February 25, 1998

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 activities contained in the SRM on SECY 97-220, dated December 5, 1997 (Attachment 1).

BACKGROUND:

Following Commission review of the direction setting issue (DSI) paper for research, DSI 22, and consideration of stakeholder comments, COMSECY-96-066 was issued on March 28, 1997. This SRM contained the Commissions decision on actions to be initiated related to DSI 22. The staff's response to this SRM was contained in SECY-97-167 which discussed the staff's proposed plan to implement the Commission decision. The SRM on SECY-97-167 was issued on September 16, 1997, which contained direction to the staff related to DSI 22 implementation issues. The staff's response to issues contained in the earlier SRMs was contained in

SECY-97-220, dated September 30, 1997 (Attachment 2). That SECY contained the staff's proposed plan to transfer rulemaking resources and responsibilities to the program offices and discussed responses to questions related to the staff's plans for activities to implement DSI 22. The Commission in SRM dated December 5, 1997, approved the proposed plan discussed in SECY-97-220 subject to six specific comments.

DISCUSSION:

The staff's responses to the six comments contained in the December 5, 1997, SRM are discussed below:

1. "The staff should clearly define the scope of activities meeting the definition of confirmatory research as defined in SECY-97-167. Technical activities meeting this definition, but not being transferred to RES, should be identified and the reasons for not transferring the activities should be provided."

Offices used the definition in SECY-97-167 as the basis to determine what is and is not confirmatory research. The definition is:

> "Activities which (1) develop new methods or new data, (2) develop new computer programs, (3) modify/existing methods by adopting new models or approaches or scientific data, (4) evaluate/validate existing methods or (5) extend the frontiers of understanding of a given area, are research"

In applying Item 4 of this definition the staff has not considered the evaluation of a licensee's methods as research work, but rather as a program office function. Accordingly, no work of this type has been identified as confirmatory research.

A number of activities in the program offices, meeting the definition of confirmatory research, were identified as candidates and were evaluated for transfer to RES. These activities, their evaluation and their recommended disposition are listed in Attachment 3. Those that are recommended for transfer to RES would result in 1.4 FTE and 487K of FY 1998 appropriated contract funds being transferred to RES (corresponding FY1999 resources to be transferred will be identified as part of the FY2000 Program-Based Budget Review (PBBR) due to the Commission in July 1998). In addition, some funding from DOE to support the Russian regulatory authority (GAN) review of the core conversion of three Russian production reactors would be allocated to RES once received from DOE, and the lead for this activity would be transferred from NRR to RES.

2. "The staff should provide recommendations on the Generic Safety Issues Program and the consolidation of highly specialized expertise to the Commission. As with the Rulemaking Activity Plan in the rulemaking area, there should be a mechanism in place to set priorities and scheduling for generic safety issues and to pass that information to the Commission for review."

Generic Safety Issue (GSI) Program

The GSI Program involves responsibilities and activities for NRR, NMSS, and RES. SECY-98-001, dated January 2, 1998, described recent actions that were initiated to ensure that the respective roles of each office are understood and that close coordination is practiced to eliminate duplication of effort and to have one agency-wide tracking system for GSIs.

The GSI program includes six steps. The first step is identification of the GSI. The second step is prioritization, an evaluation of the safety significance and cost/benefit associated with the issue. The third step is resolution. During this step, the evaluation of the issue continues and a solution is identified. In the final stage of the resolution step, the generic evaluation of the options, including appropriate cost-benefit considerations, is completed. At this point in the process. the lead office shifts from RES to NRR. The fourth step is imposition. This step is taken by the program office since it involves regulatory actions such as rulemaking or issuance of a generic communication. The fifth step is implementation by the licensees who implement the solution to the issue. The sixth step is verification. During this step, the staff verifies that the solution has been implemented by licensees. This step may include a number of different activities including inspections. Attachment 4 provides an additional discussion of the GSI Program.

The staff's recommendation for the GSI Program is that the current responsibilities and process be maintained. RES would continue to prioritize reactor

related GSIs and evaluate, through the conduct of research, reactor and materials GSIs, as necessary, except those involving high level waste issues. NRR would continue to impose and verify implementation of the resolution of reactor related GSIs. NMSS would continue to prioritize, resolve, impose, and verify implementation of non-reactor related GSIs.

