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OFFICE OF THE INSPECTOR GENERAL

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US NUCLEAR

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REGULATORY COMMISSION

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NRC EFFECTIVELY MANAGES  
ITS CONTRACT WITH  
SOUTHWEST RESEARCH INSTITUTE  
FOR OPERATING THE CENTER FOR  
NUCLEAR WASTE REGULATORY ANALYSES

OIG/93A-11 December 14, 1993

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# AUDIT REPORT

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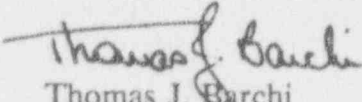


UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

December 14, 1993

OFFICE OF THE  
INSPECTOR GENERAL

MEMORANDUM FOR: James M. Taylor  
Executive Director for Operations

FROM:   
Thomas J. Barchi  
Assistant Inspector General for Audits

SUBJECT: NRC EFFECTIVELY MANAGES ITS CONTRACT WITH  
SOUTHWEST RESEARCH INSTITUTE FOR OPERATING  
THE CENTER FOR NUCLEAR WASTE REGULATORY  
ANALYSES

Attached is the Office of the Inspector General's audit report entitled, "NRC Effectively Manages Its Contract with Southwest Research Institute for Operating the Center for Nuclear Waste Regulatory Analyses."

On December 1, 1993, the Deputy Executive Director for Nuclear Materials Safety, Safeguards, and Operations Support responded to our draft report. He generally agreed with our recommendations and provided completion dates for corrective actions underway.

Attachment:  
As stated

cc: H. Thompson, EDO  
J. Sniezek, EDO  
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E. Beckjord, RES  
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S. Ebnetter, RII  
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J. Milhoan, RIV  
B. Faulkenberry, RV

## REPORT SYNOPSIS

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Under the Nuclear Waste Policy Act of 1982, as amended, the U.S. Nuclear Regulatory Commission (NRC) is responsible for licensing high-level waste storage and disposal facilities, which the Department of Energy will construct, operate, and permanently close. In October 1987, the agency entered a 5-year cost-plus-award-fee contract with Southwest Research Institute (SwRI) to operate the Center for Nuclear Waste Regulatory Analyses (the Center) as a Federally Funded Research and Development Center. NRC renewed the contract in October 1992, and the current contract ceiling amount is \$134.7 million. This contract is the agency's largest active contract.

In February 1993, the Office of the Inspector General initiated a review to determine NRC's adherence to contracting policies and procedures related to management of its contract with SwRI, as well as the efficiency and effectiveness of that management. Overall, we found that the agency is doing a very effective job. However, there are two areas in which NRC could improve its performance: strengthening the award fee process and performing a documented analysis to determine if using the Center for high-level waste technical assistance work is more cost-effective than performing this work within the Agency. The report makes five recommendations.

## LISTING OF ACRONYMS USED IN THIS REPORT

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the Act . . . . .	Nuclear Waste Policy Act of 1982, as amended
ADM . . . . .	Office of Administration
Award Plan . . . . .	Award Fee Determination Plan
CA . . . . .	Contract Administrator
the Center. . . . .	Center for Nuclear Waste Regulatory Analyses
CO . . . . .	Contracting Officer
CRG . . . . .	Center Review Group
DCPM . . . . .	Division of Contracts and Property Management
DOE . . . . .	Department of Energy
EPA . . . . .	Environmental Protection Agency
FAR . . . . .	Federal Acquisition Regulation
FFRDC . . . . .	Federally Funded Research and Development Center
FTE . . . . .	Full-Time Equivalent
FY . . . . .	Fiscal Year
HLW . . . . .	High-Level Waste
NMSS . . . . .	Office of Nuclear Material Safety and Safeguards
NPR . . . . .	National Performance Review
NRC . . . . .	U.S. Nuclear Regulatory Commission
OC . . . . .	Office of the Controller
OFPP . . . . .	Office of Federal Procurement Policy
PEM . . . . .	Program Element Manager
PMPR . . . . .	Program Manager's Periodic Report
PO . . . . .	Project Officer
RES . . . . .	Office of Nuclear Regulatory Research
SwRI . . . . .	Southwest Research Institute

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## INTRODUCTION

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In October 1987, the U.S. Nuclear Regulatory Commission (NRC) entered a 5-year cost-plus-award-fee contract with Southwest Research Institute (SwRI) to operate a Federally Funded Research and Development Center (FFRDC). SwRI established the Center for Nuclear Waste Regulatory Analyses (the Center) as an FFRDC. The Center is to provide NRC with long-term technical assistance and research related to the Nuclear Waste Policy Act of 1982, as amended (the Act). In October 1992, the NRC extended its contract with SwRI for an additional 5 years.

NRC's current contract ceiling amount is \$134.7 million, including \$89.9 million for the 5-year extension through Fiscal Year (FY) 1997. The agreement with SwRI represents NRC's largest active contract. Therefore, in February 1993 the Office of the Inspector General initiated a review to determine NRC's adherence to contracting policies and procedures related to management of its contract with SwRI, as well as the Agency's efficiency and effectiveness of that management. Appendix I contains additional details of our audit objectives, scope, and methodology.

## BACKGROUND

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Under the Act, the NRC is responsible for licensing high-level waste (HLW) storage and disposal facilities, which the Department of Energy (DOE) will construct, operate, and permanently close. The granting of an NRC license to begin construction, operation, and closure of a facility means that NRC has determined that the facility will provide adequate assurance to protect public health and safety and the environment against undue risks. The long duration (estimated to be decades) of the developmental, pre-licensing, and licensing processes under the Act posed special problems to NRC. These problems came in two critical areas: (1) the need for NRC contractors to be free from conflict of interest in NRC licensing matters; and (2) the need to maintain long-term continuity in technical assistance and research programs supporting NRC's HLW program.



