

Evaluation
Report

February 1982

McGuire
Nuclear Station
Duke Power
Company

8505150103 841121
PDR FOIA
TOTTENB4-44 PDR

EVALUATION
of
McGUIRE NUCLEAR STATION

Duke Power Company

SUMMARY

INTRODUCTION

The Institute of Nuclear Power Operations (INPO) conducted its first evaluation of Duke Power Company's McGuire Nuclear Station during the weeks of December 7 and 14, 1981. The station is located about 17 miles north of Charlotte, North Carolina. McGuire began commercial operation on December 1, 1981.

PURPOSE AND SCOPE

INPO conducted an evaluation of site activities to make an overall determination of plant safety, to evaluate management systems and controls, and to identify areas needing improvement. Information was assembled from discussions, interviews, observations, and reviews of documentation.

The INPO evaluation team examined station training, operations, maintenance, radiological and chemistry activities, on-site technical support, and organization and administration. The team also observed the actual performance of selected evolutions and surveillance testing. Corporate activities were not included in the scope of the evaluation, except as an incidental part of the station evaluation. As a basis for the evaluation, INPO used performance objectives and criteria relevant to each of the six areas examined; these were applied and evaluated in light of both the experience of team members and INPO's observations of good practices within the industry.

INPO's goal is to assist member utilities in achieving the highest standards of excellence in all phases of nuclear plant operation. The conditions found in each area are compared to best practices, rather than to minimum acceptable conditions or requirements. Accordingly, areas where improvements are recommended are not necessarily indicative of unsatisfactory performance.

DETERMINATION

Findings and recommendations are listed under the PERFORMANCE OBJECTIVES to which they pertain. Particularly noteworthy conditions that contribute to meeting PERFORMANCE OBJECTIVES are identified as Good Practices. Other findings describe conditions that detract from meeting the PERFORMANCE OBJECTIVES. It would not be productive to list as Good Practices those things that are commonly done properly in the industry since this would be of no benefit to Duke Power Company or to INPO's other member utilities. As a result, most of the findings highlight conditions that need improvement.

The recommendations following each finding are intended to assist the utility in ongoing efforts to improve all aspects of its nuclear programs. In addressing these findings and recommendations the utility should, in addition to correcting or improving specific conditions, pursue underlying causes and issues.

E. P. Wilkinson
President

DUKE POWER COMPANY

Response Summary

Duke Power Company appreciated the opportunity for a thorough, professional evaluation of McGuire Nuclear Station. We fully support the mission of INPO in the establishment of benchmarks of excellence in the operation of nuclear power plants. The station staff will continue to strive to maintain the high level of performance required to meet these standards.

We appreciate the notation of "good practices" and agree with the improvements recommended in the Determination section of the Summary. Following is a summary of corrective actions planned as a result of these recommendations.

This response to INPO's Evaluation Report addresses each of INPO's Findings and Recommendations. Many of the actions resulting from INPO's recommendations have already have been initiated and in some instances have already been completed. Duke Power will continue to implement improvements in the operation of the McGuire facility and will keep you informed through periodic reports.

TRAINING AND QUALIFICATION

LICENSED OPERATOR TRAINING

PERFORMANCE OBJECTIVE: Develop the skills and knowledge necessary for licensed operators to perform their assigned job functions.

Finding
(TQ.5-1)

MAINTENANCE PERSONNEL TRAINING

PERFORMANCE OBJECTIVE: Develop and maintain the skills and knowledge necessary for maintenance personnel to perform their assigned job functions.

Finding
(TQ.8-1)

Recommendation

Response

OPERATIONS

OPERATIONS FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE: Provide plant facilities and equipment that are operated and maintained at a level to support safe and efficient operation.

Finding
(OP.2-1)

Recommendation

Response

CONDUCT OF SHIFT OPERATIONS

PERFORMANCE OBJECTIVE: Ensure that shift operations are conducted in a safe and reliable manner.

Finding
(OP.3-1)

Recommendation

Response

Finding
(OP.3-2)

Recommendation

Response

PLANT OPERATIONS PROCEDURES

PERFORMANCE OBJECTIVE: Provide timely, effective guidance to operators in the form of written procedures.

Finding
(OP.4-1)

Recommendation

Response

PLANT STATUS CONTROLS

PERFORMANCE OBJECTIVE: Maintain plant status in a condition that ensures equipment and system availability as necessary for safe and reliable plant operations at all times.

