
Decentralization of Operating Reactor Licensing Reviews

NRR Pilot Program

**U.S. Nuclear Regulatory
Commission**

Office of Nuclear Reactor Regulation

J. N. Hannon



NOTICE

Availability of Reference Materials Cited in NRC Publications

Most documents cited in NRC publications will be available from one of the following sources:

1. The NRC Public Document Room, 1717 H Street, N.W.
Washington, DC 20555
2. The NRC/GPO Sales Program, U.S. Nuclear Regulatory Commission,
Washington, DC 20555
3. The National Technical Information Service, Springfield, VA 22161

Although the listing that follows represents the majority of documents cited in NRC publications, it is not intended to be exhaustive.

Referenced documents available for inspection and copying for a fee from the NRC Public Document Room include NRC correspondence and internal NRC memoranda; NRC Office of Inspection and Enforcement bulletins, circulars, information notices, inspection and investigation notices; Licensee Event Reports; vendor reports and correspondence; Commission papers; and applicant and licensee documents and correspondence.

The following documents in the NUREG series are available for purchase from the NRC/GPO Sales Program: formal NRC staff and contractor reports, NRC-sponsored conference proceedings, and NRC booklets and brochures. Also available are Regulatory Guides, NRC regulations in the *Code of Federal Regulations*, and *Nuclear Regulatory Commission Issuances*.

Documents available from the National Technical Information Service include NUREG series reports and technical reports prepared by other federal agencies and reports prepared by the Atomic Energy Commission, forerunner agency to the Nuclear Regulatory Commission.

Documents available from public and special technical libraries include all open literature items, such as books, journal and periodical articles, and transactions. *Federal Register* notices, federal and state legislation, and congressional reports can usually be obtained from these libraries.

Documents such as theses, dissertations, foreign reports and translations, and non-NRC conference proceedings are available for purchase from the organization sponsoring the publication cited.

Single copies of NRC draft reports are available free, to the extent of supply, upon written request to the Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

Copies of industry codes and standards used in a substantive manner in the NRC regulatory process are maintained at the NRC Library, 7920 Norfolk Avenue, Bethesda, Maryland, and are available there for reference use by the public. Codes and standards are usually copyrighted and may be purchased from the originating organization or, if they are American National Standards, from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

Decentralization of Operating Reactor Licensing Reviews

NRR Pilot Program

Manuscript Completed: May 1984
Date Published: July 1984

J. N. Hannon

**Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555**



ABSTRACT

This report, which has incorporated comments received from the Commission and ACRS, describes the program for decentralization of selected operating reactor licensing technical review activities. The 2-year pilot program will be reviewed to verify that safety is enhanced as anticipated by the incorporation of prescribed management techniques and application of resources. If the program fails to operate as designed, it will be terminated.

CONTENTS

	<u>Page</u>
Abstract.....	iii
Executive Summary.....	vii
I. General Description of Program.....	1
A. Objectives.....	1
B. Implementation Schedule.....	2
C. Evaluation Process.....	2
II. Selecting Licensing Reviews for Transfer to the Regions	4
A. List of Candidate Action Types.....	4
B. Proposed Assignments.....	4
1. Transfer to Regions.....	4
2. Retain in Headquarters.....	5
C. Summary.....	5
III. Selection of Operating Reactors.....	7
A. Methodology.....	7
1. Regions.....	7
2. NSSS Vendors.....	7
B. Plants Selected.....	7
IV. Implementation.....	8
A. General Guidance.....	8
1. Licensing Action Review Identification.....	8
2. Regional Review Assignments.....	8
3. Scheduling Work Products.....	9
4. Tracking Work Progress.....	9
5. Coordination with Licensee.....	9
6. Settling Unstable Review Criteria.....	9
7. Appeal Process.....	10
8. Required Documentation.....	10
B. Execution.....	11

CONTENTS (Continued)

	<u>Page</u>
V. Program Evaluation.....	12
A. Qualitative Success Criteria.....	12
B. Quantitative Success Criteria.....	13
C. Report.....	13
Appendix: List C Analysis.....	14

EXECUTIVE SUMMARY

Early in 1982, NRC headquarters and regional offices developed planning assumptions and began to identify regulatory activities that lent themselves to decentralization. Among those activities were technical licensing reviews for operating reactors. Technical reviews for 260 operating reactor activities were transferred to the regions in 1982. In 1983, 98 more such reviews were transferred to the regions. The regions are planning to conduct approximately 280 additional technical reviews during FY 1984. They had completed approximately 280 technical reviews for operating reactor licensing actions by the end of FY 1983.

A 2-year pilot program, limited to two operating power plants in each of three regions, will be implemented to (1) test the method of selecting licensing actions for technical review in the regions, (2) evaluate predicted improvements in the effectiveness of licensing and inspection programs, and (3) verify that safety is enhanced (as anticipated) by incorporating prescribed management techniques and applying regional resources to this technical review function.

The program will be modeled after the National Program Review being conducted by the Office of Nuclear Materials Safety and Safeguards (NMSS) for the decentralization of nuclear materials licensing activities. Quantitative and qualitative criteria will be developed to measure the success of the regional review effort for selected operating reactor licensing actions.

