****OMB Exhibit 300, STARFIRE**

(Dollars in Millions)

	<b>PY-1 and Earlier</b>	<b>PY</b>	<b>CY</b>	<b>BY</b>	<b>BY+1</b>	<b>BY+2</b>	<b>BY+3</b>	<b>BY+4 and Beyond</b>	<b>TOTAL</b>
<b>OBLIGATION</b>	\$9.8	\$3.3	\$0.1	\$0	\$0	\$0	\$0	\$0	\$13.2
<b>COSTING PLAN</b>	\$8.6	\$2.7	\$0.4	\$0	\$0	\$0	\$0	\$0	\$11.7

Significant schedule milestones of the STARFIRE project are:

HRIS component (Human Resources,  
Time & Labor, Payroll) FY 2001

Cost Accounting FY 2001

Travel\* FY 2002

\* As of this update, the Agency plans on implementing the Travel Manager software as a part of the STARFIRE project. However, the Agency is also exploring the practicality of obtaining travel management support through a cross-service arrangement with the Department of the Interior.

2. *What are the measurable performance benefits or goals for this segment or phase of this project? [What are the project performance objectives?]*

Performance goals for the downsized STARFIRE project are:

**STARFIRE Project Goal 1:** Reduction in NRC resources required to maintain financial and related resource information systems. Demonstrate a return on investment to the agency from the STARFIRE project.

Output Measure:

- Staff and dollar savings as compared to current operating costs are obtained.

**STARFIRE Project Goal 2:** Agency program managers have ready access to current cost information.

Output Measure:

- Percent of program managers able to obtain and utilize cost information in their day-to-day decision-making.

**STARFIRE Project Goal 3:** Increased user/customer satisfaction over current processes and systems.

Output Measure:

- Level of satisfaction to be measured with customer survey.

**STARFIRE Project Goal 4:** Meet SSFAS No. 4 standard.

Output Measure:

- The deficiency noted in the NRC's FY 1999 financial statement relative to systems is eliminated.

**STARFIRE Project Goal 5:** Make the process for initiating, approving, and closing out travel authorizations more efficient.

Output Measure:

- Implement an automated, single point of data entry travel system within the agency.

3. *Exhibit 53 goals and Objectives.*

FY 2002 Performance Goal 1: Agency program managers will have ready access to current cost information.

FY 2002 Performance Measurement 1: Single source of current cost information available to all program managers after cost accounting module becomes available in FY2002.

FY 2002 Performance Goal 2: Meet Federal Accounting Standards Advisory Board -4 (FASAB) standard [Concerns availability of financial cost information for agency managers]

FY 2002 Performance Measurement 2: Project will satisfy FASAB-4 standard when the cost accounting module becomes available in FY2002.

FY 2003 Performance Goal 1: Agency program managers will have ready access to current cost information.

FY 2003 Performance Measurement 1: Single source of current cost information available to all program managers after cost accounting module becomes available in FY2002. The capability will continue to be available to agency program managers in FY 2003.

FY 2003 Performance Goal 2: Meet FASAB-4 standard

FY 2003 Performance Measurement 2: Project will satisfy FASAB-4 standard when the cost accounting module becomes available in FY2002. Project will continue to satisfy FASAB-4 in FY 2003.

**D. Actual Performance and Variance from OMB-approved baseline (Original or Current):**

1. *Actual cost and schedule performance. Using the information from your PBMS explain:*

a. *What work you planned (scheduled) to accomplish and how much you budgeted to complete the work.*

b. *What work you actually accomplished and how much you actually spent.*

The following responds to both parts 1.a. and 1.b.

STARFIRE Cost Update

(Dollars in Millions)

	PY-1 and Earlier	PY	CY	BY	BY +1	BY +2	BY +3	BY+4 and Beyond	TOTAL
CURRENT COSTING PLAN	\$8.6	\$2.7	\$0.4	\$0	\$0	\$0	\$0	\$0	\$11.7
ACTUAL COST EST.	\$8.8	\$4.3	\$0.1	\$0	\$0	\$0	\$0	\$0	\$13.2

The "current" schedule calls for implementation of the HRIS component (basic human resources, time and labor, and payroll), and cost accounting in FY 2001, with the travel module following in FY 2002.

The installation of all software and the set-up of the HRIS component, i.e., modules for basic human resources, time and labor, and payroll, has been completed. This component was scheduled to become operational in March 2001. After a lengthy parallel test of the software applications and the identification of additional performance problems during the parallel test,

it became necessary to delay system implementation. The system is now scheduled to become operational on October 7, 2001. While effectively implemented in FY 2001, the actual implementation date is six months later than the NRC had planned. The six month delay has resulted in increased costs.

The schedule for the cost accounting component included the assessment and purchase of COTS software and the set-up of the software within the agency infrastructure in concert with the HRIS component. This module is also scheduled to be implemented on October 7, 2001, along with the HRIS component, six months later than previously anticipated.

The travel management system is scheduled for agencywide implementation in FY 2002. Administrative tables were built for two NRC organizational units. An on-going pilot test was initiated with those two units at the start of FY 2001. The travel module is on schedule for FY 2002. However, NRC is exploring the possibility of cross-servicing Travel Management with the Department of Interior.

2. *Cost and schedule variance. If either the actual work accomplished or costs incurred vary from your baseline goals by 10 percent or more, explain:*

a. *The variance between planned and actual costs or planned and actual schedule. Expressed as a percentage of the baseline goal.*

The cost and schedule variances are identified in section 1, above. The baseline cost and schedule estimates contemplated implementation of the human resources, time and labor, payroll and cost accounting modules in mid FY 2001. Actual implementation is scheduled to occur at the end of FY 2001, six months later. The cost variance between the current baseline and the actual cost estimate is an increase of 12.8% (\$1.5M).

b. *The reason for the variance.*

The schedule delay is due primarily to taking longer than anticipated to resolve performance problems identified as a result of the initial parallel test, the need to resolve additional performance issues that were identified after resumption of the parallel test, and the need to install vendor "patches" to federalize the software to meet agency needs.

The increased costs (\$1.5M) are primarily due to the additional six months of intensified effort needed to resolve performance issues (Approximate Cost - \$1.2M) and to purchase additional hardware (Approximate Cost - \$0.3M) to insure that the NRC failover system will operate at an acceptable performance level in the event of a primary system failure. Also, resolving some of the performance problems required the purchase and installation of additional memory, processors, and disc hardware for the primary system.

3. *Performance variance. Explain whether, based on work accomplished to date, you still expect to achieve your performance goals. If not, explain the reasons for the variance.*

It is expected that the performance goals for the downsized project will be achieved.

**E. Corrective actions:**

*If actual work accomplished or costs incurred to date vary from the planned baseline goals by 10 percent or more, explain:*

- a. *What you plan to do, if anything, to correct project performance.*
- b. *What effect your action will have on overall project cost, schedule and performance benefits.*

Action was taken to resolve performance and hardware issues identified throughout the parallel test. No further corrective actions are planned since the system implementation is on schedule with plans to become operational on October 7, 2001.

# Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

PART I. A. SUMMARY OF PROJECT INFORMATION									
For detailed instructions on completing the capital asset plan please see A-11 details section 300 at <a href="http://www.whitehouse.gov/omb">www.whitehouse.gov/omb</a>									
Agency	U.S. Nuclear Regulatory Commission								
Bureau									
Account Title	Salaries and Expenses								
Account Identification Code	31-0200-0-1-276								
Program Activity	Management and Support								
Name of Project	Agencywide Documents Access and Management Systems (ADAMS)								
Unique Project Identifier									
This project is <input type="checkbox"/> New or <input checked="" type="checkbox"/> Ongoing									
Project/Useful segment is funded: <input checked="" type="checkbox"/> Incrementally <input type="checkbox"/> Fully									
Did the Executive/Investment Review Committee approve funding for this project this year?	Yes	X	No						
Did the CFO review the cost goal?	Yes	X	No						
Did the Procurement Executive review the acquisition strategy?	Yes	X	No						
Is this project information technology (see Section 53.2 for a definition)?	Yes	X	No						
For information technology projects only. (The CIO must review)									
a. Is this Project a Financial Management System (see section 53.2 for a definition)?	Yes		No	X					
If so, does this project address a FFMIA compliance area?	Yes		No						
If so, which compliance area?									
b. Does this project implement electronic transactions or recordkeeping?	Yes	X	No						
If so, is it included in your GPEA plan?	Yes	X	No						
c. Was a privacy impact assessment performed on this project? Although the NRC has not yet conducted a Privacy Impact Assessment, we will be reviewing the Internal Revenue Service best practices sample suggested by OMB. Upon issuance of additional instructions or guidelines by OMB we will assess the applicability for this system and conduct the review as appropriate.	Yes		No	X					
d. Does the security of this project meet the requirements of the Government Information Security Reform Act (GISRA)?	Yes	X	No						
e. Were any weaknesses identified for this project in the annual program review or independent evaluation?	Yes		No	X					
B. SUMMARY OF SPENDING FOR PROJECT STAGES									
(In Millions)									
	PY-1 and Earlier 97-00	PY 01	CY 02	BY 03	BY+1 04	BY+2 05	BY+3 06	BY+4 Beyond 07 thru 11*	Total
<b>Planning</b>									
Budget Authority	0	0	0	0	0	0	0	0	0
Outlays	0	0	0	0	0	0	0	0	0
<b>Full Acquisition</b>									
Budget Authority	13.8	0	0	0	0	0	0	0	13.8
Outlays	13.8	0	0	0	0	0	0	0	13.8
<b>Subtotal (planning and full acquisition) (DME)</b>									
Budget Authority	13.8	0	0	0	0	0	0	0	13.8
Outlays	13.8	0	0	0	0	0	0	0	13.8
<b>Maintenance (SS)</b>									
Budget Authority	2.6	3.2	3.1	3.0	3.3	3.5	3.6	21.0	43.3
Outlays	2.6	3.2	3.1	3.0	3.3	3.5	3.6	21.0	43.3
<b>Total all phases (DME plus SS)</b>									
Budget Authority	16.4	3.2	3.1	3.0	3.3	3.5	3.6	21.0	57.1
Outlays	16.4	3.2	3.1	3.0	3.3	3.5	3.6	21.0	57.1

\* assumes ADAMS will be retired in FY 2011

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

### C. PROJECT DESCRIPTION

(briefly describe (less than 1/2 page) the general purpose of the project and the expected performance outcome at project completion)

ADAMS is an enterprise system that provides cradle-to-grave document management. The system supports document creation or capture, distribution and dissemination, records management, and search and retrieval by both NRC staff and the public. ADAMS has replaced the agency's Nuclear Document System (NUDOCS) -- an aging, microfiche-based, legacy document indexing system that has limited full text search capabilities, runs on a Data General minicomputer and relies heavily on customized software. ADAMS has also replaced numerous other agency document and text management systems. ADAMS runs on the agency's local area network and, to the extent possible, capitalizes on the availability of off-the-shelf software to deliver primary system functions.

### PART II: JUSTIFICATION AND OTHER INFORMATION

#### A. Justification

No additional input requested by OMB. However, the following brief summary from the FY 2003 Exhibit 300 is provided for background. [NOTE: Additional justification from more recent assessments is included in Section D., below].

The NRC's mission is to regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.

Effective management of information is critical to NRC performing its mission and most of the important information is in documents. The Commission's policies, decisions, and bases for regulatory actions depend on these documents.