Finding
(OP.5-1)

Recommendation

Response

Finding
(OP.5-2)

Recommendation

Response

TAGOUT PRACTICES

PERFORMANCE OBJECTIVE: Protect personnel and plant equipment by implementing effective tagout practices.

Finding
(OP.7-1)

MAINTENANCE

MAINTENANCE ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Provide a clearly defined maintenance organization that is adequately staffed, assigns responsibilities, and delegates adequate authority for the accomplishment of required tasks.

Finding
(MA.1-1)

Recommendation

Response

MAINTENANCE FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE: Support the performance of maintenance activities by providing adequate facilities and equipment.

Finding
(MA.2-1)

Recommendation

Response

PREVENTIVE MAINTENANCE

PERFORMANCE OBJECTIVE: Optimize equipment reliability and performance to enhance plant safety and availability.

Finding
(MA.6-1)

Recommendation

Response

RADIATION PROTECTION AND CHEMISTRY

MANAGEMENT OF RADIOLOGICAL PROTECTION

PERFORMANCE OBJECTIVE: Provide effective management of the radiological protection program.

Finding
(RC.1-1)

Recommendation

Response

Finding
(RC.1-2)

Recommendation

Response

INTERNAL RADIATION EXPOSURE

PERFORMANCE OBJECTIVE: Minimize internal exposure due to radioactivity associated with the plant.

Finding
(RC.5-1)

Recommendation

Response

SOLID RADIOACTIVE WASTE

PERFORMANCE OBJECTIVE: Minimize solid radioactive waste volumes.

Finding
(RC.7-1)

RADIOACTIVE CONTAMINATION CONTROL

PERFORMANCE OBJECTIVE: Minimize contaminated equipment and areas in the plant and minimize personnel contamination.

Finding
(RC.9-1)

Recommendation

Response

TECHNICAL SUPPORT

ON-SITE TECHNICAL SUPPORT ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Have a clearly defined on-site technical support organization that is adequately staffed, assigns responsibility, and delegates adequate authority for the accomplishment of required tasks.

Finding
(TS.1-1)

Recommendation

Response

NUCLEAR OPERATING EXPERIENCE EVALUATION PROGRAM

PERFORMANCE OBJECTIVE: Ensure industrywide and in-house operating experiences are evaluated and appropriate actions are taken to improve personnel awareness and equipment reliability.

Finding
(TS.3-1)

Recommendation

Response

Finding
(TS.3-2)

Recommendation

Response

Finding
(TS.3-3)

Recommendation

Response

Finding
(TS.3-4)

Recommendation

Response

PLANT MODIFICATIONS

PERFORMANCE OBJECTIVE: Provide a program to implement plant modifications in a timely manner while maintaining the quality of plant systems and components.

Finding
(TS.4-1)

Recommendation

Response

ON-SITE REACTOR ENGINEERING

PERFORMANCE OBJECTIVE: Optimize nuclear reactor operations without compromising design or safety limits and control nuclear fuel handling activities to ensure safety of personnel and equipment.

Finding
(TS.5-1)

Recommendation

Response

ORGANIZATION AND ADMINISTRATION

ORGANIZATIONAL OBJECTIVES

PERFORMANCE OBJECTIVE: Establish mission, goals, and objectives for the organizational units that improve plant activities or maintain them at high levels of safety and reliability, and establish the process to achieve the mission, goals, and objectives.

Finding
(OA.1-1)

Recommendation

Response

Finding
(OA.1-2)

Recommendation

Response

ADMINISTRATIVE CONTROLS

PERFORMANCE OBJECTIVE: Provide well-defined, organized, and effective administrative controls to direct the tasks, responsibilities, and practices within the organization to meet the specified mission, goals, and objectives.

Finding
(OA.4-1)

Recommendation

Response

MANAGEMENT QUALITY PROGRAMS

PERFORMANCE OBJECTIVE: Provide management with accurate indication of the extent of adherence to policies, administrative controls, codes, regulations, and effectiveness in meeting plant mission, goals, and objectives.

Finding
(OA.5-1)

Recommendation

Response

Finding
(OA.5-2)

Recommendation

Response

INDUSTRIAL SAFETY

PERFORMANCE OBJECTIVE: Provide an orderly working environment in which station personnel may carry out their work activities safely.

