SECY-97-220

October 1, 1997

FOR: The Commissioners

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

SUBJECT: IMPLEMENTATION OF DSI 22 RESEARCH

PURPOSE:

To respond to the Commission's direction on DSI 22 contained in SRMs dated March 28, 1997 (Attachment 1) and September 16, 1997 (Attachment 2), regarding implementation of the Commission's decision on DSI 22, and to request Commission approval of the staff's proposed implementation plan.

BACKGROUND:

The staff responded to the Commission's March SRM on DSI 22, "Research," in SECY-97-167, "DSI 22 Implementation", in which it advised the Commission of its plan and schedule for implementing that DSI. In turn, the Commission provided further guidance to the staff in an SRM dated September 16, 1997. In the two SRMs the Commission provided the staff with direction on a number of matters including the following (in the order in which they appear in the SRMs):

- The staff should develop an integrated set of recommendations for Commission consideration addressing the key questions raised in the DSI 22 paper. (March SRM)
- The preparation and coordination of rulemaking should be expeditiously transferred from RES to the program offices. Where RES develops the technical bases for a particular rule, whether by confirmatory research or technical review, RES should provide technical guidance to the program office which has the lead and primary responsibility for the rulemaking (including associated Regulatory Guides). (March and September SRMs)
- Most confirmatory research activities now in the program offices should move to RES. (March and September SRMs)
- The program office(s) should determine the need for RES concurrence on rulemaking matters based on the degree of technical guidance provided by RES in each case. (September SRM)
- The Commission disagreed with the proposal that RES include provision for short term technical assistance in its research contracts to assist the program offices in the performance of "technical studies," in that it should be the responsibility of the program offices to adequately plan for such situations. (September SRM)
- The staff should propose a responsible organization such as the Office of the General Counsel or the Office of Administration to be responsible for the rulemaking infrastructure. (September SRM)
- The staff proposed the consolidation of certain highly specialized technical expertise into one office to assure maintenance of a "critical mass" of knowledge. The Commission questioned this approach. The staff should provide a discussion of the advantages and disadvantages of their recommendation to the Commission for consideration. (September SRM)
- With regard to the Generic Safety Issue program, the staff should follow an approach such that when the research and analyses on an issue have been completed and a resolution approach has been developed, implementation of the action to resolve the issue, whether it involves rulemaking, issuing a generic letter, or other regulatory action, will be performed by the program office. (September SRM)

The staff's proposed plans to respond to the above and the implementation plan follow.

DISCUSSION:

Recommendations on the questions referenced in the March 28, 1997 SRM.

Attachment 3 contains responses to the questions referenced in the March SRM. Ten of the fourteen questions are answered directly. The remaining four will be answered as a part of the staff's response to the Commission's SRM on SECY-97-075 on core capabilities, which is scheduled to go to the Commission on January 30, 1998.

Transfer of rulemaking responsibilities to the program offices.

The Commission directed that the staff expeditiously transfer all rulemaking functions and responsibilities to the program offices. The Commission further directed in the September SRM that in those instances where RES develops the technical bases for a particular rule, that it provide technical guidance to the responsible program office.

The staff will transfer all rulemaking responsibility from RES to the program offices and will revise the Rulemaking Activity Plan accordingly. A list of rulemakings contained in the Rulemaking Activity Plan marked to indicate the program office that will conduct the rulemakings is presented in Attachment 4. Attachment 4 also contains a list of regulatory guides that accompany or are planned to accompany the rulemakings. Responsibility and

resources for developing the technical bases for these regulatory guides will remain in RES.

The RES resources shown in Attachment 4 are those budgeted for these efforts in FY 98 and FY 99, including both FTE and program support funds. The budgeted resources were not established to complete all of the listed rulemakings. Rather, they constituted a "level of effort" for rulemaking activity that foresaw completion of approximately one rule for every two staff years of effort. Staff notes that RES resources budgeted for certain rulemakings were eliminated as a part of recent budget cuts. Program offices will evaluate the resources and workload associated with the transfer of rulemaking. The Commission will be advised of the impacts on the rulemaking schedules.

Resources will be transferred to the program offices as follows. Program support funds will be transferred consistent with the footnotes to the table in the "Resources" section. RES staff will be provided to the program offices consistent with the FTE budgeted in RES. Recognizing that more FTE are budgeted in FY 98 than in FY 99, permanent staff transfers will correspond to the FY 99 FTE budget. The additional FTE budgeted in FY 98 will be provided to the program offices using details that end at the end of FY 98.

Transfer of confirmatory research from the program offices to RES.

In the March and September SRMs, the Commission directed that most confirmatory research activities that had been ongoing and planned within NRR, NMSS, and AEOD be conducted by RES.

The program offices have examined the technical activities conducted in their respective offices, and have identified activities that are potential candidates for transfer to RES. These candidate activities are listed in Attachment 5 along with the program office's recommendation for disposition. The program offices will continue to evaluate their ongoing programs and provide final recommendations for transfer to RES in conjunction with recommendations addressing the questions of consolidation of technical expertise and the program for dealing with generic safety issues. The staff proposes to return to the Commission in November with its recommendations on what activities should be transferred to RES in the context of these three issues; transfer of most confirmatory research, consolidation of highly specialized expertise, and the Generic Safety Issues program.

Program Office determination of the need for RES concurrence.

In the September SRM, the Commission directed that the program office(s) should determine the need for RES concurrence on rulemaking matters based on the degree of technical guidance provided by RES in each case. This direction will be implemented immediately.

Short term technical assistance.

In the September SRM, the Commission disagreed with the proposal that RES include provisions for short term technical assistance in its research contracts to assist the program offices in the performance of "technical studies" in that it should be the responsibility of the program offices to adequately plan for such situations.

The staff understands the Commission's concern. Staff will not make provisions in the RES contracts that could have the effect of providing RES resources to supplement the "technical studies" performed by the program offices.

Transfer of the rulemaking infrastructure.

In the September SRM the Commission directed the staff to propose an organization to be responsible for the rulemaking infrastructure, and suggested the Office of the General Counsel (OGC) or the Office of Administration (ADM). This function consists largely of maintaining the NRC's rulemaking INTERNET web site, updating the Rulemaking Activity Plan twice yearly, and through contract support, periodically updating the agency guidance on performing regulatory analyses and cost benefit analyses. The staff believes that these functions are more administrative than technical or legal, and notes that ADM is already responsible for the publication of agency rulemakings. After discussions with both OGC and ADM, staff recommends that the responsibility for this function be transferred to ADM.

The resources that have been expended by RES for rulemaking infrastructure and oversight and that will be transferred to ADM are identified in Attachment 4.

Consolidation of highly specialized expertise.

One of the key questions in the DSI 22 paper[(1)] referenced in the March and September SRMs raised the issue of office-dedicated expertise vs. the synergy that could result from consolidation of staff to maintain a critical mass in light of decreased resources. In the September SRM, the Commission directed the staff to provide a discussion of the advantages and disadvantages of their recommendation to the Commission for consideration, by October 17, 1997. In response to this direction, the staff proposes to return to the Commission by that date with a general discussion of the advantages and disadvantages of consolidation.

Staff proposes to return to the Commission with its recommendations concerning consolidation of specific areas of technical expertise in November. As discussed earlier, these recommendation would be made in the context of three issues; transfer of most confirmatory research, consolidation of highly specialized expertise, and the Generic Safety Issues program.

Generic Safety Issue program.

With regard to the Generic Safety Issue program, the September SRM directed the staff to follow an approach such that when the research and analysis on an issue have been completed and a resolution approach has been developed, implementation of the action to resolve the issue, whether it involves

rulemaking, issuance of a generic letter, or other regulatory action will be performed by the program office.

The approach for resolution of generic safety issues will be revised to more clearly define office responsibilities. RES will be responsible for prioritization and resolution of generic safety issues including research and analyses. The responsibility for implementing the resolution will be the responsibility of the program offices. As discussed earlier (transfer of confirmatory research from the program offices to RES), the staff proposes to return to the Commission in November with an approach to implement the direction in the September SRM that ensures that, as such issues continue to arise, sufficient resources are allocated within RES to enable it to conduct necessary research and analyses and to develop a suitable approach to resolution of the issues.

Implementation plans and Impacts.

Implementation plans will be discussed with representatives of the National Treasury Employees Union (NTEU) as appropriate following the Commission's decision. The staff will move as expeditiously as possible to effect the transfer of rulemaking functions and has targeted the transfer (including the transfer of dollars and reassignment of staff resources) to be effective within 120 days of the Commission decision. The physical relocation of the staff will likely take longer. Steps to be taken in this process appear in Attachment 6.