ADAMS supports the creation or capture, storage and retrieval, records management and dissemination of documents related to NRC's core business functions, such as the licensing and regulatory oversight of nuclear reactor operations and other activities involving regulation of nuclear materials and nuclear waste. Access to these documents by both NRC staff and the public is absolutely essential to carrying out the mission of the agency.

#### B. Program Management

*Have you assigned a program manager and contracting officer to this project? If so, what are their names?*

Lynn Scattolini is the ADAMS program manager. She is Director of the Information, Records, and Document Management Division in the Office of the Chief Information Officer. Ms. Scattolini is a member of the SES corps, and reports directly to the NRC's Chief Information Officer. (CIO). Ms. Scattolini manages and coordinates interfaces with NRC headquarters and regional offices and chairs an intra-agency steering group of senior executives that provide direction and ensure alignment with NRC's business functions. Wil Madison is the technical project manager for ADAMS. An interdisciplinary, integrated project team of professionals is assigned to operate, maintain, and support the system. As indicated in the table provided under Section C, below, there are several existing contracts that support ADAMS. The individual to whom the contracting officers report is Mark Flynn, Chief, Information Technology Acquisition Management Branch, Division of Contracts and Property Management, Office of Administration.

#### C. Acquisition Strategy

*Explain how your acquisition strategy will manage or mitigate project risks. Explain what type(s) of contracts you will use. Explain what type(s) of financial incentives you will use.*

The acquisition of ADAMS operations and maintenance support is being accomplished through multiple contracts. **The following table provides requested information about each contract.** The NRC manages procurement risk by competitive and/or fixed price award whenever possible. NRC IT contracts require adherence to the agency's Systems Development Life Cycle Management Methodology and IT standards.



## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

Name of Contract and Contractor	Service Provided	Type of Contract	Financial Incentives to Motivate Contractor Performance	Competition to Select Suppliers	How Contract Supports Project Performance Goals
ADAMS Operation and Maintenance and Development Support CISSCO-II. OAO Corporation	General (release-based and emergency) maintenance and operational support of the ADAMS custom software, databases, & hardware configuration, as defined by the NRC SDLCM.	T&M	Deductions for poor performance	Competitive Award	Improve staff management of and access to NRC documents
FileNET Support Services. FileNET Corporation	Technical planning and on-site expertise to upgrade FileNET's document management SW	Labor Hours	None	Sole Source	Same as above
FileNET Corporation	Maintenance of vendor's COTS SW used in ADAMS for document management functions	Fixed Price	None	Sole Source	Same as above
Software Support Services TrueArc	On-site support to resolve technical problems and assist with system upgrades to the most current release of TrueArc's records management software in use by the NRC	Fixed Price	None	Sole Source	Provides software features needed for ADAMS to be a NARA approved electronic recordkeeping system
Maintenance TrueArc/Foremost	Maintenance of vendor's COTS SW. used in ADAMS for records management functions	Fixed Price	None	Competitive	Same as above
Ruland Associates, Inc. (RAI)	Provides systems administrator support functions	Cost Plus Fixed Fee	None	Small Business Set-Aside	Provides operational support for ADAMS to deliver records and document management functions
ADAMS Public Interface Prototype (PIP) Convera Corporation	Purchases COTS package, provides for SW maintenance and screen design	Fixed Price	None	GSA Schedule	Improves public access to NRC documents

### D. Alternatives Analysis and risk management

**[NOTE: No additional input was requested by OMB for the ADAMS business case which supported the initiation of the ADAMS project development or Selection Phase. The Benefit/Cost/Risk analysis of alternatives for the ADAMS project was included in all previous Exhibit 300 (b) submissions and can be provided upon request.]**

ADAMS has been operational since November 1999. In April 2001, the Harvard Computing Group (HCG) completed an independent assessment of ADAMS. The purpose of the assessment was to determine whether the NRC is on an appropriate pathway to establish an electronic document management system to meet the agency's long-term needs. Upon completion of HCG's assessment, the Gartner Group conducted an independent validation and verification analysis. HCG and the Gartner Group concluded that FileNET and TrueArc, the vendors of the COTS packages being used for ADAMS for document management and records

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

management respectively, should remain in place as the technical foundation for the long-term evolution of the system. The consultants also reaffirmed NRC's plans to upgrade ADAMS through the use of new COTS and Web-enabling features developed by the vendors.

NRC is mitigating risk in accomplishing planned upgrades through several actions. Prior to proceeding, NRC contracted with FileNET's Professional Service Group to map out a technical approach and project plan to accomplish the desired upgrades. NRC also assigned a highly experienced systems engineer to manage the upgrades and acquired additional expertise for technical on-site support from FileNET Corporation, the vendor of the COTS product in use. To improve ease of access to public users, NRC acquired a COTS product that already interfaces with FileNET, and has contracted with the vendor of the COTS product to design Web screens and provide technical expertise in setting the system up.

NRC is mitigating technical risk in operating the system through continuing application of its System Development Life Cycle Management Methodology (SDLCM), use of a Configuration Control Board (CCB) and application of CCB procedures, benchmarking and continuing monitoring system performance, and use and update of system operating procedures. As mentioned previously, contractors are required to follow NRC's SDLCM and to conform with NRC's architecture and standards. NRC is mitigating acquisition and financial risks through competition through competition or the negotiation of fixed price contracts whenever possible.

### **E. Enterprise Architecture (IT Projects Only)**

As discussed below, ADAMS conforms to the NRC's technology infrastructure and to the NRC Technology Architecture framework. This is accomplished by satisfying NRC mission and business functions and being consistent with NRC's software, hardware, and communications standards. To ensure the former objective, NRC Management Directive 2.2, Capital Planning and Investment Control, requires that all major systems be reviewed by the Information Technology Business Council (ITBC). The ITBC brings an agency wide business and programmatic perspective to IT investment justification. The ITBC review of the business case also focuses on minimizing duplication, maximizing integration, and promoting benchmarking and process redesign before automation. Consistency with technical standards is ensured by Office of the Chief Information Officer review of the technical solution proposed in the business case.

#### *1. Does this project support your agency's current architecture or is it part of a modernization initiative?*

The ADAMS project is a modernization initiative to provide a modern document management capability for use in the agency. It has been implemented as infrastructure to maintain NRC official agency records. As a modernization initiative, it replaces NUDOCs (the previous NRC document locator system) and the Bibliographic Retrieval System (BRS), two legacy document management systems.

The ADAMS project supports the NRC's current architecture. The NRC architecture is a tiered, distributed computing model that provides IT services to employee desktops, designated contractors, external organizations, such as other government agencies, domestic and foreign, nuclear power plants and other clients, laboratories and the general public. Access and connectivity to ADAMS is supported using Wide Area Network (WAN) Architecture and Local Area Network (LAN) Architecture.

#### *2. Explain how this project conforms to:*

- a. your agency's information technology architecture; and*
- b. the Federal Enterprise Architecture Framework (FEAF), if used for this project. If you are not following the FEAF, explain why and describe which framework you are using.*

ADAMS conforms to the NRC's technology infrastructure. ADAMS software is installed on employee desktops, agency application and database servers. It is integrated with agency office automation software (Novell GroupWise and WordPerfect). It is scalable and inter-operates with the agency network and is supported by the agency systems management functions.

ADAMS conforms to the NRC Information Technology Architecture framework, which is similar to the Federal

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

### Enterprise Architecture Framework (FEAF).

#### Business Architecture:

ADAMS is a document management capability that supports business processes across all 11 business areas as defined in the NRC Enterprise Model (EM). The NRC EM is a model of NRC business functions and processes with information technology systems mapped to the business functions they support.

Because ADAMS was a generic capability that would provide document management in support of all NRC business functions, a detailed business model was developed for it. A working group of NRC business managers developed a functional model of generic document management capabilities and requirements. This high level functional model was de-composed into five areas and detailed process models were developed for each of these areas. In addition, workflow processes, security, and access controls were developed. These defined the business architecture for ADAMS.

#### Data Architecture:

ADAMS was designed using Commercial Off The Shelf (COTS) software with built-in document and records management capabilities. The underlying database structure is both Object Data Base Connectivity (ODBC) and Structured Query Language (SQL) compliant to ensure a standard method of accessing relational data. Some customization was performed to incorporate additional data elements and feature functions. Where applicable, ADAMS utilized data administration and modeling techniques as supported in the NRC Systems Development Life Cycle Management Methodology and the NRC Data Administration Reference Manual. The fields and identifiers for ADAMS documents are standard and conform to the NRC Data Architecture Naming Standards and Conventions. These were developed and coordinated through an agency data administration (DA) function. The agency DA function maintains the NRC Strategic Data Model (SDM) and NRC Consolidated Data Model (CDM). The NRC SDM is a model of NRC data entities with entities mapped to the business functions and application systems they support. The NRC CDM is a detailed inventory of standard data entities and attributes. In some cases, ADAMS developed new data fields and rule sets, such as "affiliation", which were added to the CDM.

#### Applications Architecture:

ADAMS was implemented as an infrastructure capability for modern document management. It replaces earlier systems that offices had been using for these functions. These legacy applications were identified in the NRC Inventory of systems and databases. ADAMS and all of its components were implemented using client-server technology and agency-approved COTS products. NRC developed some custom code and interfaces. The custom interfaces were implemented using FileNet's Panagon IDM Toolkit using 32-bit COM (Microsoft Component Object Model) objects that will support future upgrades of Panagon. Tools used in the customization of ADAMS were added to the NRC Applications Development Toolkit.

#### Technology Architecture:

ADAMS conforms to the agency's technology architecture, as documented in the NRC's Technical Reference Model. This is a framework of technical standards used to plan platforms and infrastructure for new systems. It documents the technology and network architecture for the agency. ADAMS was implemented within the agency's standard client-server and LAN infrastructure and is accessible via agency-standard microcomputers.

## Capital Asset Plan (Exhibit 300) OMB A-11, FY 2003 Budget Submission

### F. Security and Privacy (IT projects only)

*NOTE: Referring to security plans or other documents is not adequate.*

*Discuss the security plan for this project and:*

1. *demonstrate that the costs of security controls are understood and are explicitly incorporated in the life-cycle planning of the overall system, including the additional costs of employing standards and guidance more stringent than those issued by NIST;*

NRC's interim Management Directive 2.5, "Application Systems Life-Cycle Management," establishes the policies for developing and maintaining application systems. The SCLCM Methodology Handbook and its companion volume of procedures, standards, and forms implement Directive 2.5 by providing life-cycle structure and guidance for all NRC projects. The SDLCM methodology requires that **security controls**, as set forth in **Office of Management and Budget (OMB) Circular A-130, Appendix III, "Security of Federal Automated Information Resources,"** and reiterated in NRC Management Directive 12.5, "NRC Automated Information Systems Security Program," be included as an integral part of the systems development and life-cycle management process for both general support systems and major applications. The six security controls are as follows:

1. The assignment of responsibility for security - a system security officer
2. Security Planning - Security Plan developed
3. Periodic review of security controls - Certification Testing
4. Management authorization - Accreditation

In addition, MD 12.5 requires that the following security controls are also in place and implemented :

5. Performance of a Risk Assessment
6. Backup and Recovery Plan developed and tested

In accordance with OMB Circular A-130, Appendix Part III, it is NRC policy that the security controls are reviewed for each system when significant modification are made to the system, but at least every three years.

