PART I: CAPITAL ASSET PLAN AND BUSINESS CASE (All Assets)

Agency *Nuclear Regulatory Commission*
Bureau *N/A*
Account Title *Salaries and Expenses*
Account Identification Code **31-0200-0-1-276**
Program Activity *Nuclear Waste Program*
Name of Project *Computerized Risk Assessment and Data Analysis Lab (CRADAL)*
Unique Project Identifier: **429-00-01-05-01-1010-00**
(IT only)(See section 53)
Project Initiation Date *10/1/93*
Project Planned Completion Date
This Project is: Initial Concept ____ Planning ____ Full Acquisition ____ Steady State _X_
Mixed Life Cycle ____

Project/useful segment is funded:	Incrementally __	Fully _X_
Was this project approved by OMB for previous Year Budget Cycle?	Yes _X_	No ___
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 investment included in your agency's annual performance plan or multiple agency annual performance plans?	Yes X	No
Does the project support homeland security goals and objectives, i.e., 1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making?	Yes ___	No _X_
Is this project information technology? (See section 300.4 for definition)	Yes _X_	No ___
For information technology projects only:		
a. Is this Project a Financial Management System? (see section 53.3 for a definition)	Yes ___	No _X_
If so, does this project address a FFMIA compliance area?	Yes ___	No ___
If yes, which compliance area?		
b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)?	Yes ___	No _X_
If so, is it included in your GPEA plan (and does not yet provide an electronic option)?	Yes ___	No ___
Does the project already provide an electronic option?	Yes ___	No _X_
c. Was a privacy impact assessment performed for this project?	Yes _X_	No ___

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d. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process?	Yes _X_	No ___
d.1 If yes, were any weaknesses found?	Yes ___	No _X_
d.2. Have the weaknesses been incorporated into the agency's corrective action plans?	Yes ___	No _X[1]_
e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? *	Yes ___	No _X_
e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures?	Yes ___	No _X_

** Preparations for NRC's Project Matrix Review are just underway. The Review will not be completed until the first Quarter FY 2003, at the earliest.*

SUMMARY OF SPENDING FOR PROJECT STAGES
(In Millions)
(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY-1 and Earlier[2]	PY 2002	CY 2003	BY 2004
Planning:				
Budgetary Resources				
Outlays				
Acquisition :				
Budgetary Resources	*0.050*	*0*	*0.073*	*0.075*
Outlays	*0.050*		*0.073*	*0.075*
Total, sum of stages:				
Budgetary Resources	*0.050*	*0*	*0.073*	*0.075*
Outlays	*0.050*		*0.073*	*0.075*
Maintenance:				
Budgetary Resources[3]	*0.385*	*0.624*	*0.648*	*0.648*
Outlays	*0.385*	*0.624*	*0.648*	*0.648*
Total, All Stages:				
Budgetary Resources[4]	*0.435*	*0.624*	*0.721*	*0.723*
Outlays	*0.435*	*0.624*	*0.721*	*0.723*

I. A. Project Description

1. Provide a brief description of this project and its status through your capital planning and investment control (CPIC) or capital programming "control" review for the current cycle.

CRADAL is in the steady state CPIC phase. This is the initial Exhibit 300 report.

CRADAL supports NRC's mission by providing high performance computer equipment, associated software, and onsite contractor assistance to support Division of Waste Management (DWM) staff licensing reviews associated with the proposed High Level Waste Repository at Yucca Mountain, Nevada and reviews of licensing activities associated with proposals to decommission nuclear reactors and nuclear materials facilities. CRADAL (formerly the Advanced Computer Center) has been in operation for approximately 10 years The basic investment for CRADAL was made before the passage of the Clinger Cohen Act which required formal capital plans. CRADAL has been in the Operational/Maintenance state of operation for the past three years. A small portion of the budget is used for the yearly replacement of equipment that has become obsolete.

CRADAL includes a five year service contract (FY00-05) for Geographic Information Systems (GIS) and 3D Modeling Support of DWM licensing efforts at Yucca Mountain and nuclear facilities being proposed for decommissioning. Service support is provided onsite utilizing equipment and specialized GIS software in CRADAL.