Staff also notes that for RES and the program offices to continue to operate efficiently following the transfer of rulemaking, the need for new organizational structures within RES and the program offices must be considered. Also, several RES staff who may be proposed to be transferred to the program offices have multiple rulemaking and research activities. Therefore, as responsibilities and staff are transferred, some rulemakings and research activities will be reassigned. The reassignments will likely adversely affect several rulemaking schedules, as transferred staff learn new responsibilities. The Commission will be kept informed of changes to the RES and program offices' organizational structure and where the staff reassignments have a scheduler impact on significant rulemakings.

RESOURCES:

There is no budget impact from the actions discussed in this paper, merely a realignment

of resources among offices consistent with the realignment of responsibilities among the offices. The following table summarizes the realignment of resources, the details of which are provided in Attachments 4 and 5. The resources shown in this table reflect direct FTE, secretarial support and management supervision, but exclude office wide support. Resource changes associated with office wide support will be addressed as a part of the staff's recommendations on transfer of confirmatory research, consolidation of expertise and the Generic Safety Issues program to be provided in November as discussed above.

BUDGETED RESOURCES TO BE TRANSFERRED

	FY 1998		FY 1999	
	$K*	FTE**	$K*	FTE**
NRR [receipt of rulemaking]	+370	+9.0	+300	+7.0
NRR*** [transfer of research]	-220	-0.4	-120	-0.1
NRR [net transfer to NRR]	+150	+8.6	+180	+6.9
NMSS [receipt of rulemaking]	+1395	+17.5	+1570	+16.5
NMSS*** [transfer of research]	0	-0.1	0	0
NMSS [net transfer to NMSS]	+1395	+17.4	+1570	+16.5
ADM [receipt of rulemaking]	+255	+3.0	+500	+3.0
ADM [transfer of research]	n/a	n/a	n/a	n/a
ADM [net transfer to ADM]	+255	+3.0	+500	+3.0
AEOD [receipt of rulemaking]	n/a	n/a	n/a	n/a
AEOD*** [transfer of research]	0	0	0	0
AEOD [net transfer to AEOD]	0	0	0	0
RES [transfer of rulemaking]	-2020	-29.5	-2370	-26.5
RES [receipt of research]	+220	+0.5	+186	+0.1
RES [net transfer from RES]	-1800	-29.0	-2184	-26.4

* Does not include salaries and benefits

** Includes overhead.

Note: The FY 1998 resources shown above constitute the total budgeted resources for FY 1998 to perform the designated activities. The actual resources to be transferred among the offices will depend upon the timing of the transfers of the activities as defined in the implementation plan(s). *** Current Program Office Estimates

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections. The Office of the Chief Information Officer has reviewed this paper for information technology and information management implications and concurs in it. The Office of Human Resources and the Office of Administration concur in the recommendations of this paper.

RECOMMENDATIONS:

That the Commission approve the staff's proposals to:

1. Proceed to arrange the transfer of rulemaking resources and responsibilities to the program offices as described above and documented in Attachments 4 and 5.
2. Proceed with the transfer of staff and program funds according to the steps shown in Attachment 6.
3. Return to the Commission with recommendations on the transfer of research activities currently in the program offices as discussed above and described in Attachment 5, the advantages and disadvantages of consolidating highly specialized expertise, and the Generic Safety Issues program in November.
4. Return to the Commission with the staff's views on the key questions in DSI 22 concerning core capabilities as a part of the staff's response to the SRM associated with SECY-97-075, scheduled for January 30, 1998.

L. Joseph Callan
Executive Director for Operations

Contact: F. A. Costanzi, RES
(301) 415-6250

Attachments:
1. Staff Requirements - COMSECY-96-066 - Research (DSI 22), March 28, 1997
2. Staff Requirements - SECY-97-167 - DSI 22 Implementation (Role of Research), September 16, 1997
3. Questions from DSI 22
4. List of Rulemakings and Associated Regulatory Guides
5. Candidate Activities for Transfer to RES
6. Implementation Steps for Transfer of Rulemaking and Research Responsibilities and Resources

---

ATTACHMENT 1

March 28, 1997

MEMORANDUM TO: L. Joseph Callan
Executive Director for Operations

FROM : John C. Hoyle, Secretary /s/

SUBJECT: STAFF REQUIREMENTS - COMSECY-96-066 - RESEARCH (DSI 22)

The staff should continue with the research program, which should include elements of both confirmatory and exploratory research (option 4), balanced in such a way that both current as well as potentially emerging issues are being addressed. The research program should focus on programs with the highest safety and regulatory significance, coupled with the maintenance of the necessary technical capability. This option permits response to programmatic needs, as well as anticipation of future needs. The term "exploratory research" which is used to describe that part of the research effort that addresses anticipated needs of the Program Offices should be changed to "anticipatory research."

In order to develop the scope of these technical capabilities the Office of Research should develop criteria for determining core research capabilities for Commission approval prior to going forward. Therefore, the Commission also approves option 5 in conjunction with option 4. RES should develop a set of core research capabilities for the NRC in consultation with the other program offices.

(EDO) (SECY Suspense:6/1/97)

In addition to the core research capabilities, it is essential that the NRC, as a knowledge-based organization, monitor the overall technical capabilities of its staff to ensure that the necessary core capabilities are maintained. The staff should recommend the appropriate office within the agency and provide the estimated resources to perform this function. To assist top agency management, the selected office should create and maintain an agency-wide database that contains an inventory of the technical core capabilities of the NRC staff.

(EDO) (SECY Suspense:6/1/97)

The Commission supports increasing the percentage of the research budget executed by universities, but wants to consider additional approaches to working with universities besides the current Educational Grant Program. Such approaches might enhance achievement of the goals of the NRC research program and provide additional benefits useful to the NRC. In keeping with the NRC designation as a Procurement Reinvention Laboratory, RES should coordinate with the Division of Contracts in exploring innovative ways to engage universities in NRC's research program (e.g., through use of cooperative agreements, contracts and purchase orders, or through establishment of research consortia or institutes in areas such as PRA). Grants would be utilized where they are the most appropriate mechanism for achieving a purpose of the research program. The staff would have the flexibility to award grants of up to $100,000 per year. The staff should develop this approach, including an appropriate higher goal for the percentage of research carried out directly by universities, and submit it for Commission consideration.

(EDO) (SECY Suspense:6/1/97)

The staff should continue to support active participation in International Safety Programs (option 7). The staff should ensure that these international activities and the related programs are prioritized and appropriately integrated with other NRC research efforts (option 4), and also are properly considered in the establishment and maintenance of core research capabilities (option 5). All research activities should be evaluated by the Office of Research for effectiveness, program of work, structure and budget, accomplishment of stated objectives and should include a sunset provision. The programmatic review should be coordinated with the Research Effectiveness Review Board or Executive Council, as appropriate.

The staff should explore the option of performing cooperative research with both industry, and the DOE, so as to minimize duplicative work -- where appropriate. Legal ramifications, independence, and public perception should be considered when exploring any cooperative research program. The staff should also examine the feasibility of improving access to research information during the early phases of the work.

(EDO/OGC) (SECY Suspense:10/1/97)

There are many key questions raised in the research DSI paper -- note in particular pages 13, 14, and 18 of the DSI dated September 16, 1996 (pages attached and marked) -- that require much thought to resolve, but whose answers will have a strong bearing on how the agency will operate in the future. Implementation of Option 4 should include development of an integrated set of recommendations to be provided for Commission consideration.

(EDO) (SECY Suspense:8/1/97)

The Commission has decided that the preparation and coordination of rulemaking should move from RES to the Program Offices, and that most confirmatory research activities now in the Program Offices should move to RES. The staff should develop and submit to the Commission an implementation plan, with possible options for carrying out this decision, including the necessary partnership activities.

(EDO) (SECY Suspense:8/1/97)

In conjunction with its development of an implementation plan, the staff should consider the creation of a Research Effectiveness Review Board. This board would be composed of representatives of the Program Offices and the Research Office. Its purpose would be to advise the Director of Research and the Directors of the Program Offices on the effectiveness of the research programs in meeting the needs of the users and on the effectiveness of the program offices in supporting and in articulating their needs and priorities to the research offices. The Board would periodically review the bases for initiating, continuing, and terminating specific research programs giving particular attention to the effectiveness of broad based long range programs and the capabilities of the staff to address core research needs. The usefulness and advisability of its continuation should be examined by the Commission every three years.

(EDO) (SECY Suspense:8/1/97)

Finally, the high-level staff task force (set up under DSI-2) should also identify the impact on research needs of NRC oversight of Department of Energy (DOE) nuclear facilities, and advise the Commission on the resource implications of those impacts.