The Agencywide Documents Access and Management System (ADAMS) is a major element of the NRC's information technology and management infrastructure. ADAMS provides the capability for staff to capture documents as they are created and store all new documents electronically in one location. Staff can search, view, and electronically copy documents at their workstations.

The security officer is John Voglewede. A risk assessment was completed September 1998. A draft security plan was completed November 1999. A ST&E was also completed during November 1999 and an interim backup and recovery plan was completed May 2000. NRC is currently acquiring contractor support to ensure compliance with current Federal and NRC guidelines. This work will include a Risk Assessment Report, A System Security Plan, a Security Test and Evaluation Plan, security controls testing and report, a Business Continuity Plan (BCP), BCP training, BCP testing, a BCP Test Report, and a System Certification Report. All work should be completed by the end of CY 2002.

2. *demonstrate how the agency ensures that risks are understood and continually assessed;*

The NRC has an aggressive and proactive security awareness program to insure that risks are understood. This program includes a Computer Security Awareness Day, new employee IT security orientation, an mandatory on-line IT security awareness course, and the issuance of all employee alerts and awareness announcements frequently. This is intended to make individuals aware of IT security as a concern that must be constantly attended to.

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

*3. demonstrate how the agency ensures that the security controls are commensurate with the risk and magnitude of harm*

NRC Management Directive 12.5 requires system sponsors to assess risks associated with the operation of each NRC general support system or major application that they are responsible for. System sponsors complete risk assessments under any of the following conditions:

- Periodically (at least every 3 years)
- Upon significant change to the system (e.g., software or hardware upgrade)
- Upon discovery of a security breach
- When increases in potential threats to the system are detected
- New system/application development

Subsequently a Security Plan is developed and Certification Testing is conducted to determine the extent to which a particular IT system design and implementation meet a specified set of security standards.

The NRC also routinely conducts risk assessments of its network and interconnections including assessments of intentional attacks on the network to determine vulnerabilities.

*4. identify additional security controls for systems that promote or permit public access, other externally accessible systems, and those that are interconnected with systems over which program officials have little or no control*

NRC publicly accessible systems and WEB sites are "read only."

*5. demonstrate how the agency ensures the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access.*

NRC publicly accessible systems and WEB sites are "read only."

*6. demonstrate how the agency ensures that the handling of personal information is consistent with relevant government-wide and agency policies.*

The NRC follows the requirements of the Privacy Act, 5 U.S.C. 552a and OMB's requirements for the implementation of the Privacy Act. NRC's policies can be found in NRC's regulations at 10 CFR Part 9, Management Directive 3.2, "Privacy Act," and on the NRC's external Web site.

**G. Government Paperwork Elimination Act (GPEA) (IT projects only)**

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

No additional information requested by OMB. However, the following discussion from the FY 2002 Exhibit 300 is provided for background.

### *1. Briefly describe the transaction or recordkeeping functions*

ADAMS has been established as NRC's official recordkeeping system for all record series in which an analysis showed that it is cost-effective to maintain collections of records in electronic in lieu of paper form. This covers virtually all of the programmatic record collections of the agency and some of its administrative record collections. The software that NRC employs conforms to DOD standards that have been endorsed by the NARA.

### *2. Explain how this investment relates to your agency's GPEA plan.*

ADAMS will use the technology, processes, and procedures of NRC's electronic information exchange program (EIE) to allow for two-way voluntary electronic submission of documents to the NRC and between NRC and its stakeholders. A production electronic information exchange (EIE) system is being developed to accommodate electronic document submittals required under 10CFR Part 50, including document exchange between the NRC and its licensees, vendors, the general public, and other entities. The production EIE system, which is currently in a pilot phase, provides for electronic authentication (electronic signature) methods to verify the identity of the sender and the integrity of electronic content. The production EIE system is expected to be expanded to accommodate other types of submittals eligible for electronic submission to the NRC. In addition, the production EIE system will provide document retrieval capability integrated with ADAMS.

ADAMS is an electronic information system which is a vital component of a multi-tiered NRC's public information strategy. ADAMS is appropriate for public users who are familiar with NRC's documentation and who, by virtue of their interest and/or occupation, require frequent and regular access to NRC's documents. ADAMS allows expanded public access to all NRC's publicly-available documents via the Internet. The system permits full text searching and provides the ability to view document images, download files, and print locally. It provides the ability for the public to order copies of NRC documents on-line. The methods used for ADAMS search and retrieval by the public are the same as those being used by NRC staff for management of agency documents.

## **PART III: COST, SCHEDULE, AND PERFORMANCE GOALS**

**A. Performance Based Management System (PBMS):** Which performance based management system will you use to monitor contract or project progress?

The ADAMS project team (NRC staff and the contractor's managers) are utilizing Microsoft Project™ as the management control tool for schedule and cost performance monitoring. The baseline project plan and underlying task order plans are populated by the contractor with resource estimates. A monthly update to the schedule is provided that indicates resources expended and percentages of tasks completed. The software is then used by NRC staff to generate a budget summary report, top level milestone report, monthly cash flow report, and Gantt reports.

**B. Original baseline (OMB approved at project outset):** Using the format of your selected PBMS, provide the following:

1. What are the cost and schedule goals for this segment or phase of this project? [i.e., what are the project milestones or events, when will each occur, and what is the estimated cost to accomplish each one]

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

### ORIGINAL PROJECT BASELINE:

(Dollars in Millions)	FY 1997	FY 1998	FY 1999	FY 2000	TOTAL
OBLIGATION	\$ 2.0	\$ 7.0	\$ 3.7	0	\$ 12.7
COSTING PLAN *	\$ 1.5	\$ 6.7	\$ 3.5	\$1.0	\$ 12.7

\* Assumes timely submission of contractor bills.

The NRC has completed the overall acquisition through the Comprehensive Information Systems Support Contract, (CISSCO). The Design task order and the Hardware and Software Acquisition task order to establish the Developer suite and test bed have been issued. The Engineering task order is ready for contractor pricing and is expected to be completed by mid-October 1997.

Deployment, training, NUDOCS conversion, electronic interface, and policy and procedure development task orders are expected to be completed by October 30, 1997.

### ORIGINAL SCHEDULE GOALS:

Complete design and engineering	June 1998
Complete headquarters deployment	March 1999
Complete regional deployment	June 1999
Begin receipt of external electronic submissions	June 1999
Complete conversion of existing document index data	July 1999

2. What are the measurable performance benefits or goals for this segment or phase of this project? [what are the measurable performance improvements or efficiencies that you expect to achieve with this project?]

NRC's information goal is to "ensure that accurate information is available as needed to achieve the agency's strategic goals." One of the performance indicators for this goal is the level of customer satisfaction with the accuracy and availability of information in NRC's primary systems. Another indicator is the percentage of high-level data entities in the agency's primary systems that are entered once for all systems to access. Through implementation of the ADAMS system, we believe it will be a possible to achieve a significant positive impact on both of these indicators.

First, we aim to achieve a substantial increase in the level of satisfaction with the accuracy and availability of information in the agency's core document management system. The project performance goal for ADAMS is an increase in the level of NRC staff satisfaction with the availability of information in agency documents keyed to the results of the baseline measure that will be determined by a survey to be completed in FY 1998. The specific increase will be determined after the baseline has been established. This goal will be achieved six months after ADAMS is fully deployed and employees have been trained to use it.

Second, all documents will be stored once and will be available for access by other systems. The performance measure in this case is that all other systems development in a client-server environment that are capable of interface or integration with ADAMS will be able to access ADAMS for its documents.

The risk of not meeting performance plan goals was not specifically addressed in the NRC CPIC analysis for the selected ADAMS alternative. Risks were assessed and reported for mission impact, volatility of requirement, scope, technical risk, management and financial consensus, and type of procurement. The selected alternative has the lowest risk ("2") of all evaluated options in the area of mission impact, including the current status quo that has the highest ("5"). ADAMS will greatly increase confidence that the agency has all of its official records on file. Conversely, an assessment of anticipated return was made for alignment with strategic plan, mission effectiveness, operational efficiency, customer needs and organizational impact. In the area of operational efficiency, the selected alternative rated the maximum score for demonstrating cost reductions in data replication and data accessibility. In the area of customer needs, the selected alternative rated the maximum score for demonstrating direct impact on NRC's external customers. In the area of organizational impact, the selected alternative rated the maximum score for delivering agencywide benefit to multiple offices and regions.

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

The key programmatic assumptions used to determine the performance goals were as follows:

- The agency will develop and implement agency-wide document management rules that everyone will have to follow. The rules cover such things as standardized author-generated document descriptions and protocols for document routing and concurrence.
- The agency will develop and implement regulations and resolve issues necessary to obtain submissions from external sources in an agency-specified electronic format. The cost estimates included in the analysis are based on the assumption that beginning in FY 2000, 70 percent of all externally generated pages will be received in an electronic format that requires no additional processing by the NRC.
- ADAMS will be a "this-day-forward" system. It will start collecting newly prepared documents from the day it becomes operational. The project will not include conversion of existing documents (created before ADAMS implementation) into ADAMS.

### C. Current baseline (applicable only if OMB approved the changes):

#### 1. What are the cost and schedule goals for this segment or phase of the project?

In order to reduce risk, NRC revised its initial strategy and adopted a plan to develop and deliver ADAMS software components in modules rather than all of the software functionality at one time. The software component of ADAMS that provides every employee with document management and search and retrieval functionality was delivered and installed on every NRC employee's desktop by August 1999. Version 2.1, which delivered an external Web based version of the document management software, and enabled placing publicly available documents in electronic form on NRC's external Web site, was also delivered and installed on a small number of workstations in October 1999. Version 2.2, which provided for electronic document distribution was installed on a handful of workstations in September 1999. Finally, Version 3.3, (originally planned as Version 2.3 for implementation in January 2001), involved the refinement of a gateway between the document management and records management software and was installed on the desktops of NRC's records custodians in July 2001.

#### ADAMS PROJECT UPDATE

	PLANNED	ACTUAL
Complete design	September 1998	September 1998
Complete engineering of document management & workflow software (version 1)	February 1999	February 1999
Complete headquarters deployment of version 1	August 1999	August 1999
Complete regional deployment of version 1	July 1999	July 1999
Begin receipt of electronic submissions (pilot)	August 1999	March 2000
Complete conversion of existing document index data	October 1999	October 1999* (see note)
Delivery and installation of public access software (version 2.1)	September 1999	October 1999
Delivery and installation of electronic document distribution software (version 2.2)	September 1999	September 1999
Delivery and installation of records management Software.	December 1999	Delivered August 2000**.

\*The existing document database conversion was completed. However, the legacy systems that contained this data (NUDOCS & BRS) are still being used by both NRC staff and the public for search and retrieval of the information while we complete the tuning of the new ADAMS legacy databases. We expect to open the ADAMS legacy databases in the second quarter of FY01.

\*\*The records management software was initially delivered and tested in January 2000. The NRC did



## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

not accept the software and it was returned to the contractor to correct deficiencies. The software was redelivered in August 2000 as part of a maintenance release. Agencywide installation of the maintenance release is scheduled to begin in January 2001 and installation of the records management software will occur for selected staff in January 2001 as well.

