1982 Evaluation

Oyster Creek Nuclear Generating Station

General Public Utilities

Owned by
Jersey Central
Power & Light Company
Operated by GPU
Nuclear Corporation

INPO

EVALUATION

of

OYSTER CREEK NUCLEAR GENERATING STATION

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Operated by GPU Nuclear Corporation

March 1983

SUMMARY

INTRODUCTION

The Institute of Nuclear Power Operations (INPO) conducted an evaluation of the Oyster Creek Nuclear Generating Station during the weeks of October 25 and November 1, 1982. The station is located on Barnegat Bay, near Forked River, New Jersey. The unit began commercial operation in December 1969.

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 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

Within the scope of this evaluation, the team determined that the Oyster Creek Nuclear Generating Station is being operated in a safe manner by experienced personnel.

The following beneficial practices and accomplishments were noted:

strong overall corporate commitment to station improvements

increased involvement of senior station managers in the details of plant operation

significant improvement in radiological protection practices including reduction of radioactive solid waste

improvement in material condition, preservation, and housekeeping in many areas

A number of areas needing improvement were noted. The following are considered to be among the most important:

first-line supervisory support of management initiatives, and involvement in on-the-job station activities

several areas of training, including initial training and qualification of equipment operators and on-the-job training for most technicians

most aspects of plant chemistry

the quality of plant procedures

industrial safety practices

off-site engineering support of the station

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 General Public Utilities 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 findings listed herein were presented to General Public Utilities Nuclear Corporation (GPUN) management at an exit meeting on November 4, 1982. Findings, recommendations, and responses were reviewed with GPU management on February 22, 1983. Responses are considered satisfactory.

To follow the timely completion of the improvements included in the responses, INPO requests a written status by September 30, 1983. Additionally, a final update will be requested six weeks prior to the next evaluation.

The evaluation staff appreciates the cooperation received from all levels of General Public Utilities.

GENERAL PUBLIC UTILITIES

Response Summary

GPU Nuclear appreciates the professional manner in which the Institute of Nuclear Power Operations (INPO) team conducted the evaluation of the Oyster Creek Nuclear Generating Station. The recognition by the team of the improvements and accomplishments since the last evaluation is especially appreciated. GPU Nuclear remains strongly committed to accomplishing station improvements and is dedicated to operating nuclear power plants safely and efficiently. This evaluation will help us focus our efforts in making additional improvements.

The findings by the evaluation team are valid and address principal areas in which improvements can be made. Comments on the most important of these areas are as follows:

Improved first-line supervisory support of management initiatives is a significant step in achieving progress. Management leadership will be necessary to achieve this improved support. Increased involvement by first-line supervisors in on-the-job station activities should ensue from the continued involvement and interest of senior station managers in the details of plant operations.

Initial training and qualification of equipment operators is an area that has been programmed for improvement in 1983. Upgraded standards and increased training for equipment operators are considered important elements in improving the reliability and safe operation of Oyster Creek.

A major restructuring and upgrading of the plant chemistry program is already in progress. Management support and attention similar to that provided in the upgrading of GPUN radiological controls program is planned.

Plant procedures are receiving detailed in-depth reviews by senior management as part of the revision and review process. These efforts should result in improved quality and workability of plant procedures.

A significant reduction in lost-time due to industrial accidents was achieved during 1982. Continued development of the industrial safety program is planned along with improvements in safety performance.

Improvements in the off-site engineering support of the station are planned. A closer working relationship between plant engineering and corporate engineering groups is being fostered.

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)

Numerous industrial safety deficiencies exist throughout the plant. Although the reportable injury rate has been reduced, injuries are still high compared to nuclear industry averages. First-line supervisors are not routinely identifying safety hazards and requiring their subordinates to comply with safety rules. Safety training is not always conducted by each department. It is recognized that new procedures have recently been issued to improve industrial safety.

Recommendation

Hold first-line supervisors accountable for industrial safety violations of their subordinates and for safety hazards in their areas of the plant. Ensure safety training is conducted by all departments.

Response

The responsibility of first-line supervisors for the industrial safety of their subordinates is clearly stated in their job descriptions. They will be held accountable for their performance in industrial safety in performance evaluations and salary reviews.

Training for supervisors and managerial personnel in safe work practices and in a newly developed GPUN Safety and Health Manual will commence by March 1983. The attendance of departments at monthly safety meetings is monitored and enforced by management.

A station objective of reducing the lost-time accident rate in 1983 by one-half, as was achieved in 1982, has been established.

OPERATIONS

CONDUCT OF OPERATIONS

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

Finding (OP.2-1)

Action is needed to reduce the number of annunciators in an alarmed or lighted condition during normal plant operations. Although a new annunciator system is scheduled to be installed during the 1983 outage, it will not correct this condition unless some design modifications are accomplished.

Recommendation

Perform an engineering design review of those annunciators that are in an alarmed or lighted condition during normal plant operation. Where feasible, incorporate logic changes in the new annunciator system to eliminate alarmed or lighted annunciators.

Response

A review of alarms in a lighted condition during normal plant operation has been completed. This review included an evaluation of the location of the alarms in the new annunciator system to determine whether or not the new location will minimize operator distraction, and also included an evaluation of possible logic or other hardware changes. Recommended changes will be incorporated during the 1983 outage.

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)

The current shift turnover practices do not ensure a complete and comprehensive turnover of plant status. For example, operational and narrative logs are not routinely reviewed, and turnover check lists are not used as an integral part of the shift turnover process.