In 1985, NRC staff requested Commission approval for the establishment and sole sponsorship of an FFRDC to provide long-term technical assistance and research for NRC's program under the Act. The Commission approved NRC's sponsorship of an FFRDC to support the ongoing HLW licensing program in October 1986. After soliciting competitive bids, NRC contracted with SwRI.

The NRC Division of Contracts and Program Management (DCPM), Office of Administration (ADM), is responsible for the overall administration of the SwRI contract. The Office of Nuclear Material Safety and Safeguards (NMSS) has programmatic lead for developing and executing the regulatory program for HLW management activities. The Office of Nuclear Regulatory Research (RES) provides programmatic support to NMSS by managing the research necessary to support NRC's regulatory program for HLW activities.

A Contracting Officer (CO) and a Contract Administrator (CA) from DCPM oversee implementation of the contract terms. In addition, the Director, Program Management, Policy Development and Analysis Staff, NMSS, serves as the NRC Center Program Manager to oversee the overall program performance of the Center's operations.

A Technical Assistance Sponsor and a Research Sponsor have overall technical responsibility for the work placed at the Center. The acting Technical Assistance Sponsor is the Deputy Director, Division of HLW, NMSS. The acting Research Sponsor is the Deputy Director, Division of Regulatory Applications, RES.

The contract contains 12 separate element areas, of which 7 are HLW elements: Center Operations; Waste Systems Engineering and Integration; Geologic Setting; Engineered Barrier Systems; Repository Design, Construction, and Operations; Quality Assurance (External); and Performance Assessment. The remaining five elements include: Research; Waste Solidification Systems; Monitored Retrievable Storage; Licensing Support System; and Transportation.

Each element within the contract has an assigned Program Element Manager (PEM). The NRC PEM for each individual element is the CO's authorized representative for the technical aspects of the entire element. Each Program

Element may also have one or more Project Officers (PO) assigned to oversee various tasks within that element. The designated POs are the authorized representatives for the technical aspects of each individual task within an element or for each research project. Within the Research Program Element, some POs manage more than one project. NMSS, RES, and Office of Information Resource Management staff act as the PEMs and POs.

## FINDINGS

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Overall, the NRC is doing a very effective job administering and managing its SwRI contract for operating the Center. There are two actions that could improve this performance: strengthening the award fee process and performing a documented analysis to determine if using the Center for HLW technical assistance work is more cost-effective (considering efficiency, effectiveness, and economy) than performing that work within the agency.

### NRC IS VERY EFFECTIVE IN ADMINISTERING AND MANAGING ITS CONTRACT

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This review found the following:

- NRC's mission for the Center is appropriate;
- the Center's level of independence is proper;
- NRC actions currently underway should improve the efficiency of the Agency's contract management practices;
- NRC has a process to identify and approve the work placed and the staffing level set at the Center;
- NRC's procedures for allowing work for others appear adequate; and,
- NRC is performing invoice reviews, but could be more timely in this process.

#### *NRC's Mission for the Center Is Appropriate*

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The mission of the Center is to provide sustained, high-quality technical

assistance and research in support of the Agency's HLW management program under the Act. After analyzing the Act, NRC found that it must respond to over 40 provisions.

The Act requires that NRC must reach a licensing decision within 3 to 4 years after receiving DOE's license application for a HLW repository. According to DOE's initial estimates, DOE was to submit a license application to NRC in 1991. However, this date has now slipped to 2001 and may be pushed back even further.

Until NRC receives DOE's license application, it will be developing the independent technical capability to evaluate that application. The Agency will also be implementing a "preliminary" guidance and consultation program with DOE. The purpose of this program is to ensure early identification and formal resolution of key issues, and the timely identification of NRC's licensing needs to DOE.

Because NRC requirements under the Act have not changed, we believe that the current mission of the Center is appropriate.

#### *The Level of Independence for the Center Is Proper*

During this audit, we observed NRC/Center interactions and frequently heard concerns raised by Center managers regarding the Center's independence as an FFRDC. These managers and other Center staff repeated these concerns during conversations with us.

Part 35 of the Federal Acquisition Regulation (FAR) contains the term "independence" as it relates to an FFRDC. The FAR states, "The FFRDC is required to conduct its business . . . with objectivity and independence . . . Long-term relationships between the Government and FFRDCs are encouraged . . . This relationship should be of a type to encourage the FFRDC to maintain currency in its field(s) of expertise, maintain its objectivity and independence . . ."

The FAR does not provide any definition or criteria for the term "independence." Therefore, we contacted a senior official from the Office of

Federal Procurement Policy (OFPP) to determine if any guidance was available regarding the term independence as it relates to an FFRDC, and how to evaluate whether NRC is restricting the independence of the Center.

This OFPP official told us that there is no documented criteria or guidance addressing this subject. He gave his opinion that all FFRDCs want to be completely independent. This official recommended that we review NRC's contract with SwRI for operating the Center. He believes the written contract and how an Agency decides to manage that contract determine the level of independence for an FFRDC. If NRC actions were part of adequate management oversight to ensure that the Center complied with contract requirements, NRC would be correct in taking those actions. He added that, if NRC was trying to skew the results or control the methods of Center work to bring about NRC desired outcomes, the Center's independence would be questionable.

Regarding independence, the NRC's contract with SwRI states, ". . . the Center shall provide independent suggestions and recommendations . . ." The contract also states, ". . . the Center will exercise its independence and initiative by offering professional advice and counsel . . ." The contract points out that, "Center Operations/Project Plans contain details of what the Center plans to do . . . and are subject to NRC Contracting Officer approval. The Center may also at times find it useful to submit for NRC comment documents . . . which describe how the work will be performed. These documents are Center management documents and are not subject to NRC approval." The contract also allows for differing opinions. If Center personnel do not agree with NRC technical direction, the Center can seek management level reviews up to, and including, the Director, NMSS.