Attachment: As stated

cc: Chairman Jackson
Commissioner Rogers
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

CIO
CFO
OCA
OIG
Office Directors, Regions, ACRS, ACNW, ASLBP
E. Jordan (SARSC)
J. Silber (SARSC)

ATTACHMENT 2

DSI 22 IMPLEMENTATION CONCURRENCE STATUS

NRR	Miraglia	
NMSS	Paperiello	Concurred. Note to Knapp 9/27/97
AEOD	Congel	Concurred. E-mail Congel to Kenneally 9/25/97, 2:47PM
ADM	Halman	Concurred w/comment which have been incorporated. E-mail Halman to Kenneally 9/25/97, 2:31PM
HR	Bird	Concurred w/commet which have been incorporated. Telecon McDermott to Kenneally 9/26/97, 9:05AM
CFO	Funches	
OGC	Olmstead	Concurred. Telecon Debbie from Olmstead office to Kenneally 9/25/97, 4:27PM
CIO	Galante	Concurred. E-mail Shelton to Kenneally 9/25/97, 5:08PM
DEDE	Thadani	

ATTACHMENT 3

QUESTIONS FROM DSI 22

1.	The Office of Nuclear Regulatory Research (RES) is often asked to assist the program offices in the review of issues to support specific regulatory decisions (technical assistance). (A) The question arises as to whether such efforts should be performed by the program offices. (B) On the other hand, should certain analyses performed by the program offices, such as thermal-hydraulic analysis be performed only by RES?
	Answer A:
	As stated in SECY 97-167, technical studies which apply existing methods to make regulatory decisions applicable to a specific licensee or group of licensees are not research, and should be performed by program offices.
	Answer B:
	The staff proposes to respond to this question in November as a part of its recommendations on what activities should be transferred to RES in the context of three issues; transfer of most confirmatory research, consolidation of highly specialized expertise, and the Generic Safety Issues program.
2.	At present, most rulemakings are managed by RES. Should that continue, or should all rulemakings be assigned to RES, even though all rulemakings do not involve research, or should all rulemakings be assigned to the program offices?
	Answer:
	The Commission has decided to transfer all RES rulemaking activities to the program offices.
3.	What RES functions, if any, could be performed more efficiently and effectively by the program offices?
	Answer:
	The principal RES functions have been to (1) conduct confirmatory and anticipatory research, (2) manage the rulemaking activity, (3) develop and issue regulatory guides, and (4) manage the NRC generic issue resolution program. The Commission has decided that confirmatory and anticipatory research will be conducted in RES and that rulemaking and development of regulatory guides that accompany rulemaking will be done in the program offices. With respect to development of other regulatory guides, because most have a significant research component, staff believes it would be more effective and efficient to retain them in RES. With respect to the Generic Safety Issues program, it does not appear to be more efficient or effective to assign them to a program office for several reasons. First, because responsibilities for timely licensing actions and responses to events can frequently dominate the attention of a program office, longer term in-depth technical evaluations can suffer. Second, RES can consider generic safety issues independently, providing the basis for a healthy exchange of perspectives with the program offices. Third, RES involvement in generic safety issues provides an opportunity for RES staff to be involved in the mainstream of NRC's safety concerns. Given this perspective, it appears there is little to be gained by transferring responsibility for generic safety issues to the program offices.
4.	Should the overlap in some technical disciplines (e.g., thermal-hydraulic and severe-accident analysis, mechanical engineering, PRA, and

	human factors) continue to exist between RES and the program offices to provide "office-dedicated" expertise, or should these be partially or completely merged to maintain a critical mass as a result of decreased resources?
	Answer:
	In the September 16, 1997 SRM the Commission directed the staff to provide for the Commission's consideration staff's recommendations for consolidation, and associated advantages and disadvantages, on October 17, 1997. The staff proposes to return to the Commission with a general discussion of the advantages and disadvantages of consolidation on that date. The remainder of this question would be addressed as a part of the staff's recommendations on what activities should be transferred to RES in the context of three issues; transfer of most confirmatory research, consolidation of highly specialized expertise, and the Generic Safety Issues program, to be provided to the Commission in November.
5.	What should be the role of RES compared with that of program offices in staying abreast of national and international nuclear safety developments, emerging technologies, and design concepts?
	Answer:
	It is essential that both RES and the program offices stay abreast of all of these areas, as their responsibilities apply. As demonstrated by past experience, there are significant efficiencies to be gained by conducting cooperative national and international research programs. Furthermore the quality of NRC research programs is enhanced by the information flowing from national and international activities and the peer review our programs receive through these interactions. However, important perspective can also be gained from national and international developments involving new regulatory and safety issues, e.g. standards being used by other countries in licensing decisions. The program offices need to keep abreast of such developments to be sure that NRC standards and regulatory approaches are benefitting from these perspectives. Given the above, all offices will need to be active in all areas. However, it may be appropriate for the program offices to have lead responsibility for regulatory developments, but for RES to have lead for safety developments, particularly those involving emerging technologies and design concepts. Such a division of responsibility would appear to be consistent with the Commission's direction in the September 16, 1997 SRM on rulemaking and research.
6.	Budget reductions have been so severe that all HLW research activities in RES are under consideration for transfer to NMSS. Even though such a decision would permit economies, is it possible that research issues will be explored in a more limited way because of licensing concerns or pressures?
	Answer:
	Within the constraints of the reduced budgets, the high level waste program has been refocused to address the most important technical issues for repository licensing. This ensures that resources are focused on the most significant activities to address these issues whether they be experimental, analytical, or review of DOE work. Issues are reexamined and reprioritized on a regular basis to ensure that no key activities are omitted. This approach ensures attention to integration and timing of related multi-disciplinary activities. The staff does not believe that HLW issues will be explored in a more limited way because of licensing concerns or pressures.
7.	Could the NRC attract and retain top research talent, and would research of a broader/exploratory nature be pursued with the research program components embedded in licensing organizations?
	Answer:
	Assuming that adequate compensation is provided, the ability to attract and retain top research talent will be primarily affected by the confidence that these engineers and scientists will be participating in a stable long-term research program that is technically challenging and professionally rewarding. Such stable long-term research programs may be difficult to maintain in program offices where the primary focus will be rapidly emerging licensing issues and events requiring the immediate attention of staff and managers. This focus of the program offices on near-term high priority licensing issues would also make it difficult for those offices to maintain the kind of broad exploratory or anticipatory research programs needed to effectively identify and resolve significant long-term issues which the NRC will be facing.
8.	If not, would that fundamentally impact the ability of the NRC to fulfill its health and safety mission given where the regulatory programs are today?
	Answer:
	Either the failure to attract and retain top talent or to pursue anticipatory research could impact the technical knowledge base needed for effective regulation. In some instances the resulting uncertainties could be mitigated by operating with greater margins. However, given examples such as the aging population of nuclear power plants and the continuing need to understand implications of extended fuel burnup, and human performance issues, information important to NRC safety programs could be reduced if significant erosion of research programs were to occur.
9.	Would the research budget be smaller and more efficient if managed by licensing organizations?
	Answer:
	It does not appear to be generally beneficial in terms of size and efficiency to have the research budget managed by the program offices. There is a potential that a transfer of this function could result in increased efficiency through the more intimate knowledge of the program office activities. Likewise, there is a potential for inefficiency because the program offices focus primarily on their principal activities. It is, of course, important that RES management strive to make research effective and efficient and responsive to program office needs.Staff notes that the Commission has decided to transfer to RES most confirmatory research activities now in the program