### ADAMS PROJECT COSTS (Dollars in Thousands)\*

	FY97	FY98	FY99	FY00	FY01	FY02	TOTAL
Current Baseline							
(Obligated)	2,000	7,024	4,462	0	0	0	13,486
Actual Project Costs	2,000	7,024	4,462	278.4	0	0	13,764.4

NOTE: Delta between current baseline and actual is 2%.\* Excludes unanticipated business continuity costs (i.e., extension of unplanned operations of two legacy systems through Quarter 1, FY2001) of \$145.5K and \$28.6K in FY 2000 and 2001, respectively.

### ADAMS MAINTENANCE & OPERATIONAL COSTS (1) (Dollars in Thousands)

	FY97	FY98	FY99	FY00	FY01	FY02	TOTAL
Current Baseline							
(Obligated)	0	0	203	2,600	2,100	3,225	8,128
Actual and Projected							
Maintenance and Operational Costs	0	0	203	2,436	2,212	2,254	7,105

NOTE: Delta between current baseline and actual is 12% lower than budgeted.

(1) "Steady state" as defined in OMB Circular A-11, Part 3, Exhibit 42 - July 1998.

### 2. What are the measurable performance benefits or goals for this segment or phase of this project?

As NRC's Strategic and Performance Plans have evolved over time, the original information goal ("Ensure that accurate information is available as needed to achieve the agency's strategic goals.") has been replaced by an Information and Streamlining Goal ("Apply information technology to streamline processes, improve information delivery, and support scientific computing and information needs."). The ADAMS project will have a significant impact in helping to achieve both this goal and the agency's Public Confidence goal ("Inspire public confidence by providing the public, those we regulate, and other stakeholders in the national and international community with clear and accurate information about, and a meaningful role in, our regulatory process.").

#### ADAMS Project Goal 1: Improve staff access to NRC documents.

##### Output Measure:

- Level of staff satisfaction with the 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 1.0 to 5.0.

FY 1999 Target:  
Not applicable.

FY 2000 Target:  
Improve staff satisfaction level with the new document management system (ADAMS) to 3.75

FY 2000 Status:  
Staff survey was deferred until a set of tasks to improve the new document management system as outlined in the ADAMS Assessment Action Plan, had been implemented. See Section E., Corrective Actions, for detailed information about the ADAMS Assessment Action Plan.

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

### FY 2001 Target:

Improve staff satisfaction level with the new document management system (ADAMS) to 3.75

### FY 2001 Status:

The ADAMS 3.3 software upgrade was deployed to staff in June/July 2001. Prior to the software upgrade, the OCIO conducted its 2001 Systems Satisfaction Survey which included questions about ADAMS. The pre-upgrade survey results for ADAMS reflected a score of 2.4. We expect that the 2002 survey will reflect a much higher score since staff will have had benefit of the new software upgrade.

### FY 2002 Target:

Improve staff satisfaction level with the new document management system (ADAMS) to 3.75

### ADAMS Project Goal 2: Improve public access to NRC documents.

#### Output Measure:

- Percent of newly created and received unclassified documents routinely made available to the public via the Internet with a standard Web browser and CITRIX.

### FY 1999 Target:

Not applicable.

### FY 2000 Target:

95% of newly created and received unclassified documents.

### FY 2000 Status:

The target has been achieved.

### FY 2001 Target:

95% of newly created and received unclassified documents.

### FY 2001 Status:

The target has been achieved.

### FY 2002 Target:

1a. 100% of newly created and received unclassified documents will be routinely made available to the public via the Internet with a standard Web browser and CITRIX access capability.

1b. Also, complete evaluation of alternative approach to providing Web availability of ADAMS. If the evaluation warrants, and the decision to proceed is made, implement a prototype of the alternative approach.

### FY 2002 Status:

### FY 2003 Target:

1a. 100% of newly created and received unclassified documents will be routinely made available to the public via the Internet with a standard Web browser and CITRIX access capability.

1b. Evaluate results of FY 2002 alternative approach activities and feed-in to work on ADAMS.

### ADAMS Project Goal 3: Establish ADAMS as a National Archives and Records Administration (NARA) approved electronic record keeping system.

#### Output Measure:

- Progress in establishing ADAMS as a NARA approved electronic record keeping system.

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

### FY 1999 Target:

Send agency records disposition schedules to NARA by January 1999.  
Obtain NARA approval of agency disposition schedules and of ADAMS as an official electronic record keeping by October 1, 1999.

### FY 2000 Target:

See status.

### FY 2000 Status:

NARA's approval of ADAMS as an electronic record keeping system is done by approval of our records disposition schedules. We have received approval of approximately 10% of our schedules to date. Approval of our remaining schedules is currently being delayed due to a public comment regarding NARA's existing rules for transferring permanent records to NARA. We expect NARA to resolve this issue and approve our remaining schedules in the first quarter, FY 2001.

### FY 2001 Target:

Obtain NARA approval for the remaining records disposition schedules after resolution of issues related to public comment.

### FY 2001 Status:

In the first quarter of FY 2001, NARA placed approval of all remaining NRC schedules on hold until NRC resolved the technical issues with the records management software. (See ADAMS Project Update section). As reported in last year's submission, the records management software was initially delivered and tested in January 2000. The NRC did not accept the software and it was returned to the contractor to correct deficiencies. The software was redelivered in August 2000 as part of a maintenance release and was subsequently returned to the contractor three more times to correct deficiencies. The fully functional records management software was accepted by NRC in May 2001 and installed for records managers in June 2001. NRC met with NARA representatives on July 25, 2001, to demonstrate ADAMS and discuss outstanding issues. NARA provided feedback/comments in August 2001 and we revised our records schedules as needed. We expect NARA to approve all our remaining schedules by March 2002.

### FY 2002 Target:

Obtain NARA approval for the remaining records disposition schedules in FY 2002

### FY 2002 Status:

### FY 2003 Target:

Continue to use NARA-approved records disposition schedules.

**ADAMS Project Goal 4:** Demonstrate a return on investment to the agency from the ADAMS project.

### Output Measure:

- Develop demonstrable returns on investment to the agency.

### FY 1999 Target:

No significant deviations in the cost, schedule and performance goals for the ADAMS project (as defined by the Clinger-Cohen Act of 1996).

### FY 2000 Target:

No significant deviations in the cost, schedule and performance goals for the ADAMS project (as defined by the Clinger-Cohen Act of 1996).

### FY 2000 Status:

No significant deviations in the cost and schedule goals for the ADAMS project as defined by the

## Capital Asset Plan (Exhibit 300) OMB A-11, FY.003 Budget Submission

Clinger-Cohen Act of 1996. The ADAMS performance goal for return on investment is not stated in a quantitative manner that would provide a percentage calculation. Instead, the table presented in section D.3., Performance variance, of this report, characterizes the status of achieving this performance goal.

**FY 2001 Target:**

No significant deviations in the cost, schedule and performance goals for the ADAMS project (as defined by the Clinger-Cohen Act of 1996).

**FY 2001 Status:**

No significant deviations in the cost and schedule goals for the ADAMS project as defined by the Clinger-Cohen Act of 1996. The ADAMS performance goal for return on investment is not stated in a quantitative manner that would provide a percentage calculation. Instead, the table presented in section D.3., Performance variance, of this report, characterizes the status of achieving this performance goal.

**FY 2002 Target:**

No significant deviations in the cost, schedule and performance goals for the ADAMS project (as defined by the Clinger-Cohen Act of 1996).

**D. Actual Performance and Variance from OMB approved baseline:**

5. Actual cost and schedule performance. Using the information from your PMBS, explain:

- a. What work you planned (scheduled) to accomplish and how much you budgeted to complete the work.
- b. What you actually accomplished and how much you actually spent.

ADAMS PROJECT UPDATE	PLANNED	ACTUAL
Complete design	September 1998	September 1998
Complete engineering of document management & workflow software (Version 1)	February 1999	February 1999
Complete headquarters deployment of Version 1	August 1999	August 1999
Complete regional deployment of Version 1	July 1999	July 1999
Begin receipt of electronic submissions (pilot)	March 2000	March 2000
Complete conversion of existing document index data	October 1999	October 1999*
Delivery and installation of public access software (Version 2.1)	October 1999	October 1999
Delivery and installation of electronic document Distribution software (Version 2.2)	September 1999	September 1999
Delivery and installation of records management software	August 2000	Delivered August 2000**. Installed June 2001.

\*The existing document database conversion was completed. However, the legacy systems that contained this data (NUDOCS & BRS) are still being used by both NRC staff and the public for search and retrieval of the information while we complete the tuning of the new ADAMS legacy databases. We expect to open the ADAMS legacy databases in the first quarter of FY02.

\*\*The records management software was initially delivered and tested in January 2000. The NRC did not accept the software and it was returned to the contractor to correct deficiencies. The software was redelivered in August 2000 as part of a maintenance release and returned to the contractor three more times to correct deficiencies. The fully functional software was accepted by NRC in May 2001 and installed for records managers in June 2001.

**ADAMS PROJECT COSTS (Dollars in Thousands)\***

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	TOTAL
Current Baseline								
(Obligated)	2,000	7,024	4,462	278.4	0	0	0	13,764.4
Actual Project Costs	2,000	7,024	4,462	278.4	0	0	0	13,764.4
* Excludes unanticipated business continuity costs (i.e., extension of unplanned operations of two legacy systems through Quarter 1, FY2002) of \$145.5K, \$106K and \$82K in FY 2000, 2001 and 2002, respectively.								
<b>ADAMS MAINTENANCE &amp; OPERATIONAL COSTS (1) (Dollars in Thousands)</b>								
	FY97	FY98	FY99	FY00	FY01	FY02	FY03	TOTAL
Current Baseline								
(Obligated)	0	0	203	2,436	2,212	2,254	2,962	10,067
Actual and Projected Maintenance and Operational Costs	0	0	203	2,425	3,211	3,105	2,962	11,906
(1) "Steady state" as defined in OMB Circular A-11, Part 3, Exhibit 42 - July 1998.								
2. Cost and schedule variance. If either the actual work accomplished or costs incurred vary from your baseline goals by 10 percent or more, explain:								
a. The variance between planned and actual costs or planned and actual schedule, expressed as a percentage of the baseline goal.								
b. The reason for the variance.								
a. The variances between the actual and the current baselines for project costs and for maintenance and operational costs represent a 7.7% increase.								
b. More funding than originally estimated was required to provide professional support for custom code modifications necessary to deliver ADAMS, version 3.3 that eliminated the need for some existing work-arounds and improved the ease of use, functionality and, in some cases, performance of ADAMS.								
3. Performance variance. Explain whether, based on work accomplished to date, you still expect to achieve you performance goals. If not, explain the reason for the variance.								
The ADAMS project has 4 performance goals:								
1) Improve staff access to NRC documents;								
2) Improve public access to NRC documents;								
3) Establish ADAMS as a National Archives and Records Administration (NARA) approved electronic record keeping system; and								
4) Demonstrate a return on investment to the agency from the ADAMS project.								
The ADAMS performance goal for return on investment is not stated in a quantitative manner that would provide a percentage calculation. The following table characterizes the status of achieving the objectives identified in the ADAMS Capital Planning and Investment Control analysis. These performance goals are described in the following 7 objectives.								
<b>ADAMS OBJECTIVES</b>				<b>STATUS IN ACHIEVING OBJECTIVES</b>				
(1) Ensure the integrity of document repository by capturing documents				Objective achieved.				

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

intended for ADAMS once, at their source, as they are electronically created or received by the agency.

(2) Reduce the cost of reproducing and distributing documents and speed the delivery of documents through electronic, rather than paper, distribution and dissemination.