Given these provisions, we believe that NRC has allowed for Center independence, while still maintaining a proper degree of management control.

#### *Current NRC Actions Should Improve Efficiency*

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As part of NRC's contract management practices, both NRC and the Center participate in various management meetings and prepare various management reports. For example, NRC and Center staff are involved in bi-weekly

Commitment Control Log meetings, periodic management meetings, semi-annual program reviews, and annual Commission briefings. Additionally, the Center staff must prepare monthly Program Manager's Periodic Reports (PMPR), monthly Cost Variance Reports to be included in the PMPRs, semi-annual research reports, and an annual Key Technical Uncertainty Report. NRC staff must develop quarterly Performance Monitor Reports and be involved with semi-annual Center evaluation meetings as part of the award fee determination process.

In an August 1993 NRC/Center management meeting, the NRC Center Program Manager initiated a "zero-based" management review. The review's purpose was to determine if NRC and the Center can use better methods to ensure a more efficient and effective management operation. The plan for this review includes three steps: (1) preparation of a list of management tools used by NRC to review/manage the Center, including frequency and resource estimates; (2) determination of the purpose and use of each management tool identified; and (3) proposal of an ideal plan for NRC/Center interactions and management reports. The proposed management plan will specify both NRC and Center resources required for implementation.

In emphasizing the zero-based approach, commitments made in the August 1993 management meeting indicated that the proposed plan, ". . . will not be constrained by present practices, regulations, or the existing contract." The Program Manager established a targeted completion date of November 30, 1993 for this zero-based management review. As part of the first initiatives, NRC and the Center identified 24 separate management tools used by NRC to review/manage the Center. The zero-based review process was still in progress when we completed this audit. The NRC Center Program Manager hopes to implement revisions to contract management practices based on this review by the end of calendar year 1993.

These actions are both appropriate and prudent. However, it must be noted that actions taken to improve the efficiency of contract management practices should not reduce the Agency's effectiveness in managing that contract.

*NRC Identifies and Approves the Work Placed  
and Staffing Level Set at the Center*

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NRC has an identification and approval process for placing work and setting the staffing level at the Center. This is an annual activity that coincides with NRC's budgeting process. NRC's process of systematic regulatory analysis and identification of key technical uncertainties guides the identification of research and the resources necessary to carry out that work.

NRC prepares Program Element Plans and Statements of Work to define the work placed at the Center. In response to these NRC directives, the Center prepares annual Operations/Project Plans and submits them to NRC for approval. As part of this process, the Center also provides an overall staffing plan.

During the early stages of the Center's development, NRC and the Center agreed upon an appropriate level for Center staffing. The level of full-time equivalent (FTE) positions anticipated for the Center at its inception was 54 core professional staff by the end of FY 1991. According to NRC staff, the scarcity of people with highly specialized skills, combined with budgetary concerns, slowed the hiring rate. At the time of our review, NRC projected that the Center's staffing level would not reach the original projection of 54 core personnel until the end of FY 1993 and would remain at that level through FY 1997. However, the Center is still trying to fill the last core professional staff position.

Once NRC approves the work and staffing level at the Center, it provides technical direction and guidance to the Center when adjustments are required. NRC and the Center discuss the work and staffing level in periodic management meetings and mid-year reviews. These discussions include the identification of new work and the evaluation of existing work. NRC and the Center also discuss current personnel assignments and future staffing needs. At NRC's semi-annual award fee determination meetings, NRC evaluates the work performed in each contract element and the Center's staffing as separate areas of consideration.

Since 1989, the Director, NMSS, has apprised the NRC Commissioners of the status of the Center. These presentations have included information regarding Center work and the staffing level.

In 1990, NRC's Nuclear Safety Research Review Committee evaluated the Center's HLW program. In its report, the Review Committee stated, "Excellent progress has been made in staffing the Center with a nice combination of experienced waste management professionals and outstanding young scientists and engineers. The enthusiasm and competence of the Center staff were clearly in evidence."

We believe that NRC's process for identifying and approving the work placed and the staffing level set at the Center is adequate. This process includes not only NRC staff review and approval, but also NRC Commission interactions. However, we did not evaluate the basis upon which the staffing level was established.

*NRC's Procedures for Allowing Work  
for Others Appear Adequate*

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NRC has granted permission for the Center to perform work for a non-Federal entity. Additionally, the Environmental Protection Agency (EPA) is considering placing work at the Center.

According to the FAR, NRC may allow non-sponsoring entities to use the Center only if the terms of its agreement with SwRI permit it. The FAR prescribes specific requirements that NRC and the non-sponsoring entity must meet before allowing work for others to commence. NRC has established procedures for using the Center in work for others within its areas of special competency. These procedures contain direct references to the FAR requirements and provide guidance for their implementation. The procedures adequately address FAR requirements regarding use of the Center by others.

NRC followed these procedures in allowing the Center to perform the work for the non-Federal entity. However, at the completion of this review, NRC

was still considering whether to allow EPA work at the Center. Therefore, we could not determine NRC's effectiveness in implementing the procedures for this work.

#### *Review of Invoices Could Be More Timely*

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NRC has a process for reviewing and approving SwRI invoices submitted for work performed at the Center. However, the NRC Center Program Manager raised a concern regarding his responsibility versus that of Program Element Managers for reviewing invoices. As a result, in July 1993, the NRC Center Program Manager issued new procedures specifically for reviewing SwRI invoices. These new procedures, when fully implemented, should provide adequate controls over the review and approval of SwRI invoices.

However, NRC has not always fulfilled its contractual obligation for paying invoices within 30 days. For the 84 invoices submitted between August 1992 and August 1993, NRC payments were, on average, 10 days late. Overall, NRC payments to SwRI were on time or early on only 9 of the 84 (11 percent) occasions. In the worst case, NRC's payment was 47 days late.