Finding
(OA.7-1)

APPENDIX

Performance Objectives Reviewed

TRAINING AND QUALIFICATION

TQ.1 Training Organization

Provide a clearly defined training organization staffed with qualified personnel capable of accomplishing all assigned training tasks.

TQ.2 Training Administration

Ensure that activities necessary to initiate and control personnel qualification programs are accomplished in a well-defined, coordinated, and effective manner.

TQ.3 Training Facilities and Equipment

Provide the training facilities, equipment, and materials for development and evaluation of knowledge and skills needed by nuclear plant personnel.

TQ.4 Non-Licensed Operator Training

Develop and maintain the skills and knowledge necessary for non-licensed operators to perform their assigned job functions.

TQ.5 Licensed Operator Training

Develop the skills and knowledge necessary for licensed operators to perform their assigned job functions.

TQ.6 Licensed Operator Requalification Training

Maintain the skills and knowledge necessary for licensed operators to perform their assigned job functions.

TQ.7 Shift Technical Advisor Training

Develop and maintain the skills and knowledge necessary for Shift Technical Advisors (STA) to perform their assigned job functions.

TQ.3 Maintenance Personnel Training

Develop and maintain the skills and knowledge necessary for maintenance personnel to perform their assigned job functions.

OPERATIONS

OP.1 Operations Organization and Administration

Provide a clearly defined operations organization that is adequately staffed, assigns responsibilities, and delegates adequate authority for the accomplishment of required tasks.

OP.2 Operations Facilities and Equipment

Provide plant facilities and equipment that are operated and maintained at a level to support safe and efficient operation.

OP.3 Conduct of Shift Operations

Ensure that shift operations are conducted in a safe and reliable manner.

OP.4 Plant Operations Procedures

Provide timely, effective guidance to operators in the form of written procedures.

OP.5 Plant Status Controls

Maintain plant status in a condition that ensures equipment and system availability as necessary for safe and reliable plant operations at all times.

OP.6 Shift Turnover

Ensure a continuous and correct understanding of plant conditions at all shift operating positions through proper shift turnover.

OP.7 Tagout Practices

Protect personnel and plant equipment by implementing effective tagout practices.

MAINTENANCE

MA.1 Maintenance Organization and Administration

Provide a clearly defined maintenance organization that is adequately staffed, assigns responsibilities, and delegates adequate authority for the accomplishment of required tasks.

MA.2 Maintenance Facilities and Equipment

Support the performance of maintenance activities by providing adequate facilities and equipment.

MA.3 Work Control System

Provide an administrative control system within which equipment problems can be identified and reported, and safely and efficiently dispositioned and documented.

MA.4 Maintenance Procedures

Ensure that adequate plant maintenance procedures exist and are utilized to achieve quality by the safe and reliable conduct of maintenance activities.

MA.5 Maintenance History

Provide a complete and functional maintenance history supporting an evaluation program which contributes to improvements in equipment performance.

MA.6 Preventive Maintenance (PM)

Optimize equipment reliability and performance to enhance plant safety and availability.

MA.7 Control of Measurement and Test Equipment (M&TE)

Control the use and calibration of measurement and test equipment to ensure the necessary accuracy for calibrated devices.

MA.8 Control of Special Processes

Ensure that the control and performance of special processes yields quality results.

RADIATION PROTECTION AND CHEMISTRY

RC.1 Management of Radiological Protection

Provide effective management of the radiological protection program.

RC.2 Radiological Protection Training

Ensure that personnel on the site have the knowledge and practical abilities necessary to effectively implement radiological protection practices associated with their work.

RC.3 Personnel Dosimetry

Accurately determine and record radiation exposures.

RC.4 External Radiation Exposure

Minimize personnel external radiation exposure.

RC.5 Internal Radiation Exposure

Minimize internal exposure due to radioactivity associated with the plant.

RC.6 Radioactive Effluents

Minimize releases of radioactive effluents to the environment.

RC.7 Solid Radioactive Waste

Minimize solid radioactive waste volumes.

RC.8 Transportation of Radioactive Material

Meet the requirements for transportation of radioactive material.

RC.9 Radioactive Contamination Control

Minimize contaminated equipment and areas in the plant and minimize personnel contamination.

