EVALUATION

of

EDWIN I. HATCH NUCLEAR PLANT

Georgia Power Company

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SUMMARY

INTRODUCTION

The Institute of Nuclear Power Operations (INPO) conducted its first evaluation of Georgia Power Company's Edwin I. Hatch Nuclear Plant during the weeks of October 26 and November 2, 1981. Plant Hatch has twin unit 764 Mw net General Electric boiling water reactors. The station is located in Appling County on the Altamaha River about 12 miles north of Baxley, Georgia. Unit One began commercial operation in December 1975, and Unit Two began commercial operation in September 1979.

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. Accordingly, the conditions found in each area were compared to best practices rather than to minimum acceptable conditions or requirements.

DETERMINATION

Within the scope of this evaluation, the team determined that the plant is in satisfactory material condition and is being operated in a safe manner by qualified personnel.

Certain beneficial practices and accomplishments were noted:

An impressive management program has been developed for assessing and improving station performance in key areas. The program includes a monthly meeting attended by corporate executives.

A commitment has been made to improve training through the construction of extensive training facilities at the site.

An extensive program to upgrade the control room is in progress and is currently nearing completion.

Monthly Operating Experience Assessment Reports are distributed to all licensed personnel.

An excellent long-range manpower planning program has recently been developed.

A strong corporate commitment to overall support of the station is evident.

Improvements were recommended in a number of areas. The following are considered to be among the most important:

- The material condition of the plant needs improvement in specific areas.
- A commitment to the implementation of many well-developed administrative programs has not been instilled in personnel at the working level.
- The effectiveness of the overall chemistry program needs evaluation.
- Management and supervisory enforcement of radiation protection policies and procedures needs increased emphasis.
- A program to further reduce solid and liquid radioactive waste generation is needed.

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

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 in the industry since this would be of no benefit to Georgia 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.

The findings listed herein were presented to Georgia Power Company management at an exit meeting at the plant on November 5, 1981. Findings, recommendations, and responses were reviewed with management on December 17, 1981. Georgia Power Company's responses are considered satisfactory.

To follow the timely completion of the improvements included in the responses, INPO requests written notification of status six months from the date of this report.

The evaluation staff appreciates the cooperation received from all levels of the Georgia Power Company.

E. P. Wilkinson
President

GEORGIA POWER COMPANY

Response Summary

Georgia Power Company is very pleased to have had INPO perform an evaluation of the Edwin I. Hatch Nuclear Plant. INPO has confirmed utility identified areas needing enhancement and has provided constructive recommendations and information, which will enable Georgia Power Company to re-evaluate its administrative and management system and thereby improve the total program at our Edwin I. Hatch facility.

Georgia Power Company appreciates and concurs with INPO's determination that the plant is being operated in a safe manner by qualified personnel. We at Georgia Power are committed to meeting the electric energy needs of the customer by operating and maintaining Edwin I. Hatch Nuclear Plant in a safe, economical, reliable, and efficient manner with concern for the environment, for the safety and health of the public, and for our employees.

We appreciate the notation of "beneficial practices and accomplishments" and recognize the need for improvement in the areas listed in the Determination section of the summary. While it is recognized that the noted recommendations for improvements are a summary of specific findings in the body of the report, Georgia Power offers the following in response to these five recommendations:

- The material condition of the plant needs improvement in specific areas—Station management and supervision is giving greater attention to the material condition of the plant to ensure that it is maintained in a condition consistent with company goals and objectives.

- A commitment to the implementation of many well-developed administrative programs has not been instilled in personnel at the working level—Plant Management and departmental supervision have considered the overall implementation of administrative programs at Plant Hatch and will aggressively strive to convey the importance of consistently disciplined adherence to existing administrative controls.

- The effectiveness of the overall chemistry program needs evaluation—Georgia Power Company recognizes the need for evaluation of the chemistry program and to this end has initiated a cooperative examination of aspects of the overall chemistry program with General Electric and corporate chemistry personnel.

- Management and supervisory enforcement of radiation protection policies and procedures need increased emphasis--Plant Management has taken steps to increase the visibility and involvement of Health Physics personnel in general, departmental supervision and Plant Management to strictly enforce adherence to radiation policies and procedures by all plant and contractor personnel.