The greatest delay in the process occurred once the Contracting Officer (CO) transferred the invoices to the NRC Center Program Manager for review and approval. The NRC Manual requires that this part of the process be completed within 7 days, but it averaged over 21 days. The Center Program Manager returned the reviewed invoices to the CO on time in only 9 of the 84 cases. Additionally, when the CO transferred the reviewed and approved invoices to the Office of the Controller (OC) for payment, OC payments were late for 32 of the 84 (38 percent) occasions.

We discussed the issue of NRC late payments with the Center's Director of Administration, who did not view this as a major problem. This Director was generally satisfied with the invoice payment process. Additionally, NRC's Office of General Counsel determined that NRC is not required to pay any penalties for late payments under a cost-reimbursement contract.

We are encouraged by the actions taken by the NRC Center Program Manager to improve the invoice review and approval process. Although late



payments do not have an adverse effect on NRC's relationship with the Center, improvement in this area is warranted. Therefore, the NRC Center Program Manager should pay special attention to reducing the time it takes to review and approve the Center's invoices before sending them back to the CO. Additionally, the OC needs to reduce the time it takes to make payments to SwRI once reviewed and approved invoices have been received.

### **NRC SHOULD CONSIDER STRENGTHENING THE AWARD FEE PROCESS**

According to the FAR, award fees should be used as an incentive for improved contractor performance. Therefore, NRC included an award fee determination plan (Award Plan) in its contract with SwRI for evaluating the Center's performance and making an award fee. The Award Plan provides that 70 percent of the Center's performance evaluation is based on technical merit, 20 percent on management and staffing, and 10 percent on cost control and contract administration. PEMs evaluate the technical performance of the elements they manage. The PEM for the Center Operations element also evaluates the management and staffing of the Center. The CA evaluates the Center's cost control and contract administration.<sup>1</sup>

For the first 5 years of the contract, NRC awarded approximately \$3 million in fees to the Center. This represented approximately 94 percent of the maximum award fees available. In its proposal for NRC's 5-year contract extension period, the Center estimated that NRC would award another \$6.6 million, or more than \$1 million per year.

NRC uses substantial resources in the continual evaluation and processing of award fee information. This is the major disadvantage to using a cost-plus-award-fee contract. Currently, Program Element Managers (PEMs) must rate the Center's performance on a quarterly basis, which NRC recently revised from a bi-monthly rating period.

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<sup>1</sup>For purposes of this report, we consider the evaluations performed in the management and staffing area and the cost control and contract administration area as part of all element evaluations.

Additionally, members of the NRC's Center Review Group (CRG) spend substantial time twice each year meeting with the PEMs, developing a final Center evaluation, and determining a recommended final award fee.

However, the major advantage of having this type of contract is the increased communication between the NRC and the Center. Inherent in this advantage is the expectation that this process will motivate the Center to strive to continually better their performance. It is with the expectation that these advantages outweigh the disadvantages of the increased administrative burden that a Government entity would choose a cost-plus-award-fee contract. Therefore, the award fee process must provide the greatest opportunity for these advantages to occur.

We believe NRC's Award Plan can be strengthened by revising the process by which NRC determines the final award fee. In particular, NRC should consider the following:

- weighting element areas based on funding levels;
- documenting CRG deviations from PEM evaluations;
- ensuring that award fees do not exceed evaluation scores;
- allowing award fees only for performance that is above satisfactory; and
- evaluating the emphasis placed on timeliness.

#### *NRC Should Base Its Award Fee on Weighted Element Areas*

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NRC considers each of the 12 contract elements equally during the award fee process. However, the funding and level of Center activity for each element varies widely. For example, for FY 1993, funding for each of the Center contract elements ranged from approximately \$32 thousand for the Licensing Support System Administrator, to \$2.4 million for the Center Operations element, to \$4.5 million for the Research element.

To analyze the difference between weighted and straight averaged scores, we compared the PEM scores with the final CRG score for the most recent award fee period. By averaging the PEM scores, we found that both the PEM

and CRG scores fell into the "excellent" range. However, the PEMs' overall score dropped from "excellent" into the high "above average" range when using a weighted average of PEM scores based on contract funding.

The Award Plan says, "NRC's best interests are served when the Center's performance is such that NRC can award the maximum fee. Therefore, any award of less than maximum fee shall be accompanied by a list of specific problems that require successful corrective action by Center management in order to attain award of the maximum fee." This direction indicates that the award fee process assumes that the Center is performing at 100 percent. Therefore, PEMs must base any reduction in an award fee on specific problem areas. Little or no Center activity in an element significantly reduces the likelihood that "problem areas" exist. As a result, this has contributed to evaluation scores of 100 percent in 3 of the 4 smallest elements. We believe this contributed to an inflation of the straight averaged score.

NRC should consider basing the award fee on a weighting of each element area against the total funding available. In this way, NRC would be basing the award fee more realistically on the distribution of the funding and work at the Center.

*The Center Review Group Should Document Deviations  
From Program Element Manager Evaluations*

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The final Center evaluation score is not based on the PEMs and Contract Administrator (CA) evaluation scores. Instead, a five-member CRG considers the PEM and CA evaluations, determines the final score, and establishes the recommended award fee.

For each award fee period, PEMs evaluate and report on the Center's performance in the elements that they manage. Their reports provide a numerical score based on criteria contained in the Award Plan. These reports are then sent to the CRG members. The CRG members read the PEM reports, consider their content, and independently assign their own numerical scores for total Center performance. However, the CRG members do not

document a justification for their individual scores. Additionally, if the CRG scores are different from those of the PEMS, CRG members provide no documented support for the disagreement.