Recommendation

Expand the existing turnover requirements to include the following additional guidance to the operators:

a. Utilize the existing turnover sheets as an integral part of the turnover process.

b. Perform a review of operational and narrative logs, major outstanding clearances, and a test of main control panel annunciators.

c. Require control operators and group shift supervisors to perform a walkdown of control panels during shift turnover.

Management personnel should periodically monitor shift turnovers to ensure proper performance in this area.

Response To immediately address this finding, a memorandum was issued on November 16, 1982 delineating proper shift turnover practices. Furthermore, a revision to station procedures incorporating the guidelines presented in INPO Good Practice OP-201, "Shift Relief and Turnover," has been developed and will be put into effect by March 1983. In addition, department management personnel are periodically monitoring turnovers as part of their daily interaction with the shifts.

OPERATOR KNOWLEDGE AND PERFORMANCE

PERFORMANCE OBJECTIVE: Operator knowledge and performance should support safe and reliable plant operation.

Finding (OP.4-1) **Equipment operator knowledge of some plant systems needs improvement.** Several operators were not sufficiently familiar with some plant equipment to be able to detect abnormal conditions. Many of the systems included on their rounds sheets are not covered on the systems check-out list for qualification.

Recommendation Evaluate the current level of equipment operator knowledge and provide appropriate remedial training. Upgrade the equipment operator systems check-out requirements to include all systems monitored during rounds.

Response The 1983-1985 Non-licensed Operator Retraining Programs will include training on all the systems that an equipment operator (EO) is required to monitor with priority on those systems not previously covered in training. Furthermore, future EOs will be formally trained in the new Equipment Operator Training Program on all plant systems prior to qualification, with the present EOs scheduled to retrain under the new criteria as manpower requirements permit.

In addition, a new standardized qualification card is being developed that will require detailed systems knowledge on systems monitored by EOs. This qualification card is expected to be in use by December 1983.

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)

Some operations procedures are overly difficult to use and contain erroneous references. Some procedures do not contain sufficient information to complete evolutions without frequent references to other procedures. These references are not always correct.

Recommendation

Conduct a procedure usability review of all operating procedures that will not be replaced by new emergency procedures. Revise deficient procedures as necessary. While conducting the review, place emphasis on human factors considerations such as erroneous references, non-specific references, and procedure subparagraphs.

Response

In addition to revising the emergency operating procedures and implementing the symptom-oriented emergency procedures, a program will be initiated to improve the review and revision of operating procedures. This will include the development of procedure writing guidelines that take into consideration, among other standards, human factors, format, and usability. Implementation of such guidelines is expected to be completed by December 1983. This will ensure that future review and generation of procedures are conducted in a controlled manner. Review priority will be assigned to abnormal events procedures and emergency operating procedures.

Finding (OP.5-2)

Improvement is needed in the method for making temporary changes to operating procedures. The following problems were noted:

a. Temporary changes are not verified to be entered in all procedures prior to use for plant operation.

b. Temporary changes are not tracked to ensure proper review and implementation.

c. Some temporary changes have required as long as six months for review by the Plant Operating Review Committee and implemention in the plant as permanent procedure revisions.

Recommendation Improve the administrative controls for temporary procedure changes to ensure that all procedures used in the conduct of plant operations contain applicable temporary changes, and that temporary changes are tracked to ensure timely review and implementation as permanent procedure revisions.

Response A change to Procedure 107, "Procedure Control," has been developed that clarifies handling of temporary and one-time changes. Procedure 103, "Document Control," is also under review. Required changes to these procedures will be issued by April 1983.

The Plant Operation Review Committee is meeting daily to reduce the backlog of procedure changes. This backlog should be eliminated early in 1983.

OPERATIONS FACILITIES AND EQUIPMENT

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

Finding (OP.6-1) **The following Good Practice was noted: The plant practice of not using the paging system for routine communications leaves this system free for use during plant emergencies.** Plant background noise attributable to the paging system is practically non-existent.

Finding (OP.6-2) **Much of the equipment in the turbine building and some important valves and components in the reactor building are not identified with permanent and distinguishable labeling.**

Recommendation Implement a comprehensive program to coordinate the labeling efforts of various plant groups to ensure that important plant valves and equipment are properly identified.

Response During the past year, many of the large components and systems were marked with permanent labels. A comprehensive system walkdown and component marking program will continue to completion during 1983-84.

Finding (OP.6-3)

The plant paging system cannot be heard in some locations of the reactor building or turbine building. In some locations it is muffled, and in other locations it cannot be heard above running equipment.

Recommendation

Evaluate the plant paging system for plantwide audibility, and adjust installed speakers or add speakers as appropriate.

Response

An engineering survey will be performed to determine which areas of the plant and surrounding areas require paging system upgrading. This study will be conducted during plant operation when worse-case conditions are present. After the problem areas are determined, methods to rectify the problems (additional speakers, amplifiers, strobe lights, signs, or maintenance) will be defined. This survey is expected to be completed by March 1983. Required system modifications will be budgeted and scheduled for installation in accordance with approved corporate procedures.

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)

Administrative procedures that define maintenance and maintenance supervisory positions need to be revised. The new maintenance organization is not clearly understood by all maintenance personnel.

Recommendation

Revise station administrative procedures to define the newly established maintenance organization. Ensure changes are communicated to all station maintenance personnel.

Response

Changes to the Station Administration Procedures (101 Series) and to the GPU Nuclear Organization Plan have been completed. Information on the Maintenance and Construction (M&C) Organization and the Material Department has been communicated to all station maintenance personnel. A major revision to Procedure 105, "Conduct of Maintenance," has been drafted and will be published by March 1983.