A related issue involves the Generic Issue Management Control System (GIMCS). Currently, RES coordinates inputs from the program offices and updates this tracking system each quarter. The current GSI Program includes a mechanism to prioritize GSIs. Based on the prioritization step, GSIs are categorized as "high," medium," low," or "drop." Resources are expended on GSIs in accordance with this categorization. This process is described in detail in NUREG 0933. Additionally, schedules, activities and milestones for GSIs are included in GIMCS. The GIMCS update process focuses attention on the status of GSIs. Updates are provided to the EDO. RES will revise the update process to include sending a summary of activities related to open GSIs to the Commission on an annual schedule. Responsibility for this system could be transferred to the Office of Administration, as was the case for the Rulemaking Action Plan, or the responsibility could remain with RES. The staff recommends that responsibility for updating GIMCS based upon input from the program offices remain with RES as discussed in SECY-98-001.

Consolidation of Expertise

Regarding the consolidation of highly specialized expertise in one office, the staff notes the initial statement of the issue in DSI 22:

> "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?"

In the September 16, 1997 SRM, the Commission directed the staff to provide a discussion of the advantages and disadvantages of their recommendation to the Commission for consideration. In SECY-97-220, the staff proposed to provide the Commission with a general discussion of the advantages and disadvantages of consolidation.

The staff found the primary advantages associated with consolidation are as follows:

- Having a group of individuals with similar expertise as compared with one or two experts. When working in a group, individuals could specialize further, increasing the breadth and depth of the groups competence. A group with a number of similarly skilled staff can be more robust against loss of skill or corporate memory than one or two individuals. A group of experts can also be more able to respond to simultaneous short-term demands than one or two individuals. The groups supervisor may have the opportunity to improve quality by having products peer-reviewed internally. Depending on the size of the group, it may constitute an entire section or branch. It might, therefore, have a supervisor or manager who can fully support the groups technical needs, and may be trained in the groups area of expertise.
- Consolidating work could improve the efficiency and quality of the agencys efforts by bringing developers and users closer together and maintaining agency expertise by keeping a nucleus of staff interacting and sharing ideas.
- Consolidating work could also result in consolidating contractor support by reducing the number of separate contracts and/or bringing more work in-house.

The staff also identified a number of disadvantages associated with consolidation of specialized expertise in a single office. The primary disadvantages associated with consolidation are as follows:

- Decrease in the efficiency of the organization beyond the consolidated group. For example, the office giving up its expertise to the consolidated group would need to arrange to obtain the groups technical assistance across office lines, which could be less efficient than managing the technical work directly. The office managing the consolidated group also faces additional challenges, such as planning and budgeting to support the needs of another office.
- Consolidation would generally result in the receiving office performing work that is currently the formal responsibility of the contributing office.
- Technical expertise is needed as an integral part of many activities within an individual office. For example, technical expertise is required in NRR to support timely decisions needed for operating plants, to resolve plant restart issues, to assess allegations and 2.206 petitions, and to respond to inquiries from Congress. Similarly, RES needs technical expertise to perform and manage research and technical contract management on a day-to-day basis. The results of consolidation could impact these needed staff capabilities in the individual offices.
- The different functions and responsibilities of the offices could cause conflicts in the priority and attention assigned by the receiving office to the work being performed for another office. For example, extra effort to ensure key office milestones are achieved could temporarily divert resources away from activities that are not mainstream office functions. This has the potential to impact work being done for another office.

The staff identified and evaluated six technical areas as possible candidates for consolidation within a single office. These areas are:

- Thermal-Hydraulic, Fuels, and Severe Accident Analysis
- Review of Vendor Thermal-Hydraulic and Fuels Codes
- Performance of High-Burnup Fuels

- Earth Sciences
- Human Factors
- Participation in High Level Committees within ASME and Other Standards Developing Organizations

The staff found that each of these candidate areas was subject to one or more of the advantages and disadvantages documented above. On balance, the staff could not conclude that the advantages of consolidation outweigh the disadvantages, and thus no consolidation is recommended to be undertaken at this time.

3. "With regard to the lack of resources to carry out all the rulemakings currently underway, the staff should identify in the Rulemaking Activity Plan (RAP) which rulemakings will be delayed or eliminated to permit the Commission to concur with or amend the proposals as necessary. The RAP should become an effective mechanism for setting priorities for application of limited resources in the program offices. High priority rulemaking activities (such as the Part 35 revision and the regulatory guide for the license termination rule) should not be adversely impacted by the transition."