RC.10 Chemistry

Ensure accurate measurement and effective control of chemistry parameters.

TECHNICAL SUPPORT

TS.1 On-site Technical Support Organization and Administration

Have a clearly defined on-site technical support organization that is adequately staffed, assigns responsibility, and delegates adequate authority for the accomplishment of required tasks.

TS.2 Plant Efficiency and Reliability

Optimize plant thermal efficiency and reliability.

TS.3 Nuclear Operating Experience Evaluation Program

Ensure industrywide and in-house operating experiences are evaluated and appropriate actions are taken to improve personnel awareness and equipment reliability.

TS.4 Plant Modifications

Provide a program to implement plant modifications in a timely manner while maintaining the quality of plant systems and components.

TS.5 On-site Reactor Engineering

Optimize nuclear reactor operation without compromising design or safety limits and control nuclear fuel handling activities to ensure safety of personnel and equipment.

ORGANIZATION AND ADMINISTRATION

OA.1 Organizational Objectives

Establish mission, goals, and objectives for the organizational units that improve plant activities or maintain them at high levels of safety and reliability, and establish the process to achieve the mission, goals, and objectives.

OA.2 Organizational Structure

Provide an organizational structure that supports the effective management of nuclear power plant operation.

OA.3 Manpower Resources

Ensure that qualified individuals are available to fill all job positions supporting plant safety and reliability.

OA.4 Administrative Controls

Provide well-defined, organized, and effective administrative controls to direct the tasks, responsibilities, and practices within the organization to meet the specified mission, goals, and objectives.

OA.5 Management Quality Programs

Provide management with accurate indication of the extent of adherence to policies, administrative controls, codes, regulations, and effectiveness in meeting plant mission, goals, and objectives.

OA.6 Surveillance Program

Provide surveillance programs to accomplish coordinated monitoring, inspection, and testing to ensure safe, reliable operation of plant equipment and facilities.

OA.7 Industrial Safety

Provide an orderly working environment in which station personnel may carry out their work activities safely.

1982 Evaluation

**Calvert Cliffs
Nuclear Power
Plant**

Baltimore
Gas & Electric
Company

*Package
Log*

8212140077

INPO

EVALUATION
of
CALVERT CLIFFS NUCLEAR POWER PLANT

Baltimore Gas and Electric Company

November 1982

SUMMARY

INTRODUCTION

The Institute of Nuclear Power Operations (INPO) conducted an evaluation of Baltimore Gas and Electric Company's (BG&E) Calvert Cliffs Nuclear Power Plant during the weeks of August 2 and August 9, 1982. Calvert Cliffs utilizes two 880-megawatt (electrical) Combustion Engineering pressurized water reactor plants. The site is located on the Chesapeake Bay near Lusby, Maryland. Unit 1 commenced commercial operation in May 1975 and Unit 2 in April 1977.

PURPOSE AND SCOPE

INPO conducted an evaluation of site activities to make an overall determination of plant safety, to evaluate management systems and controls, and to identify areas needing improvement. Information was assembled from discussions, interviews, observations, and reviews of documentation.

The INPO evaluation team examined plant organization and administration, operations, maintenance, technical support, training and qualification, radiological protection, and chemistry. The team also observed the actual performance of selected evolutions and surveillance testing. Corporate activities were not included in the scope of the evaluation, except as an incidental part of the station evaluation. As a basis for the evaluation, INPO used performance objectives and criteria relevant to each of the areas examined; these were applied and evaluated in light of the experience of team members, INPO's observations, and good practices within the industry.

INPO's goal is to assist member utilities in achieving the highest standards of excellence in nuclear plant operation. The recommendations in each area are based on best practices, rather than minimum acceptable standards or requirements. Accordingly, areas where improvements are recommended are not necessarily indicative of unsatisfactory performance.

DETERMINATION

In each of the areas evaluated, INPO has established PERFORMANCE OBJECTIVES and supporting criteria. All PERFORMANCE OBJECTIVES reviewed during the course of this evaluation are listed in APPENDIX II.

Findings and recommendations are listed under the PERFORMANCE OBJECTIVES to which they pertain. Particularly noteworthy conditions that contribute to meeting PERFORMANCE OBJECTIVES are identified as Good Practices. Other findings describe conditions that detract from meeting the PERFORMANCE OBJECTIVES. It would not be productive to list as Good Practices those things that are commonly done properly in the industry since this would be of no benefit to BG&E or to INPO's other member utilities. As a result, most of the findings highlight conditions that need improvement.