- A program to further reduce solid and liquid radioactive waste generation is needed—Plant Management has initiated enhanced training and inspection activities to promote proper use of radwaste and non-radwaste containers. Personnel are being encouraged to minimize movement of unnecessary

materials into contaminated areas and to maximize the use of decontaminated tools when working on contaminated equipment. Enhanced emphasis is being placed on maintenance of plant systems contributing to liquid radwaste generation and on a higher level of operator sensitivity to sources of liquid radwaste.

With regard to the specific findings and our corresponding responses, Georgia Power will provide written notification to INPO six months from the date of this report to indicate status on the proposed corrective action.

TRAINING AND QUALIFICATION

TRAINING FACILITIES AND EQUIPMENT

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

It was noted that Georgia Power has made a commitment to provide extensive training facilities at Plant Hatch. The new training facilities will provide classrooms, laboratories, and workshops appropriate for hands-on training of instrument and control technicians, maintenance personnel, chemistry and radiation protection technicians, and plant operators. These facilities are currently under construction.

NON-LICENSED OPERATOR TRAINING

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

Finding (TQ.4-1)

The non-licensed operator (plant equipment operator and non-licensed assistant operator) retraining program should be restarted and expanded. The program has not been in effect for several months. The program should be expanded to provide training in applicable industry operating experience and equipment and procedure changes.

Recommendation

Reinitiate and expand the non-licensed operator retraining program. INPO's "Nuclear Power Plant Non-Licensed Operators-Guidelines for Qualification Programs" (GPG-04) could provide a basis for determining program requirements.

Response

Non-licensed retraining for non-licensed operations personnel will be resumed and the program will be expanded to include the above items.

The program will be expanded and courses will be resumed by March 1, 1982.

LICENSED OPERATOR TRAINING

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

Finding (TQ.5-1) **The training program for shift foremen needs to be expanded to include training in supervision, management, and leadership skills.** Currently, a program of this type exists for all supervisors at Plant Hatch. However, not all shift foremen are receiving this training.

Recommendation Implement the present supervisory training program for all shift foremen.

Response The current schedule for supervisory training of shift foremen will be accelerated so that training is completed on an expedited basis. Shift foremen will be scheduled on a program availability basis so that training of all foremen will be complete by the end of December 1982.

SHIFT TECHNICAL ADVISOR TRAINING

PERFORMANCE OBJECTIVE: Develop and maintain the skills and knowledge necessary for Shift Technical Advisors to perform their assigned job functions.

Finding (TQ.7-1) **The shift technical advisor (STA) retraining program should be expanded to provide refresher training in transient and accident analysis while emphasizing the STA's role in accident assessment.**

Recommendation Develop and implement an annual retraining program in transient and accident analysis for STAs. INPO's "Recommendations for Shift Technical Advisor" (GPG-01) qualification guideline could provide a basis for determining the program content.

Response The Hatch simulator will be operational in 1982, and at that time our annual STA retraining program will contain a minimum of 80 hours of simulator training (40 hours of simulator manipulations and 40 hours of associated classroom training), including 40 hours of transient and accident assessment. During this transient and accident simulator training, the STAs will be evaluated and retrained to support the shift team in accident assessment.

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)

The mechanical, electrical, and instrument and control (I&C) training programs need further development. The programs should be expanded to include training in technical areas, plant systems, and nuclear plant skills. Management has identified this concern and is currently developing a more comprehensive program in this area.

Recommendation

Develop and implement programs to provide additional training to mechanical, electrical, and I&C personnel. INPO's "Guidelines for Mechanical Maintenance Personnel Qualification" (GPG-05), "Guidelines for Electrical Maintenance Personnel Qualification" (GPG-07), and "Guidelines for Instrument and Control Technician Qualification" (GPG-08) could provide a basis for determination of the program content in each area.

Response

Training program development for mechanical, electrical, and I&C personnel will be carried out and implemented as follows:

a. By the end of the first quarter of 1982, a detailed planning schedule will be established for development and implementation of the training program improvement.

b. By the beginning of the third quarter of 1982, implementation of the improved program will begin.

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)

The labeling of many plant valves, components, and systems should be upgraded. Numerous examples of valves, systems, and equipment were observed with labels either missing or unreadable. It is noted that a program is being developed to label these components.

Recommendation

Plant systems and components should be labeled for ease of identification by operations and maintenance personnel.

Response

The plant staff has previously identified this concern and has initiated development of a formal program to establish more extensive and complete labeling of plant components. The program will also institute controls for application and removal of identification labels. Timely action will be taken to implement this program by the following schedule.

a. Program development and approval has been completed.

b. Identification of critical plant components will be completed by October 1982.