	offices. In Attachment 5 the staff proposes which activities might be transferred and which might best remain with the program offices. Therefore, this question also is addressed, as appropriate, as a part of the staff's proposal on each activity.
10.	Would the absence of an independent research office result in lower quality research, absent a healthy technical debate between RES and licensing organizations over research applications and approaches?
	Answer:
	The DSI 22 issue paper provided the Commission with the option of discontinuing NRC's research program. In the SRM on DSI 22, the Commission directed the staff to retain both confirmatory and anticipatory research, and to transfer most of the confirmatory research in the agency to RES. The staff believes these decisions moot this question.
11.	Should core capabilities be maintained in some areas, with more robust programs in other areas?
	Answer:
	Yes. In some cases a core level of resources will be adequate. In other areas, workload demands may dictate a more robust program for a period of time. This question will be addressed in more detail in RES' response to the SRM associated with SECY-97-075 "Methodology and Criteria for Evaluating Core Research Capabilities." This response is scheduled for January 30, 1998.
12.	What is the right mix of in-house staff and contractor capabilities for each core area? Which of the analytical activities currently performed in contractor organizations can and should be performed in house?
	Answer:
	These questions will also be addressed in RES' response to the SRM associated with SECY-97-075 "Methodology and Criteria for Evaluating Core Research Capabilities," referred to in the answer to Question 11 above.
13.	(A) Which lower priority research programs should be discontinued, to be initiated again only if a specific need arises? (B) Is this feasible?
	Answer A:
	Any lower priority research activities that should be discontinued will be identified in the RES response to SECY-97-075. Priorities will also be set during the budget process. For example, during the internal review of the FY 1999 budget and in response to the House proposed cuts to the FY 1998 budget, the severe accident research program was identified as an activity that would be discontinued at certain funding levels.
	Answer B:
	Reconstituting a research program once it has been discontinued is marginal at best. The feasibility of restarting individual programs could vary greatly from program to program. In some cases, experienced staff and potential contractors could be readily available. Alternatively, identifying new staff and contractors who are knowledgeable and free of conflict of interest may be difficult. Bringing them on board, training them, and giving them an opportunity to do enough work to become experts and, further, to be recognized as experts, may well take five years or more(2). Staff recommends that a decision to terminate a program generally be considered to be permanent.
14.	What types and depths of expertise would the NRC need to ensure the availability of a critical mix of skills not only to address ongoing issues, but also to respond to problems that may arise in the future?
	Answer:
	This question will be addressed in RES' response to the SRM associated with SECY-97-075.

ATTACHMENT 4

LIST OF RULEMAKINGS AND ASSOCIATED RESOURCES

RULEMAKINGS IN THERULEMAKING ACTIVITY PLAN

CATEGORY I ACTIVE RULES -- RULES IN DEVELOPMENT(3)

HIGHER PRIORITY(4)

NRR-C1HP-11 Codes and Standards for NPP (Part 50.55a)--RM#318--AE26

NRR-C1HP-21 Reduction In Nuclear Power Reactor Security Requirements Associated With Insider Threat (Part 73.55)--RM#405--AF11--W#950117

NMSS-C1HP-22 Safeguards for Spent Nuclear Fuel or High-Level Radioactive Waste, (Parts 60, 72, 73, 75)--RM#346--AF32--W#930128

NMSS-C1HP-24 Requirements for Shipping Packages Used to Transport Vitrified Wastes Containing Plutonium, Part 71 (PRM-71-11)--RM#491--AF59--W#960169

NRR-C1HP-26 Amending Initial Operator License Examination Requirements, Part 55--RM#484--AF62--W#950056

NMSS-C1HP-27 Removal of the 5-Year Term For Licenses For The Medical Use of Byproduct Material, Part 35.18--RM#493--AF77

NRR-C1HP-28 Revision to Nuclear Power Reactor Decommissioning Financial Assurance Implementation Requirements, Part 50.2 and Part 50.75--RM#424--AF41--W#950112

NRR-C1HP-29 Insurance Requirements For Power Reactor Facilities Under a Possession Only License, Part 50--RM#312--AF16--W#930116

NRR-C1HP-30 General Revisions to the Fitness-For-Duty Rule, Part 26--RM#397--AF12--W#890042

NMSS-C1HP-31 Exempt Distribution and Use of a Radioactive Drug Containing One Microcurie of Carbon 14 Urea, Part 30 and 32, (PRM-35-12) --Rm#432--W#970042

NRR-C1HP-32 Revision of Respiratory Protection Requirements, Part 20--RM#269--------W#970194

NRR-C1HP-33 Safety Related Structures, Systems and Components (Direct Final Rulemaking), Part 50--RM#500

NRR-C1HP-34 Allow For Plant Specific Nuclear Power Reactor Decommissioning Costs Requirements, Part 50.75--RM#347--AF40--W#950111

NRR-C1HP-35 Performance-Oriented Requirements for Fire Protection of Nuclear Power Facilities (Part 50)--RM#340--AF29--W#920197

MEDIUM PRIORITY

NRR-C1MP-10 Shutdown and Spent Fuel Pool Operations, Part 50--RM#398--

AE97--W#920223

NMSS-C1MP-14 Deliberate Misconduct Rule, Parts 30, 40, 50, 60, 61, 70, 72, 110)--RM#425--AF35--W#960007

ADM-C1MP-15 Criteria and Procedures For Determining Eligibility For Access to Restricted Data or National Security Information, Parts 10 --RM#431--AF48

NMSS-C1MP-17 Alternative Financial Criteria For Non-Profit Entities and Alternative Financial Criteria For Non-Bond Issuing Licensees--RM#408--W#930212

NRR-C1MP-18 Audit Frequency For Emergency Planning and Security, Part 50, PRM-50-59, PRM-50-60--RM#413

NRR-C1MP-19 Addition of Radon-222 and Technetium-99 Values to Table S-3 and Revisions Resulting from Consideration of Higher-Burnup Fuel (Part 51)--RM#116--AA31--W#910146

NMSS-C1MP-21 Revision of Prototype Testing Requirements for Watches Containing Tritium (PRM-32-04), Part 32.14--RM#423

NMSS-C1MP-22 Miscellaneous Changes, Part 72--RM#446--W#960162

NRR-C1MP-23 Emergency Planning Requirements For Defueled Reactors and Exercise Requirements For Offsite Emergency Plans, Appendix E and Part 50.54(Q), --RM#435

LOWER PRIORITY

NMSS-C1LP-05 Revision to 10 CFR Parts 20, 32, 35, 36, and 39 Regarding Minor Administrative Changes, Clarifications, and a Minor Policy Change--RM#402--AF46

IRM-C1LP-17 Submittal procedures For Documents, Parts 19, 20, 30-36, 39, 40, 51, 52, 55, 60-62, 70-75, 140, 150--RM#445

ADM-C1LP-18 Nuclear Regulatory Commission Acquisition Regulation (48 CFR Chapter 20)--RM#475--AF52

NMSS-C1LP-19 Notice to Employees; Minor Amendment to Part 19--RM#495

CATEGORY II RULES FOR WHICH THE TECHNICAL BASES ARE UNDER DEVELOPMENT

HIGHER PRIORITY

NMSS-C2HP-04 Criteria For Recycle/Reuse--RM#381--W#940059

NMSS-C2HP-05 Disposal by Release into Sanitary Sewerage, Part 20--RM#288--AE90--W#940008

NMSS-C2HP-07 Amend Certification of Compliance NO.72-1007 For The VSC-24 Dry Spent Fuel Storage Cask, Part 72.214--RM#390

MEDIUM PRIORITY

NMSS-C2MP-05 Exemption from Licensing of Certain Products, Parts 30, 32--RM#400--W#900208

LOWER PRIORITY

NONE

CATEGORY III RULEMAKING PLAN BEING DEVELOPED

HIGHER PRIORITY

NRR-C3HP-07 Skin Dose Limits For Hot Particles--RM#164--W#900178

NMSS-C3HP-09 Update of Decommissioning Funding Certification Amounts For Applicants and Licensees, Parts 30, 40, 70--RM#243

NMSS-C3HP-10 Elimination of 30-Day Delay in Loading Spent Fuel After Preoperational Testing, Part 72.82(E)--RM#433

NMSS-C3HP-12 Storage of Greater Than Class C Waste, Part 72--RM#436--W#960157

NMSS-C3HP-13 Energy Compensation Sources For Well Logging, Part 39--RM#440

NMSS-C3HP-14 Expand Applicability to Include Additional Parties, Part 72--RM#439--W#960160

NMSS-C3HP-20 Options For The Use of Radiography and Radiographic Equipment and ANSI N432, Part 34--RM#477

NMSS-C3HP-22 Revision of Dose Limit for Members of the Public Exposed to Hospitalized Patients, Part 20 (PRM-20-24)--RM#490--W#960154

NMSS-C3HP-23 Specific Domestic Licenses of Broad Scope For Byproduct Material, Part 33--RM#448--AF54

NMSS-C3HP-24 Major Revision of 10 CFR Part 35--RM#497

NMSS-C3HP-25 Part 76 Certification Ammendment Process, Part 76.45--RM#499

MEDIUM PRIORITY

NRR-C3MP-01 Fitness for Duty (Scope)--RM#396--AF13

NMSS-C3MP-06 Special Nuclear Material Accountability, Parts 70, 74--

RM#309--W#960007

NMSS-C3MP-12 Clarifications and Addition of Flexibility to Part 72 --

RM#438--W#960159

NMSS-C3MP-13 Geological and Seismological Characteristics of Spent Fuel Storage Systems, Part 72--RM#441--W#960161