The program offices will identify rulemakings which will be delayed or eliminated during the next update to the Rulemaking Activity Plan to permit the Commission to concur with or amend the proposed changes.

4. "While the Office of Administration (ADM) will be designated the responsible organization for rulemaking infrastructure, the function of preparing OMB clearances for specific rulemakings should be retained by the program offices. In addition,

updating the Rulemaking Activity Plan will be a compiling function for ADM. the responsibility for proposing priorities remains with the Directors of the program offices."

The staff discussions related to implementation of DSI 22 will implement this direction. Each office will work with ADM to ensure that the information necessary to update the Rulemaking Activity Plan is accurate and timely. The EDO will monitor this item to ensure a smooth transition of this function.

5. "The staff should forward the information on the staff core capabilities in response to the SRM on SECY-97-075 by the end of January, 1998."

RES is working to provide information on core capabilities. This SECY will be provided by the end of March 1998.

6. "The transfer of rulemaking functions, staff and funding to the program offices should be complete by the end of February, 1998."

The staff has and will continue to make the transfer of rulemaking functions, staff and funding. In order to initiate this transfer, some staff involved in rulemaking have been detailed to the appropriate program offices and other actions to address administrative aspects of the transfer of rulemaking functions are underway.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objections. 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:

The Commission approve:

(1) The transfer of confirmatory research work from the Program Offices to RES (Attachment 3),

(2) There be no consolidation of expertise,

(3) The current GSI Program and process be maintained without reassignment of responsibilities, and

(4) Annual reports summarizing the status and ongoing activities related to open GSIs be forwarded to the Commission beginning with the first report in June 1998.

Note that the transfers of confirmatory research will be discussed with the Agency LMPC and will be completed one month after completion of these discussions.

L. Joseph Callan
Executive Director for Operations

Attachments:
1. SRM on SECY 97-220 dated December 5, 1997
2. SECY-97-220, dated September 30, 1997
3. Transfer of Confirmatory Research Activities
4. GSI Program

CONTACT: Malcolm Knapp, RES
301-415-6641

ATTACHMENT 3

Confirmatory Research Activities

Summary

Office	FY1998 Resources to be Transferred to RES	
NRR	1.4FTE	172K*
NMSS	0	315K
AEOD	0	0
Total	**1.4FTE**	**487K***

* Does not include Nunn-Lugar funding for support of core conversion of Russian Production reactors.

ATTACHMENT 4

GENERIC SAFETY ISSUES PROGRAM
IMPLEMENTATION OF DSI 22

The Generic Safety Issue (GSI) Program was one of the functions reviewed as part of the direction setting issue paper review of the activities conducted by the Office of Nuclear Regulatory Research. The GSI Program is described in NUREG 0933, "A Prioritization of Generic Safety Issues." The current program began in October 8, 1976, when the Commission directed the staff to develop a program plan for resolution of generic issues and completion of technical projects. The staff developed a generic issues program to address potential safety enhancements. It is important to note that this program does not include issues of adequate protection or compliance with existing regulations. As discussed in NUREG 0933, issues of significance such as adequate protection issues or compliance issues are excluded from the GSI process since decisions must be made in a shorter time frame. Actions taken for adequate protection or compliance issues generally takes the form of a Bulletin or Order.

The program is comprised of six steps: identification, prioritization, resolution, imposition, implementation and verification. These steps are described in NUREG 0933. In summary, identification includes the identification of a generic concern by an individual or organization within the NRC staff or an advisory panel, a member of the public, or a member of industry. Prioritization includes a review of the safety significance of the issue to assist in a determination of the allocation of staff resources. Issues which have little safety significance and hold little promise of worthwhile safety enhancement are removed from consideration. Resolution includes the development of a plan of work, including milestones, to develop a technical solution to the GSI. The technical solution is the basis to develop a proposed resolution. This step may include consideration of several alternatives and involve a regulatory analysis, including a detailed cost/benefit analysis for each alternative. Imposition includes the regulatory action which requires affected licensees to prepare a schedule for implementing the resolution. Implementation includes the affected licensees' activities to satisfy the requirements or commitments made during the imposition step. Verification includes staff actions to verify that affected licensees have implemented the necessary actions. Inspections may be performed on an audit basis.