Finding (OP.2-2)

The following Good Practice was noted: The "Daily Rounds" sheets provide detailed instructions to the operator regarding his duties on rounds. The comprehensive rounds sheets provide guidance on systems and equipment to be monitored, expected operating values for many component parameters, and a remarks section where problems and corrective action taken are noted.

CONDUCT OF SHIFT OPERATIONS

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

Finding (OP.3-1): **Additional emphasis needs to be placed on timely correction of abnormal conditions identified by annunciators.**

Recommendation: Management should provide guidance to the control room operators regarding proper response to annunciated conditions. In addition, periodic checks of operator response to annunciators should be made by supervisors.

Response: Memo 0-81-55 has been issued to all operations personnel emphasizing the need for both shift supervisors and shift operators to promptly follow up on activated annunciators as described in plant procedures. Implementation of this memo will require ongoing supervisory checks of operator response to annunciators.

In addition, the plant staff has previously identified a need to reduce the number of activated annunciators by eliminating unnecessary and nuisance alarms. The existing engineering effort in this area will be expanded and carried out to timely implementation. Implementation of this program is geared to complete the Unit 1 control room panel by February 1983 and the Unit 2 control room panel by June 1983. These dates were selected to coincide with refueling outages expected to be in progress on those dates.

PLANT OPERATIONS PROCEDURES

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

Finding (OP.4-1): **The following Good Practice was noted: The method of auditing "in-plant" procedures to ensure that they are properly located and kept current is effective and timely.**

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)	**Uncontrolled notes, drawings, and information tags of a temporary nature used as operator aids are attached to the control panels and equipment at various plant locations.** A method is needed for approving, updating, and verifying these temporary messages.
Recommendation	Develop and implement a policy to control the posting of labels, curves, notes, graphs, and drawings. This policy should include a mechanism to ensure that any necessary posted materials remain current and reflect approved operating information. Use of posted guidance should be minimized.
Response	Removal of uncontrolled notes and information tags was completed by November 4, 1981. HNP-501, Equipment Clearance and Tagging, has been revised to establish a log by which to control and periodically audit information tags.

MAINTENANCE

MAINTENANCE FACILITIES AND EQUIPMENT

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

Finding (MA.2-1)

The condition of the plant reflects a need for increased management attention to the correction of material deficiencies. Specific areas include the steam and feedwater leaks in the Unit Two condenser bay and the pump seals, pipe corrosion, and water around electrical panels at the intake structure. Other general deficiencies include the following:

a. valve packing leaks

b. balance-of-plant gauges that do not accurately reflect system operating parameters

c. corrosion on pipes, valves, and equipment

d. oil leaks

Recommendation

Initiate action to increase management and supervisory involvement in the correction of material deficiencies. Prompt correction of steam and water leaks should be emphasized.

Response

Programs are either now in place or are being developed to address the four areas of general concern. These programs will call for increased management and supervisory involvement in the identification and resolution of plant material deficiencies. Special emphasis has been placed on establishing a program to reduce steam and water leaks in the condenser bay. All programs will be implemented during 1982.

WORK CONTROL SYSTEM

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

Finding (MA.3-1)

A number of plant deficiencies identified during the evaluation were not reflected in the work control system (Maintenance Request, HNP-8). As a result, the maintenance requests do not accurately represent actual plant material conditions.

Recommendation Ensure through appropriate means that material and housekeeping deficiencies are documented in the work control system, and that responsibility for correction is assigned and progress toward correction is tracked. Initiate action to increase management and supervisory involvement in identification of these deficiencies by establishing a program of periodic detailed plant inspections. The use of a "work request submitted" tag can improve the awareness of deficiency identification.

Response Plant walkdowns will be performed on a routine basis to ensure the identifications of existing plant deficiencies and subsequent resolution. Criteria used for determining the need for maintenance requests (MRs) will be adjusted so that MRs are written for a wide range of major and minor maintenance items. Items not presently covered by maintenance requests will be by February 1982.

MAINTENANCE PROCEDURES

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

Finding (MA.4-1) **The Instrument and Control technicians do not always comply with the Equipment Clearance and Tagging Procedure (HNP-501) in that electrical equipment is sometimes deenergized for maintenance without proper clearance.** The maintenance request is approved by the Shift Foreman for authorization to work on the equipment without reviewing the need for electrical isolation and tagging.