After these initial steps, the CRG meets with individual PEMS to discuss their evaluations, as warranted. Following this, the CRG members may revise their scores based upon the PEMS' input. However, if the CRG members revise their initial scores, there is no documented explanation for the changes. The CRG next develops a recommended award fee and sends it to the Award Fee Determination Official. This recommendation is the only document that outlines the rationale for the CRG evaluation.

There is another method for determining the award fee that recognizes the differences between the CRG and PEMS, yet provides an auditable trail of decisions. The CRG could begin the award fee determination process by averaging the PEM technical scores. As previously identified, the CRG would base this average on a weighting of each element according to the funding level available for the award period. Next, the evaluation scores for the management and staffing area and cost control and contract administration area would be added. The result should be the CRG's initial score. The CRG would meet with the individual PEMS to discuss their evaluations and question any areas needing clarification. If the CRG takes any exception with the PEMS' evaluations or their subsequent scores, it should be documented with an explanation provided as to what would be an appropriate score.

NRC should consider this approach because it provides a documented reconciliation of differences between PEM and CRG scores. In this manner, the CRG would provide verifiable support for establishing the final award fee.

#### *Award Fees Should Correlate With Final Evaluation Scores*

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The final award fees given for three of the four award fee periods between October 15, 1990, and September 26, 1992, did not correlate with final CRG evaluation scores. In these cases, the CRG recommended award fee amounts that were larger than the final CRG evaluation scores warranted. Regarding this condition, the Award Plan says, "The amount determined will not result solely from mathematical summing, averaging, or the application of a

formula." We believe this criterion is improper. It does not recognize the considerable criteria used and analysis performed by PEMs in their evaluations of the Center.

During the most recent award fee process, the CRG Chairman took action to make the award fee determination more objective. The CRG Chairman noted that fees which NRC had awarded in the past did not correlate with the final CRG scores. The CRG Chairman proposed to make the final award fee determination more aligned with the final CRG score, beginning with the current period. In proposing this change, the CRG Chairman noted that NRC would have to explain the rationale for this change in its final evaluation report. The CRG Chairman wanted to ensure that Center management recognizes that any decrease in the award fee was not a result of a corresponding decrease in performance; rather, it was an attempt to make the award fees more in line with the CRG scores.

We agree with the CRG Chairman's decision. Furthermore, the NRC should consider formally adopting a policy to mathematically determine the percentage of the award fee based upon the final CRG score.

#### *NRC Should Allow Award Fees Only for Above Satisfactory Work*

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The Award Plan in NRC's original contract with SwRI did not allow a base fee. However, when NRC renewed the contract, it changed the Award Plan to include a base fee of 3 percent of estimated annual Center costs. In addition to this base fee, the Award Plan states that the Center may earn additional fees. These additional fees, based on their corresponding performance rating and score ranges, are identified in Table 1.

Under this plan, NRC may award a fee to the Center even if its performance is only satisfactory or fair. By inclusion of a base fee, the NRC has built into the contract a provision that allows the Center the ability to cover unallowable costs. Therefore, implicit to the term "Award fee," we believe that NRC should consider modifying the Award Plan to stipulate that the Center can receive an award fee only for scores ranging above the satisfactory performance level.

Table 1:

AWARD FEE RANGES		
PERFORMANCE RATING	SCORE RANGE	FEE AWARDED <sup>2</sup>
Excellent	90 - 100	4% to 5% - 7%
Above Average	80 - 89	3% to < 4%
Satisfactory	70 - 79	2% to < 3%
Fair	60 - 69	1% to < 2%
Unsatisfactory	Below 60	0%

*NRC Needs to Evaluate the Emphasis Placed on Timeliness as Part of the Evaluation Process*

NRC needs to evaluate the emphasis placed on timeliness reflected in the Center's performance evaluation. Within the Award Plan, timeliness of Center products is one of three areas for consideration under the "technical" evaluation for each program element.

NRC and the Center frequently discuss and analyze the issue of Center product "slippage<sup>3</sup>." NRC and Center management have devoted substantial time and effort over the past few years in analyzing this area and trying to reduce the amount of slippage that has occurred. These discussions continued into the most recent award fee period. The minutes for the NRC/Center management meeting of January 27-28, 1993, noted that an "NRC analysis of apparent slippages of CNWRA [Center] products was discussed . . . . It was agreed that NRC and CNWRA [Center] actions to reduce slippages do not appear to have succeeded . . . . Possible solutions include recognition that reductions of the observed slippage rate may not be cost-effective . . . ."

<sup>2</sup>The award fee percentage is based on the Center's annual estimated costs.

<sup>3</sup>Slippage means that NRC has agreed to an extension for a deliverable from a previously approved date.

We raised the issue of product slippage with NRC staff. Many believed that this was not a problem; reasons cited included that work under the Act is a first-of-a-kind effort and the HLW program is constantly evolving. However, some NRC staff believed it reflected a poor job in estimating the time needed to perform a particular task. In reviewing NRC's Center evaluations for the most recent award fee period, we noted that PEMs generally felt that timeliness was not a problem in Center performance.

The amount of resources used to improve the rate of Center product slippage is inconsistent with Center evaluations that have not reflected timeliness as a problem. We encourage NRC to make a final decision on whether timeliness is really an issue requiring improvement. The NRC should either revise the criteria for rating the Center on timeliness to reflect the Agency's real concern in this area, or redirect the resources being spent in the ongoing analysis of this issue.

#### **NRC SHOULD EVALUATE THE COST EFFICIENCY OF USING THE CENTER**

A recent Executive Order directed the NRC to reduce its staffing level by 135 FTEs between FY 1993 and 1995. As a result, NRC management decided to reduce staffing for the HLW program by 16 FTEs. In order to compensate for this reduction, NRC delayed some work under the Act and shifted other work to the Center.