Two broad options were discussed: (1) continuing the current process in which RES is responsible for prioritizing reactor related issues, and conducting research to identify solutions; NRR is responsible for imposition, implementation and verification of the solution for reactor related GSIs; NMSS is responsible for all aspects of GSIs for its licensees; and (2) transferring responsibility for conducting research and identification of the solution for all GSIs to RES; NRR and NMSS would be responsible for imposition, implementation and verification as appropriate.

A related issue involves the assignment of responsibility for updating the Generic Issue Management Control System (GIMCS) and NUREG 0933. There are two options related to this issue: (1) RES would retain responsibility for updating GIMCS, and (2) the responsibility for updating GIMCS could be transferred to the Office of Administration.

The staff recommends that the current assignment of responsibilities be maintained as discussed in option (1) above, with the clarification that confirmatiory research necessary to resolve GSIs involving NMSS (except those which may be related to high level waste issues) be conducted by RES. Currently there are no open NMSS GSIs that are the subject of confirmatory research.

Proposed Transfer to RES
of
Confirmatory Research Work Currently in NRR

Confirmatory Research *	Basis	FY98 FTE/$ to be transferred to
Russian Production Reactor Core Conversion (Research Definition-item 3)	Work is not in direct support of reactor licensing. It involves independent confirmatory analysis of the safety of the converted reactors which is more appropriately research work. This will involve adapting our codes to the Russian design which is better suited to RES because of their knowledge of the codes. RES will take the overall lead for working with GAN on review of the core conversion, including the design review, independent analysis and reporting. NRR will continue to provide assistance to GAN on inspections.	1 FTE/Nunn-Lugar Funding (Currently this work is done by the NRR T/H Experiments-S/L. Movement of this S/L position to RES is also consistent with consolidating research since this position is defined to focus on TH experimental programs.)
Source Term Rebaselining (Generic work on application of ST to operating plants) (Research Definition - item 1)	Work is generic and related to developing and evaluating analysis methods/approaches for applying the new ST to operating plants. In effect, this work develops the technical basis for proposed rulemaking and R.G. revisions (to be done by NRR) which is a research responsibility. RES has the capability to do some of the analysis in-house and in a risk-informed fashion.	0 FTE/150K
Grid Reliability Study (assess impact on regulation and need for action) (Research Definition - item 5)	Study is generic and will provide the basis for any regulatory action needed to maintain an acceptable level of safety due to offsite power loss. Generic work is more appropriately research work.	0.1 FTE/22K
Assessment of Turbine Failure at Vandellos 1 (Research Definition-item 5)	Study of fire at Vandellos 1 should be part of the overall fire protection research program which develops the basis for any additional regulatory actions.	0.3 FTE
Total - NRR agrees to transfer of all items.		1.4 FTE/172K (plus Nunn-Lugar funds)

Proposed Consolidation in RES of Areas of
Limited Expertise

Area Proposed for Consolidation	Basis	FY98 FTE/$ proposed for transfer from NRR to RES
Thermal-Hydraulic, Fuels and Severe Accident Analysis	The use of independent analysis to analyze plant designs and to understand operating events, including their related safety margins, is done in both NRR and RES. Consolidating independent analysis work will improve the efficiency and the quality of the agency's independent analysis efforts by bringing code users and developers closer together, building a greater in-house analysis capability and utilizing common contractor support. Consolidating analytical capability in one place will also help maintain agency expertise by keeping a nucleus of staff interacting and sharing ideas. In this capacity, RES will supply T/H, fuels and severe accident analysis services to NRR/AEOD similar to that for which they have traditionally used contractors.	2.7 FTE/200K
Fuel	RES has the responsibility and basic tools (codes), knowledge and skills to develop revised guidance and support	1 FTE/150K