NMSS-C3MP-14 Adoption of Part 20 Dosimetry Methodology To Part 72--

RM#437--W#960158

NMSS-C3MP-15 Financial Assurance Requirements For Waste Brokers and Sealed Source Users--RM#480

NRR-C3MP-16 Alternative Site Reviews, Part 50--RM#313

NRR-C3MP-18 Staffing and Training Requirements For Defueled reactors,

Part 50, 55--RM#444

NRR-C3MP-19 Use of Alternate Cladding Material in Reactors, Part 50--RM#449

NMSS-C3MP-21 Financial Assurance For Teletherapy and Krypton-85 Licensees Parts 30, 35--RM#482

NMSS-C3MP-22 Relief From The Use of Part 35 Requirements For Teletherapy Devices For Non-Human Irradiation, Part 36--RM#479

NRR-C3MP-23 Exemption From Criticality Monitor Requirements For Fresh Fuel, Part 70.24--RM#494

NMSS-C3MP-26 Compatibility with the IAEA Transportation Standards, Part 71--RM#496

NRR-C3MP-28 Codes and Standards, Part 50.55a (h)--RM#498

NMSS-C3MP-29 Spent Fuel Shipment Information Protection Requirements,

Part 73--RM#501

LOWER PRIORITY

NMSS-C3LP-01 Clarification of Criteria for Uranium Mills and Tailings, Part 40--RM#380--W#940078

NRR-C3LP-05 Removal of Obsolete Appendices M, N, O, and Q From Part 50--RM#483

NRR-C3LP-06 ELIMINATE 10 CFR PART 2, APPENDIX A--RM#489

CATEGORY IV APETITIONS UNDER CONSIDERATION

NRR-C4A-02 Acceptability of Plant Performance for Severe Accidents; Scope of Consideration in Safety Regulations, Part 50--RM#268--AE38--W#900201

NMSS-C4A-07 PRM-20-21 Petitioner: Keith J. Schiager, Ph.D., et al.--RM#451

NRR-C4A-14 PRM-50-62 Petitioner: Nuclear Energy Institute--RM#459

NRR-C4A-15 PRM-50-63 Petitioner: Peter G. Crane--RM#460

NMSS-C4A-18 PRM-35-13 Petitioner: National Registry of Radiation Protection Technologists (NRRPT)--RM#463

NMSS-C4A-23 PRM-30-61 Petitioner: Nuclear Energy Institute-- RM#468

NMSS-C4A-24 PRM-70-07 Petitioner: Nuclear Energy Institute--RM#469

CATEGORY IV BRULES ON HOLD

NMSS-C4B-01 Requirements for Possession of Industrial Devices Containing Byproduct Material (Parts 31, 32)--RM#81--AD34--W#890090

NMSS-C4B-02 Requirements Concerning the Accessible Air Gap for Generally Licensed Devices (Parts 31, 32)--RM#264--AD82--W#900192

NMSS-C4B-04 Revision to Parts 30 and 40, to Address RSO Duties--RM#386

NRR--C4B-09 Rulemaking on Probabilistic Risk Assessment, Part 52--RM#411

NMSS-C4B-10 Addition Of DOE Multi Purpose Canisters, Part 72.214--RM#412

NMSS-C4B-11 Domestic Licensing of Special Nuclear Material-Revision, Part 70 --RM#351--AF22--W#94010

NMSS--C4B-13 Conforming 10 CFR Part 60 to EPA Standard and NAS Recommendations--RM#430

NMSS-C4B-19 Transfer of Unimportant Quantities of Source or Byproduct Material to Exempt Persons, Part 40.51--RM#447

NRR-C4B-21 Revise Part 50.34(f) To Apply To Unknown Future Designs--RM#485

NRR-C4B-22 Licensing Requirements for Senior Reactor Operators Limited to Fuel Handling--RM#486

NMSS-C4B-23 General Domestic Licenses For Byproduct Material, Part 31--RM#487

NRR-C4B-24 Reduction of Additional Reporting Requirements Imposed on NRC

Licensees (10 CFR 50), RRGR Item 59a--RM#387--W#940118

NMSS-C4B-25 Extremity Dosimetry--RM#146--W#870013

REGULATORY GUIDES UNDER DEVELOPMENT ACCOMPANYING RULEMAKINGS[5]

Regulatory Guide on license renewal for NPP, Scope of envoirnmental effects...*License Renewal Rule (completed)*

Regulatory Guide on Financial Accounting Standards Board (FASB) standards for decommissioning cost accounting.....*NRR-C1HP-28 Revision to Nuclear Power Reactor Decommissioning Financial Assurance Implementation Requirements, Part 50.2 and Part 50.75--RM#424--AF41--W#950112*

RG 8.15 (rev) "Acceptable Programs for Respiratory Protection".....*NRR-C1HP-32 Revision of Respiratory Protection Requirements, Part 20--RM#269----------W#970194*

Regulatory Guide on Demonstrating Compliance with the Radiological Criteria for Decommissioning...*Decommissioning Rule (completed)*

DG-0006 Guide for the Preparation of Applications for Commercial Nuclear Pharmacy Licenses...*Radiopharmacy Rulemaking (completed)*

DG-0007 Guide for the Preparation of Applications for Licenses to Authorize Distribution of Various Items to Commercial Nuclear Pharmacies and Medical Use Licensees...*Radiopharmacy Rulemaking (completed)*

DG-0009 Proposed supplement to RG 10.8, Rev.2: "Guide for the Preparation of Applications for Medical Use Programs"...*Radiopharmacy Rulemaking (completed)*

Performance-Oriented Requirements for Fire Protection of Nuclear Power Facilities (10 CFR Part 50)....*NRR-C3MP-04 Performance-Oriented Requirements for Fire Protection of Nuclear Power Facilities (Part 50)--RM#340--AF29--W#920197*

BUDGETED RESOURCES TO BE TRANSFERRED

	FY 1998		FY 1999	
	$K*	FTE**	$K*	FTE**
NRR - Transferred rulemaking (including accompanying regulatory guides) and regulatory guide development resources				
Reactor rulemaking - licensing (direct)	120	5.0	50	4.0
Reactor rulemaking - rad. prot. (direct)	80	2.5	80	1.5
Reactor Technical Assistance	170	-	170	-
TOTAL DIRECT	370	7.5	300	5.5
Management and support	-	1.5	-	1.5
TOTAL	370	9.0	300	7.0
NMSS - Transferred rulemaking (including accompanying regulatory guides) and regulatory guide development resources				
Materials rulemaking - licensing (direct)	180	6.5	80	5.5
Materials rulemaking - rad. prot. (direct)	75	3.0	350	3.0
Material Technical Assistance	370	-	370	-
Decommissioning rulemaking (direct)	100	5.0	100	5.0
Decommissioning technical assistance	670	-	670	-
TOTAL DIRECT	1395	14.5	1570	13.5
Management and support	-	3.0	-	3.0
TOTAL	1395	17.5	1570	16.5
ADM - Transferred resources				
Infrastructure and oversight (direct)	255	3.0	500	3.0

* Does not include salaries and benefits.** Includes overhead.

Note: The FY 1998 resources shown above constitute the total budgeted resources for FY 1998 to perform the designated activities. The actual resources to be transferred among the offices will depend upon the timing of the transfers of the activities as defined in the implementation plan(s).

ATTACHMENT 5

CANDIDATE ACTIVITIES FOR TRANSFER TO RES

TECHNICAL ACTIVITIES CONSIDERED BY PROGRAM OFFICES AS POTENTIAL CANDIDATES TO RES

The program offices have examined the technical activities conducted in their respective offices, and have identified activities that are potential candidates for transfer to RES. These candidate activities are listed in this attachment along with the program office's recommendation for disposition. The program offices will continue to evaluate their ongoing programs and provide final recommendations for transfer to RES in conjunction with recommendations addressing the questions of consolidation of technical expertise and the program for dealing with generic safety issues. The following table summarizes the realignment of resources, the details of which are provided in this Attachment and in Attachment 4.