In September 1993, subsequent to the release of the Executive Order, Vice President Gore stated in his Report of the National Performance Review<sup>4</sup> (NPR):

Federal managers often cite FTE controls as the single most oppressive restriction on their ability to manage. Under the existing system, FTE controls are the only way to make good on the President's commitment to reduce the federal bureaucracy by 100,000 positions through attrition. But as we redesign the government for greater accountability, we need to use budgets,

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<sup>4</sup>From Red Tape To Results, Creating A Government That Works Better & Costs Less, Report of the National Performance Review, by Vice President Al Gore, September 7, 1993.

rather than FTE controls, to drive our downsizing. FTE ceilings are usually imposed independently of--and often conflict with--budget allocations. They are frequently arbitrary, rarely account for changing circumstances, and are normally imposed as across-the-board percentage cuts in FTEs for all of an agency's units--regardless of changing circumstances. Organizations that face new regulations or a greater workload don't get new FTE ceilings. Consequently, they must contract out work that could be done better and cheaper in-house.

The Vice President further recommended that "The President should direct OMB [Office of Management and Budget] and agency heads to stop setting FTE ceilings in fiscal year 1995."

The Center's mission consists mainly of two areas: technical assistance work (approximately 71 percent of obligations) and research (approximately 27 percent of obligations). The Center technical assistance program includes support to NRC in development of regulatory requirements and technical guidance, development of technical assessment capabilities, quality assurance, site characterization reviews, systematic regulatory analysis, and other special projects related to HLW management. One NRC senior manager thought that NRC could perform the technical assistance work cheaper and better than the Center and that this could be done if the agency had the necessary additional staff.

We estimated the average annual FY 1993 salary and benefits for a core professional at the Center to be approximately \$91 thousand. Based on NRC OC supplied figures, the FY 1993 annual average salary and benefits for an NRC FTE involved in the HLW program was approximately \$87 thousand. While the difference between NRC and Center salaries and benefits is not substantial, the Center's estimated additional costs to NRC were approximately \$11.4 million in FY 1993. The estimated Center costs for FY 1993, ranked in order of magnitude, are contained in Table 2. Additional NRC costs were not available.



Table 2.

ESTIMATED CENTER COSTS FOR FY 1993 <sup>5</sup>	
COST AREAS	\$ VALUE (in millions)
Center core professional staff	\$ 4.9
Center overhead	\$ 4.3
SwRI support staff	\$ 1.8 <sup>6</sup>
Award fee	\$ 1.2
Other direct costs	\$ 1.1 <sup>7</sup>
Outside consultants	\$ 1.0
Travel	\$ .8
Technical and clerical staff	\$ .7
Miscellaneous other categories	\$ .5
<b>Total</b>	<b>\$ 16.3</b>

We recognize that NRC must place its research work outside of the agency. Similarly, NRC may not be able to perform some technical assistance work as efficiently or effectively as the Center under current FTE ceilings. However, in consideration of the NPR, NRC should be prepared to clearly justify the work that it places at the Center. The Agency should have a clearly documented reason for placing work at the Center based on cost comparisons and technical justifications.

<sup>5</sup>Estimates were obtained from the Center's 5-year renewal proposal for FYs 1993 through 1997.

<sup>6</sup>This amount includes \$ .9 million in SwRI overhead and \$ .9 million in SwRI salaries and benefits.

<sup>7</sup>80% of these costs are related to automated data processing equipment charges.

## CONCLUSIONS

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Overall, NRC is very effective in administering and managing its contract with SwRI for operating the Center. NRC's mission for the Center is appropriate and the level of independence NRC allows the Center is proper and well defined. The NRC Center Program Manager has initiated actions that, when fully implemented, should improve the efficiency and effectiveness of NRC's contract management. NRC has a process to identify and approve the work placed and staffing level set at the Center. The procedures for allowing work for others at the Center appear to be adequate. Although NRC effectively implements controls to ensure proper agency billing by SwRI, the review, approval, and payment process could be more timely.

NRC has a generally acceptable award fee process in place. However, NRC should give additional consideration to strengthening this process by revising the manner by which the Agency determines the final award fee. If the process is not strengthened, the disadvantages may outweigh the advantages of having a cost-plus-award-fee contract. NRC should then investigate some other less time consuming contract method, such as a cost-plus-fixed-fee contract.

Finally, in keeping with the NPR, NRC should perform a cost comparison and document its justification for placing work at the Center. These types of decisions must weigh the cost of placing work outside NRC with its existing budget.

## RECOMMENDATIONS

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To ensure that NRC contractual guidelines regarding invoice payments to SwRI are met, the Controller should:

- (1) Ensure that payment is made to SwRI promptly upon receipt of a properly approved invoice or within 30 calendar days of official agency receipt date, whichever is earlier.

To support the SwRI invoice payment process, the NRC Center Program Manager should:

- (2) Ensure that invoices are reviewed and approved within the 7-day period prescribed in the NRC Manual.

To strengthen the award fee process and improve the manner by which NRC determines the final award fee, the Director, NMSS, should:

- (3) Consider revising the award fee process to include: award fees based on weighted element areas according to contract funding levels; documented Center Review Group deviations from Program Element Manager evaluations; award fees based on the mathematical equivalent of the CRG final score; and, award fees only for performance that is above satisfactory.

To make a final decision on whether timeliness is really an issue requiring improvement, the NRC Center Program Manager should:

- (4) either revise the criteria for rating the Center on timeliness to demonstrate NRC's real concern in this area or redirect the resources being spent in the ongoing analysis of this issue to other areas.

In meeting the goals of the NPR and to ensure that NRC allocations are being spent in the most efficient and effective manner, the Executive Director for Operations should direct that:

- 5) the Director, NMSS, and the Controller perform a documented cost comparison and justification for any HLW technical assistance work performed at the Center.