Recommendation Strict adherence to the Equipment Clearance and Tagging Procedure (HNP-501) should be emphasized. The procedure requires that all equipment be set in the proper position to isolate the equipment or system.

Response As of November 6, 1981, instrument technicians and their supervisors have been instructed as to the importance of HNP-501 and its application to instrumentation and control. All work is being done in accordance with this procedure.

MAINTENANCE HISTORY

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

Finding (MA.5-1)

While special reviews of maintenance histories are done when recurring problems are noted, no formal method of review of all maintenance histories has been established to evaluate equipment performance.

Recommendation

Procedures should be developed to accomplish the following:

a. define the scope and periodic reviews of maintenance histories

b. assign responsibility for conducting the reviews

c. provide a means of documenting and self-checking that the reviews are done as scheduled

d. provide a means whereby the maintenance history is reviewed whenever corrective maintenance is planned for selected equipment

Response

Files have been established with maintenance records available for reviews to be made. A program to review maintenance histories will be established. The responsibility for conducting the reviews will lie in the maintenance engineering or maintenance planning and scheduling section. The program will include documentation of the reviews. The reviews will be prior to corrective maintenance. Expected completion of this formal program establishment shall be by March 31, 1982.

RADIATION PROTECTION AND CHEMISTRY

MANAGEMENT OF RADIOLOGICAL PROTECTION

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

Finding (RC.1-1)

Personnel do not always comply with radiological protection procedures and requirements. Improvement is needed in the following areas:

a. compliance with Radiation Work Permit (RWP) requirements

b. compliance with procedures for releasing materials and tools from radiologically controlled areas

c. performance of follow-up whole body counts on individuals with initial whole body counts that are positive

d. personnel monitoring for radioactive contamination to ensure that individuals frisk properly upon exiting from contaminated areas

Recommendation

The need for compliance with radiological protection procedures and requirements should be emphasized during general employee training and retraining sessions.

Response

The plant staff has previously recognized this concern and has initiated development of a two-part action program.

a. Immediate action - A clearly stated management commitment to proper health physics (HP) controls has been reestablished. Specific goals related to controlling personnel exposure have been set in the 1982 plant plan. Each plant supervisor and worker has been specifically notified as to their responsibilities related to HP practices. Revisions have been submitted to the Plant Review Board for incorporating HP concerns in procedures related to work control, Radiation Work Permits, and design change control. More specific guidance related to employee counseling and discipline due to violations of HP rules is being developed.

b. Long-term - A comprehensive ALARA program proposal is under development by the plant staff. Elements of this proposal will include the following:

- a restatement of management commitment and policy

- definition of organizational responsibilities

- goals and action programs to minimize individual exposure, collective department exposure, and collective plant exposure

- goals and action programs to minimize personnel contamination

- programs to minimize job specific exposure

- programs to minimize solid radwaste volume

- definition of methods for data generation, retrieval, and analysis

- proposed schedule for ALARA program implementation

- proposed methods for maximizing employee training and awareness of ALARA concerns

Implementation Schedule:

a. Immediate action items have been implemented.

b. The ALARA program proposal will be approved by March 1982.

Finding (RC.1-2)

Supervisors are not always enforcing compliance with radiological protection procedures and requirements: Examples are as follows:

a. A supervisor did not require a worker under his supervision to notify health physics of an alarm on the hand and foot monitor located outside the health physics office.

b. A supervisor was observed frisking the tools of his subordinates and filling out the material clearance tags instead of notifying health physics as required by procedures.

c. Supervisors on the refueling floor did not require workers to wear their protective clothing properly.

d. Radiation and contamination reports for the past 18 months indicate that operations personnel frequently violate health physics procedures. Supervisory personnel have been provided copies of these reports.

e. A chemistry and radiation foreman did not require a worker to perform a whole body frisk after the hand and foot monitor alarmed.

Recommendation — Plant supervisors should more aggressively enforce adherence to radiological procedures and requirements and ensure that personnel are held accountable when violations are observed.

Response — Management Memo 185, issued on November 4, 1981, clearly restates management policy regarding radiation protection. Thus, supervisors have been directed to more aggressively enforce radiological rules and procedures. This item may be considered complete.

RADIOLOGICAL PROTECTION TRAINING

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

Finding (RC.2-1) — **The general employee training (GET) program in radiological protection needs to be expanded to require plant employees to demonstrate practical abilities such as personnel monitoring, donning and removing anticontamination clothing, and the use of step-off pads.**

Recommendation — Expand the general employee training program to include practical ability demonstrations in radiological protection.