CRADAL includes the equipment and software in the following areas:

- *3D Modeling and Visualization*
- *Geographic Information System (GIS)*
- *Hydrological Modeling*
- *Criticality Calculations*
- *Radiological Dose Assessment*
- *Flow Modeling*
- *Total System Performance*

The GIS and 3D Modeling software is operated by contractor under our five year service contract. The remaining software is operated by DWM technical staff members who perform routine safety analyses concerning Yucca Mountain and/or facility decommissioning licensing proposals on an as needed basis. Infrastructure support for CRADAL's connection to the agency's network is provided through a general service contract administered by the Office of the Chief Information Officer (OCIO).

2. What assumptions are made about this project and why?

Congressional legislation has established a rather rigid timeframe for the licensing review of the proposed High Level Waste Repository at Yucca Mountain, NV. Based on current projections, a license application is expected in early FY05. The planned expansion in the CRADAL budget for FY03 and FY04 will result in having all of the older equipment in CRADAL replaced just before the license submittal occurs. Increased expenditures in FY05 and beyond are planned to maintain some state of the art equipment in CRADAL for the duration of the Yucca Mountain review

3. Provide any other supporting information derived from research, interviews, and other documentation.

In FY-02, demand for CRADAL computing services began to exceed capacity to the point that technical staff had to delay some of the necessary analytical work. To ease this burden, it was necessary to accelerate the planned purchase of new equipment in order to meet the demand for services. This new equipment has cut the run time of some CRADAL codes in half, allowing necessary analytical work to be completed on time.

On the contractor-support side of CRADAL, request for services have exceeded budgetary capacity during FY02. This forced us to place a priority on all Yucca Mountain GIS and 3D Modeling support work, postponing some to the requested work supporting Decommissioning of Low Level Waste disposal facilities until FY03.

I.B. Justification (All Assets)

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

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

NRC's Strategic Goals	NRC Strategies	Support	How Does Your Initiative Support this NRC Goal or Corporate Management Strategy?
1. Nuclear Reactor Safety: Prevent radiation-related deaths and illnesses, promote the common defense and security, and protect the environment in the use of civilian nuclear reactors.			▪
2. Nuclear Materials Safety: Prevent radiation-related deaths and illnesses, promote the common defense and security, and protect the environment in the use of source, byproduct, and special nuclear material for medical, academic, and industrial purposes			▪
3. Nuclear Waste Safety: Prevent adverse impacts from radioactive waste to the current and future public health and safety and the environment, and promote common defense and security	Maintain Safety	X	▪ Provides the analytical tools needed to determine if proposed licensing actions provide required level of safety
	Public Confidence	X	▪ ▪ Supports visualization tools necessary to present complex technical information to public in understandable format
	Efficiency and Effectiveness	X	▪ ▪ Supports analytical tools which permit rapid and accurate evaluation of licensing actions
	Reduce Unnecessary Burden	X	▪ ▪ Supports tools that permit the replacement of conservative assumptions with verified calculations, often resulting in less restricting licensing conditions
4. International Nuclear Safety Support: Support U.S. interests in the safe and secure use of nuclear materials and in nuclear non-proliferation			▪
NRC Corporate Management Strategy 1: Employ innovative and sound business practices	Make it easier for staff to acquire, access and use information	X	▪ CRADAL provides the platform on which staff can utilize licensee information ith which to complete extremely complicated analyses regarding proposed licensing actions

NRC's Strategic Goals	NRC Strategies	Support	How Does Your Initiative Support this NRC Goal or Corporate Management Strategy?
NRC Corporate Management Strategy 2: Sustain a high-performing, diverse workforce.			▪
NRC Corporate Management Strategy 3: Provide proactive information management and information technology services.			▪
NRC Corporate Management Strategy 4: Communicate strategic change.			▪

2. How does it support the strategic goals from the President's Management Agenda?

Presidents Management Agenda (PMA)	Supports	How Does Your Initiative Support This PMA Item?
Human Capital	X	CRADAL supports strategic management of human capital by providing current codes and models for use by technical staff allowing them to maintain expertise in their selected disciplines.
Competitive Sourcing	X	GIS and 3D modeling support in CRADAL is provided by competitively-selected contractor as it is more cost-effective to contract for this expertise than to train DWM staff.
Financial Performance		
E-Government		
Budget and Performance Integration		

3. Are there any alternative sources in the public or private sectors that could perform this function?

Yes, various public and private sources are capable of performing the analyses currently being performed in CRADAL.