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)

A number of plant material deficiencies observed during the evaluation were not documented in the work control system. Examples noted included pump seal leaks, valve packing leaks, clogged drain lines, and leaking relief valves.

Recommendation

Implement measures to ensure timely identification and correction of plant deficiencies. INPO Good Practice MA-301, "Plant Material Deficiency Identification," could be of assistance in this effort.

Response

Specific items observed during the evaluation were addressed; however, the long-term resolution of the problem lies in the forthcoming revision of Procedure 105, "Conduct of Maintenance." This complete revision of plant material deficiency identification, documentation, resolution, and close-out procedures is intended to

minimize the number of undocumented or unresolved deficiencies. The recent realignment of functions between the M&C Organization and the Material Department and the inception of the M&C Work Management System will aid in resolving this problem.

Finding (MA.2-2)

Some balance-of-plant gauges and meters are in need of calibration. Additionally, several gauges and meters do not have calibration stickers affixed as required by plant procedures.

Recommendation

Ensure the recently established program for calibration of balance-of-plant gauges and meters is carried out in a timely manner and that calibration stickers are affixed to all gauges and meters as required by plant procedure.

Response

A program to resolve this finding has started, including placing "cal stickers" on all balance-of-plant gauges and meters. It is anticipated that this program will be completed by the end of the 1983 outage.

Finding (MA.2-3)

Significant material deficiencies exist at the intake structure that could affect plant operation. The following examples were noted:

a. Number three screen is running with degraded bearings.

b. Numbers two, four, five, and six screens have bent catch trays and missing fasteners.

c. Number two screen wash pump upper bell housing is cracked.

d. Number one screenwash pump has excessive seal leakage.

e. The chlorine addition pump is degraded, rusty, and has excessive leakoff.

Recommendation

Identify and repair material deficiencies and leaks at the intake structure. Clean and preserve equipment and structures.

Response The intake structure deficiencies were previously identified, and an extensive refurbishment program for the intake system has been initiated. Modifications, which include new screen wash pumps, piping, valves, stainless steel baskets, and cathodic protection, were started in 1980 and should be completed during the 1983 refueling outage.

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) **Mechanical maintenance work request planning and coordination needs improvement.** A considerable number of manhours are lost while mechanics wait for the supervisor to complete administrative prerequisites such as tagouts and shift supervisors' review and approval.

Recommendation Implement planning, scheduling, and coordination improvements for mechanical maintenance activities to increase the production efficiency of maintenance supervision and personnel.

Response The following steps are being taken to effect improvement in the planning, scheduling, and coordination techniques for maintenance:

a. The daily work schedule/plan is being prepared and distributed to supervisors the day before. This allows supervisors to prepare for the assignment of work to the crafts by 8 A.M. the following day.

b. The area supervisors meeting is now held prior to the start of the shift. The scope of the meeting was reduced to review urgent job orders only. This allows the urgent jobs to receive the highest level of attention immediately and permits rapid mobilization of personnel and resources in preparing to correct the identified items.

c. The Work Management System provides for planning jobs by planners, instead of by production supervisors and labor. This relieves the production work force from that responsibility, and allows them to concentrate on production activities.

Periodic work sampling to monitor the effectiveness of these steps is planned.

CONDUCT OF MAINTENANCE

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

Finding (MA.4-1)

Increased emphasis on maintenance work practices is needed. Examples of problem areas include the following:

a. Piping flanges are not always protected from damage and piping is not protected from intrusion of debris.

b. Maintenance work sites are not always left in an orderly condition after completion of tasks.

Recommendation

Place additional emphasis on maintenance work practices to include the organization of maintenance work sites, protection of system piping and flanges, and prevention of inadvertent damage of parts that are removed from equipment during maintenance. Management should stress adherence to proper work practices as part of the routine monitoring of jobs in progress.

Response

Indoctrination in good maintenance work practices is an ongoing activity at all employee levels. This includes protection of material and equipment and maintenance of work areas. Emphasis will be placed on the items in the finding.

Quality of observations during management walk-throughs, as well as monitoring of jobs in progress by direct line supervision, is being improved. Recognition of ownership, responsibility for activities, and accountability for results are being stressed at all levels. These actions are expected to improve the material condition of the plant and the efficiency and effectiveness of plant operation.

PREVENTIVE MAINTENANCE

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

Finding (MA.5-1)

The following Good Practice was noted: The recently established vibration monitoring and analysis program should provide for early detection of potential equipment failures.

MAINTENANCE FACILITIES AND EQUIPMENT

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

Finding (MA.8-1)

The following Good Practice was noted: The use of movable "manlifts" for maintenance and as an operator aid in the reactor and turbine building has reduced the need for scaffolding and provides for ready access to valves and equipment located in normally inaccessible areas.

Finding (MA.8-2)

Not all lifting equipment is properly controlled and inspected to ensure safe load-lifting capacity. Some slings where not uniquely identified and some worn slings were available for use.

Recommendation

Expand the current station inspection program to include identification and testing of selected lifting slings and devices.

Response

A program for inspection, test, and control of the slings will be developed by March 1983. This program will be implemented by May 1983.

Finding (MA.8-3)

Improvement is needed in the order and cleanliness of the plant maintenance shops. Material was not properly stored or protected.

Recommendation

Increase supervisory attention to general housekeeping in the maintenance shop areas. Consider assigning specific responsibilities for housekeeping of each area.