The method of selecting licensing action reviews to be sent to the regions is based on a screening evaluation designed to determine if the review could be enhanced by unique plant-specific knowledge possessed by the regional staff, or if the region's proximity to the site would enhance safety where onsite physical inspections are preferred. These factors are weighed with other considerations to produce a preferred resource assignment.

By offering closer coordination between inspection and licensing activities, as well as closer communication between the staff and the licensee on matters relating to the review, selected regional review activities should produce more effective licensing and inspection programs. It is also expected that the conduct of selected reactor licensing reviews by regional staff will improve safety effectiveness for the agency, by enabling headquarters personnel to focus on generic problems while the regions handle some of the more plant-specific issues.

The ACRS and Commission will review the results of the pilot program at the end of 2 years.

DECENTRALIZATION OF OPERATING REACTOR LICENSING REVIEWS:
NRR PILOT PROGRAM

I. GENERAL DESCRIPTION OF PROGRAM

The Office of Nuclear Reactor Regulation (NRR) has examined various approaches for decentralizing operating reactor licensing activities to meet the goals of the Commission's Policy Statement on Regionalization. A pilot approach involving the performance of safety reviews by regional staff rather than by headquarters staff has been recommended. This report describes the details of that pilot program.

A. Objectives

The objective of the Commission's decentralization effort is to improve the quality of nuclear regulation and thus provide better service to the public and the industry. The pilot program will transfer selected technical reviews that are associated with specific license amendment actions to three regional offices; the headquarters office will retain the licensing authority. The technical reviews selected will be associated with two plants in each of three regions, and will be subject to evaluation under the pilot program. The review activities included in the pilot program will be a subset of the present limited licensing review activities being conducted by all regions to assist in reducing the inventory of outstanding licensing actions.

Although the six nuclear stations that will participate in the pilot program are considered representative for purposes of evaluating the success of the regional effort, the program will retain sufficient flexibility to permit reviewing additional reactors. Such expansion might be necessary if, for example, too few actions were processed on a pilot reactor to provide an adequate sample.

Obtaining safety evaluation inputs from regional offices for selected operating licensing reviews is expected to result in closer coordination between inspection and licensing activities and to facilitate communication between the staff and the licensee on matters relating to these reviews, consequently, producing more effective licensing and inspection programs.

The region can handle safety reviews of certain licensing actions more effectively than headquarters can. Plants selected for review in the pilot program are those sites the regional staff knows well or for which the proximity of the regional staff to the site enables a more effective safety review. Regional personnel can directly observe a plant's relevant physical configurations or can interact with the licensee's onsite staff in a more direct manner, giving prompter response.

Previous regionalization of selected reactor licensing reviews increased interaction between headquarters and regional personnel. The improvement in communications has, in some cases, resulted in joint licensing decisions and contributes to the agency's effectiveness insofar as safety assurance is concerned.

An example is the licensing review conducted for modifications to plant shielding, in accordance with TMI Action Plan Item II.B.2 (NUREG-0737).

Moving safety reviews of certain licensing actions to the regions should relieve some of the demands on the licensing staff at the home office. Resources at headquarters may be more efficiently spent on timely resolution of more complex issues or generic matters such as ECCS analyses, pipe crack issues, or steam generator problems.