4. If so, explain why your agency did not select one of these alternatives.

There are two key reasons for not pursuing alternatives sources for all CRADAL functions: Conflict of Interest (COI) concerns and administrative cost issues.

Many of the potential sources who perform the type of work currently be performed by DWM staff in CRADAL have performed services for nuclear licensees. While such sources are otherwise qualified to perform the technical work, the COI raised by the fact that the sources have performed work for nuclear licensees would make a contract unwise.

In addition to the COI issues, much of the work currently performed in CRADAL by DWM technical staff involves extremely short-turnaround analyses the results of which dictate the need for additional runs. If this work were covered by a service contract, it would be very costly to maintain a diverse technical staff ready to perform analyses at a moment's notice and it would be very cumbersome to maintain the interaction between DWM staff and contractors concerning the results of analyses and need for additional computer work.

5. Who are the customers for this project?

The technical staff members in DWM are the primary customers. Secondary customers are technical staff members in the Spent Fuel Program Office and the Division of Fuel Cycle Safety and Safeguards.

6. Who are the stakeholders of this project?

The stakeholders for this project are the technical staff in DWM, various levels of management at the NRC who will utilized the analyses and visualizations as a bases for licensing decisions, the Department of Energy, the State of Nevada, potential parties in the hearing concerning the proposed repository at Yucca Mountain, and licensees proposing facility decommissioning.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.

This is not a multi-agency initiative.

8. How will this investment reduce costs or improve efficiencies?

CRADAL helps reduce costs and improve efficiencies by providing the hardware and software to support enhanced safety reviews. With this infrastructure, a technical staff member can perform more analyses in a day than could be performed in a month with traditional analytical tools. In addition, the analytical tools in CRADAL allow for more realistic analyses. This often results in issuance of new license requirements eliminating restrictions which were included in previous licenses due to uncertainties and which resulted in no real increase in safety.

9. List all other assets that interface with this asset_____. Have these assets been reenigineered as part of this project? Yes____, No____.

The only asset that interfaces with CRADAL is the agency LAN. This interface is necessary for printing and file transfer services between parts of CRADAL. No asset outside of CRADAL is used for data sharing.

I.C. Performance Goals and Measures (All Assets)

Fiscal Year	Strategic Goal(s) Supported	Existing Baseline	Planned Performance Improvement Goal	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2002	Nuclear Waste Safety: Prevent adverse impacts from radioactive waste to the current and future public health and safety and the environment, and promote common defense and security	Complete GIS and 3D support requests in 120 days Acquire new software within 90 days of supported staff need request	Shorten GIS response to 90 days or less Through needs surveys, begin acquiring some software before formal need is filed	Met improvement goal on all but one GIS review Able to acquire all low cost software product prior to formal request; large ticket software still being handled via formal request route	Schedule delays in CRADAL shall not result in schedule slippages for license reviews	Performance Metrics have been achieved to date
	NRC Corporate Management Strategy 1: Employ innovative and sound business practices	Provide GIS Support to Staff via contractor s	Provide staff with ability to run GIS models from desktop	Unable to meet FY02 goal due to funding restrictions	Provide GIS desktop support to all DWM staff	Effort postponed to FY03 due to funding shortage

2003[4]	*Same as above*	*Same as above*	*Shorten GIS response to 75 days or less* *Document all software needs at beginning of year and acquire before need is developed* *Provide desktop GIS support to DWM*		*CRADAL GIS shall not delay any licensing reviews* *All software needed by technical staff will be available when needed* *Desktop GIS support will be available for 10 DWM staff*	

I.D. Program Management [All Assets]

Question 1 – Is there a program manager assigned to the project: If so, what is his/her name?

James Thomas, Project Manager
Program Management, Policy Development and Analysis Staff
Office of Nuclear Materials Safety and Safeguards 301-415-5168

Question 2 – Is there a contracting officer assigned to the project? If so what is his/her name?

Sharon Steward, Chief
Contracts Management Branch #2
Division of Contracts and Property Management
Office of Administration 301-415-7314

4 Due to the change in software occurring continuously in CRADAL, it is not practical to establish long rang performance goals as the products that will be used in FY04 and beyond are not yet available commercially

Question 3 – Is there an Integrated Project Team? If so, list the skill set represented.