Response

Overall responsibility for the maintenance shops is assigned to specific area supervisors. By March 1983, group supervisors (foremen) will be assigned specific responsibilities with defined objectives for maintenance shops. These assignments will establish ownership and accountability for maintenance shop areas and will help ensure proper housekeeping of the shops and control of work within them.

Numerous improvements are being planned for the maintenance shops and their utilization. This is expected to result in more safe and organized use of the facilities.

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.

SOER STATUS

The status of Significant Operating Experience Report (SOER) recommendations is as follows:

Number of Recommendations	Action Taken
41	Satisfactory
74	Not applicable
35	Pending

The following recommendations are pending action:

SOER Number	Recommendation Number
80-6	3, 4, 6, 7, 10
81-3	1, 2, 3
81-10	1
81-13	12, 14
81-15	1a
82-1	1, 2a, 2b, 2c, 2d, 4
82-2	1, 2, 3, 4, 5, 6, 7
82-5	6
82-9	1, 2, 3, 4, 5, 6, 7, 8, 9

An update on the status of each recommendation listed in the "pending action" category shown above is requested in the six-month follow-on response to this report. In addition, the status of each immediate action (red tab) SOER recommendation received subsequent to this evaluation should be included in the six-month follow-on response. A tabular summary, similar to that above, is requested.

Finding (TS.3-1)

The plant is not actively participating in the Nuclear Plant Reliability Data System (NPRDS). It is recognized that plans are currently underway to re-establish failure data reporting.

Recommendation

Re-establish failure reporting to support the SEE-IN program and the sharing of equipment history information with other utilities. Review plant records and report past failures to NPRDS as appropriate. Review plant engineering data and update the data base to the new reportable scope guidelines.

Response

Plans are being pursued for reactivation of NPRDS at Oyster Creek. Job order close-out data, currently being reviewed for machinery history and trending data by Plant Material personnel, will be modified for use with NPRDS. Personnel have received initial training on NPRDS. Submittal of failure reports and associated engineering data on failed components for failures associated with Licensee Event Reports and limited conditions for operations will begin by April 1983. NPRDS will be fully operational at Oyster Creek by July 1983.

Finding (TS.3-2)

The program for the review and dissemination of industry operating experience does not ensure that applicable information is provided to all affected personnel. For example:

a. Periodic independent evaluations of items classified as non-applicable are not conducted by a second knowledgeable person.

b. Routine evaluations used to enhance program effectiveness are limited in scope.

c. Applicable information is not always provided to licensed operators.

Recommendation

Improve the industry operating experience program including addressing the above items.

Response

Most operating experience items previously classified as non-applicable received review by two knowledgeable individuals. However, these reviews were not always documented. A system has been implemented that requires two reviews of each item and documentation of these reviews. The effectiveness of the operating experience review program has been reviewed periodically over the past two-and-one-half years, and this review will continue in the future. Future reviews will be increased in scope to improve overall program effectiveness. A reading file for licensed operators was established over a year ago. Additional effort will be made to ensure applicable operating experience information is placed in this file.

Finding (TS.3-3)

Information concerning in-house events with possible generic implications is not provided to other utilities in a timely manner.

Recommendation

Establish procedural guidelines for notifying the industry of in-house events with generic implications.

Response The examples given as events with possible generic implications during the INPO review were Licensee Event Reports. These were reported to the NRC and provided to INPO for screening in a timely manner. The current procedural guidelines for notifying the industry of in-house events cover reports required by the NRC and other plant transients. These guidelines will be reviewed for completeness. In addition, a plant engineering supervisor has been designated as plant contact for industry (NOTEPAD) reporting. This should improve the timeliness of reporting.

Finding (TS.3-4) **The current tracking system for industry operating experience review corrective actions does not track corrective actions to completion.**

Recommendation Improve the tracking system used to monitor the disposition of SERs and SOER recommendations.

Response All SERs and SOER recommendations are tracked from receipt until completion or until another tracking system such as a design modification is initiated. A procedure change will be made that will allow tracking of SER and SOER recommendations associated with design modifications until completion of the modifications. This procedure change will be in effect by April 1983.

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) **The current modification process does not ensure that operability and maintainability are adequately addressed in the detailed design phase of modifications.** Modifications have been installed such that individual instrumentation cannot be isolated for routine maintenance, and equipment has been installed such that routine outage activities result in damage to the equipment.

Recommendation Provide an effective interface between off-site engineering and the plant staff in the modification process to identify and resolve operability and maintainability concerns in the detailed design phase.

Response A new design process has been implemented that requires the plant staff to concur with the criteria for modifications and review and participate in preliminary design reviews. Input regarding operability and maintainability considerations will be obtained during the preliminary engineering phase and used to guide the detailed design. For more complex projects, review meetings will be held with plant personnel to ensure that the design meets operability and maintainability needs.

TECHNICAL SUPPORT PROCEDURES AND DOCUMENTATION

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

Finding (TS.7-1) **Control room drawings used for plant operations do not always reflect the actual conditions of the plant.** A number of as-found conditions have not been incorporated in control room drawings.

Recommendation Ensure that all identified as-found changes are reflected in plant drawings.

Response A program has been initiated to review plant drawings versus as-built conditions to determine drawing differences. This determination will allow drawings to be corrected to reflect the as-built condition of the plant. Work on this long-term project, which is expected to take between two and three years, has already commenced.