## AGENCY COMMENTS

On December 1, 1993, the Deputy Executive Director (DEDO) for Nuclear Materials Safety, Safeguards, and Operations Support responded to our draft report. He generally agreed with our recommendations and provided completion dates for corrective actions underway. The DEDO's comments are contained in Appendix II.

## **OBJECTIVES, SCOPE, AND METHODOLOGY**

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The objective of our review was to determine the level of adherence by the U.S. Nuclear Regulatory Commission (NRC) to its established policies and procedures for managing its Southwest Research Institute (SwRI) contract and the work placed at the Center for Nuclear Waste Regulatory Analyses (the Center). In addition, we evaluated the (1) mission and level of effort, (2) cost effectiveness, and (3) efficiency and effectiveness of contract implementation.

Our audit was conducted in accordance with generally accepted Government auditing standards during the period February through September 1993. We concentrated on NRC's current management practices and performed selected analyses from documents generated from the beginning of Fiscal Year (FY) 1991 through FY 1993. Our work was conducted at NRC Headquarters, the Center on the campus of SwRI in San Antonio, Texas, and Yucca Mountain, Nevada. The staff's technical judgement with regard to NRC work placed with the Center and the staffing levels set for the Center was not evaluated.

This audit included: (1) reviewing Federal regulations and guidance, NRC policies and procedures, and NRC contract provisions; (2) reviewing recent General Accounting Office reports addressing other Government Agencies' controls over their Federally Funded Research and Development Centers; (3) discussing contract management practices with NRC representatives from the offices of Administration, Nuclear Material Safety and Safeguards, and Nuclear Regulatory Research; (4) submitting a questionnaire for completion to former and current NRC Program Element Managers and Project Officers involved in managing the contract with SwRI; (5) discussing related issues with representatives from SwRI, the Center, the Office of Federal Procurement Policy, and the Environmental Protection Agency; (6) reviewing a Nuclear Waste Technical Review Board report; (7) reviewing NRC contract and project files; and (8) visiting the proposed high-level nuclear waste repository site at Yucca Mountain, Nevada.

During the audit, we observed many of NRC's contract management practices including: 1) three NRC/Center management meetings; 2) the 1993 NRC mid-year program review of Center activities; 3) one bi-weekly commitment control log telephonic meeting; and 4) the 1993 mid-year award fee determination process. We also reviewed the many different NRC and Center documents associated with these activities.

## AGENCY COMMENTS ON DRAFT REPORT



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20585-0001

December 1, 1993

MEMORANDUM FOR: Thomas J. Barchi  
Assistant Inspector General for Audits  
Office of the Inspector General

FROM: Hugh L. Thompson, Jr.  
Deputy Executive Director for  
Nuclear Materials Safety, Safeguards,  
and Operations

SUBJECT: DRAFT REPORT - REVIEW OF NRC'S MANAGEMENT OF ITS CONTRACT  
WITH SOUTHWEST RESEARCH INSTITUTE FOR OPERATING THE CENTER  
FOR NUCLEAR WASTE REGULATORY ANALYSES

This responds to your October 26, 1993, memorandum transmitting the subject draft audit report. We are pleased that you found that the U.S. Nuclear Regulatory Commission overall is doing a very effective job of administering and managing its contract with Southwest Research Institute (SwRI) for operating the Center for Nuclear Waste Regulatory Analyses (CNWRA or the Center).

Your recommendations and our responses are:

Recommendation 1:

In order to ensure that NRC contractual guidelines regarding invoice payments to SwRI are met, the Controller should ensure that payment is made to SwRI promptly upon receipt of a properly approved invoice or within 30 calendar days of official agency receipt date, whichever is earlier.

Response:

We agree with the overall intent. It is our understanding that you recommend payment of properly approved SwRI invoices within 30 calendar days of the official agency receipt date. Specific efforts by the program offices to meet the established review timeframes for providing properly approved invoices are discussed in our response to Recommendation 2, below.

The report correctly notes that SwRI's contract is a cost reimbursement contract that does not require NRC to pay a penalty for late payments. Therefore, although our goal is to ensure payment of SwRI invoices within 30 calendar days, we will give higher priority to invoices that require a penalty for late payments if a processing conflict arises.

Recommendation 2

In order to support the SwRI invoice payment process, the NRC Center Program Manager should ensure that invoices are reviewed and approved within the seven day period prescribed in the NRC Manual.

Response:

We agree. The NRC Center Program Manager's (PM's) primary concern has been and will continue to be to ensure an effective review of Center invoices. However, special attention will also be given to reducing the time required for the review and approval of Center invoices.

In response to this recommendation, the NRC Center PM has established a new review process that should ensure that Center invoices are reviewed and approved in a more timely manner. The review of SwRI vouchers is based, in part, on the CNWRA Program Manager's Periodic Report (PMPR). A contributing reason for past delays was that vouchers were received before PMPRs. Arrangements have been made to ensure that, in the future, PMPRs and vouchers will be received at the same time. In addition, the NRC Center PM will exert his best effort to complete the review within 7 days and return the invoice package, in accordance with current procedures, to the Division of Contracts and Property Management (DCPM) in time to be received by the 10th calendar day after official receipt of the invoice by the NRC.

The new review process will be implemented with the review of Center invoices for Period 2 of fiscal year 1994 (October 23, 1993 - November 19, 1993). After following the new process for two periods, an evaluation of the effectiveness of the changes made to the process will be made. Completion date of review: March 1994.

Recommendation 3:

In order to strengthen the award fee process and improve the manner by which NRC determines the final award fee, the Director, NMSS, should consider revising the award fee process to include: award fees based on weighted element areas according to contract funding levels; documented Center Review Group (CRG) deviations from Program Element Manager (PEM) evaluations; award fees based on the mathematical equivalent of the CRG final score; and, award fees only for performance that is above satisfactory.