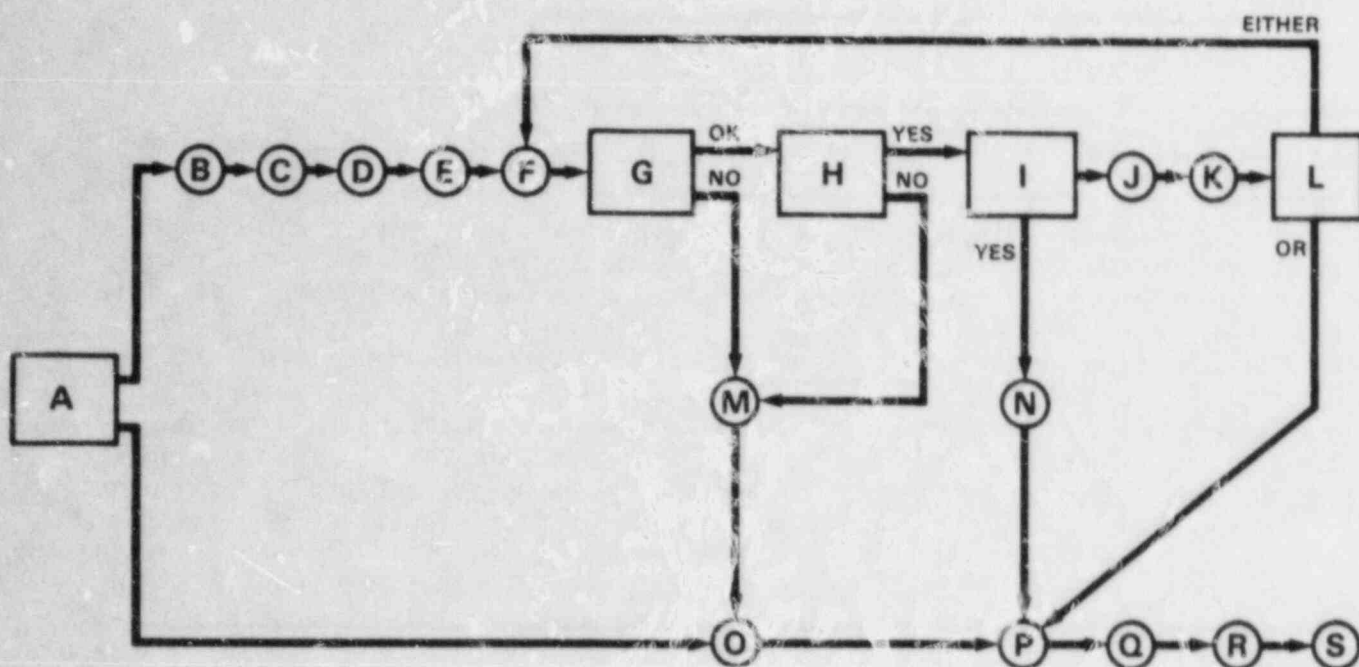
B. Implementation Schedule

The staff plans to begin the pilot program during the first quarter of FY 1984. Once the general topic areas are approved for transfer to the regions, and the selected plants are confirmed, the licensing review process can be initiated by the project manager following the procedures set forth for implementation. Review schedules will be established as items are transferred to the region for review. A mechanism will be established for revising the schedules when delays occur.

The flow chart for processing regional licensing action reviews is shown in Figure 1. It should be noted that an item indicated for regional review during the initial screening by the project manager on the basis of the guidelines developed for the pilot program, may ultimately not get reviewed in the region. This may happen for a number of reasons, including an unplanned diversion of technical resources, or scheduled revisions by the licensee. Statistics on these issues will be factored into the post-implementation evaluation process. Technical staffing in the regions will be allocated for the conduct of the pilot program as required.

C. Evaluation Process

The pilot program will be evaluated over a 2-year trial period to determine its effectiveness in meeting the stated objectives. An independent evaluation will include recommendations to management about the future of the program. If expansion or continuation is justified, the regions will continue to review selected licensing activities for essentially all operating reactors, with the provision that special coordination between the regional licensing reviewers and Integrated Safety Assessment Program (ISAP) reviewers will be required for those plants undergoing ISAP review.



KEY TO SUBTASKS

- | | |
|--|------------------------------------|
| A Evaluate licensing action reviews | I Review criteria adequate |
| B Assign licensing action reviews to regions | J Return to Division of Licensing |
| C Project manager assigns TAC ¹ /develop list | K Project manager modifies TAC |
| D Division of Licensing/technical division | L NRR develops criteria |
| E Project manager assembles correspondence | M Return to Division of Licensing |
| F AD forwards to region | N Region conducts review |
| G Region evaluates schedule | O Retain in headquarters |
| H Technical resources adequate | P TAC to Technical Division |
| | Q Prepare SER |
| | R Forward to Division of Licensing |
| | S Process license amendment |

¹Technical Assignment Control (TAC) System is used by NRR for resource accountability and tracking.

Figure 1. Flow chart for processing regional licensing action reviews

II. SELECTING LICENSING REVIEWS FOR TRANSFER TO THE REGIONS

To be proposed for transfer to the regions, a licensing action review must meet one of two general criteria: (1) quality of review would be enhanced by unique regional knowledge of specific plants, or (2) quality of review would benefit greatly from the regional staff/resident inspector's proximity to the site. These transferred technical reviews would thus be conducted by regional reviewers with the expectation that more effective reviews would result. The approach to the selection of technical issues to be transferred is described below.

When one looks at historical data it is possible to characterize into roughly 50 categories the kinds of licensing actions that take place. Then, using experience gained over the past several months working with the regions on other licensing actions, and applying some widely held criteria as to the need for HQ review (e.g., general applicability, significant safety hazard), it is possible to tentatively assign about half of these issues to either the regions or HQ for review. If an item has been or should be assigned to a contractor, it will not be transferred to the region. Such an item is typically considered to be of a complex technical nature requiring special expertise and close coordination by the headquarters staff. For the other half, it is necessary to develop the selection criteria a little further in order to estimate where the most efficient resource for the particular issue resides - region or headquarters. If it is not possible to discriminate, the licensing review will remain in HQ. Appendix 1 analyzes selected issues, using a well-recognized decision aid methodology to help with the discrimination process.

A. List of Candidate Action Types

Before referring to the appendix, it is useful to examine the candidate actions that emerge to need this discrimination tool. On Table 1, List A shows the types of actions which seem suitable, without further analysis, for regional review. List B identifies those actions which clearly should be retained in HQ. List C, then, identifies those remaining actions for which assignment is in doubt; thus the decision process is indicated.

B. Proposed Assignments

A summary of proposed regional assignments by issue type is provided below.