A group of drawings, designated by Operations as control room drawings, will be revised to incorporate Field Change Notice/Requests, normally within 30 days. In the interim, composite marked-up prints will be made available to the control room prior to receipt of official as-built drawings.

The basic procedures are in place and will be clarified by March 1983.

Finding (TS.7-2)

Plant drawings are not always updated in a timely manner. As-built drawing change requests submitted to the off-site technical functions division are frequently not incorporated as drawing revisions for extended periods of time. It is recognized that a program revision has recently been initiated to address this problem.

Recommendation

Establish a target completion date for closing out the open requests for drawing changes. Establish a method for ensuring timely action on future drawing change requests.

Response

Procedure EP-025, "Technical Functions," provides a list of drawing types that will be revised. Drawings designated by Operations as control room drawings will be revised to incorporate Field Change Notices/Requests, normally within 30 days.

No set time frame is established for revising non-control room drawings. Engineering Data and Configuration Control Section notifies the cognizant engineering section manager when more than six changes are posted against a specific drawing. Procedure EMP-015, "Field Questionnaires, Change Notices, and Change Requests," will be modified to require not only engineering section manager notification, but also to require updating of the drawing incorporating the change notices. This will be done by May 1983.

All drawing lists for Oyster Creek are available to site personnel in an on-line computerized data base. Field Change Notices/Requests are immediately listed against every drawing upon issuance, thus permitting all personnel to ascertain the current status of every drawing on a real-time basis.

TRAINING AND QUALIFICATION

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)

The on-the-job training (OJT) programs for radwaste operators and equipment operators need improvement. These non-licensed operators are not required to receive a checkout on all systems associated with their watchstation prior to assuming watch responsibilities. Also, practical factors and knowledge requirements are not delineated, nor are performance standards defined.

Recommendation

Conduct a review of the OJT programs for radwaste operators and equipment operators. Implement changes to ensure that adequate system knowledge and job-related task performance are required prior to assuming watch responsibilities. INPO's Good Practice TQ-501, "Development and Implementation of On-the-Job Training Programs," could be of assistance in this area.

Response

A standardized OJT program will be established and controlled by a site procedure. Each department will be responsible for establishing an OJT program for its organization consistent with the site-standardized requirements. INPO's Good Practice TQ-501, "Development and Implementation of On-The-Job Training Programs," will be used to develop the program.

Training is working with Operations to develop system check-off sheets for operators.

Milestones and target dates for program development and implementation will be established by April 1983.

Finding (TQ.2-2)

Some equipment operators have not been provided formal training on appropriate subjects and plant-specific systems associated with the watchstation prior to assuming watchstanding duties. Although a new initial training program for equipment operators has been developed, equipment operators currently standing shift are not scheduled to attend these courses.

Recommendation

Using the new initial training program as a reference, determine training needs, and provide appropriate training for equipment operators currently standing shift. INPO document GPG-09, "Nuclear Power Plant Non-Licensed Operators - Guideline for Qualification Programs," could be of assistance in this area.

Response

The 1983-85 Non-Licensed Operator Retraining Program will include training on those systems which the equipment operator (EO) must know. During 1983, EOs will be trained in areas not previously addressed in EO training.

Training has been conducted on control rod drive hydraulics, primary containment systems, and secondary containment systems in anticipation of the 1983 refueling outage and the increased contact the EOs will have with these systems.

Future equipment operators (beginning with the first presentation of the Upgraded Non-Licensed Operator Training Program) will be trained on all plant systems prior to qualification. This training will include both formal classroom training and OJT, in accordance with detailed systems qualification cards that are under development.

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)

The on-the-job training (OJT) programs for mechanical, electrical, and instrument and control personnel need improvement. The tasks to be performed, observed, simulated, or discussed are not delineated and the skill and knowledge performance standards associated with each task are not defined.

Recommendation Implement structured OJT programs for maintenance personnel. These programs should include the following:

a. tasks to be performed, observed, simulated, or discussed

b. identification of individuals or classifications of individuals qualified and responsible for conducting OJT

c. skill and knowledge performance standards

d. identification of individuals or classifications of individuals qualified and responsible to conduct final checkouts

e. assurance and documentation that the individual has demonstrated competency in specified tasks prior to job assignment

INPO's Good Practice TQ-501, "Development and Implementation of On-the-Job Training Programs," could be of assistance in this area.

Response A standardized OJT program will be established and controlled by a site procedure. Each department will be responsible for establishing an OJT program for its organization, consistent with the site standardized requirements.

INPO's Good Practice TQ-501, "Development and Implementation of On-The-Job Training Programs," will be used to develop the program.

Milestones and target dates for program development and implementation will be established by April 1983.

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) **Plant engineers are not provided instruction on job-related tasks, administrative procedures, or the use of plant technical specifications prior to assuming plant engineering responsibilities.** Informal checklists of required reading material have been generated by each engineering section, but each engineer's progress has not been tracked, and most engineers have not completed the reading requirements.

Recommendation Implement an orientation program for plant engineers. This program should include training on job requirements, administrative procedures, and technical specifications. Ensure completion of required training in a timely manner. INPO document INPO 82-022, "Technical Development Programs for Technical Staff and Managers," could be of assistance in this area.

Response A draft program for plant engineer orientation training has been prepared utilizing INPO guidance on the subject. It provides for classroom, self-study, and OJT. The draft program is in the process of review and comment.

An implementation schedule will be established when the program is approved. The target date for the implementation schedule is March 1983.