Objective partially achieved. The net cost of reproduction and distribution of paper documents has been reduced by 4.6% since deployment of ADAMS. All externally generated documents are being electronically distributed, with few exceptions, within 8 - 10 hours of receipt rather than days and publicly available documents are being electronically disseminated within 5 working days rather than weeks. The capability for electronic distribution of internally generated documents is in place and being used selectively until improvements are implemented in Q1, FY 2002. These improvements will create a standard way for staff to describe documents that are being distributed and for recipients to determine the location for receipt of distributed documents (their personal e-mail or secretarial staff).

(3) Manage document workflow processes more efficiently.

Objective not achieved. The workflow component of ADAMS is not being used by NRC today. The functionality is not included as part of executing an activity under the ADAMS Assessment Action Plan. However, the ADAMS Steering Group has identified workflow as an area for future consideration, while noting that significant business process issues remain to be addressed.

(4) Discontinue the need for individual organizational units to invest their resources and dollars in local document management applications with limited functionality by implementing an enterprise wide document management capability.

Objective partially achieved. ADAMS is an enterprise wide document management system installed on the desktop of every NRC employee. The NRC has not invested in any additional local systems since the inception of ADAMS. However, the agency still has a document tracking requirement that is unmet due to the deferment of the workflow component of ADAMS.

(5) Eventually eliminate the time, effort, and space now spent filing, maintaining, destroying or retiring hard copy by establishing ADAMS as electronic record keeping system in lieu of paper.

Objective partially achieved. Schedules submitted to NARA for review, some approved and some in process. NRC declared ADAMS as its official record keeping system in April 2000 and began filing newly created and received documents electronically in June 2001. NRC began electronically filing the backlog of documents (April 2000-May 2001) when its new document processing contract was awarded in September 2001.

(6) Reduce time spent creating documents by storing them electronically for subsequent re-use (cut and paste).

Objective achieved. ADAMS currently has 155K documents available in electronic form for subsequent re-use.

(7) Reduce the time and effort staff spends in searching for and retrieving documents by providing immediate access to full text image at user's desktop.

Objective partially achieved. Staff can search by document descriptors and title and can retrieve image of documents at desktop. Problem with full text searching will be resolved in the first quarter, FY2002.

## Capital Asset Plan (Exhibit 300) OMB A-11, FY2003 Budget Submission

In addition, ADAMS has provided the added benefit of positioning the NRC to comply with a number of Federal laws and regulations that govern the management and dissemination of its records. ADAMS is a key component of NRC compliance with the Government Paperwork Elimination Act (GPEA) by providing the capability for NRC's external stakeholders to submit documents electronically in lieu of paper. As an electronic record keeping system, it improves NRC's capability for documenting its activities and for retaining adequate documentation of such activities in accordance with the Federal Records Act. On-line, immediate access to NRC documents also facilitates NRC's compliance with provisions of the Paperwork Reduction Act of 1995, OMB Circular A-130 and the Electronic FOIA Act with regard to making information available to the public in a timely manner in electronic form.

**E. Corrective actions:** If actual work accomplished or costs incurred to date vary from the planned baseline goals by 10 percent or more, explain:

- a. What you plan to do, if anything, to correct project performance.
- b. What effect your action will have on overall projects cost, schedule, and performance benefits.

a. The NRC conducted a preliminary assessment of ADAMS performance four months after it was declared the agency's official record-keeping system and it had become clear that there were several operational problems, the most significant of which was the burden the ADAMS system placed on the NRC staff for document and data entry. Results of the assessment led to the issuance of the ADAMS Assessment Action Plan with a structured set of tasks to address ten agency challenge areas for improving ADAMS performance and helping staff transition from a paper-based filing system to the electronic ADAMS environment. The ten challenge areas are:

- transferring responsibility for processing NRC-generated documents from the staff to OCIO and its document processing contractor
- improving ADAMS document and data integrity
- improving ADAMS as a search and retrieval system
- improving ADAMS functionality, performance, and reliability
- improving public access to ADAMS
- improving electronic document distribution software and processes
- improving and standardizing agency business practices
- improving ADAMS training and user support
- improving ADAMS communications program and agencywide guidance
- conducting "lessons learned"; charting longer term course

The workflow component of ADAMS is not being used today and its functionality is not included in the ADAMS Assessment Action Plan. However, the ADAMS Steering Group has identified workflow as an area for future consideration although it is premature at this juncture to estimate the cost of doing so. In addition, some improvement in public access will be made available through the elimination of CITRIX when we move to the current Web-based version of the vendor's COTS software. The costs of moving to the current versions of the vendor's software, which will improve performance, reduce the need for custom code, and improve ease of user access, are included as part of the operations and maintenance cost projections reported for ADAMS in this submission.

b. It is unclear whether the agency will adopt a workflow capability in the future and it is premature at this juncture to estimate the cost of doing so.

The costs of moving to the current versions of the vendor's software, which will improve performance, reduce the need for custom code, and improve ease of user access, are included as part of the operations and maintenance cost reported for ADAMS in this submission.

**CAPITAL ASSET PLAN**

<b>PART I. A. SUMMARY OF PROJECT INFORMATION</b>									
Agency	U.S. Nuclear Regulatory Commission								
Bureau									
Account Title									
Account Identification Code									
Program Activity	High-Level Waste Repository Licensing								
Name of Project	Licensing Support Network								
Unique Project Identifier	429-00-01-05-01								
This project is <input checked="" type="checkbox"/> New or <input type="checkbox"/> Ongoing									
Project/Useful segment is funded: <input checked="" type="checkbox"/> Incrementally <input type="checkbox"/> Fully									
Did the Executive/Investment Review Committee approve funding for this project this year?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Did the CFO review the cost goal?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Did the Procurement Executive review the acquisition strategy?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Is this project information technology (see Section 53.2 for a definition)?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
For information technology projects <i>only</i> . (The CIO must review)									
a. Is this Project a Financial Management System (see section 53.2 for a definition)?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>					
If so, does this project address a FFMIA compliance area?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>					
If so, which compliance area?									
b. Does this project implement electronic transactions or recordkeeping?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
If so, is it included in your GPEA plan?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
c. Was a privacy impact assessment performed on this project? Although the NRC has not yet conducted a Privacy Impact Assessment, we will be reviewing the Internal Revenue Service best practices sample suggested by OMB. Upon issuance of additional instructions or guidelines by OMB we will assess the applicability for this system and conduct the review as appropriate.	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>					
d. Does the security of this project meet the requirements of the Government Information Security Reform Act (GISRA)?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
e. Were any weaknesses identified for this project in the annual program review or independent evaluation?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>					
<b>B. SUMMARY OF SPENDING FOR PROJECT STAGES</b>									
(In Millions)									
	PY-1 and Earlier	PY	CY	BY	BY+1	BY+2	BY+3	BY+4 Beyond <sup>1</sup>	Total
<b>Planning</b>									
Budget Authority	0.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.189
Outlays	0.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.189
<b>Full Acquisition</b>									
Budget Authority	1.265	0.995	0.011	0.000	0.000	0.000	0.000	0.817	3.088
Outlays	1.265	0.995	0.011	0.000	0.000	0.000	0.000	0.817	3.088

<sup>1</sup> Figures for PY, CY, BY, BY+1, BY+2 and BY+3 reflect the lifecycle period covered in the original business case analysis. Technology refreshment and outyear maintenance included in BY+4 Beyond column were not included in the original business case analysis but has been added to address the potential for further delays in the DOE license application submission. Outyear funding will be required if DOE announces a license application date after 12/03/2003.



Subtotal (planning and full acquisition) (DME)	PY-1 and Earlier	PY	CY	BY	BY+1	BY+2	BY+3	BY+4 Beyond <sup>2</sup>	Total
Budget Authority	1.454	0.995 <sup>3</sup>	0.011	0.000	0.000	0.000	0.000	0.817	3.277
Outlays	1.454	0.995	0.011	0.000	0.000	0.000	0.000	0.817	3.277
<b>Maintenance (SS)</b>									
Budget Authority <sup>4</sup>	0.000	0.000	0.740	0.577	0.577	0.577	0.577	1.307	4.355
Outlays	0.000	0.000	0.740	0.577	0.577	0.577	0.577	1.307	4.355
<b>Total all phases (DME plus SS)</b>									
Budget Authority	1.454	0.995	0.751	0.577	0.577	0.577	0.577	2.124	7.632
Outlays	1.454	0.995	0.751	0.577	0.577	0.577	0.577	2.124	7.632

### C. PROJECT DESCRIPTION AND BACKGROUND

As outlined in 10 CFR Part 2, Subpart J, the Licensing Support Network (LSN) will establish a system that provides shared document discovery and facilitates electronic motions practice for the potential adjudicatory hearing on the Department of Energy's (DOE) license application to construct a high-level waste (HLW) repository. The LSN is intended to benefit the repository licensing proceeding by making all parties' relevant documents publicly accessible before docketing, ultimately providing the parties with significant information regarding the proposed repository that they can provide to the electronic and publicly accessible docket through a fully electronic filing process.

The performance outcome is to contribute to the agency's ability to complete the licensing process in the statutorily mandated three years. The Commission envisioned that the information and data supporting a DOE license application needed to be available simultaneously, in a centralized database, to all interested parties before the application was submitted and formal NRC review began. The Commission also anticipates that automating the motions practice component of the proceeding would shorten the time expended in the licensing process. The LSN directly contributes to, and facilitates, these two objectives.

#### **NOTE: BACKGROUND**

The NRC was unable to submit the initial baseline Exhibit 300 for the LSN with the FY 2002 budget request due to contract negotiations which were underway. Therefore, this 300 consolidates the

<sup>2</sup> Figures for PY, CY, BY, BY+1, BY+2 and BY+3 reflect the lifecycle period covered in the original business case analysis. Technology refreshment and outyear maintenance included in BY+4 Beyond column were not included in the original business case analysis but has been added to address the potential for further delays in the DOE license application submission. Outyear funding will be required if DOE announces a license application date after 12/03/2003.

<sup>3</sup> Does not include funds identified for staff travel for LSN

<sup>4</sup> Maint. Authority for CY, BY, BY+1, and BY+2 reflects total LSN program including non-contract items such as staff travel, training, etc.

baseline report (see Part III, Section B, below) and the report on project progress during FY 2001 (see Part III, Section D, below).

## **PART II: JUSTIFICATION AND OTHER INFORMATION**

### **A. *Justification***

The LSN responds to a Congressional mandate in Section 114(d) of the Nuclear Waste Policy Act of 1982, as amended, that the NRC reach a determination on the DOE's application for construction authorization for a HLW repository at Yucca Mountain within a three-year time frame. NRC expects to accomplish this goal, in part, by replacing the classic "discovery" exchanges among parties with electronic access to discovery materials prior to the docketing of a license application. The LSN is codified in 10 CFR Part 2, Subpart J.

The LSN is codified in 10 CFR Part 2, Subpart J. The LSN was developed by NRC in close cooperation with, and following the guidance and advice of, the Licensing Support Network Advisory Review Panel, which is comprised of parties and potential parties to the licensing proceeding. It thus reflects the desires, interests, and contributions of the primary stakeholders affected by the congressional mandate for three-year completion of the HLW repository construction authorization licensing proceeding. Providing such public involvement in, and information about, the Nuclear Regulatory Commission's activities is a cornerstone of efficient fair regulation of the nuclear industry.