1. Transfer to Regions

List A (by Inspection)

- | | |
|------------------------------------|--|
| (1) Administrative TS changes | (9) Reorganization of plant management |
| (2) Design verification | (10) Training in place |
| (3) In-service inspection | (11) Quality assurance topics |
| (4) Plant maintenance | (12) Health physics topics |
| (5) Plant operations | (13) Operator licensing (topical issues) |
| (6) Plant-specific security issues | (14) Procedure reviews |
| (7) Surveillance testing | (15) Emergency preparedness |
| (8) TS verification | (16) Environmental TS |

List C (by Prediction)

- | | |
|--|------------------------------------|
| (1) Control room design* | (5) Radwaste treatment management* |
| (2) Control room habitability* | (6) Radioactive effluent control |
| (3) Fire protection* | (7) Structural hardware* |
| (4) Instrumentation setpoint modifications | (8) In-service testing programs |

*Plant-specific features/issues.

2. Retain in Headquarters

The discrimination for the following issues was weak as shown in the appendix. Therefore, these issues will be retained in HQ unless the attribute profile for a particular plant can be shown to support regional review.

- (1) Spent fuel pool modifications
- (2) Improved maintenance programs
- (3) Radiation protection programs
- (4) Developmental training programs

C. Summary

The result is a list of 24 licensing issues that can be transferred to the regions with a high expectation that the review can be more effectively done by region-based personnel. Licensing reviews on these issues being conducted in HQ will be transferred to the regions for the selected plants upon commencement of the pilot program, if in the judgment of the project manager, sufficient review activity remains to make the transfer worth while. Any new licensing action reviews identified during the demonstration period which fit the criteria will also be transferred. Any multi-plant actions (MPAs) that are transferred under this program will be individually analyzed and shown to be appropriate.

Table 1 Candidate action types

List A. Transfer to the Regions	List C. Decision Process* Was Used To Determine Assignment
<ol style="list-style-type: none"> 1. Administrative TS changes 2. Design verification 3. In-service inspection 4. Plant maintenance 5. Plant operations 6. Security issues† 7. Surveillance testing 8. TS verification 9. Reorganization of plant management 10. Training in place 11. Quality assurance topics 12. Health physics topics 13. Operator licensing (topical issues) 14. Procedure reviews 15. Emergency preparedness 16. Environmental TS 	<ol style="list-style-type: none"> 1. Control room design**.....R 2. Control room habitability**.....R 3. Equipment operability.....HQ 4. Exemption requests.....HQ 5. Fire protection†.....R 6. Fuel limit modifications**.....HQ 7. Instrumentation setpoint modifications.....R 8. Meteorological data.....HQ 9. Offsite dose consequences.....HQ 10. Process control procedures.....HQ 11. Radwaste treatment management**.....R 12. Radioactive effluent control.....R 13. Reloads (routine).....HQ 14. Spent fuel pool expansions/modifications..... 15. Steam generator repair/replacement.....HQ 16. Seismic qualification**.....HQ 17. Piping system design†.....HQ 18. Equipment qualification.....HQ 19. Structural hardware†.....R 20. In-service testing programs.....R 21. Radiation protection programs....R 22. Improved maintenance programs...HQ 23. Upgraded plant management.....HQ 24. Training programs to be developed.....HQ 25. Other issues (not included in List A or List B).....TBD
<hr/> <p>List B. Retain in Headquarters</p> <hr/> <ol style="list-style-type: none"> 1. Accident analysis 2. Code review 3. ECCS analysis 4. Methodology reviews 5. Thermal-hydraulic analysis 6. Topical report reviews 7. Multi-plant equipment design reviews 8. PRA reviews 9. Reviews of equipment important to safety 10. Complex core reloads 11. Exemptions from regulations 12. Unreviewed safety questions 13. Hearing requests 14. Safeguards reviews <hr/>	<p>*Described in appendix. **Plant-specific features.</p> <p>NOTE: HQ = headquarters; R = region; TBD = to be determined.</p>
<hr/> <p>†Plant-specific issues</p>	

III. SELECTION OF OPERATING REACTORS

A. Methodology

The pilot program will be composed of two nuclear stations in each of three regions. The plants have been selected to include a cross-section of NMSS vendors, as well as utilities, to provide an adequate demonstration of the concept.

1. Regions

Plants are selected from Regions I, III, and V.

2. NSSS Vendors

To select a proportionate share by vendor, 2 GE, 2 W, 1 CE, and 1 B&W plants are selected.

B. Plants Selected

Applying the above considerations, the following plants will be included in the pilot program:

<u>Region</u>	<u>Plant</u>	<u>NSSS</u>	<u>Licensee</u>
I	Vermont Yankee 1	GE	VY Nuclear Power Corp.
I	Millstone 2	CE	Northeast Nuclear Energy Co.
III	Monticello	GE	Northern States Power Co.
III	Kewaunee	<u>W</u>	Wisconsin Public Service Corp.
V	Trojan	<u>W</u>	Portland General Electric
V	Rancho Seco	B&W	Sacramento Municipal Utility District

IV. IMPLEMENTATION

Now that the types of licensing actions to be transferred have been identified and the demonstration plants have been selected, the following guidance is necessary for implementing the program:

- (1) Identification of plant-specific licensing action reviews to be transferred
- (2) Assignment of licensing action reviews to the region
- (3) Scheduling work products (deliverables)
- (4) Tracking of work (TAC/RAM/ORLAS)
- (5) Coordination with licensee
- (6) Settling unstable review criteria
- (7) Handling appeals
- (8) Required documentation

A. General Guidance

1. Licensing Action Review Identification

The Technical Assignment Control (TAC) Form is used to enter all new, non-casework assignments which do not have permanent tracking numbers into the Regulatory Activities Manpower System (RAMS).