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)

The following Good Practice was noted: Radiological engineers are used in the radiological protection organization to identify and solve radiological problems, provide a program to reduce the number of high radiation areas and contaminated areas, and perform audits. These engineers also incorporate radiological controls into plant design changes and procedures.

Finding (RP.1-2)

Improvement is needed to ensure corrective actions are taken or completed on Unusual Incident Reports, Radiological Engineering Audits, and Radiological Deficiency Reports. For example, requests have been sent to plant engineering and corporate to correct radiological deficiencies, but the current status of corrective action is not always known.

Recommendation

Maintain a current status of identified radiological protection corrective actions that require action by other plant or corporate departments. Follow up to ensure actions are taken.

Response

A radiological protection corrective actions program is being developed. The program will include identification, evaluation, and tracking on a monthly basis. The program will be implemented by March 1983.

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)

The following Good Practice was noted: Oral examinations are used to determine radiological protection technician and supervisor ability to apply knowledge to practical plant situations. The examinations require personnel to recognize symptoms of problems, initiate immediate corrective actions, determine additional actions needed, and provide an overall evaluation of the problem.

EXTERNAL RADIATION EXPOSURE

PERFORMANCE OBJECTIVE: External radiation exposure controls should minimize personnel radiation exposure.

Finding (RP.4-1)

A more effective temporary shielding program needs to be implemented. Deficiencies include the following:

a. Shielding planned for the January 1983 outage has been under review at the corporate office since January 1982.

b. There are a number of plant areas where temporary shielding should be used to reduce radiation levels.

c. Stress analysis has not been performed for some components and piping where temporary shielding is installed.

Recommendation

Provide a more timely review of proposed shielding by corporate engineering so that shielding can be installed as soon as practicable to minimize personnel radiation exposure. Identify plant areas where shielding could effectively reduce radiation levels. Expedite stress analysis of shielding already installed.

Response

A temporary shielding procedure that establishes administrative controls for the application of shielding and a generic authorization for installation (based on load stress analysis) is in the developmental stage and should be approved by April 1983. A list of areas where shielding could be applied to reduce radiation levels was submitted for evaluation in December 1982. The evaluation will be completed by June 1983.

The Phase I report (Stress Analysis and Shielding Design Inside Drywell) was completed in November 1982. The final report (Stress Analysis and Shielding Design Inside and Outside Drywell) is scheduled for completion in March 1983.

All temporary shielding identified as a potential safety concern has been evaluated. All concerns except one have been resolved. This remaining identified concern will be resolved by July 1983.

Finding (RP.4-2)

Personnel need to be made aware of radiation levels in selected outside areas to aid in minimizing exposure. The fence around the outside radiologically controlled area is posted as a radiation area, but only high radiation areas are posted within the fenced area. Radiation levels of 2-15 mrem/hr. were measured on and around the old radwaste building and nearby storage trailers within the fenced area.

Recommendation

Implement a method to identify to workers those areas where they should not spend time unnecessarily due to the radiation levels.

Response

Custom-made radiological caution signs with appropriate wording have been ordered. As soon as the signs are received, they will be posted in the outside areas where higher than background radiation levels exist.

Finding (RP.4-3)

Post-job information is not effectively used to aid in minimizing personnel radiation exposure. Post-job reviews to identify problem areas are often not performed. Total exposure results for some jobs are not readily available for use in planning future radioactive work.

Recommendation

Perform post-job reviews to help identify and resolve problems. Implement the radiation exposure data collection system currently being developed.

Response

The present criteria for the performance of post-job reviews is currently being evaluated to ensure that reviews will be performed when necessary and the information used effectively to aid in minimizing personnel exposure. This evaluation will be completed and necessary changes implemented by April 1983. All 1983 outage jobs with significant exposure will receive post-job reviews. The radiation exposure data collection system was implemented in January 1983.

INTERNAL RADIATION EXPOSURE

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

Finding (RP.5-1)

There is evidence of smoking and eating within the radiologically controlled area. Cigarette butts and food wrappers were observed in several locations in the radiologically controlled area.

Recommendation

Enforce plant regulations that prohibit eating and smoking within the radiologically controlled area.

Response

Special signs, which will remind personnel of the prohibition on smoking and eating, have been ordered and will be permanently mounted at strategic locations throughout the radiologically controlled area. Also, the Plant Training Department is placing increased emphasis on the subject during general employee training. Discipline for violations has been re-emphasized to all supervisors in daily planning meetings. Surveillance for these activities has been stepped up by radiological control and plant supervisory personnel.

Finding (RP.5-2)

The number of areas in the plant requiring respiratory protection needs to be reduced to improve accessibility for operations and maintenance personnel. While an aggressive decontamination program has been implemented, most areas requiring respiratory protection are a result of high surface contamination levels.

Recommendation

Accelerate the program to eliminate the sources of high contamination and decontaminate areas to levels where respiratory protection is not required for entry.

Response

The program to eliminate sources of contamination and to decontaminate areas requiring respiratory protection will receive increased emphasis. Weekly progress reports are submitted to the Vice President-Director, Oyster Creek and appropriate managers.

RADIOACTIVE EFFLUENTS

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

Finding (RP.6-1)

Improvement is needed in the program for monitoring potential release paths for radioactivity. In addition, the monitoring of normally clean systems for contamination needs to be improved. Examples of problems include the following:

a. Between January 1980 and April 1981 there were seven unplanned releases of radioactivity from the condensate storage system.

b. Examples were noted where there was no apparent follow-up to radioactivity detected in clean systems.

c. Some normally clean systems, such as the fire water system that is connected to the core spray system, are not monitored for radioactivity.

d. Monitors such as the service water monitor have relatively high background count rates that reduce sensitivity.