BUDGETED RESOURCES TO BE TRANSFERRED

		FY 1998		FY 1999	
		$K*	FTE**	$K*	FTE**
NRR	[receipt of rulemaking]	+370	+9.0	+300	+7.0
NRR***	[transfer of research]	-220	-0.4	-120	-0.1
NRR	[net transfer to NRR]	+150	+8.6	+180	+6.9
NMSS	[receipt of rulemaking]	+1395	+17.5	+1570	+16.5
NMSS***	[transfer of research]	0	-0.1	0	0
NMSS	[net transfer to NMSS]	+1395	+17.4	+1570	+16.5
ADM	[receipt of rulemaking]	+255	+3.0	+500	+3.0
ADM	[transfer of research]	n/a	n/a	n/a	n/a
ADM	[net transfer to ADM]	+255	+3.0	+500	+3.0
AEOD	[receipt of rulemaking]	n/a	n/a	n/a	n/a
AEOD***	[transfer of research]	0	0	0	0
AEOD	[net transfer to AEOD]	0	0	0	0
RES	[transfer of rulemaking]	-2020	-29.5	-2370	-26.5
RES	[receipt of research]	+220	+0.5	+186	+0.1
RES	[net transfer from RES]	-1800	-29.0	-2184	-26.4

* Does not include salaries and benefits.** Includes overhead.*** Current Program Office Estimates

Note: The FY 1998 resources shown above constitute the total budgeted resources for FY 1998 to perform the designated activities. The actual resources to be transferred among the offices will depend upon the timing of the transfers of the activities as defined in the implementation plan(s).

OFFICE OF NUCLEAR REACTOR REGULATION

In Service Inspection Relief Request Database

The purpose of this database is to develop and maintain a comprehensive inventory of relief requests to assist the staff (1) to address ISI requests for relief and alternatives so as to provide more uniform terminology, (2) to maintain the traceability of all data to source reference documents and notes to discussions on each report, and (3) benefit is gained by ease of reference to same or similar requests for relief and/or alternatives. The database is to be updated every six months based relief requests processed during last period.

Resources: FY98 - $20K and 0.125 FTE

FY99 - $10K and 0.125 FTE

Disposition and Rationale

Not to be transferred, because the development of this database only involves collection of data regarding licensing documents - and not research. NRR's future reviews and evaluations of regulatory actions involving licensee's requests for relief and alternatives to the ASME Code, Section XI requirements, requires that this information be readily available to NRR staff.

Steam Generator Database

The NRC Steam Generator Database (SGD) provides the NRC with the capability of maintaining current information on steam generator materials, inspections, and operating experience in a comprehensive manner. The SGD include chronological information for each plant and inspection report data for SGs since 1991, including licensee and NRC data. The SGD provide the staff with a tool to evaluate and monitor materials aspects for licensing and inspection reviews while minimizing the staff time involved with locating references and data.

Resources: FY98 - $50K and 0.2 FTE

FY99 - $30K and 0.2 FTE

Disposition and Rationale

Not to be transferred, because the development of this database only involves collection of licensing documents and references in a database - and not research. NRR's future reviews and evaluations of regulatory actions involving steam generator performance requires that this information be readily available to NRR staff.

Reactor Vessel Integrity Database

The Reactor Vessel Integrity Database (RVID) was developed following the Nuclear Regulatory Commission (NRC) staff review of licensee responses to Generic Letter (GL) 92-01, Revision 1. The RVID2 summarizes the properties of the reactor vessel beltline materials for each operating commercial nuclear power plant. For plants that are not operating, existing data has been maintained; i.e., no existing data for non-operating plants has been deleted. The RVID2 program has references and notes that document the source(s) of data and provide supplemental information. Additionally, the RVID2 includes sort and data search capabilities. The user can select a desired grouping of plants and then specify information categories to search and list.

The RVID2 program was designed and developed to reflect the current status of reactor pressure vessel integrity, and the data is consolidated in a convenient and accessible manner. Some of the data categories are inputs of docketed information; other data categories are computed values, which are not necessarily docketed. The programming logic used for calculations in the RVID2 program follows the methodology in NRC Regulatory Guide 1.99, revision 2.0. (RG1.99r2). The newest Access Version of the database will be released on the World Wide Web (www) once the data have been updated.

Resources: FY98 - $10K and 1.0 FTE

FY99 - $20K and 0.5 FTE

Disposition and Rationale

Not to be transferred, because the development of this database only involves collection, evaluation and analysis of licensing data - and not research. NRR's future reviews and evaluations of regulatory actions involving reactor vessel requires that this information be readily available to NRR staff.

Grid Reliability Technical Study

The subject study provides staff support to the following NRR Action Plan task elements from the Grid Reliability Action Plan: (1) Develop technical information to assess and evaluate the risk significance of potential grid instability due to deregulation; (2) Monitor industry deregulation and its impact on the reliability of offsite power to nuclear power plants; develop and implement staff-level contacts with the Federal Energy Regulatory Commission (FERC) and the Department of Energy (DOE); assist Regional personnel in establishing contacts with power pools and reliability councils in their area; (3) Development of generic communication; and (4) Evaluate, based on Task 1 results, the need for regulatory actions; evaluate method(s) to identify grid-centered event precursors; evaluate the impact on deregulation SBO risk reduction goals; assess any requirements and the effectiveness of such requirements and enforcement policies as imposed by the North American Electric Reliability Council.

Resources: FY98 - $220K and 0.1 FTE (Tasks 1 and 4)

FY99 - $120K and 0.1 FTE

Disposition and Rationale

Task elements 1 and 4, as mentioned above and in the Grid Reliability Action Plan, may be transferred to RES. Task elements 2 and 3 should remain within NRR to assist EELB in the assessment of licensee compliance with the existing regulations associated with ensuring offsite power to nuclear power plants. Given that the subject technical study is an integral component of the staff's efforts to meet the intent of the Staff Requirements Memorandum (SRM) dated May 27, 1997 those commitments associated with the subject SRM should also be transferred to RES with task elements 1 and 4.

Assessment of Turbine Failure at Vandellos 1

Development of staff NUREG or other publication to document turbine building fire issues for U.S. plants in light of the Vandellos fire.

Resources: FY98 - $ 0 and 0.3 FTE

FY99 - $ 0 and 0 FTE

Disposition and Rationale

To be transferred to RES and should be combined with overall fire protection research activities.

Rebaselining Analyses for Implementation of Revised Accident Source Term at Operating Reactors

Using Surry and Grand Gulf as model plants, dose calculations are being run for the spectrum of Design Basis Accidents. The term "rebaselining" comes from the analyses of the plants as currently designed using both the current regime (TID source term, whole body/thyroid dose acceptance criteria, and associated calculational assumptions and methods) and the new regime (NUREG-1465 source term, TEDE dose acceptance criteria, and revised calculational methods). These analyses will allow us to understand the impact of the revised source term before any design changes are made based on the revised source term. DBA dose will then be performed applying the various possible design changes licensees have or may propose based on the revised source term. These analyses will allow the technical reviewers to make sure that all of the calculational methods are developed that will be needed to review the pilot plant licensing applications. Using the information in NUREG-1150, the impact on risk from these potential design changes will also be assessed. Finally, the impact on other "non-dose" design basis safety and licensing analyses from these design changes will be examined.

Resources: FY98 - $150K and 1.3 FTE

FY99 - $0 and 0.7 FTE

Disposition and Rationale:

Rebaselining will provide support for the rulemaking and for the pilot plant and follow-on plant licensing reviews. Because it appears that both these activities will be conducted by NRR, NRR should have the lead for this effort. However, RES developed the revised source term and has substantial expertise and technical assistance contract connections in this area. For these reasons, RES has always been part of the task force led by NRR for the overall implementation effort. Because of RES's expertise RES needs to take a much more substantial role in the rebaselining effort. The details of that increased role are being discussed now by RES and NRR branch-level management.

DBA Meteorological and Dose Assessment Calculational Code Development

NRR uses several computer codes to assess the meteorology and offsite and control room doses for DBAs associated with license applications: PAVAN, ARCON, HABIT, and RADTRAD. HABIT was developed by RES. RADTRAD was developed by NRR. NRR staff still needs training on RADTRAD and help from Sandia will be needed as the NRR staff starts to use the code for actual licensing cases. ARCON was also developed by NRR. ARCON is finished, and training and help in actual licensing use will still be needed. PAVAN and other related codes already exist and are being updated to run on PCs and use ARCON-like data handling methods.

Resources: FY98 - $50K and 0.2 FTE

FY99 - $0 and 0 FTE

Disposition and Rationale:

NRR believes all these activities should remain under NRR; however, RES could be given the lead for the PAVAN and other related meteorological code development since code development is an RES responsibility. (NRR to provide resource split)

NRR Identified and Transferred Research Resources							
FY 1998				FY 1999			
Identified		Transferred		Identified		Transferred	
$ in K	FTE	$ in K	FTE	$ in K	FTE	$ in K	FTE
500	3.2	220	0.4	180	1.63	120	0.1

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Background

As a result of severe budget reductions in FY 1996, the HLW Management Board, made up of managers from DWM, RES, and the CNWRA, made recommendations on the prioritization and consolidation of ongoing research and technical assistance activities being conducted and planned at the CNWRA in light of the refocused HLW repository program and reduced budget. The Directors of RES and NMSS agreed with the HLW Board's

recommendations and noted that the best way to manage the HLW program was to consolidate these activities in NMSS. The decision to consolidate HLW activities in NMSS was approved by the EDO and the Commission was informed (Memoranda dated 2/28/96 and 4/9/96). In the EDO's memorandum to the Commission (dated 2/28/96) it was noted that NRC could no longer afford the costs of running the HLW program between the two offices and still maintain a minimum acceptable level of technical expertise within the Commission and the CNWRA.