While the LSN thus is intended primarily for use by participants to the licensing proceeding, a by-product of making discovery materials electronically available on the web prior to the commencement of the hearings is that electronic documents created by the parties and potential parties are available to the general public as well, regardless of their interest in obtaining party status in the HLW repository licensing proceeding. This initiative reinforces the core principle that nuclear regulation is the public's business and so must be transacted publicly and candidly. Although the documents available via the LSN are for the most part non-NRC materials, early and comprehensive access via the LSN helps ensure that the public is informed about, and has the opportunity to keep abreast of the regulatory processes associated with considering, the license application by DOE to construct a HLW repository."

**B. Program Management**

1. *Have you assigned a program manager and contracting officer to this project? If so, what are their names?*

The Atomic Safety and Licensing Review Board Panel is sponsoring the LSN project. The overall program manager is Mr. Daniel Graser, LSN Administrator. Mr. Graser is managing and coordinating efforts between the NRC, parties and potential parties, and contract support. Mr. Matthew Schmidt is the technical project manager for the LSN. The contracting officer is Mr. Donald King, NRC Office of Administration, Division of Contracts and Property Management (ADM/DCPM).

**C. Acquisition Strategy**

The design, implementation, and operation of the LSN electronic document discovery database will be accomplished through delivery orders established after a comparison between multiple vendors under the General Service Administration's (GSA) Federal Supply Service (FSS) contracts. Teaming agreements among these vendors for various components of the overall solution are documented by designation of a vendor to be the team leader. Although separate orders are issued to the individual contractors comprising the team, the team leader is the overall coordinator to ensure accomplishment of the project performance goals. Our acquisition strategy is focused on maximum use of COTS software. Software for the LSN solution may include software development tools, web authoring tools, a universal interface module, search engine and indexing software, and utilities and additional enabling features such as help software. Software for the audit data capture and analysis resource may include various Internet and database auditing software and development tools, a database package, a report generator package, and various other utilities and analytical tools. CD-ROM authoring hardware and software may be required for mass dissemination of training tools for the technical staff of the parties and potential parties. Customization is expected especially in the development of a universal search, retrieval, and results display interface module.

ASLBP investigated the use of NRC's existing agencywide support contract, CISSCO. It was determined that because the current CISSCO contract would be expiring roughly concurrently with the delivery due date for the LSN, use of the CISSCO contract vehicle would introduce an unacceptable level of business risk to the successful implementation of the project. NRC is using FSS contracts to meet the LSN requirement. GSA established these contracts through competitive procedures in accordance with Federal Acquisition Regulation 6.102(d)(3). Therefore, orders issued under FSS contracts mitigate procurement risk.

NRC awarded the contract using the GSA FSS. This acquisition approach affords NRC the opportunity to streamline the procurement process. Further, market research indicated that through

FSS, a large number of potential vendors (15) could compete for this work resulting in an effective competition.

GSA awards their Multiple Award Schedule IT Contracts based on the Solicitation/Contract/Order form for Commercial Items. The clauses entitled "Contract Terms and Condition - Commercial Items" (52.212-4) and "Contract Terms and Conditions Required to Implement Statutes or Executive Orders - Commercial Items" (52.212-5) are included in the solicitation and made part of GSA's contracts. In addition, GSA includes their own clause entitled "Contract Terms and Conditions Applicable to GSA Acquisition of Commercial Items" in the contract. GSA delegates to us the complete authority to solicit/negotiate/award and modify our delivery order. GSA does not require us to submit for their review/approval the statement of work, request for quotation, or delivery order award.

The contract acquisition strategy was to utilize GSA Schedule contractors' teaming agreements and allow the vendors to offer against a labor hour delivery order separately priced by each team member, with the estimate for the base performance period (covering design and implementation) to become a cap. For the four option years of performance, the estimates for hardware and software maintenance agreements, and for the routine database administration efforts, were projected as being fixed price. Adjustments for the labor rates in the option years are based on the revised labor rates negotiated between the vendor and GSA for their existing schedule contracts. This approach was selected because:

1. accessing previously competed schedules expedites the procurement process.
2. the contract contains the appropriate terms and conditions to meet the needs of the LSN.
3. both hardware/software and services are available under the same contract.
4. it provides for expedited oral presentations and subsequent formal proposal submissions, and
5. it affords the NRC contracting officer the opportunity to negotiate and award the delivery order to the firm offering the best value.

#### ***D. Alternatives Analysis and risk management***

Five alternatives for the design of the LSN were initially evaluated by a Federal Advisory Committee Act chartered advisory review panel's technical working group. From the five alternatives, three (Alternatives 1, 3, and 5) were identified for full evaluation in a business case. Alternative 3 was selected for implementation.

Alternative 1 was characterized as: being of low benefit in delivering efficient or effective access to users; being comparable in risk to Alternatives 3 and 5; relative to NRC's costs, being

approximately \$827K less costly than Alternative 3 and \$3.6 million less costly than Alternative 5; and shifting the highest cost burden to the participants.

Alternative 3 was characterized as: adding significant qualitative value over Alternative 1; being somewhat less beneficial than Alternative 5; incurring a somewhat lower degree of risk than Alternative 5; and, being the solution recommended by the advisory review panel's technical working group that involves the least expense to NRC, at almost \$2.8 million less than Alternative 5.

Alternative 5 was characterized as: adding significant qualitative value over Alternative 1; the highest benefit; the lowest availability and performance risk; the greatest risk of not meeting the implementation schedule; and, the highest cost of all solutions examined, with NRC bearing a significant share of that cost burden.

A life cycle cost analysis indicated that even though Alternative 1 represents an initial, minimal NRC expense for the development of the homepage linked to other participant sites, it still required a significant system development effort in order to establish an audit and compliance capability. The results of our TSLC analysis for Alternative 1 showed:

Project Non-Recurring	\$2,216,714
Project Recurring	\$1,923,140
Participant Recurring & Non-Recurring	\$4,487,260
<b>Total</b>	<b>\$8,627,114</b>

In Alternative 3, the dynamic was that the cost for the audit and compliance system, for the most part, is absorbed by the core capabilities of the search and retrieval portal software. Therefore, search and retrieval introduces relatively modest additions to project related non-recurring costs. The results of our TSLC analysis for Alternative 3 showed:

Project Non-Recurring	\$2,549,117
Project Recurring	\$2,417,490
Participant Recurring & Non-Recurring	\$1,754,260
<b>Total</b>	<b>\$6,720,867</b>

Quantitatively, the largest discrimination is evidenced in implementing Alternative 5. This alternative has the ability to somewhat reduce costs to the participants because they only make files available without providing search and retrieval, and those files do not need to be maintained at the participant sites after they have been copied into the LSN mass storage and then backed up.

Conversely, Alternative 5 increases both one-time and recurring costs to the NRC because of the added cost of storage hardware and associated hardware maintenance. In Alternative 5, the recurring costs escalate primarily because of the hardware and software maintenance fees associated with the addition of more than \$1.5 million in initial hardware. In contrast, there is an associated decrease in the projected cost to participants relative to Alternative 3. The results of our Total System Life Cycle (TSLC) analysis for Alternative 5 showed:

Project Non-Recurring	\$4,023,293
Project Recurring	\$3,712,658
Participant Recurring & Non-Recurring	\$1,682,260
<b>Total</b>	<b>\$9,418,211</b>

There are two points regarding the risks associated with Alternative 1. The first is that this alternative was not recommended by the LSN Advisory Review Panel Technical Working Group and was included in the analysis primarily because some of the LSN Advisory Review Panel members demonstrated support for it. The second consideration is that, from the perspective of ASLBP management, this alternative creates a significant risk that system implementation and operation issues may result in disputes whose resolution could impact negatively on the agency's ability to meet its three-year schedule for making a decision on repository construction authorization.

There are identifiable monetary savings to ratepayers who contribute to the Nuclear Waste Fund that can be impacted by an expeditious licensing hearing. In this context, the LSN Return on Investment (ROI) analysis is based on a precedent used in the original Licensing Support System (LSS) authorization: cost avoidance to the utilities.

The original LSS cost benefit analysis performed by DOE was presented to the Office of Management and Budget's (OMB) Office of Information Resources Management (as a Presidential Priority System) in late 1989 and early 1990 and was justified by comparing the cost of the system versus the costs incurred by having to add at-plant storage which might be incurred as a result of delays in opening the repository. Mr. Jack Arthur of OMB found this approach persuasive and DOE was allowed to go forward with its LSS design work.

In congressional testimony in early 1999, industry officials indicated that the cost of adding storage capacity in lieu of the Yucca Mountain repository being ready to receive waste shipments was \$4.3 billion over an eight-year period - roughly \$537 million per year (constant dollars) in additional costs to the ratepayers. The same costs could be attributed to not having the LSN implemented on time, or its ability to accomplish its mission of ensuring the hearing process is completed in the mandated three years.

Therefore, the Alternative 3 life cycle cost of a \$6.7 million investment against a risk of incurring an annual \$537 million levy against ratepayers means that if the LSN accomplishes its mission, it saves \$530.3 million the first year it reduces at-plant storage, for an ROI of 7,889.0% (i.e., 78.89 X the agency and participant investment).

The Commission's most contentious reactor proceeding took almost eight years. If the HLW repository proceeding is commensurate, then there is a 5-year period of storage cost avoidance rather than one year of saving annual storage costs incurred by the utilities amounting to \$2.678 billion. This represents an ROI of 39,846.0% (e.g., 398.46 X the agency and participant investment).

Alternative 1, with a TSLCC of \$8.6 million saves \$528.4 million for one year (6,140%) with comparable magnitude increases for a five-year analysis.

Alternative 5, with a TSLCC of \$9.4 million saves \$527.6 million for one year (5,610%) with comparable magnitude increases for a five-year analysis.

A risk assessment was included in the business case and is summarized below:

	Alternative 1	Alternative 3	Alternative 5
Volatility of Requirements (Ability to Accommodate Change)	1	2	2
Scope of Project (Ability to Accommodate Change)	1	2	2
Technical Risk (Implementation Complexity) - LSNA	3	2	2
Technical Risk (Implementation Complexity) - Participants	3	2	3
Management Consensus	2	2	2
Resource Commitment	3	2	1
Potential Resistance (By Users)	1	3	2
Procurement/Vendor Risk	2	2	1
Sponsor Organization's IT Project Management Experience	3	3	3
Schedule Risk - LSNA	3	2	1
Schedule Risk - Participants	2	2	2

	<b>Alternative 1</b>	<b>Alternative 3</b>	<b>Alternative 5</b>
LSNA Custodianship of Participant Documents	3	3	1
<b>Average Risk Rating</b>	<b>2.3</b>	<b>2.3</b>	<b>1.8</b>

**Rating:**

- 1 - High level of risk
- 2 - Medium level of risk
- 3 - Low to no level of risk

Risk was identified in the following areas:

1. Cost Control
2. Effectiveness of web-based search and retrieval for supporting litigation discovery
3. Schedule compression due to delays in project startup
4. Uncertainty of DOE license application submission schedule drives LSN availability date
5. Variability in number of participants and number of documents to be handled by the system.