The project manager for each plant selected will be asked to identify the current licensing actions that fall in the categories on the list for regional assignment. A listing will be generated showing the TAC number, current review branch, dates for incoming correspondence, dates for outgoing correspondence, the status of the review, including the existence of a draft SER/TER, and expected completion date.

In general, a review that is being contracted outside the agency by NRR will not be transferred to the region, since the intent of the pilot program is to demonstrate the use of regional technical resources in conducting licensing reviews. The initial list will be reviewed with the lead technical divisions by DL management (Branch Chief or above) and approved for issuance to the region. Subsequent issues that come in will be treated similarly, after a TAC is assigned by the project manager.

2. Regional Review Assignments

After the initial list has been approved, the project manager will assemble the pertinent documentation for each TAC, including appropriate review criteria

(either a suitable Document Control System (DCS) reference or hard copy), and forward the package to the AD Technical Assistant for issuance to the appropriate region. The Assistant Director (AD) will forward the package to the region, through the Director, DL, requesting that the work be accepted for regional technical review.

3. Scheduling Work Products

The region will evaluate the work package schedules, technical resource requirements, and review criteria for acceptability within one month of receipt. Once a TAC has been accepted for regional review, the region will, based on overall completion schedule needs specified by NRR, schedule those of the following milestones that the regional considers appropriate, consistent with the overall completion schedule, and inform the project manager: (1) issue RAI, (2) receive response, (3) conduct plant inspections, (4) prepare revised TS, (5) prepare SER, (6) prepare cover memo documenting time spent and mini-SALP input, and (7) forward TS/SER to the project manager. If a TAC is rejected by the region, it will be returned to the project manager with an explanation providing the basis for the rejection. A review requiring more than one RAI will result in a revised schedule if the need for that request was not anticipated.

4. Tracking Work Progress

The region will provide the project manager with a quarterly status report setting forth the initial schedule of milestones for each TAC under review and the progress status, including revised schedules if appropriate. For program review purposes, the project manager will retain the original schedule, including milestone dates, established by the region at the beginning of the review. The region will record time spent by TAC so that it may be retrieved when the final SER is issued. The project manager will forward the initial TAC schedule to the AD Technical Assistant so it can be included in the monthly Operating Reactor Licensing Action Summary (ORLAS). The project manager will close the TAC upon issuance of the license amendment or similar document, as appropriate.

5. Coordination with Licensee

The regions will establish their own contacts with the licensee for technical review purposes; however, the region must keep the NRR project manager informed of such contacts and document the discussions with the licensee. The project manager will be advised in advance about conference calls and meetings on controversial issues to permit the project manager to participate, if participation is appropriate. The regions may contact NRR review groups directly or through the project manager, as appropriate. Any request for additional information will be processed through the DL project manager.

6. Settling Unstable Review Criteria

If the region decides to return a TAC for lack of clear review guidance or acceptance criteria, the project manager may elect to resolve the review criteria question and then return the TAC to the region for review. Alternatively, the TAC may be forwarded to an NRR technical review branch for completion. In the event only the criteria question is to be addressed by NRR, the TAC will be revised to indicate this before forwarding the TAC to the review branch.

The project manager will maintain records adequate to show the disposition of any TACs returned by the region.

7. Appeal Process

An appeal process similar to that provided for in the Commission's June 22, 1983 memorandum on backfitting guidance will be established. A licensee desiring to discuss any areas of disagreement regarding a regional licensing review will initiate the same appeal process used for all other licensing actions. Specifically, licensees may appeal any licensing action by letter to the Director, Division of Licensing, NRR.

8. Required Documentation

The following documents/records are considered necessary to help the demonstration work and permit an adequate postimplementation audit (new items are introduced by asterisks):

- (1) * List of approved-for-transfer Licensing Action Reviews by TAC/dates
- (2) Review criteria for each TAC
- (3) Incoming correspondence for each TAC
- (4) Outgoing correspondence for each TAC
- (5) DL-to-region work package transmittal
- (6) Region milestone schedule for each TAC accepted
- (7) *Region rejection basis for each TAC rejected
- (8) Regional RAIs as necessary
- (9) Regional inspection reports
- (10) Minutes of meetings/conference calls
- (11) Revised TS
- (12) Regional SER
- (13) RAMS data-recording hours expended
- (14) ORLAS tracking by fiscal year
- (15) Region mini-SALP input with cover memo
- (16) Project manager TAC inputs
- (17) Appeal letters with disposition correspondence
- (18) Final license amendment/documentation

Two of these items are new; they were created to serve the pilot program. The other items are in routine use in the current programs and can be readily adopted for use with the pilot program.