Recommendation

Perform a review of the program for monitoring potential release paths and contamination in clean systems and implement necessary improvements. This review should address items such as the following:

a. corrective actions taken as a result of previous events

b. identification of clean systems that interface with contaminated systems and the need for additional monitoring

c. sensitivity of monitors designed to detect radiation in clean systems

d. sampling and counting of samples to ensure accurate results

e. documentation of program results

Response

A review of the program for monitoring potential release paths and contamination in clean systems is being performed. Special emphasis will be placed on those items noted in the recommendation. This review will be completed and corrective actions implemented by July 1983.

The final draft of a report addressing potential paths for releases to the environment via plant drains is being reviewed. Action required will be identified and scheduled by March 1983.

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)

The following Good Practice was noted: An effective solid radioactive waste reduction program has been implemented. Elements of the program include the following:

a. supervisory inspection of work areas to observe work practices and identify sources of unnecessary waste

b. use of deficiency reports to identify problems so that corrective action can be taken

c. training of personnel to minimize unnecessary materials taken into contaminated areas

d. segregating clean and radioactive trash within the radiologically controlled area

e. tracking of each bag of waste from the point of generation until compacted or packaged

f. use of compaction devices to increase waste density in shipping containers

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RADIOACTIVE CONTAMINATION CONTROL

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

Finding (RP.9-1)

The following Good Practice was noted: An aggressive program to control radioactive contamination at its source has been implemented by the use of containment tents, glove bags, drip trays, and funnels attached to floor drains.

Finding (RP.9-2)

The outside radiologically controlled area could be reduced in size to minimize the potential for contaminating large areas of soil and roadways. There is a large unused area within the outside radiologically controlled area. Present practices allow transfer of contaminated materials throughout this area that could become contaminated in the event of inadvertent spills.

Recommendation

Consider reducing the size of the outside radiologically controlled area to minimize the area subject to inadvertent contamination.

Response

A program for reducing the outside radiologically controlled area will be established by March 1983. This program will quantify the size of the outside radiologically controlled area and report status and progress to management.

Finding (RP.9-3)

Deficiencies in radiological protection work techniques were observed. Examples include the following:

a. Technicians do not always survey material removed from contaminated areas.

b. Technicians sometimes allow workers to move contaminated materials to previously uncontaminated areas.

c. Some contamination and radiation areas were not properly posted or barricaded.

d. Items were observed with several radioactive material tags with different radiation levels indicated on each.

e. Survey methods for release of tools and equipment from the radiologically controlled area need to be clarified with technicians.

Recommendation

Enforce proper radiological protection work techniques. Clarify survey methods, and discuss work techniques with technicians. The recently implemented training seminars could be used for this purpose.

Response

Management tours and audits will emphasize enforcement of proper radiological work practices.

A block of time during the weekly technician seminar training has been set aside to discuss proper radiological work techniques. In regard to the survey methods for release of tools and equipment, a separate station procedure for release-type surveys has been developed. This procedure contains detailed requirements for release of tools and equipment removed from the radiologically controlled area.

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)

Personnel performing reviews of chemistry data do not always recognize non-routine results. Because of this, confirming samples are not always taken when it would be desirable to do so. Examples include indications of radioactivity in normally clean systems.

Recommendation

Increase management attention to ensure that technicians and first-line supervisors respond properly to non-routine results. Recognition, verification, notification of proper management personnel, and tracking of corrective action should be stressed.

Response

All data are now reviewed on a daily basis with the Manager-Plant Chemistry. Weekly meetings are held to review trended data. Non-routine results are evaluated and action is recommended if conditions warrant.

Finding (CY.1-2)

Several chemistry department administrative practices need improvement. For example:

a. Procedure changes are not always in accordance with station policy.

b. Many data sheets are filed improperly.

c. Some data sheets, especially for non-routine samples, are not labeled with sufficient information to readily identify the sample and the reason it was taken.

Recommendation

Plant management should emphasize adherence to the procedure change policy and the need to improve the quality and retrievability of data in chemistry department files.

Response

The Conduct of Chemistry Procedure, issued August 30, 1982, addresses procedure compliance. Increased management attention has been directed to this area to ensure compliance. Furthermore, the recent department reorganization provides for upgrading of the filing system. Chemistry supervisors have been instructed on how temporary changes are to be made.

CHEMISTRY CONTROL

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

Finding (CY.3-1)

Corrective actions to maintain plant chemistry parameters in the most desirable range are not always taken in a timely manner. For example, the plant has been operating for several months with saltwater inleakage into the condenser, and auxiliary boiler chemistry parameters are frequently out of specification.

Recommendation

Establish a policy for responding to undesirable chemistry conditions in all systems for which chemistry is monitored. It is recognized that actions are being taken to obtain the services of a contractor to assist in detecting small condenser leaks. The ability to identify and correct small leaks should be maintained either through in-house capability or through the use of a contractor. More emphasis should be placed on maintaining the proper chemistry conditions in auxiliary systems.

Response

Daily and weekly reviews of plant chemistry identify potential problem areas. Chemistry now recommends corrective action to be taken and follows up routinely on action items. Closely monitoring chemical parameters will allow Chemistry to identify small leaks and to initiate appropriate action.

In conjunction, Chemistry personnel are being trained to identify out-of-specification conditions and bring them to the attention of Chemistry management.