Performance for High Burnup	NRR in review of vendor submittals proposing higher burnups. Consolidating the Agency's limited staff engaged in fuels work will promote maintenance of expertise, efficiency in performing reviews and higher quality work by fostering better interactions and sharing of ideas. RES would provide review services to NRR. RES will also develop revised review criteria, which remains research work.	
Review of Vendor T/H and Fuels Codes	Review of vendor codes is a long term ongoing activity. This activity could be accomplished more efficiently by RES staff involved in development and assessment of NRC's independent analytical tools. Code reviews involve understanding and assessing the models, understanding the limitations of scaled experimental data and interpreting code output. RES has experience in developing and assessing its own codes, including interactions with ACRS, and with this experience can provide an efficient and quality service to NRR. Such consolidation will also help maintain expertise in these areas.	3.0 FTE/300K (FTE includes NRR's SL for code assessment)
Earth Sciences	Consolidation of limited Agency staff will help maintain expertise. RES will provide review services to NRR.	2.0 FTE
Human Factors	RES will maintain data bases and provide support to NRR for inspections, review of allegations, review of operating events or other requested reviews. Having HF expertise in one area will foster maintenance of expertise, efficiency and quality by sharing of knowledge and ideas.	9.0 FTE
Participation in ASME and other Standards Committees	RES has the lead for participation in standards committees and consolidation will improve efficiency and coordination.	0.4 FTE

Proposed Transfer to RES
of Confirmatory Research Work Currently in NMSS

Confirmatory Research *	Rationale for transfer to RES	Rationale for leaving in NMSS
Atomic Vapor Laser Isotope Separation (AVLIS) (Research Definition - item 5) 0 to be transferred (Present total headquarters resources are 1.0 FTE and $0K in FY98.)	Based on the licensing activities described in the budget, it appears that this effort should remain in NMSS. However, development of an understanding of the novel and highly complex technical challenges associated with AVLIS would appear to be confirmatory research. Should NRC undertake that activity in the future, it should place that work in RES.	The development of the understanding of the novel and highly complex technical challenges associated with AVLIS is limited to staff familiarization through technical briefings, site visits, and application reviews. No confirmatory research is planned or anticipated.
Regulatory Product Design Center (RPDC) (Research Definition - items 1 and 3) 2.1 FTE and $300K (Resources budgeted for headquarters)	As stated in the budget, the RPDC will facilitate and support analysis, evaluation and redesign of programs and business systems and will facilitate creating, revising, and consolidating regulatory requirements and guidance documents. The RPDC also serves as a testing laboratory for creation and validation of new systems and methodologies of operations and activities. Based on this description, it would appear appropriate to transfer this activity to RES.	When the RPDC was established in late 1994 as the Business Process Reengineering (BPR) Center, the effort was designed to improve NMSS' Materials Licensing functions. The purpose of the facility was to serve as a testing laboratory for the creation and validation of new systems and methodologies of NRC operations and activities. This initial focus of the project required the use of BPR methodology to review, revise, and streamline the agency's nuclear materials program. In early 1997, the function of the RPDC evolved from process redesign to process implementation. The RPDC currently supports NMSS in its on-going effort to revise, update, and consolidate guidance documents and develop rulemaking and other associated regulatory products. The products being developed are specifically related to licensing and inspection and, therefore, do not meet the definition in SECY-97-167.
Development of Database on the Effects of Low Doses of	The NRC and other Federal agencies (NIEHS, USAF, EPA, DOE, ATSDR, CPSC) are participating in the organization and conduct of workshops designed to assess hormesis as a biological hypothesis, and its potential societal and scientific significance. The workshops	None. The work will transfer to RES.