The recommendations following each finding are intended to assist the utility in ongoing efforts to improve all aspects of its nuclear programs. In addressing these findings and recommendations, the utility should, in addition to correcting or improving specific conditions, pursue underlying causes and issues.

As a part of the second and succeeding evaluations of each station, the evaluation team will follow up on responses to findings in previous reports. Findings with response actions scheduled for future completion have been carried forward in APPENDIX I to this report. In areas where additional improvements were needed, a new finding that stands on its own merit has been written. Thus, this report stands alone, and reference to previous evaluation reports should not be necessary.

The evaluation staff appreciates the cooperation received from all levels of the Baltimore Gas and Electric Company.

BALTIMORE GAS AND ELECTRIC COMPANY

Response Summary

The Baltimore Gas and Electric Company agrees with the INPO evaluation team's conclusion that Calvert Cliff Nuclear Power Plant is being operated in a safe manner by well-qualified and experienced personnel. We are pleased to cooperate with INPO to improve the safety and efficiency of operations at Calvert Cliffs, and will continue to act upon the helpful guidance provided by INPO in maintaining the high standards of excellence for the nuclear industry. We recognize the need for continued cooperation between our organizations to meet these high standards.

Many of the findings in the report had been previously identified by the Baltimore Gas and Electric Company as areas where improvements could be made, and corrective actions are already underway. For others, corrective actions are still being formulated. Some of the recommendations will require a long-term commitment and will require several months to fully study and devise corrective actions. The recommendations provided by the INPO evaluation team will receive high priority with the Baltimore Gas and Electric Company plant staff and management for study and appropriate action.

ORGANIZATION AND ADMINISTRATION

STATION ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Station organization and administrative systems should ensure effective implementation and control of station activities.

Finding
(OA.1-1)

Recommendation

Response

MANAGEMENT ASSESSMENT AND QUALITY PROGRAMS

PERFORMANCE OBJECTIVE: Management should assess station activities to ensure and enhance quality performance of all aspects of nuclear plant operation.

Finding
(OA.3-1)

Recommendation

Response

INDUSTRIAL SAFETY

PERFORMANCE OBJECTIVE: Station industrial safety programs should achieve a high degree of personnel safety.

Finding
(OA.5-1)

Recommendation

Response

OPERATIONS

OPERATIONS ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The operations organization and administrative systems should ensure effective control and implementation of department activities.

Finding
(OP.1-1)

PLANT STATUS CONTROLS

PERFORMANCE OBJECTIVE: Operational personnel should be cognizant of the status of plant systems and equipment under their control, and should ensure that systems and equipment are controlled in a manner that supports safe and reliable operation.

Finding
(OP.3-1)

OPERATIONS PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Operational procedures and documents should provide appropriate direction and should be effectively used to support safe operation of the plant.

Finding
(OP.5-1)

Recommendation

Response

OPERATIONS FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE: Operational facilities and equipment should effectively support plant operation.

Finding
(OP.6-1)

Recommendation

Response

Finding
(OP.6-2)

Recommendation

Response

MAINTENANCE

MAINTENANCE ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The maintenance organization and administrative systems should ensure effective control and implementation of department activities.

Finding
(MA.1-1)

Recommendation

Response

PLANT MATERIAL CONDITION

PERFORMANCE OBJECTIVE: The material condition of the plant should be maintained to support safe and reliable plant operation.

Finding
(MA.2-1)

Recommendation

Response

Finding
(MA.2-2)

Recommendation

Response

WORK CONTROL SYSTEM

PERFORMANCE OBJECTIVE: The control of work should ensure that identified maintenance actions are properly completed in a safe, timely, and efficient manner.

Finding
(MA.3-1)

Recommendation

Response

MAINTENANCE PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Maintenance procedures should provide appropriate directions for work and should be used to ensure that maintenance is performed safely and efficiently.

Finding
(MA.6-1)

Recommendation

Response

MAINTENANCE HISTORY

PERFORMANCE OBJECTIVE: The maintenance history should be used to support maintenance activities and optimize equipment performance.

Finding
(MA.7-1)

Recommendation

Response

MAINTENANCE FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE: Facilities and equipment should effectively support the performance of maintenance activities.