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Response:

We agree. An evaluation of the award fee process has begun. Some revisions have been made. The evaluation and, if appropriate, any additional modifications will be completed before the next award fee evaluation period. Completion date: April 1994.

Recommendation 4:

In order to make a final decision on whether timeliness is really an issue requiring improvement, the NRC Center PM should either revise the criteria for rating the Center on timeliness to demonstrate NRC's real concern in this area or redirect the resources being spent in the ongoing analysis of this issue to other areas.

Response:

We agree. Completion date: No later than January 1994.

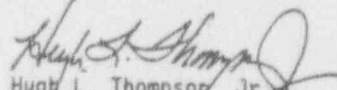
Recommendation 5:

In meeting the goals of Vice President Gore's Report of the National Performance Review (NPR) and to ensure that NRC allocations are being spent in the most efficient and effective manner, the Executive Director for Operations (EDO) should direct that the Director, NMSS, and the Controller perform a documented cost comparison and justification for any HLW technical assistance work performed at the Center.

Response:

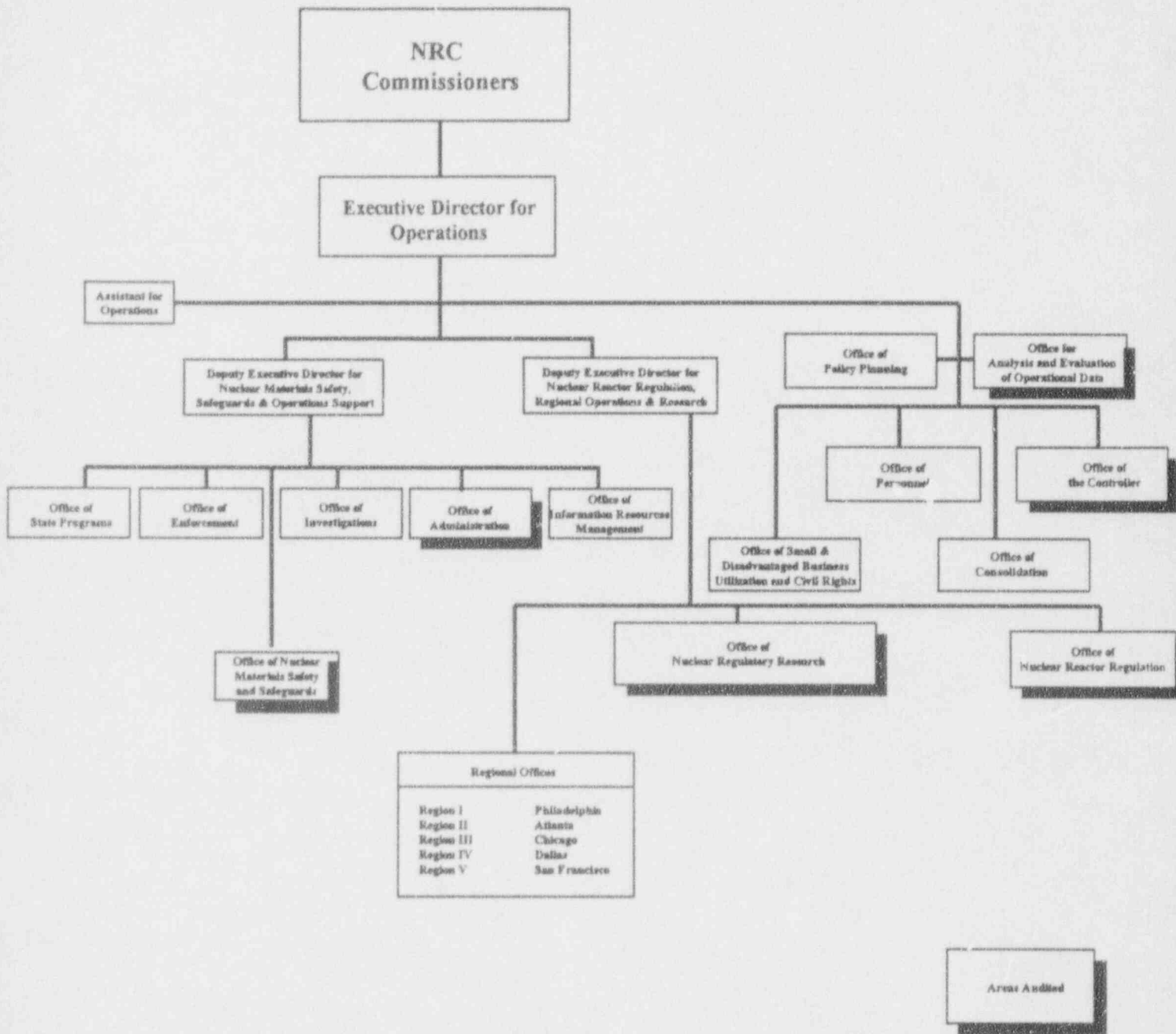
We agree. As you are aware, one alternative, considered by NRC staff before establishment of the Center, was the performance of all technical work in-house, with very limited technical assistance contracts to individuals or companies with no present conflict of interest. It is appropriate to update and expand this analysis to include a cost comparison and justification, in view of Vice President Gore's Report and Agency streamlining initiatives. However, it is also important to note that, although costs were considered during the selection process, the Center was established to ensure conflict-of-interest-free, long-term continuity of high-quality technical expertise. These requirements continue to exist and will be addressed in the analysis. Completion date: May 1994.

If you have any additional questions or require additional information, please contact Shirley Fortuna on (301) 504-2427.

  
Hugh L. Thompson, Jr.  
Deputy Executive Director for  
Nuclear Materials Safety, Safeguards  
and Operations



**U.S. NRC FUNCTIONAL ORGANIZATION CHART**



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