Ionizing Radiation and Its Application for Assessing Radiation Hormesis as a Biological Hypothesis (Research Definition - item 5) 0 FTE and FY98 money ($114,666) was provided by NMSS in FY97. No additional dollars have been budgeted by NMSS although cooperative agreement proposed FY99 $65,931.	would be supported by the development and completion of a relation retrieval data base on chemical and radiation hormesis. This effort is anticipatory research to further the understanding of low doses of ionizing radiation and the applicability of hormesis and therefore it would appear appropriate to transfer this activity to RES.	
Sealed Source and Device Testing for tasks on (1) industrial radiography testing and (2) determination of irradiator pool water conductivity and chloride concentration limits. 0 FTE and FY98 money (approximately $200K) should be transferred to RES to fund these tasks. Additional funding will be required to support both tasks.	These two tasks are activities that should fall under the purview of RES based on item (5) of the definition of research contained in SECY-97-167. Therefore, these tasks should be transferred to RES. However, umbrella contract J5149 should remain in place with IMNS in order to allow for future tasks that would not fall under the purview of RES. Additional details are attached.	None. The work will transfer to RES.
High Level Waste Research TPA code development, long term studies related to waste package degradation, volcanic analogue studies to define consequences of volcanic	In SECY-97-220, NMSS concluded that none of these activities should be transferred to RES, in part because of EDO decisions documented on 2/28/96 and 4/9/97 to consolidate all HLW activities in NMSS, and in part because these activities are focused on the Yucca Mountain site or are nearing completion. Despite NMSS' rationale, RES considers that the HLW research presently in NMSS should be transferred to RES. The EDOs decision was made at a time when the HLW program was destabilized by budget fluctuations and by Congress potential redirection of the nations HLW program. NRCs HLW program now appears to be stable, so its research component can reasonably be relocated in RES. For more than fifteen years, HLW research was conducted in RES. RES and NMSS interacted to develop complex technical products, such as the performance assessment which forms the basis for the present TPA. For nearly a decade, NMSS and RES worked together well to manage contractor activities at the Center for Nuclear Waste	The basis for the EDO's decision to consolidate all HLW activities in NMSS remains valid. The HLW Repository Program has not yet stabilized. Cumulative past budget reductions have delayed important work necessary to prepare for licensing in FY 1999-2002. Budget reductions continue and significant uncertainties about future budgets and legislation exist. Furthermore, the HLW program has fundamentally changed. Performance assessment methods have been developed and are now being applied to resolve site-specific technical issues critical to licensing. Research projects as were conducted in the past no longer are envisioned given the continued reduced budgets and the priority that must be given to VA review, rulemaking, the Standard Review Plan, and interacting with DOE to resolve issues at Yucca Mountain.

events, and studies of structural deformation in the Yucca Mountain area to define consequences of faulting events. (Research Definition - items 1 through 4) 0.2 FTE and $315K	Regulatory Analyses. Finally, a fundamental activity of the Center is to perform research to develop the understanding and the national technical reputations of Center staff to make them credible witnesses in HLW licensing activities. RES is the appropriate office to manage this work.	In addition, any transfers would be highly disruptive to staff preparations for VA review and would fragment the technical and management focus of the current program and erode the integration that the staff has effectively achieved. If work is transferred, it will be necessary for NMSS to spend duplicative resources to gain sufficient understanding of the work to apply it in the VA and license application reviews.
High Level Waste Research Resolution of key technical issues (KTI) (Research Definition - items 1 through 4) The overall effort to resolve KTIs is budgeted at 23.7 FTE and $10381K in FY98. No resources are budgeted for this activity beyond FY98. The portion of these resources devoted to confirmatory research is roughly estimated at 1-2 FTE, and $0K	This work includes limited independent laboratory and field testing, data analyses and interpretation, and process model and code development. (This portion of the effort to resolve KTIs is not shown separately.) To the extent that this effort includes resources greater than those associated with HLW item 1 above, they should be transferred to RES. RES basis for recommending transfer is provided under HLW item 1 above. RES basis for the estimate of FTE to be transferred is based on historical knowledge of the HLW program.	The rationale given above for leaving the TPA code development in NMSS also applies to this activity.
High Level Waste Research Development of postclosure performance assessment capability (Research Definition - item 3) No resources are budgeted in FY98. (The overall effort to develop	NRC will developing postclosure performance assessment capability by, among other things, upgrading the postclosure Total System Performance (TPA) code. The effort to upgrade the TPA would appear to be research.	Postclosure performance assessment should not be transferred to RES for the reasons stated for the HLW items above. In addition, although the code will continue to evolve, it is unlikely at expected budget levels that major new or innovative approaches to post-closure performance assessment modeling will take place between FY 1999 and receipt of the license application in 2002. The staff's efforts will be directed primarily toward applying existing methods for various analyses (e.g., sensitivity and importance analyses) to support: 1) understanding the significance of new Yucca Mountain site data and designs to repository performance; 2) resolving remaining issues prior to licensing, 3) evaluating the sufficiency of site characterization and waste form for the license application; and 4) identifying aspects that need to be included in the risk-informed, performance-based implementing rule and