Finding
(MA.8-1)

Recommendation

Response

Finding
(MA.8-2)

TECHNICAL SUPPORT

OPERATING EXPERIENCE REVIEW PROGRAM

PERFORMANCE OBJECTIVE: Industrywide and in-house operating experiences should be evaluated and appropriate actions undertaken to improve plant safety and reliability.

Finding
(TS.3-1)

Finding
(TS.3-2)

Recommendation

Response

Finding
(TS.3-3)

Recommendation

Response

PLANT MODIFICATIONS

PERFORMANCE OBJECTIVE: Plant modification programs should ensure proper review, control, implementation, and completion of plant design changes in a safe and timely manner.

Finding
(TS.4-1)

Recommendation

Response

Finding
(TS.4-2)

Recommendation

Response

Finding
(TS.4-3)

Recommendation

Response

TRAINING AND QUALIFICATION

TRAINING ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The training organization and administrative systems should ensure effective control and implementation of training activities.

Finding
(TQ.1-1)

Recommendation

Response

NON-LICENSED OPERATOR TRAINING AND QUALIFICATION

PERFORMANCE OBJECTIVE: The non-licensed operator training and qualification program should develop and improve the knowledge and skills necessary to perform assigned job functions.

Finding
(TQ.2-1)

Recommendation

Response

LICENSED OPERATOR TRAINING AND QUALIFICATION

PERFORMANCE OBJECTIVE: The licensed operator training and qualification program should develop and improve the knowledge and skills necessary to perform assigned job functions.

Finding
(TQ.3-1)

MAINTENANCE PERSONNEL TRAINING AND QUALIFICATION

PERFORMANCE OBJECTIVE: The maintenance personnel training and qualification program should develop and improve the knowledge and skills necessary to perform assigned job functions.

Finding
(TQ.5-1)

Recommendation

Response

Finding
(TQ.5-2)

Recommendation

Response

Finding
(TQ.5-3)

Recommendation

Response

TECHNICAL TRAINING FOR MANAGERS AND ENGINEERS

PERFORMANCE OBJECTIVE: The technical training program for engineers and managers should broaden overall knowledge of plant processes and equipment as a supplement to position-specific education and training.

Finding
(TQ.6-1)

Recommendation

Response

RADIOLOGICAL PROTECTION

RADIOLOGICAL PROTECTION ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The organization and administrative systems should ensure effective control and implementation of the radiological protection program.

Finding
(RP.1-1)

Recommendation

Response

Finding
(RP.1-2)

Recommendation

Response

RADIOLOGICAL PROTECTION PERSONNEL QUALIFICATION

PERFORMANCE OBJECTIVE: The radiological protection qualification program should ensure that radiological protection personnel have the knowledge and practical abilities necessary to effectively implement radiological protection practices.

Finding
(RP.2-1)

Recommendation

Response

GENERAL EMPLOYEE TRAINING IN RADIOLOGICAL PROTECTION

PERFORMANCE OBJECTIVE: General employee training should ensure that plant personnel, contractors, and visitors have the knowledge and practical abilities necessary to effectively implement radiological protection practices associated with their work.

Finding
(RP.3-1)

Recommendation

Response

INTERNAL RADIATION EXPOSURE

PERFORMANCE OBJECTIVE: Internal radiation exposure controls should minimize internal exposures.

Finding
(RP.5-1)

Recommendation

Response

SOLID RADIOACTIVE WASTE

PERFORMANCE OBJECTIVE: Solid radioactive waste controls should minimize the volume of radioactive waste and ensure safe transportation of radioactive material.

Finding
(RP.7-1)

Recommendation

Response

Finding
(RP.7-2)

Recommendation

Response

PERSONNEL DOSIMETRY

PERFORMANCE OBJECTIVE: The personnel dosimetry program should ensure that radiation exposures are accurately determined and recorded.

Finding
(RP.8-1)

Recommendation

Response

RADIOACTIVE CONTAMINATION CONTROL

PERFORMANCE OBJECTIVE: Radioactive contamination controls should minimize the contamination of areas, equipment, and personnel.

Finding
(RP.9-1)

Recommendation

Response

Finding
(RP.9-2)

Recommendation

Response

Finding
(RP.9-3)

Recommendation

Response

CHEMISTRY

CHEMISTRY ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The organization and administrative systems should ensure effective implementation and control of the chemistry program.