Cost risks and the effectiveness of web-based search and retrieval tools were addressed in the project development phase. Cost control is accomplished by use of a cost-reimbursable-with-cap contract vehicle for the design and implementation phases. This is converted to a firm-fixed-price contract vehicle for ongoing maintenance and operation during the remaining 47 months of the contract period of performance. Project cost control is augmented by use of an earned value tracking and reporting methodology. The effectiveness of a web solution to provide litigation support search and retrieval capabilities was thoroughly investigated during the project planning and procurement for implementation resources. Comprehensive statements of requirements and design features have been incorporated into the test and acceptance criteria. Functional requirements and test and acceptance criteria are baselined and agreed to before the closure of the design phase of the project effort.

The third and fourth elements of risk are closely connected. There was unanticipated delay in releasing the original solicitation after mid-year funds finally became available. This was compounded by the due date of the system being driven by when it had to be ready - a date tied to the DOE Site Recommendation to the President and totally out of the NRC's control. Risk mitigation focuses on prioritization of products and services necessary to make the system operational, close monitoring of the DOE plans for submission of the DOE license application, a rulemaking to revise the linkage to the license application rather than the site recommendation to the President, and the NRC project manager ensuring strict adherence to project deliverables.



Variability in the number of participants and the number of documents that would be available through the LSN website were addressed primarily by the overall design architecture. The LSN maintains only indexes to documents that are stored on non-NRC resources. The provision of documents is the responsibility of the parties to the hearing process. Therefore, the LSN capacity is not significantly impacted by the addition of more documents or participants.

***E. Enterprise Architecture (IT Projects Only)***

The LSN is installed and operated using externally based hardware, software, telecommunications and other infrastructure. It is accessed as an external web site and therefore has no impact on NRC's current architecture except that internal users may need to download browser plugins for some documents where the participant has stored the document in an uncommon file format.

The LSN follows NRC's Software Development Life-Cycle Management (SDLCM) Methodology. NRC's Technical Reference Model applies to applications hosted on in-house resources and therefore LSN components are not required to comply with it, per guidance received from NRC's OCIO. We will implement the system with as little custom code development as possible. In that regard, sections of the SDLCM that are essentially applicable to software code development, testing, and acceptance will have little relevance or representation in project work products. That being said, however, there should be no changes to NRC's IT architecture because access to the application will be through a standard web browser already deployed throughout the agency. The project management plan anticipates housing this application at a non-NRC site. Interfaces to link to existing NRC capabilities, such as the external ADAMS collection, are not constrained by requiring co-location.

Portal software technologies typically consist of a dual processing architecture that includes two Windows NT components: one installed with a web server to host the portal for users, the other a job server installed on a networked computer to process new information from data sources and applications.

Scalability is provided by the addition of web servers to support larger numbers of users, and additional job servers to support larger numbers of documents. Each server runs in tandem with other applications, typically using products like Microsoft Transaction Server™ to support high activity levels efficiently. If a single web server or a single job server fails, users will experience no interruption in service.

System extensibility is based on the fact that the "crawlers" are typically developed as Distributed Component Object Model components that allow for use of third party products to access new types of content.

Portal software typically does not store any content itself except for text indexes and metadata properties it finds on target sites. Those repositories may be separately housed on large UNIX™ based hosts. Portal software stores text indexes for the content directory and then utilizes a standard embedded text search engine such as Verity's TOPIC™ or Excalibur™. Structured data is handled in standard open database connectivity (ODBC) compliant relational database management systems such as NT SQL Server™ or Oracle™, which is where the portal servers store directory structures, links to network content, and their own metadata indexes in a portable XML format.

User access is accomplished from any Web browser supporting HTML 4.0, accessing web server Active Server Pages (ASP) hosted by a portal server.

The audit capability relies on the underlying indexes, directory structures, and accessor (crawler) capabilities from the portal component to feed characterizing data into a set of analytical software tools that compile findings and present them to audit and compliance database administrators for compilation and reporting. These analytical and report tools will reside on a separate audit server.

The NRC, DOE, and other parties and potential parties participating in the HLW repository licensing adjudication in accordance with the provisions of 10 CFR Part 2, Subpart J must comply with the following standards in the design of the computer systems necessary to comply with the requirements for electronic document production and service:

- (i) The participants shall make textual (or, where non-text, image) versions of their documents available on an Internet accessible server which is able to be canvassed by web indexing software (i.e., a "robot," "spider," "crawler") and the participant system must make both data files and log files accessible to this software.
- (ii) The participants shall make structured data available in the context of (or under the control of) an accessible SQL-compliant database management system (DBMS). Alternatively, the structured data may be made available in a standard database readable (e.g., comma delimited) file or tagged HTML.
- (iii) Textual material must be formatted to comply with the US.ISO\_8859-1 character set or be in one of the following acceptable formats: plain text, native word processing (Word, WordPerfect), PDF Text + Image, or HTML.
- (iv) Image files - - required when the documents are non-textual - - must be formatted as PDF Normal, PDF Text + Image, TIFF CCITT G4 for bi-tonal images or PNG (Portable Network Graphics) per [<http://www.w3.org/TR/REC-png-multi.html>] format for grey-scale or color images. TIFF, PDF or PNG images must be stored at 300 dpi (dots per inch), grey scale images at 150 dpi with eight bits of tonal depth, and color images at 150 dpi with 24

bits of color depth. Images found on participant machines must be stored as single image-per-page to facilitate retrieval of no more than a single page, or alternatively, images may be stored in a page-per-document format if software is incorporated in the web server that allows single-page representation and delivery.

(v) The participants will programmatically link the bibliographic header record with the text or image file it represents. The header record must contain fielded data identifying its associated object (text or image) file name and directory location.

(vi) To facilitate data exchange, participants shall adhere to hardware and software standards, including, but not limited to:

(A) Network access must be HTTP/1.1 [<http://www.faqs.org/rfcs/rfc2068.html>] over TCP (Transmission Control Protocol, [<http://www.faqs.org/rfcs/rfc793.html>]) over IP (Internet Protocol, [<http://www.faqs.org/rfcs/rfc791.html>]).

(B) Associating server names with IP addresses must follow the DNS (Domain Name System). [<http://www.faqs.org/rfcs/rfc1034.html>] and [<http://www.faqs.org/rfcs/rfc1035.html>].

(C) Web page construction must be HTML version 4.0 [<http://www.w3.org/TR/REC-html40/>].

(D) Electronic mail (e-mail) exchange between e-mail servers must be SMTP (Simple Mail Transport Protocol, [<http://www.faqs.org/rfcs/rfc821.html>]).

(E) Format of an electronic mail message must be per [<http://www.faqs.org/rfcs/rfc822.html>] optionally extended by MIME (Multimedia Internet Mail Extensions) per [<http://www.faqs.org/rfcs/rfc2045.html>] to accommodate multimedia e-mail.

Per NRC's Technical Reference Model, servers are targeted toward the NIST Spec 1170 standard and IEEE 1003.1b-1993. NIST FIPS 160C is the target standard for UNIX programming development, although C, C++, and Visual Basic are anticipated for web page and crawler agent development. Relational DBMS technology, if used, is targeted toward the NIST FITS 127-2 as specified by ANSI X3.135-1992, with extensions of SQL for object orient constructs. An associated, embedded data dictionary supporting the portal software's RDBMS is targeted toward NIST FIPS 156 as it implements ANSI X3.133-1988. Text DBMS technology is targeted toward ANSI z39.50-1988. HTTP, as noted above, is targeting the W3C and IETF HTTP (RFC 1945) standard. HTML, as noted above, is targeting the W3C and IETF HTML (RFC 1866) standard. Directory and Name

Services, as noted above, is targeted toward the DSAPI X.500 standard. NIST Special Pub. 500-153 is being evaluated for its application to the audit and compliance functionalities of the system. Additional standards are implied in the data exchange and transfer discussion noted above.

The LSN is a portal application, and as such, all data and web pages stored on the LSN portal server will be developed in compliance with Section 508 of the Rehabilitation Act, requiring ensured access to federal information for people with disabilities. It should be noted that documents responsive to a search of the LSN are stored on participant servers, and not all of the participants are Federal organizations, hence, not all are bound by the Rehabilitation Act. Since no proxy is used from the LSN server to the participants' data stores, documents are delivered directly from participants to a user's machine via web browser.

***F. Security and Privacy (IT projects only)***

The LSN meets all applicable security and privacy standards and guidance. The system provides browser access to copies of participant documents they maintain on their own devices. 10 CFR 2, Subpart J disclaims that the materials available through the LSN are considered agency record material. All documents available through the LSN are publicly available, non-sensitive, non-classified, and non-original. Access to the LSN is available via URL to anyone using the world wide web, and therefore none of the documents are either secure or private.

That being said, the LSN is an agency resource that must nevertheless be secured against intentional attacks. NRC's System Development Life-Cycle Management methodology (SDLCM) requires a security plan for the system from the contractor chosen to design, implement, and operate the LSN prior to going operational. It cannot be developed until the acquisition of the products that will comprise the LSN, as the security plan is component-specific. As per the SDLCM, the security plan will describe the administrative and technical means to design security into the LSN. It will define the security policies and detail how they are to be implemented. It will identify the roles and responsibilities, as well as the products, activities, and schedules for the LSN. The security plan will include security controls for components, applications, and systems that are consistent with the NRC's IT architecture, as well as manage risks, protect privacy and confidentiality. No variance from NIST security guidance is expected.

The NRC has an aggressive and proactive security awareness program to insure that risks are understood. This program includes a Computer Security Awareness Day and the issuance of all employee alerts and awareness announcements frequently. This is intended to make individuals aware of IT security as a concern that must be constantly attended to.

NRC Management Directive 12.5 requires system sponsors to assess risks associated with the operation of each NRC general support system or major application that they are responsible for. System sponsors complete risk assessments under any of the following conditions:

- Periodically (at least every 3 years)
- Upon significant change to the system (e.g., software or hardware upgrade)
- Upon discovery of a security breach
- When increases in potential threats to the system are detected
- New system/application development

Subsequently a Security Plan is developed and Certification Testing is conducted to determine the extent to which a particular IT system design and implementation meet a specified set of security standards.

The NRC routinely conducts risk assessments of its network and interconnections including assessments of intentional attacks on the network to determine vulnerabilities.

NRC publicly accessible systems or WEB sites are "read only" in nature.

**G. *Government Paperwork Elimination Act (GPEA) (IT projects only)***

The LSN will rely on the technology, process, and procedures of NRC's EIE capability to support electronic motions practice and to submit digitally signed materials to the docket. That capability is part of NRC's existing infrastructure, and we intend to utilize that existing capability.

The LSN will be an information system appropriate for public users. The LSN will facilitate public access to all documents applicable to the HLW repository licensing proceedings via the Internet. The system will permit full text searching and users will have the ability to view full text documents, document images in lieu of text, download files, print locally, or order print versions of documents directly from the participants.

The LSN is not a recordkeeping system, as the documents available through the LSN are the responsibility of the applicable party or participant. As the office of record, each party or participant is required to maintain the record in their own recordkeeping system. ADAMS will be the recordkeeping system for the electronic docket, as it is for all agency records.

The information collections contained in the LSN are covered by the requirements of 10 C.F.R. Part 2, which were approved by the Office of Management and Budget, approval number 3150-0136.

### PART III: COST, SCHEDULE AND PERFORMANCE GOALS

#### **NOTE: BACKGROUND**

The NRC was unable to submit the initial baseline Exhibit 300 for the LSN with the FY 2002 budget request due to contract negotiations which were underway. Therefore, this 300 consolidates the baseline report (see Part III, Section B, below) and the report on project progress during FY 2001 (see Part III, Section D, below).