The Integrated Project Team consists of the following individuals:

Technical Advisor: James Thomas, Project Manager
Program Management, Policy Development and Analysis Staff
Office of Nuclear Materials Safety and Safeguards 301-415-5168

Budget Advisor: Sally Cornell, Resource Analyst
Program Management, Policy Development and Analysis Staff
Office of Nuclear Materials Safety and Safeguards 301-415-8045

Contract Performance: Edna Knox-Davin, Technical Assistance Project Manager
Program Management, Policy Development and Analysis Staff
Office of Nuclear Materials Safety and Safeguards 301-415-6577

Contracts Specialist: Elinor Cunningham, Contracts Specialist
Division of Contracts and Property Management
Office of Administration 301-415-6580

Question 4 – Sponsor/Owner:

C. William Reamer, Deputy Director
Division of Waste Management
Office of Nuclear Materials Safety and Safeguards 301-415-6537

Part II: Additional Business Case Criteria for Information Technology

II. A. Enterprise Architecture

II.A.1 Business

A. Is this project identified in your agency's enterprise architecture? If not, why?

Yes, CRADAL has been identified in NRC's in-progress enterprise architecture (EA).

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

CRADAL falls within the scope of NRC's baseline EA. As such, this system supports the performance of the business functions identified in the agency enterprise business model, documented in the NRC publication, "NRC Enterprise Model," by providing the infrastructure required to carry out NRC's mission. CRADAL utilizes products and components that are aligned with NRC's current application and technology standards and future direction as specified in NRC's existing technology planning documents. Although the NRC's existing technology planning documents are being updated, the current documents identify some core technology needs. These core technology needs are in the process of being updated and expanded through an evolving organizational EA governance process that will ensure that all current and future technology needs are vetted by NRC business managers to validate links to NRC business drivers for the identified technologies. When fully functional, NRC's integrated EA and CPIC processes will enable NRC to apply the same sound risk management strategies to its IT investments that have long characterized NRC's core business operations. NRC has also provided the Federal Enterprise Business

Reference Model (FEBRM) with high level business functions and subfunctions derived from the NRC Enterprise Model. NRC is working to uncover additional internal cross-cutting initiatives and has begun to look at other-agency business processes and State business processes to identify potential areas for collaborative efforts.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

The following Lines of Business and Sub-Functions are supported by CRADAL:

Lines of Business Supported	Sub-Functions Within Lines of Business Supported
Environmental Management	Pollution Prevention and Control
Regulated Activity Approvals	License Issuing & Control

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

CRADAL provides the analytical tools used by DWM staff to evaluate proposed licensing actions and determine whether such actions are in compliance with applicable NRC regulations. In the case of ongoing licensed activities, CRADAL analytical tools are used to evaluate environmental data to provide an early indication of potential environment release issues or to provide detailed information on containment of material which may pose a release hazard.

E. Was this project approved through the EA Review committee at your agency?

Since CRADAL has been in operation for approximately ten years, the initial investment was made prior to the establishment of the EA Review Committee.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative?

The major change that has occurred as a result of CRADAL is the incorporation of GIS/3D Modeling concepts in most major licensing reviews. Previously, many of the technical reviews were far too complicated to present in a format that decision-makers or public stakeholders could easily grasp. This resulted in the type of review where the conclusion was a simple statement from a technical expert that the licensing initiative had been reviewed and found to comply with applicable regulations. With the incorporation of CRADAL modeling software into the license review, decision-makers and public stakeholders are now presented with realistic scenarios of potential release pathways which can be graphically presented so that a non-technical person can understand the significance of the licensing action being considered.

G. What are the major organization restructuring, training, and change management projects that are required?

The software used in CRADAL is constantly changing and new software is added from year to year to address new technical issues. For this reason, an annual training plan is one of the deliverables of the GIS/3D Modeling Support contract to assure that contractor staff are always kept up to date on the new software. Contractor staff, in turn, are required to provide training to DWM staff in the basic use of

GIS/3D software. For other CRADAL software, we routinely make recommendations to DWM management to send DWM technical staff for specific training in the software they will be using.

CRADAL has not resulted in any organization restructuring. Change management has been limited to the gradual change associated with getting DWM technical staff to utilize state of the art computer models to replace conservative hand calculations when evaluating licensing proposals.

H. What are the Agency lines of business involved in this project?

The evaluation of the proposed High Level Waste Repository at Yucca Mountain, Nevada and the evaluation of licensing proposals to decommission nuclear facilities.