Finding
(CY.1-1)

Finding
(CY.1-2)

Finding
(CY.1-3)

CHEMISTRY CONTROL

PERFORMANCE OBJECTIVE: Chemistry controls should ensure optimum chemistry conditions during all phases of plant operation.

Finding
(CY.3-1)

Recommendation

Response

LABORATORY ACTIVITIES

PERFORMANCE OBJECTIVE: Laboratory and counting room activities should ensure accurate measuring and reporting of chemistry parameters.

Finding
(CY.4-1)

Recommendation

Response

Finding
(CY.4-2)

Recommendation

Response

Finding
(CY.4-3)

Recommendation

Response

CHEMICAL AND LABORATORY SAFETY

PERFORMANCE OBJECTIVE: Work practices associated with chemistry activities should ensure the safety of personnel.

Finding
(CY.5-1)

Recommendation

Response

Finding
(CY.5-2)

Recommendation

Response

Finding
(CY.5-3)

Recommendation

Response

APPENDIX I

Summary of Outstanding Response Action from Previous Evaluation (1981)

OPERATIONS FACILITIES AND EQUIPMENT

(INPO Procedure OP-306, Revision 2)

Finding (General Criterion)

Recommendation

Response

Status

ON-SITE REACTOR ENGINEERING

(INPO Procedure TS-705, Revision 2)

Finding (Criterion B)

Recommendation

Response

Status

RADIATION SURVEILLANCE AND CONTROL
(INPO Procedure RC-504, Revision 2)

1. Finding (Criterion C)

Recommendation

Response

Status

WASTE AND DISCHARGE CONTROL
(INPO Procedure RC-505, Revision 2)

2. Finding (General Criterion)

Recommendation

Response

Status

APPENDIX II

Performance Objectives Reviewed

ORGANIZATION AND ADMINISTRATION

OA.1 Station Organization and Administration

Station organization and administrative systems should ensure effective implementation and control of station activities.

OA.2 Mission, Goals, and Objectives

Station mission, goals, and objectives should be established and progress monitored through a formal program.

OA.3.1 Management Assessment

Management should assess and monitor station activities to ensure effective performance of all aspects of nuclear plant operation.

OA.3.2 Quality Programs

Quality programs should ensure the effective performance of activities important to nuclear safety.

OA.4 Personnel Planning and Qualification

Personnel programs should ensure that station positions are filled by individuals with proper job qualifications.

OA.5 Industrial Safety

Station industrial safety programs should achieve a high degree of personnel safety.

OA.6 Document Control

Document control systems should provide correct, readily accessible information to support station requirements.

OA.7 On-site Nuclear Safety Review Committee

Review of station nuclear activities by a knowledgeable interdisciplinary group should ensure achievement of a high degree of nuclear safety.

OPERATIONS

OP.1 Operations Organization and Administration

The operations organization and administrative systems should ensure effective control and implementation of department activities.

OP.2 Conduct of Operations

Operational activities should be conducted in a manner that achieves safe and reliable plant operation.

OP.3 Plant Status Controls

Operational personnel should be cognizant of the status of plant systems and equipment under their control, and should ensure that systems and equipment are controlled in a manner that supports safe and reliable operation.

OP.4 Operations Knowledge and Performance

Operator knowledge and performance should support safe and reliable plant operation.

OP.5 Operations Procedures and Documentation

Operational procedures and documents should provide appropriate direction and should be effectively used to support safe operation of the plant.

OP.6 Operations Facilities and Equipment

Operational facilities and equipment should effectively support plant operation.

MAINTENANCE

MA.1 Maintenance Organization and Administration

The maintenance organization and administrative systems should ensure effective control and implementation of department activities.

MA.2 Plant Material Condition

The material condition of the plant should be maintained to support safe and reliable plant operation.

MA.3 Work Control System

The control of work should ensure that identified maintenance actions are properly completed in a safe, timely, and efficient manner.

MA.4 Conduct of Maintenance

Maintenance should be conducted in a manner that ensures efficient and effective plant operation.

MA.5 Preventive Maintenance

The preventive maintenance programs should contribute to optimum performance and reliability of plant equipment.

MA.6 Maintenance Procedures and Documentation

Maintenance procedures should provide appropriate directions for work and should be used to ensure that maintenance is performed safely and efficiently.