#### **A. Performance Based Management System (PBMS):**

- 1. Describe the performance based management system you will use to monitor contract or project progress?*

The LSN project utilizes Microsoft Project™ as the management control tool for schedule and cost performance monitoring. The baseline project plan and underlying task order plans are populated by resource estimates. A monthly update to the schedule is provided that indicates resources expended and percentages of tasks completed. This is an earned value project management system.

#### **B. Original baseline (OMB approved at project outset):**

*Using the format of your selected PBMS, provide the following:*

- 1. What are the cost and schedule goals for this segment or phase of this project? [i.e., what are the project milestones or events, when will each occur; and what is the estimated cost to accomplish each one]*

This is a new project. The cost goals for this project are:

	FY 2000	FY 2001	FY 2002	TOTAL
OBLIGATION	\$1.454*	\$0.995	\$0.751	\$3.200
COSTING PLAN	\$1.454	\$0.995	\$0.751	\$3.200

\* \$535K initial allotment plus \$919K mid-year

The current baseline schedule goals are:

Complete High Level Design	03/05/2001
Open URL to Participants and Public	04/02/2001
Vendor Test and Acceptance Completed	08/06/2001
Deliver Production Release 1.0	09/10/2001

2. *What are the measurable performance benefits or goals for this segment or phase of this project? [what are the measurable performance improvements or efficiencies that you expect to achieve with this project?]*

The performance benefits or goals of this project are:

**LSN Project Goal 1:** Establish the LSN homepage.

Output Measure:

- Install hardware and software at the target host location and assign secondary level URL address. This is prerequisite to the process of connecting the participant's externally accessible documentary collections and implies the successful acquisition, delivery, installation, and configuration testing of the development environment.

FY 2001 Target:

The LSN homepage is established and accessible by 100% of the external parties by the target date.

**LSN Project Goal 2:** Connect the LSN homepage with the NRC document collection.

Output Measure:

- Establish connectivity between the LSN portal and the NRC collection of documentary materials. NRC is one of two participant collections which must be accessible 30 days after the Yucca Mountain Site Recommendation is forwarded to the President. NRC's Office of Nuclear Materials Safety and Safeguards is the owner of this document collection and NRC's Office of the Chief Information Officer is the custodian of the record materials and the automation environment housing them. These offices work in conjunction to fulfill NRC's obligation as a party to the licensing proceeding that all relevant documentary materials are placed on a web-accessible server to be connected to the LSN.

FY 2001 Target:

The LSN can "crawl" and index 100% of the NRC document collection by the target operational date.

**LSN Project Goal 3:** Connect the LSN homepage with the DOE document collection.

**Output Measure:**

- Establish connectivity between the LSN portal and the DOE Office of Civilian Radioactive Waste Management's collection of documentary materials.<sup>5</sup> DOE is one of two participant collections which must be accessible 30 days after the Yucca Mountain Site Recommendation is forwarded to the President.

**FY 2001 Target:**

The LSN can "crawl" and index 100% of the available DOE document collection by the target operational date.

**LSN Project Goal 4:** Link the LSN homepage with NRC's external ADAMS hearing docket.

**Output Measure:**

- Establish a link at the LSN homepage to allow licensing participants and the general public to access the electronic hearing docket as required by 10 CFR Part 2, Subpart J. Participants and the public will utilize ADAMS capabilities to fulfill this requirement; this link merely provides a quick method to identify the appropriate directory/subdirectory location in the ADAMS system and open that application.

**FY 2001 Target:**

Users can effectively access an electronic hearing docket with 99.5% availability.

**LSN Project Goal 5:** Confirm ability to use the NRC's EIE system.

**Output Measure:**

- Verify the ability to utilize existing NRC infrastructure capabilities for electronic information exchange (EIE) to support electronic motions practice as required by 10 CFR Part 2, Subpart J. Participants will utilize this agency infrastructure capability to fulfill this requirement; this verification merely confirms that the system is operational well before the commencement of the licensing proceedings.

**FY 2001 Target:**

Participants can effectively use electronic information exchange to support 100% of motions practice documentary exchange.

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<sup>5</sup> DOE must make its documentary material electronically available, and certify that it has done so, no later than six months in advance of submitting its license application to construct a HLW geologic repository. The NRC must make its documentary material electronically available no later than thirty days after the DOE certification of compliance. Any other party, potential party, or interested governmental participant must make its documentary material electronically available no later than ninety days after the DOE certification of compliance.



**LSN Project Goal 6:** Establish the LSN audit capability.

**Output Measure:**

- Install hardware, software, and analytical and reporting software tools necessary to allow the LSN administrator to verify the accuracy and integrity of documents made available by the participants to meet discovery requirements.

**FY 2001 Target:**

The LSN Administrator can identify changes on participants' document collections with 100% reliability.

**LSN Project Goal 7:** Connect the LSN homepage with the remaining parties.

**Output Measure:**

- Establish connectivity between the LSN portal and the remaining parties, potential parties, and affected units of local government's collections of documentary materials. All parties other than NRC and DOE must make their documentary collections accessible 30 days after the repository site selection decision becomes final after review by Congress.

**FY 2001 Target:**

The LSN can "crawl" and index the document collections of any non-DOE and non-NRC party's documentary materials available at the time the LSN system goes operational.

**LSN Project Goal 8:** Monitor the integrity of participant collections and provide routine reports generated from the LSN audit capability.

**Output Measure:**

- Establish a baseline identification profile of documents produced by the parties in fulfilling their obligation to make documentary materials web-accessible. Utilize the baseline to monitor the accuracy and integrity of those materials for the duration of the licensing proceeding.

**FY 2001 Target:**

The LSN Administrator can identify changes on participants' document collections with 100% reliability. The LSNA is able to generate periodic reports on participant compliance to the Pre-Application Presiding Officer as requested.

**LSN Project Goal 9:** Provide website availability during licensing proceedings.

**Output Measure:**

- Ensure LSN and electronic docket availability. Availability of the LSN portal search and retrieval capabilities and of the electronically accessible hearing docket in ADAMS are scored against the Congressionally-mandated three-year licensing proceeding limitation. If this goal is successfully met by the LSN implementation and operation, not more than 11 calendar days would be added to the three-year licensing process due to unplanned system unavailability.

**FY 2001 Target:**

Not an FY 2001 Target; licensing proceedings scheduled to begin in 2003.

The Exhibit 53 Performance Goals and Measures for FY 2002 and FY 2003 are:

FY 2002 Performance Goal : The LSN should be available to general public and participant users.

FY 2002 Measure: The LSN should meet or exceed availability 99% of its scheduled uptime.

FY 2002 Performance Goal : Provide routine reports generated from the LSN audit capability to ensure availability and integrity of documents made available by participants.

FY 2002 Measure: The LSN will provide weekly reports that identify 100% of all changes, additions or deletions to participants' published document collections.

FY 2003 Performance Goal : The LSN should be available to general public and participant users.

FY 2003 Measure: The LSN should meet or exceed availability 99% of its scheduled uptime.

FY 2003 Performance Goal : Provide routine reports generated from the LSN audit capability to ensure availability and integrity of documents made available by participants.

FY 2003 Measure: The LSN will provide weekly reports that identify 100% of all changes, additions or deletions to participants' published document collections.

**C. Current baseline (applicable only if OMB approved the changes):**

**1. What are the cost and schedule goals for this segment or phase of the project?**

Not applicable. The current baseline is the original baseline for both cost and schedule goals.

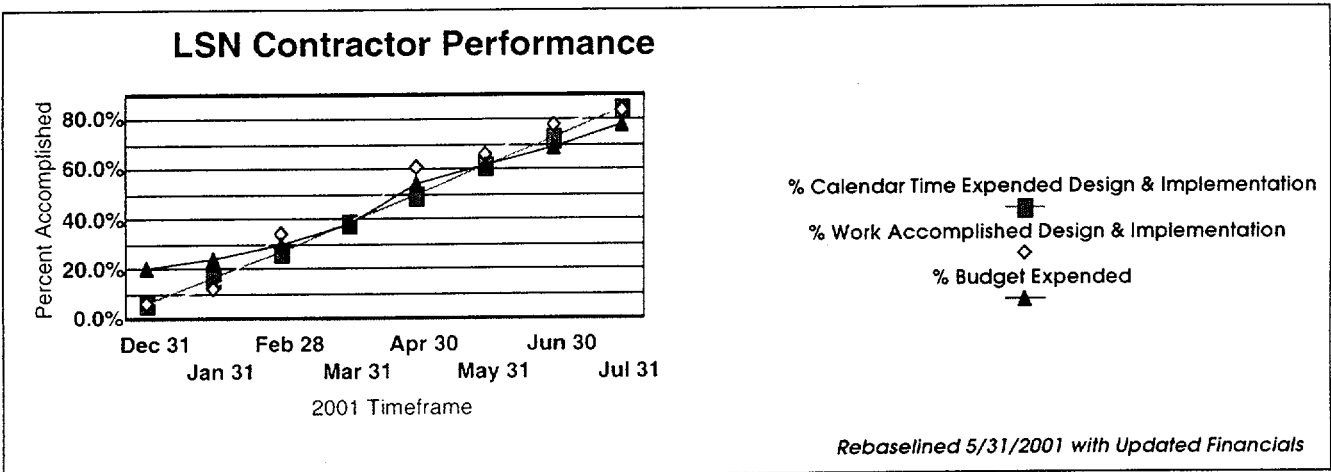
2. *What are the measurable performance benefits or goals for this segment or phase of this project?*

Not applicable. The current performance benefits and goals are the performance benefits and goals.

**D. Actual Performance and Variance from OMB approved baseline:**

1. *Actual cost and schedule performance. Using the information from your PMBS, explain:*
  - a. *What work you planned (scheduled) to accomplish and how much you budgeted to complete the work.*
  - b. *What you actually accomplished and how much you actually spent.*

The project cost and schedule performance from inception through July, 2001 is represented in the following table representing earned value analyses:



We had planned on accomplishing 84.6% of the work by the end of July, 2001 and we actually completed 84.0%. We had planned on expending \$1,947,311 and had actually spend \$1,773,576. The tempo of expenditures is expected to increase during the months of October, November, and December 2001 and we expect to complete the design and development activities at or under budget.

2. *Cost and schedule variance. If either the actual work accomplished or costs incurred vary from your baseline goals by 10 percent or more, explain:*

- a. *The variance between planned and actual costs or planned and actual schedule, expressed as a percentage of the baseline goal.*
- b. *The reason for the variance.*

The LSN project is ahead of schedule, but by less than 10%.

The LSN project is under budget, but by less than 10%.

All interim milestones and deliverables, and all FY goals remain unchanged from our original baseline. One interim milestone and contract deliverable, delivery of Release 1.0 of the portal software, scheduled for September 10, 2001, was rescheduled by two weeks, to a new delivery date of September 24, 2001. This variance was the result of findings identified during the government's acceptance testing and readiness reviews, and the time needed for the government staff to retest the deliverable software.

3. *Performance variance. Explain whether, based on work accomplished to date, you still expect to achieve your performance goals. If not, explain the reason for the variance.*

The LSN project will achieve its FY 2001 performance goals, with the exception of goal #7. No participants except DOE and NRC have collections ready for us to connect to as of this writing. We expect the first participant collections to be available in FY 2002. It is not within NRC's control to force the participants into making their document collections available per a given schedule except as required by 10 CFR Part 2, Subpart J at the time of the DOE submission of a License Application.