As a result of the decision to consolidated HLW activities in NMSS, all activities were grouped by the 10 key technical issues (KTIs) most important to repository performance at the Yucca Mountain site. Within each KTI, the activities were prioritized and resource limits set consistent with the reduced budget. This resulted in a list of funded and unfunded .research and technical assistance activities. Of the eleven research projects, selected tasks from four high priority projects could be supported -- three at the CNWRA and one at the University of Arizona. This work was funded as technical assistance specific for the Yucca Mountain site and was managed under the existing KTI structure, that is: 1) igneous activity KTI-probability and consequence studies; 2) near-field environment KTI- effects of engineered components on near-field water chemistry; 3) container life KTI- long-term corrosion testing; and 4) radionuclide transport KTI- alternative conceptual models of transport. Subsequently, in FY 1997, CNWRA support for work in two of the KTIs, container life and radionuclide transport, was eliminated as a result of continued reduced funding for the repository program. Work at the University of Arizona has been phased out. However, the long-term corrosion testing was continued in order to build on the years of data already collected. The end result of these budget reductions on research activities at the CNWRA was a reduction of approximately 90-95% in funds allocated for these activities and the refocusing of the remaining activities to site-specific applications. Further, project management of these activities has been subsumed into the regular duties of program element managers and represents only a small fraction of their element responsibilities.

The activities identified on the accompanying pages represent a combination of the remnants of the previously described research activities and other DWM/HLW activities that may be considered research. Other activities such as work on models related to developing an implementing rule and work on conceptual models for thermohydrologic processes at Yucca Mountain were considered, but not documented in the accompanying pages because no significant work is expected to occur in FY98. Site-specific activities that are potential candidates for startup in FY98 (e.g., review of DOE's basis for incorporating matrix diffusion into PA calculations) also are not included due to the uncertainty in the appropriations expected from the Nuclear Waste Fund in FY98.

Total System Performance Assessment Code Development

Joint NRC/CNWRA code enhancement effort has focused on having the licensing tools necessary to perform pre-licensing consultations, develop staff independent review capabilities, and evaluate an eventual license application from the Department of Energy. In FY97, TPA code development has proceeded through the testing and verification of the TPA 3.1 code. The code was completed and placed into configuration control on or about September 5, 1997, and is now being implemented in pre-licensing consultation activities related to confirming those issues related to a geologic repository that are most important to demonstrating compliance.

In FY98, it is expected that TPA 3.1 code development would be largely limited to activities related to determining the contribution that individual components of the repository system make to the isolation of wastes.

Resources:	FY98 Approx. $75K and 0.05 FTE
	FY99 Approx $75K and 0.05 FTE

Disposition and Rationale

Not to be transferred because development (including most testing and verification) is essentially complete and efforts are now largely focused on the analysis of site characterization data, resolving potential licensing issues, and further developing DWM staff's licensing review capability by manipulation of the code. The TPA 3.1 code is being used to develop the staff's independent understanding of the abstraction of site-specific processes in order to prepare a standard review plan and review DOE's test plans, data, and assessments. All efforts are focused on site-specific work for the proposed geologic repository at Yucca Mountain, Nevada. Consequently, this technical work provides the tools and understanding the staff will use in its licensing reviews of DOE's program and is not considered to be "confirmatory research." Finally, this disposition is consistent with the EDO's decision (EDO to Commission dated 2/28/96; EDO to Commissioner Rogers dated 4/9/96) to consolidate HLW activities in NMSS.

Long-Term Corrosion Studies Related to Waste Package Degradation

Corrosion behavior of waste packages used for disposal of spent nuclear fuel over long time frames (>1000 yrs) is uncertain. Long-term corrosion experiments have been ongoing at the CNWRA for a number of years. The goal of these experiments is to better define the behavior of various metals and alloys (including galvanic coupling) when exposed to Yucca Mountain site-related conditions (e.g., J-13 water) for long periods of time.

Resources:	FY98 - $100K and 0.05 FTE
	FY99 - $100K and 0.05 FTE

Disposition and Rationale

Not to be transferred because of EDO's decision (EDO to Commission dated 2/28/96; EDO to Commissioner Rogers dated 4/9/96) to consolidate all HLW activities in NMSS so as to maintain a minimum acceptable level of technical expertise within the Commission and the CNWRA. In addition, budget reductions the last two FYs have resulted in most CNWRA work being focused on resolving potential licensing issues and developing staff review capability for the Yucca Mountain site. Although the work could be transferred to research because of the potential for work of this nature to be applied to generic issues related to the evaluation of the long-term behavior of various metals and alloys, activities directed towards generic applications would

necessarily have to be funded out of non-Nuclear Waste Fund monies.

Volcanic Analogue Studies to Define Consequences of Volcanic Events

Volcanic analogue studies are being conducted by the CNWRA to aid in determining the eruption dynamics of a volcano that potentially could disrupt the geologic repository at Yucca Mountain in order to provide the technical basis for defining the consequences that would result from such a disruption. Scientists at the CNWRA are examining analogue sites (e.g. active volcanos such as Cerro Negro, Nicaragua) to better define the characteristics of basaltic volcanic events including the energetics of the eruption and the distribution of ash after eruption. The results of these analyses are being factored into risk analyses and are being applied to ongoing HLW performance assessment activities. Further the results of these activities have been used in IAEA-funded activities and published in the peer-reviewed literature.

Resources: FY98 - $40K and 0.05 FTE

FY99 - $40K and 0.05 FTE

Disposition and Rationale

Not to be transferred because of EDO's decision (EDO to Commission dated 2/28/96; EDO to Commissioner Rogers dated 4/9/97) to consolidate all HLW activities in NMSS so as to maintain a minimum acceptable level of technical expertise within the Commission and the CNWRA. In addition, budget reductions the last two FYs have resulted in most CNWRA work being focused on resolving potential licensing issues and developing staff licensing review capability for the Yucca Mountain site. Although work is focused on understanding site-specific processes for Yucca Mountain, it could be applied to other, unrelated, nuclear siting activities. Therefore, the CNWRA work is extending the frontiers of understanding in volcanic risk assessment as applied to nuclear facilities. However, any activities directed towards applications other than Yucca Mountain would necessarily have to be funded out of non-Nuclear Waste Fund monies.

Studies of Structural Deformation in the Yucca Mountain Area to Define Consequences of Faulting Events

Studies of structural deformation (faulting and paleo-seismicity) are being conducted by the CNWRA to develop an independent review capability to assist in risk analyses for seismic hazard and fault displacement hazard for the geologic repository at Yucca Mountain. These studies are designed to provide the technical basis for staff comments on the adequacy of preclosure design of surface facilities at the repository and evaluations of the effects of faulting on repository performance during the postclosure. CNWRA efforts are focused on the evaluation of faulting and seismic events in the Yucca Mountain area. The results of these activities are published in peer-reviewed literature.

Resources: FY98: Approx. $100K and 0.05 FTE

FY99: Approx. $100K and 0.05 FTE

Disposition and Rationale

Not to be transferred because of EDO's decision (EDO to Commission dated 2/28/96; EDO to Commissioner Rogers dated 4/9/96) to consolidate all HLW activities in NMSS so as to maintain a minimum acceptable level of technical expertise within the Commission and the CNWRA. Further, although some innovative approaches are being applied, all activities are directed at the study of the Yucca Mountain area and, as a result, are site-specific and focused on developing an independent licensing review capability. CNWRA activities in this area are not extending the frontiers of understanding of deformation in the Yucca Mountain area, but applying known techniques to assist in understanding site-specific processes in order to prepare a standard review plan and to review DOE's test plans, data, and assessments. Finally, because of progress made in the analysis of this key technical issue, FY98 expenditures for this task are being reevaluated as part of the FY98 reprioritization of HLW activities based on the results of planned sensitivity studies.