Chemistry personnel have been instructed to add chemicals to the auxiliary boilers when chemical parameters approach minimum acceptable limits. This will ensure that chemistry parameters remain within specifications.

Finding (CY.3-2)

The quality of water in the closed cooling systems is not always maintained within makeup water specifications. Sodium chloride concentrations in some closed systems were often above 1 ppm. Actual values for sodium chloride concentrations between 0 and 1 ppm are not known because analytical results in this range are recorded as "less than 1 ppm." For the quality of water present in these systems, hydrazine treatment will not provide adequate corrosion protection.

Recommendation

Evaluate the chemistry program for the closed cooling water systems. Identify and implement improvements in methods of analysis and chemical treatment.

Response The chemistry monitoring program for the Turbine Building Closed Cooling Water (TBCCW) has been upgraded. This program will ensure appropriate recognition, correction, and follow-up of out-of-specification conditions. A temporary demineralizer will be installed in the TBCCW system during the 1983 refueling outage.

Furthermore, effort is underway to solicit suppliers to provide alternate treatment methods. A report outlining the various alternate treatment methods and recommendations for implementation will be completed by March 1983.

LABORATORY ACTIVITIES

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

Finding (CY.4-1) **Several improvements are needed in the laboratory quality control program.** For example, the spectrophotometer is not calibrated using multiple standards; most reagents and standards are not labeled with shelf-life information; accuracy checks are not performed on Eppendorf pipettes; and pH values are not being determined at 25° C.

Recommendation Improve the laboratory quality control program including addressing the items noted above. In addition to chemical decomposition, expiration dates should be based on the potential for contamination, evaporation, absorption of carbon dioxide, and, for dilute standard solutions, loss due to plateout.

Response An improved laboratory quality control program that includes the items noted above will be implemented by October 1983.

Finding (CY.4-2) **Chemistry laboratories are cluttered and some equipment and work areas need cleaning.**

Recommendation Stress the need to keep equipment and work areas clean. New facilities planned for 1983 should include storage space for infrequently used equipment, tool boxes, and samples held for future reference.

Response Weekly cleanup of the laboratory is now mandatory. A program has been initiated whereby a supervisor will make at least a weekly tour to identify any areas that are in need of cleaning and initiate corrective action. This is documented on a weekly tour sheet. Furthermore, the new laboratory facilities projected for completion by December 1983 include adequate storage space for equipment, tools, samples, and other material.

CHEMICAL AND LABORATORY SAFETY

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

Finding (CY.5-1) **Incompatible chemicals such as acids, strong bases, and sodium peroxide were stored together in the chemistry laboratory.** Some of these chemicals were old and the containers were in poor condition.

Recommendation Incompatible chemicals should be segregated and old chemicals, especially those that are potential fire or explosion hazards, should be disposed of. New facilities planned for 1983 should provide proper storage conditions for hazardous chemicals. The following National Fire Protection Association Standards could be of assistance.

a. Pamphlet 30, "Flammable Liquid Storage"

b. Pamphlet 49, "Hazardous Chemical Storage"

c. Pamphlet 491m, "Hazardous Chemical Reactions"

Response The chemicals were removed and, where warranted, properly disposed of. Furthermore, periodic inventories are conducted to prevent recurrence.

APPENDIX I

Summary of Outstanding Response Action from Previous Evaluation (1981)

PREVENTIVE MAINTENANCE (PM)

Finding (MA.6-1)

Appropriate mechanical preventive maintenance is not being carried out on a considerable number of plant components. Development of the mechanical preventive maintenance program is incomplete.

Recommendation Objectively establish the type and frequency of preventive maintenance actions required to achieve safe and reliable plant operation, and then execute the program as scheduled.

Response Since the evaluation, more resources have been applied to the mechanical preventive maintenance program development. Specifically, a mechanical engineer has been assigned to develop the mechanical PM program and schedule. A computer specialist will computerize the data base and schedule. Well-defined PM tasks have been formally scheduled through the end of this year. Long-term program development is underway. Plans include a major outage in mid-1982 during which considerable preventive maintenance is planned. A review of the adequacy of management and hands-on resources available for carrying out the PM program on a continuing basis will be conducted in 1983, within four months after plant startup.

Status A mechanical PM program has been developed covering about 60 percent of the plant systems and equipment. Work on implementing the remaining items is currently in progress. Commencement of the outage mentioned above was delayed until early 1983. An analysis of management and hands-on resource adequacy to support the PM program should be completed by December 1983.

PLANT EFFICIENCY AND RELIABILITY

Finding (TS.2-1)

Plant thermal efficiency and reliability are not optimized through an effective plant performance monitoring program. Some plant parameters are monitored (by operations, plant engineering, and reactor engineering) by observation of control room instrumentation, shift log reviews, and required in-service testing of safety-related equipment. However, the plant does not routinely collect, analyze, and trend overall plant data and utilize the results to improve plant efficiency and reliability.

Recommendation Develop a comprehensive program to monitor and improve plant thermal efficiency and reliability and to include the following:

a. optimum performance parameters established through baseline data and/or modeling

b. use of qualified personnel to monitor, record, and analyze data for trends and plant improvements

c. maintenance of instrumentation accuracy.

Response A comprehensive program that will use a new plant computer is planned. Pending implementation of that program, a limited scope program, including the recommended items, has been written and will be implemented by qualified personnel upon startup from the next refueling outage.

Status The limited scope program is progressing and scheduled for completion by the end of the 1983 refueling outage. Implementing procedures describing the details of the comprehensive program have not been developed.

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.