postclosure performance assessment capability is budgeted at 6 FTE and $2224K in FY99.) Only the portion of the these resources used to upgrade the Total System Performance code would be transferred		Standard Review Plan. Post-closure performance assessment is the fundamental integrating tool to prepare for licensing. Transferring either all or part of this activity will fragment the program's integration that has finally been achieved.
High Level Waste Research Development of preclosure performance assessment capability (Research Definition - items 1 and 4) No resources budgeted in FY98 or FY99	This capability will allow the staff to independently analyze surface and subsurface structures and systems; operational radiation protection and radiological safety; retrievability; criticality control; and accident/hazards assessment. The technical aspects of its development would appear to be research.	Preclosure performance assessment activities should not be transferred to RES for the reasons stated above for items 1 and 2 and because the staff intends to adapt existing methods and codes (e.g., SCALE) used in other program areas such as Fuel Cycle for evaluating preclosure performance. In general, this would require using a repository specific framework to incorporate the existing tools. A major portion of this work was originally planned to include preclosure sensitivity analyses to identify the most important preclosure parameters and processes to focus the Standard Review Plan development, resolution of preclosure issues, and reviews of DOE's draft license application. RES proposes transferring FY 1999 preclosure performance assessments activities. However, impacts from the recent FY 1998 appropriation reduction combined with the recent OMB passback reduction for FY 1999 have resulted in delaying this preclosure performance assessment work until FY 2001 at the earliest.
Total resources to be transferred to RES: 0 FTE, $ 315 K		

Proposed Transfer to RES
of
Confirmatory Research Work Currently in AEOD

Confirmatory Research *	Rationale for Transfer to RES	Rationale for Leaving in AEOD
1. Risk-Based Performance Indicators (Research Definition-Item 1) The current year (FY 98) is $450 K program support. The FTE is estimated at 0.5.	This million-dollar project would be used in support of the NRC's Integrated Performance Assessment process. Since this work involves the development of new methods, it could logically be done in RES. There would be little disconnect, as the project has not yet started.	Although a contractor has not yet been selected, prior work on performance indicators has been done at INEEL under AEOD direction. The form and function of the new indicators are expected to be a direct application of existing AEOD work on the reliability of systems and components, CCF, initiating events analysis, and ASP. Transferring the compilation of existing analyses to RES for methods development, which will then require AEOD to learn the basis for and limitations of the new analytical methods, would be inefficient and reduce the synergy of keeping the project where the foundational analysis is being done.
2. Special Methods and Data Bases	The project has the AEOD job code of E8247, and is centered at INEEL, although there are subcontractors. It	AEOD views this project as analysis and evaluation of operational data. The CCF methods for this project were initially developed by RES. However, this project applied those methods (with modification where required based on the data and modeling

(Research Definition - Item 3) The FY98 resources is on the order of $300K. The FTE is estimated to be 0.5	involves a common cause failure (CCF) data base; collection of related events; updating of other databases (i.e., LOSP and ASP); and generation of insights and other evaluations.	needs) to the analysis and evaluation of the operating data. The remaining work is solely to continue to populate the database by analyzing data and to evaluate its significance. Similarly, the LOSP data base involves continuation of data collection and analysis. Finally, the ASP data work involves updating the database with results of ASP analysis each year.
3. Emergency Response Support for Consequence Analyses (Research Definition - Item 3) The FY98 resources are $35K and 0.2 FTE.	This is job code P2001 in AEOD. The work is a small project to support and develop the accident response code RASCAL. It involves refinements in the analysis tools, and various testing and documentation of transport and diffusion models. Code development work should be done in RES.	This contract supports the transport and diffusion portion of the RASCAL model. Two other contracts support the RASCAL model. They are the source term and the user interface portions. The three contracts are managed by a single project manager to ensure coordination. The current work on RASCAL involves creating a new Windows environment and incorporating the GIS overlay capability. There is no new model development in process or planned.

*Criteria are: 1. Develop new methods or data; 2. Develop new computer programs; 3. Modify existing methods by adopting new models or approaches or scientific data; 4. Evaluate or validate existing methods; 5. Extend the frontiers of understanding of a given area.

---

* Using definition of research contained in SECY-97-167: "Activities which (1) develop new methods or new data, (2) develop new computer programs, (3) modify exiting methods by adopting new models or approaches or scientific data, (4) evaluate/validate existing methods or (5) extend the frontiers of understanding of a given area, are research -- either confirmatory or anticipatory depending on whether the research addresses current or potentially emerging issues. Studies which confirm safety design or safety margin are confirmatory research."