F. What are the implications for the agency business architecture?

The implications are minimal. CRADAL utilizes the agency infrastructure for file printing and file transfer services only. Data is not stored and calculations are not performed on equipment associated with the agency infrastructure.

II.A.2 Data

A. What types of data will be used in this project?

CRADAL possesses and uses four general types of data. The first type is the initial data provided by licensees proposing one or more licensing actions. The second type is data generated from third party sources such as government agencies or reference sources. The third type is data developed by our contractors or staff as the result of independent field measurements. The fourth type are the results of analyses in which one or more of the first three data types are analyzed by CRADAL codes.

B. Does the data needed for this project already exist at the Federal, State, or Local level? If so, what are your plans to gain access to that data?

In some instances, needed data already exists at the Federal, State or local level. If possible, such data would be acquired before CRADAL analyses are performed.

B. Are there legal reasons why this data cannot be transferred? If so, what are they and did you address them in the barriers and risk sections above?

If necessary data is available at another Federal, State, or local source, there would be no legal reason preventing acquisition provided, in some instances, we agree to limit the use of the data to this specific project. In other cases, a fee may be required to acquire some necessary data.

C. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A–16.

Investments to date have been in Earthvision, ARCINFO, and ERDAS software to process spatial data. DWM uses of spatial data apply to very localized environments with relative rather than absolute references to physical properties surrounding licensee property. When available, CRADAL staff use spatial data from USGS and other sources as background information for presentations. However, due to the localized nature of CRADAL work, our analyses would be of very limited benefit to agencies processing regional spatial data of the type discussed in OMB Circular A-16.

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? If not, please explain.

II. B. Security and Privacy

NOTE: Each category below must be addressed at the project (system/application) level, not at a program or agency level. Referring to security plans or other documents is not an acceptable response.

II.B.1. How is security provided and funded for this project (e.g., by program office or by the CIO through the general support system/network)?

CRADAL relies on the NRC local area network general support system for its security services. CRADAL funds for security are limited to equipment and supplies supporting system backups. Support for a System Administrator to control system access and use is provided by the CIO through the general support system/network.

A. What is the total dollar amount allocated to security for this project in FY 2004?

FY04 funding is 67K.

II.B.2 Does the project (system/application) meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

CRADAL is not a major application or general support system (as defined by OMB policy). Security requirements are satisfied by the accredited underlying NRC LAN infrastructure.

A. Does the project (system/application) have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

CRADAL is included under the up to date Security Plan that exists for the NRC LAN; (dated July 2001)

B. Has the project undergone an approved certification and accreditation process? Specify the C&A methodology used (e.g., NIST guidance) and the date of the last review.

CRADAL is included under the accreditation that exists for the NRC LAN, which used a NIST approved certification and accreditation process.

C. Have the management, operational, and technical security controls been tested for effectiveness? When were most recent tests performed?

These tests were performed as part of the NRC LAN certification in July 2001.

C. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules?

The CRADAL support staff team is responsible for providing appropriate security training to the CRADAL users.

E. How has incident handling capability been incorporated into the system, including intrusion detection monitoring and audit log reviews? Are incidents reported to GSA's FedCIRC?

NRC has recently implemented information systems security response procedures. These are part of the underlying security services provided by the NRC LAN general support system. The incident response procedures have been reviewed and approved by GSA's FedCIRC, and the NRC is reporting incidents to the GSA FedCIRC.

F. Is the system operated by contractors either on-site or at a contractor facility? If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

N/A for CRADAL

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

This is not applicable to CRADAL since it does not have public access features.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies.

This is not applicable to CRADAL since it does not store personal information.

II.B.5 If a Privacy Impact Assessment was conducted, please provide a copy to OMB.

CRADAL does not contain personal information about individuals.

II. C. Government Paperwork Elimination Act (GPEA)

II.C.1 If this project supports electronic transactions or record-keeping that is covered by GPEA, briefly describe the transaction or record-keeping functions and how this investment relates to your agency's GPEA plan.

This is not applicable since CRADAL does not support electronic transactions or record-keeping.

II.C.2 What is the date of your GPEA plan?

Since CRADAL does not support electronic transactions or record-keeping, a GPEA plan was not developed.

II.C.3 Identify any OMB Paperwork Reduction Act (PRA) control numbers from information collections that are tied to this investment.

CRADAL does not initiate any requests for information to any licensee or other parties; therefore, the provisions of of PRA would not apply.