B. Execution

Actual review responsibility for the selected actions is to be shifted from NRR to the regions in early FY 1984.

The project manager will generate the TAC list within 2 weeks of program approval. If necessary, a meeting will be scheduled with each region within a week of approval of the initial TAC list. The meeting will discuss the PM's role, identify regional contacts, and cover general information flow responsibility. Details of the documentation format will be worked out, including provision for management oversight.

V. PROGRAM EVALUATION

The 2-year pilot program will be evaluated to test the method of selecting licensing actions for technical review in the regions, and to measure the success of the regional review effort in meeting the objectives of improved safety at operating power reactors.

The technical reviews transferred to the regions under the 2-year pilot program will comprise only a portion of the total number of technical reviews that will be done in all five regions. However, the six nuclear stations that are selected for the pilot program are considered representative for purposes of evaluating the success of the regional licensing action review effort. Since no operating power reactors are excluded from having selected licensing actions reviewed in the region, it will not be feasible to establish a control group of plants unaffected by the program, as some have suggested. The purpose of such a control group would have been to provide a baseline against which the effectiveness of the regional effort involving technical review of licensing actions could be measured. The same purpose can be achieved by evaluating technical reviews performed by a region against similar technical reviews conducted in headquarters.

The evaluation will include both quantifiable and qualitative criteria. The criteria will include indicators designed to assess any safety implications of the regional licensing action review effort. It will be conducted in a manner similar to the National Program Review being conducted by NMSS for the regionalization of materials licensing reviews. Although the details have not been solidified, the following criteria are being considered to measure the success of the program.

A. Qualitative Success Criteria

- (1) Was the action taken technically correct?
- (2) Is it consistent with guidance (both among regions and between regions and headquarters)?
- (3) Was appropriate management of regional technical resources applied?
- (4) Was the incident-response capability in the region enhanced by the technical licensing action reviews?
- (5) Was the quality of work products commensurate with similar products provided by headquarters?
- (6) Were interoffice communications and coordination improved between headquarters and the regions?
- (7) Were communications improved between the staff and the licensee?

- (8) Was the application of HQ technical resources to more complex issues or generic matters enhanced as a result of the regional technical reviews?
- (9) Were selection criteria adequate?
- (10) Does the licensee feel that the overall safe operation of its nuclear station has been enhanced by having selected licensing action technical reviews conducted in the region?
- (11) Were contacts with state and local governments improved?
- (12) Was regional staffing adequate for the assigned reviews?

B. Quantitative Success Criteria

- (1) How many reviewer hours were expended in producing a deliverable product? Compare with headquarters expenditure.
- (2) Compare the rate of plant-specific inventory reduction before and after regional review was applied to the plant.
- (3) Compare the number of licensee appeals before and after regional review.
- (4) How many issues were rejected by regions and returned to headquarters?
- (5) How many resources did the licensee commit to licensing reviews before and after regional review?
- (6) How much total time was required to complete the review? Compare with headquarters expenditure of time.

C. Report

The staff will report to the Commission on the results of the pilot program within one month of completing the program review. The report will be expected to make recommendations regarding continuation/expansion/termination of the program. The program review will be conducted in accordance with NRC Manual Chapter 0128, "Organization and Functions of Regional Offices," Section 6 of "Accountability." ACRS will review the results of the evaluation and provide comments to the Commission.

APPENDIX
LIST C ANALYSIS

Assumptions are made for each licensing action type which may or may not be correct in a particular case. Therefore, in order to apply the results of this analysis to a particular licensing action, it is necessary to verify that the assumed attribute profile is appropriate. Where deviations exist, it will be necessary to revise the analysis to reflect the correct profile.

A. Resource Assignment Problem

1. Basic Premise

After identifying the types of licensing actions that are likely to be encountered in the licensing area, the problem can be simplified to one of assigning the appropriate resources to either the home office (HQ) or the field (regions). It would be helpful to define those characteristics of a licensing action that would contribute to it being more effectively accomplished in the regions. Once the characteristics are established, a basis for judging where a particular licensing action should reside for the optimum results can be developed. Start with the basic premise that for a licensing review to be accomplished more effectively in the region, it must either require specialized knowledge of the affected plant that would typically exist with the regional staff as opposed to the HQ staff, or it would greatly benefit from the regional staff's/resident inspector's proximity to the site.

Such knowledge might include specific details of a plant's design, configuration, operational characteristics, management, or procedures. Given the requisite knowledge, regional reviewers should be in a position to conduct a more thorough review more efficiently, resulting in a maximum condition of safety at a minimum cost to the agency.

2. Assumptions

In order to proceed with the development of the decision criteria, it will be necessary to make certain assumptions. First, assume that the resources are uniformly distributed throughout the regions of interest. Assume that it is possible to characterize each type of licensing activity by an "attribute profile." Assume that the attribute profile so constructed is collectively exhaustive for purposes of resource assignment determinations. Assume that relative weighting factors can be assigned to each of the attributes that will correctly convey the importance attached to that attribute in the overall determination of where the review should be conducted. Finally, assume that relative probability of success indices for each attribute can be estimated which will describe the collective judgment as to where the best resource for each attribute is located. Once these assumptions are adopted, a decision algorithm (or utility function) can be constructed that can be used to compute an expected value for the region and for HQ. The resource with the largest computed expected value is favored for that particular licensing review.