MA.7 Maintenance History

The maintenance history should be used to support maintenance activities and optimize equipment performance.

MA.8 Maintenance Facilities and Equipment

Facilities and equipment should effectively support the performance of maintenance activities.

TECHNICAL SUPPORT

TS.1 Technical Support Organization and Administration

The technical support organization and administrative systems should ensure effective control and implementation of department activities.

TS.2 Surveillance Testing Program

Surveillance inspection and testing activities should provide assurance that equipment important to safe and reliable plant operation will perform within required limits.

TS.3 Operations Experience Review Program

Industrywide and in-house operating experiences should be evaluated and appropriate actions undertaken to improve plant safety and reliability.

TS.4 Plant Modifications

Plant modification programs should ensure proper review, control, implementation, and completion of plant design changes in a safe and timely manner.

TS.5 Reactor Engineering

On-site reactor engineering activities should ensure optimum nuclear reactor operation without compromising design or safety limits.

TS.6 Plant Efficiency and Reliability Monitoring

Performance monitoring activities should optimize plant thermal performance and reliability.

TS.7 Technical Support Procedures and Documentation

Technical support procedures and documents should provide appropriate direction and should be effectively used to support safe operation of the plant.

TRAINING AND QUALIFICATION

TQ.1 Training Organization and Administration

The training organization and administrative systems should ensure effective control and implementation of training activities.

TQ.2 Non-Licensed Operator Training and Qualification

The non-licensed operator training and qualification program should develop and improve the knowledge and skills necessary to perform assigned job functions.

TQ.3 Licensed Operator Training and Qualification

The licensed operator training and qualification program should develop and improve the knowledge and skills necessary to perform assigned job functions.

TQ.4 Shift Technical Advisor Training and Qualification

The shift technical advisor training program should develop and improve the knowledge and skills to perform assigned job functions.

TQ.5 Maintenance Personnel Training and Qualification

The maintenance personnel training and qualification program should develop and improve the knowledge and skills necessary to perform assigned job functions.

TQ.6 Technical Training for Managers and Engineers

The technical training program for engineers and managers should broaden overall knowledge of plant processes and equipment as a supplement to position-specific education and training.

TQ.7 General Employee Training

The general employee training program should develop a broad understanding of employee responsibilities and safe work practices.

TQ.8 Training Facilities and Equipment

The training facilities, equipment, and materials should effectively support training activities.

RADIOLOGICAL PROTECTION

RP.1 Radiological Protection Organization and Administration

The organization and administrative systems should ensure effective control and implementation of the radiological protection program.

RP.2 Radiological Protection Personnel Qualification

The radiological protection qualification program should ensure that radiological protection personnel have the knowledge and practical abilities necessary to effectively implement radiological protection practices.

RP.3 General Employee Training In Radiological Protection

General employee training should ensure that plant personnel, contractors, and visitors have the knowledge and practical abilities necessary to effectively implement radiological protection practices associated with their work.

RP.4 External Radiation Exposure

External radiation exposure controls should minimize personnel radiation exposure.

RP.5 Internal Radiation Exposure

Internal radiation exposure controls should minimize internal exposures.

RP.6 Radioactive Effluents

Radioactive effluent controls should minimize radioactive materials released to the environment.

RP.7 Solid Radioactive Waste

Solid radioactive waste controls should minimize the volume of radioactive waste and ensure safe transportation of radioactive material.

RP.8 Personnel Dosimetry

The personnel dosimetry program should ensure that radiation exposures are accurately determined and recorded.

RP.9 Radioactive Contamination Control

Radioactive contamination controls should minimize the contamination of areas, equipment, and personnel.

CHEMISTRY

CY.1 Chemistry Organization and Administration

The organization and administrative systems should ensure effective implementation and control of the chemistry program.

CY.2 Chemistry Personnel Qualification

The chemistry qualification program should ensure that chemistry personnel have the knowledge and practical abilities necessary to implement chemistry practices effectively.

CY.3 Chemistry Control

Chemistry controls should ensure optimum chemistry conditions during all phases of plant operation.

CY.4 Laboratory Activities

Laboratory and counting room activities should ensure accurate measuring and reporting of chemistry parameters.

CY.5 Chemical and Laboratory Safety

Work practices associated with chemistry activities should ensure the safety of personnel.