Development of a Database on the Effects of Low Doses of ionizing Radiation and Its Application for Assessing Radiation Hormesis as a Biological Hypothesis

The Nuclear Regulatory Commission and other relevant Federal agencies are participating in the organization and conduct of workshops designed to assess hormesis as a biological hypothesis, and its potential societal and scientific significance. In addition to the Nuclear Regulatory Commission, these Federal agencies include the National Institute of Environmental Health Sciences (NIEHS), Department of Air Force - Office of Scientific Research, Environmental Protection Agency (EPA) - Office of Research and Development, Food and Drug Administration (FDA) - National Center for Toxicologic Research, Agency for Toxic Substances and Disease Registry (ATSDR), Department of Energy (DOE) - Office of Energy Research, and U.S. Consumer Product Safety Commission (CPSC). The workshops would be conducted as a Biological Effects of Low-Level Exposures (BELLE) - related activity, administered at the University of Massachusetts, Amherst, under the direction of Edward J. Calabrese, Professor of Toxicology.

These workshops would be supported by the development and completion of a relational retrieval data base on chemical (University of Texas A&M) and radiation hormesis (Nuclear Regulatory Commission). A workshop advisory committee will be assembled from representatives of DOD, EPA, NIEHS, FDA, ATSDR, DOE and CPSC. The committee will provide the Principal Investigator, Professor Calabrese, with direction on the series of workshops with respect to selection of topics and speakers and on the integration of information into the workshops from a companion project dealing with the development of a radiation hormesis data base. Total costs of the workshops are:

Resources: FY98 - $ 0 and 0.05 FTE

FY99 - $66K and 0.05 FTE (Unbudgeted)

Note: Total NRC contribution $181K NRC (Radiation Hormesis Data Base), $334K by Other Agencies (Organization and Conduct of Workshops)

Disposition and Rationale

To be transferred, collection, evaluation, and analysis of the relational retrieval data base will be completed in FY99, and integrated into the workshops. FY99 funds have not been allocated; therefore, RES will evaluate the appropriateness of transferring funds from other sources to provide the identified FY 99 funding.

Technical Assistance for Reviewing License Submittals Concerning Decommissioning - Task Order 04, Modeling of Leach Processes at Decommissioning Sites

CNWRA will evaluate and compare the capabilities of fate and transport codes currently used in site decommissioning performance assessment with possible application to SDMP sites. With mineralogic characterization information supplied by RES and in cooperation with RES, CNWRA will identify possible constraints on input parameter values and identify limitations on general applications. In conjunction with RES, CNWRA will use SDMP leaching information from RES studies to provide constraints on source term parameters for fate and transport calculations. Geochemical modeling (EQ3/6) at CNWRA may be used to evaluate the effects of leaching the waste under conditions anticipated at the SDMP sites.

Resources: FY98 - $0 and 0 FTE

FY99 - $0 and 0 FTE

Disposition and Rationale

Not to be transferred. Work is underway and fully funded. Transfer of work would be disruptive and not cost effective.

Billet Drop Test

This project is largely completed using FY 97 funds, which are largely spent. The draft final report is scheduled to be submitted to NRC on 10/15/97. No follow on work is planned or budgeted.

Resources: FY98 - $0 and 0 FTE

FY99 - $0 and 0 FTE

Disposition and Rationale

Not to be transferred to RES because the work is largely complete.

Diffusivity of Zinc

This is a scoping study to be performed at NIST to determine if further research is needed in this area by NRC. The scoping study is being funded using FY97 funds, but the work will largely be done in FY98. If the results of the scoping study identify further technical studies that are needed, SFPO agrees that follow-on work should be conducted by RES.

Resources: FY 98 - $0 and 0.05 FTE

FY 99 - $0 and 0 FTE

Disposition and Rationale

To be transferred since further technical studies if needed, should be conducted by RES.

NMSS Identified and Transferred Research Resources							
FY 1998				FY 1999			
Identified		Transferred		Identified		Transferred	
$ in K	FTE	$ in K	FTE	$ in K	FTE	$ in K	FTE
315	0.3	0	0.1	381	0.25	0	0

OFFICE OF ANALYSIS AND EVALUATION OF OPERATIONAL DATA

Common Cause Failure (CCF) Database

The CCF database consists of events from LERs and NPRDS that are evaluated for their common cause potential and listed in a retrievable format. It also includes the calculational tools to evaluate the operating experience data in order to quantify CCF parameters suitable for use in reliability and risk assessments. This project grew out of methods developed by RES to analyze data for estimating CCF parameters for reliability and risk assessments.

Resources: FY98 - $300K and 1 FTE

FY99: $300K and 1 FTE

Disposition and Rationale

Not to be transferred, because development is now complete and future work will involve only collection, evaluation and analysis of the data. The future effort is an integral part of the AEOD work to apply risk-based techniques to the analysis of operating experience.

Loss of Offsite Power Database

The loss of offsite power database consists of events relating to losses of power along with plant information relating to the design of the offsite power system in a retrievable format suitable for analyzing the frequency and duration of LOSP events.

Resources: FY98 & FY99 - included in CCF values above

Disposition and Rationale

Not to be transferred because this effort is an application of previously existing methods to analyze the operational experience relating to loss of offsite power events at nuclear power plants. The activity updates the data and estimates of the frequency and duration of loss of offsite power events in a manner suitable for reliability and risk assessment quantification as well as providing insights into the engineering and operator performance aspects of the events.

Performance Trend Plots (SMM support)

The performance trend plots and supporting analyses are to be used as inputs for the SMM screening meetings to aid in deciding which plants should be discussed at the SMM. The plots represent the integration of performance data readily available from the PI program and other sources. They show the combined plant performance with respect to these inputs over time and with respect to the industry averages. Development of performance trend plots to support the SMM process is an expansion and enhancement of the methodology proposed by Arthur Andersen in their report on the SMM process.

Resources: FY98 - $330K and 2 FTE

FY99 - $330K and 2 FTE

Disposition and Rationale

Not to be transferred because this activity does not require development of new methods or technology. Instead it uses readily accessible data sources and statistical tools to analyze the operating performance of plants.

Risk-Based Performance Indicators

This activity is intended to replace the current PIs with those that would have a more direct connection to public risk. Examples would include substituting risk important initiating event frequencies and their trends for scram rates and trends, and using system and component reliabilities and trends instead of counts of safety system failures, etc. This effort is based on evaluations of actual plant operating experience.

Resources: FY98 - $450K and 1.25 FTE

FY99 - $100K and 2.5 FTE

Disposition and Rationale

Not to be transferred because this activity will not involve new technology or new methods but will use existing analytical techniques such as those being applied in the analysis of system reliabilities and initiating events.

Human Performance Database Analysis

This activity includes data entry into a human performance database and analysis and evaluation of the database to feed back lessons of operating experience. This activity extracts information from detailed event investigations into a database previously established by an interoffice task force.

Resources: FY98 - $75K and 1 FTE

FY99 - $ 0 and 0.5 FTE

Disposition and Rationale

Not to be transferred because this activity does not require new methods or technology development. Analysis and evaluation of operating experience

including human performance is an integral part of AEOD's efforts to extract the lessons of operating experience and feed back the findings.

AEOD Identified and Transferred Research Resources							
FY 1998				FY 1999			
Identified		Transferred		Identified		Transferred	
$ in K	FTE	$ in K	FTE	$ in K	FTE	$ in K	FTE
1155	5.25	0	0	730	6.0	0	0

Summary of Identified and Transferred Research Resources								
Office	FY 1998				FY 1999			
	Identified		Transferred		Identified		Transferred	
	$ in K	FTE	$ in K	FTE	$ in K	FTE	$ in K	FTE
NRR	500	3.2	220	0.4	180	1.63	120	0.1
NMSS	315	0.3	0	0.1	381	0.25	0	0
AEOD	1155	5.25	0	0	730	6.0	0	0

ATTACHMENT 6

IMPLEMENTATION STEPS FOR TRANSFEROF RULEMAKING AND RESEARCHRESPONSIBILITIES AND RESOURCES

IMPLEMENTATION STEPS

- Identify candidate staff associated with transferred functions (for example, rulemaking and supporting regulatory guides). Refine FTE allocation to current office and other program offices.
- Determine specific staff to be transferred (an individual's activity may support more than one program office or be divided between transferred and retained activities within an office) and develop new organizational structure (for example, a new branch or branches)
- Undertake appropriate discussions with the National Treasury Employees Union (NTEU)
- ADM performs functional transfer
- Present proposed arrangements for relocation of staff to office LMPCs
- Reach agreement with LMPCs on arrangements for relocation
- Effect relocation of staff

1. See Attachment 3, Question 4

2. This estimate is based on the staff's experience in starting up the Center for Nuclear Waste Regulatory Analyses.

3. The office to which the rulemaking would be transferred appears at the beginning of each item.

4. The order of presentation is the order in which rulemakings entered the rulemaking queue.

5. Associated rulemakings are indicated in italics.