3. Subjective Criteria

The principal reason that a pilot program is being adopted involves the set of unknowns that exist in the area of resource allocation. The fact is, a good set of data is not available to formulate objective criteria for transferring licensing reviews to the regions. Therefore, subjective criteria must be converted (through use of a utility function) to an objective prediction. It is recognized that even in the best of worlds (all predictions for regional review prove accurate), since the criteria are subjective, issues can be assigned to HQ that would be better accomplished in the regions. Such errors will go undetected since the postimplementation evaluation will be designed to detect only those issues that were misassigned to the regions. However, as a starting point, this approach, which is nothing more than a simplified value-impact analysis, has as good a promise as any that are currently being evaluated of identifying an appropriate set of issues for regional review.

It should be pointed out that this approach will leave open the question of whether adequate technical capability exists in the regions. It also does not include the development of uniform review criteria in the event an item is indicated for regional review which suffers from such a defect. These issues will be confronted by the project manager as shown in the flow chart for processing regional licensing action reviews (Figure 1), and again by the post-implementation evaluation team when assessing the merits of the demonstration.

B. Methodology - Value-Impact Analysis (VIA)

To complete the VIA utility function, it is necessary to identify the set of all possible characteristics which could have a bearing on a resource assignment decision. To do this, recall that the principal characteristic of a licensing review that can be used as an indicator for regional assignment has been identified: namely, the necessity for specialized knowledge of the particular plant or proximity to the site. There may be other characteristics that would suggest regional review is appropriate. For example, an amendment requiring a procedure walkthrough or one requiring several trips to the plant. However, none of these ideas rules out the possibility of HQ review being done as effectively as regional review so much as the requirement for specialized plant knowledge or proximity to the site.

There also are characteristics of licensing actions that would suggest a more effective review could be done in HQ. Once these characteristics are identified, it is possible to construct a comprehensive attribute profile, or template, against which all licensing actions can be examined.

1. Establish Attribute Profile

Some attributes of an amendment request or licensing issue that would seem to favor HQ review are: (1) generic application, (2) multi-discipline review, (3) complex technical aspects, (4) exemption-related issues, (5) unstable review criteria, (6) policy issues, (7) significant safety issue or unreviewed safety question, and (8) legal or hearing-related issues. Although there may be others, presume that this list of eight characteristics is collectively exhaustive for purposes of resource allocation decisions.

Using the following symbols, generate Boolean expressions to describe the state of knowledge about a specific licensing review.

<u>SYMBOL</u>	<u>ATTRIBUTE</u>
A	Specialized plant knowledge/proximity
B	Generic application
C	Multi-discipline
D	Complex technical
E	Exemption related
F	Unstable criteria
G	Policy issue
H	Unresolved safety question/significant safety hazard
I	Legal/hearing

For example,

$$R = A \bar{B} \bar{C} \bar{D} \bar{E} \bar{F} \bar{G} \bar{H} \bar{I}$$

is a way of expressing the view that regional review is clearly indicated if specialized plant knowledge is required and none of the indicators for HQ review are present. Alternately,

$$HQ = A \bar{B} \bar{C} \bar{D} \bar{E} \bar{F} \bar{G} \bar{H} \bar{I}$$

is the Boolean expression confirming the view that HQ review is clearly indicated if all of the indicators for HQ review are present, regardless of the need for specialized plant knowledge.

2. Assign Index Numbers

Now assign relative weighting factors for the review attributes, and probability of success estimates for the review resources. These indices will be used in the computation of expected values to aid management in the selection of appropriate resources.

As previously mentioned, the indices are purely subjective and represent at best a ball-park estimate of the true situation. To complete the decision aid, a template such as the one shown below is developed using the assigned indices.

DECISION TEMPLATE

Attribute	A	B	C	D	E	F	G	H	I	TOTAL
Weight	200	175	100	125	50	150	25	150	25	1000
POS*										
Region	.9	.1	.3	.2	.4	.05	.5	.01	.1	
HQ	.1	.9	.7	.8	.6	.95	.5	.99	.9	

*POS: Probability of success - the relative likelihood that a given resource will complete the review more effectively for each individual attribute.

The relative weighting factors are indicated to represent how important each attribute is, relative to the others. The probability of success is similarly intended to represent the relative likelihood that a licensing action with the given attribute will be completed more effectively by the associated resource.

3. Define Utility Function

After first describing the state of knowledge about a particular licensing review in terms of the attributes which it possesses that are important for resource allocation, it is then necessary to compute an expected value for each resource using the indices in the decision template. The utility function is derived from the Boolean description and yields the expected value (EV).

For example, a licensing action described by

$$A \wedge \bar{B} \wedge \bar{C} \wedge \bar{D} \wedge \bar{E} \wedge \bar{F} \wedge \bar{G} \wedge \bar{H} \wedge \bar{I}$$

Yields: Expected value (region) = $.9(200) = \underline{180}$
 Expected value (HQ) = $.1(200) = \underline{20}$

This is consistent with the previous determination that such an action was clearly indicated for regional review. Likewise, a licensing action described by $A \wedge B \wedge C \wedge D \wedge E \wedge F \wedge G \wedge H \wedge I$ yields:

$$\begin{aligned} EV(R) &= .9(200) + .1(175) + .3(100) + .2(125) + .4(50) + .05(150) + .5(25) \\ &+ .01(150) + .1(25) = 180 + 17.5 + 30 + 25 + 20 + 7.5 + 12.5 + 1.5 \\ &+ 2.5 = \underline{296.5} \end{aligned}$$

$$\begin{aligned} EV(HQ) &= .1(200) + .9(175) + .7(100) + .8(125) + .6(50) + .95(150) + .5(25) \\ &+ .99(150) + .9(25) = 20 + 157.5 + 70 + 100 + 30 + 142.5 + 12.5 \\ &+ 148.5 + 22.5 = \underline{703.5} \end{aligned}$$

Again, this is consistent with the previous determination of items appropriate for HQ review. Although these are extreme examples, it is now apparent that all one needs to do to determine the appropriate resource for a particular licensing action is to determine its associated attributes, enter the decision template, and compute the expected values. The resource with the largest expected value is estimated to have a better chance of producing the most efficient review with the attendant greatest improvement in safety and least cost to the government.

4. Calculate Expected Values

Sample calculations have been done for each of the issues appearing in List C. Following is a summary of the worksheet calculations.

LIST C ANALYSIS SUMMARY

Issue No.	EV	EV(R)	EV(HQ)	Conclusion
1	A+C+D	235	190	Region
2	A+C+D	235	190	Region
3	A+C+D+E+F+G	275	375	HQ
4	E+F+G+I	42.5	207.5	HQ
5	A+D+G	217.5	132.5	Region
6	D+E+G+H+I	61.5	291	HQ
7	A	180	20	Region
8	D	25	100	HQ
9	B+E+G	50	200	HQ
10	B	17.5	157.5	HQ
11	A+I	182.5	42.5	Region
12	A+G+I	195	55	Region
13	C	30	70	HQ
14*	A+C+D+I	237.5	212.5	HQ
15	B+C+D+G+H+I	89	511	HQ
16	A+B+C+D+F	260	490	HQ
17	A+D+H	206.5	268.5	HQ
18	A+B+C+D+E	272.5	377.5	HQ
19	A	180	20	Region
20	A+D+E	225	150	Region
21*	Null Set	--	--	HQ
22*	A+C+F	217.5	232.5	HQ
23	F+G	20	155	HQ
24*	A+F	187.5	162.5	HQ

*Discrimination is weak

U.S. NUCLEAR REGULATORY COMMISSION
BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER (Assigned by DOC)

NUREG-1075

4. TITLE AND SUBTITLE (Add Volume No., if appropriate)

Decentralization of Operating Reactor Licensing Reviews:
NRR Pilot Program

2. (Leave blank)

3. RECIPIENT'S ACCESSION NO.

7. AUTHOR(S)

John N. Hannon

5. DATE REPORT COMPLETED

MONTH: May YEAR: 1984

9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

DATE REPORT ISSUED

MONTH: July YEAR: 1984

6. (Leave blank)

8. (Leave blank)

12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Same as above

10. PROJECT/TASK/WORK UNIT NO.

11. FIN NO.

13. TYPE OF REPORT

Management report (Final)

PERIOD COVERED (Inclusive dates)

15. SUPPLEMENTARY NOTES

14. (Leave blank)

16. ABSTRACT (200 words or less)

This report, which has incorporated comments received from the Commission and ACRS, describes the program for decentralization of selected operating reactor licensing technical review activities. The 2-year pilot program will be reviewed to verify that safety is enhanced as anticipated by the incorporation of prescribed management techniques and application of resources. If the program fails to operate as designed, it will be terminated.

The 2-year pilot program will be limited to two operating power plants in each of three regions and will be implemented to: (1) test the method of selecting licensing actions for technical review in the regions, (2) evaluate predicted improvements in the effectiveness of licensing and inspection programs, and (3) verify that safety is enhanced (as anticipated) by incorporating prescribed management techniques and applying regional resources to this technical review function.

17. KEY WORDS AND DOCUMENT ANALYSIS

pilot program
decentralization
regionalization

17a. DESCRIPTORS

17b. IDENTIFIERS/OPEN-ENDED TERMS

18. AVAILABILITY STATEMENT

Unlimited

19. SECURITY CLASS (This report)

Unclassified

21. NO OF PAGES

20. SECURITY CLASS (This page)

Unclassified

22. PRICE

\$

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

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

FOURTH-CLASS MAIL
POSTAGE & FEES PAID
USNRC
WASH D C
PERMIT No. 0-67

NUREG-1075

DECENTRALIZATION OF OPERATING REACTOR LICENSING REVIEWS

120555078877 1 99999
US NRC
ADM-DIV OF TIDC
POLICY & PUB MGT BR-PDR NUREG
W-501
WASHINGTON DC 20555

JULY 1964