Response — The general employee training program will be expanded to require each employee to demonstrate proficiency in personnel monitoring, anticontamination clothing dress out and removal, and the use of step-off pads. These new requirements shall be in place by February 1982.

Finding (RC.2-2) — **A formal classroom training program needs to be implemented for radiological protection and chemistry personnel.** It was noted that the plant has committed resources to develop a formal classroom training program for radiological protection and chemistry technicians.

Recommendation Develop a schedule for implementation of the radiological protection and chemistry training program. Implement guidelines to ensure that trainees complete the program prior to assignment as qualified technicians.

Response The present effort to develop a formal program will be carried out to completion on a timely basis. A detailed planning schedule and course content will be developed by the end of the first quarter of 1982 with actual classroom instruction to begin during the first part of the third quarter of 1982.

PERSONNEL DOSIMETRY

PERFORMANCE OBJECTIVE: **Accurately determine and record radiation exposures.**

Finding (RC.3-1) **Criteria should be established for the use of extremity dosimetry based on anticipated or measured dose rates.** Chemistry and radiation technicians were required to perform Radiation Work Permit (RWP) surveys in very high beta/gamma dose rate areas. Frequently, the technicians did not wear finger badges when performing these surveys.

Recommendation Develop criteria that provide guidance for the use of extremity dosimetry. These criteria should be based on anticipated or measured dose rates and should be included in appropriate procedures.

Response Dosimetry practices will be upgraded as needed to ensure appropriate monitoring of extremities during activities involving potentially significant dose rates. Appropriate guidelines will be established to address this area of concern and will be implemented by January 1982.

EXTERNAL RADIATION EXPOSURE

PERFORMANCE OBJECTIVE: **Minimize personnel external radiation exposure.**

Finding (RC.4-1) **More effort is needed to ensure that radiation exposure associated with routine radiological work is minimized.** Specific areas where improvements could be made are as follows:

a. decontamination of spent demineralizer resin barrels to minimize radiation exposure received by assistant plant operato

b. radiological protection training of operations and maintenance personnel to minimize the need for health physics coverage during routine tasks

Recommendation Expand the radiation exposure reduction program to include evaluations of routine radiological work.

Response Coincident with the implementation of a comprehensive ALARA program, routine tasks will be examined to establish guidelines to reduce personnel exposure. Specifically, practices associated with handling radwaste drums and health physics coverage of routine operations and maintenance tasks will be examined for improvement possibilities. The improvements on the routine tasks coverage will be incorporated with the comprehensive ALARA program development. Improvements have been made in drum handling practices.

INTERNAL RADIATION EXPOSURE

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

Finding (R.C.5-1) **The effectiveness of the whole body count program should be evaluated in the following areas:**

a. The whole body counters are located in an area with an unnecessarily high background produced by the same radioactive isotopes that the system is trying to detect in personnel.

b. Criteria for recounting individuals with percent-derived organ burdens in the hundredths-of-a-percent range may be based on instrument sensitivities that are too close to background to give statistically reliable results.

Recommendation Consideration should be given to moving the whole body counters from their present location to a low background area. The criteria for recounting individuals should be evaluated, based on the statistical reliability of the collected data at the lower limits of sensitivity and the generation of unnecessary work.

Response The plant staff has previously determined that the location of the whole body counter is inappropriate for effective program performance. Engineering has been partially completed on a design for an upgraded laboratory facility. Facility modifications will be implemented on a timely basis with completion expected by September 1982.

The sensitivity range of the new whole body counter will be reviewed. Criteria for recounting individuals will be made consistent with maintaining an appropriate level of conservatism in analysis of internal radiation exposure. Completion is expected by February 1982.

RADIOACTIVE EFFLUENTS

PERFORMANCE OBJECTIVE: **Minimize releases of radioactive effluents to the environment.**

Finding (RC.6-1)

Increased efforts to reduce the volume of liquid radioactive waste being generated are needed. Examples of excessive generation include numerous steam leaks in Unit Two and the continuous purging of chemistry sampling lines.

Recommendation

Establish overall management of the liquid radioactive waste program with an emphasis on reducing unnecessary generation of radioactive liquids through proper operation and maintenance of plant systems. Trending of inventories should be performed to identify unusual increases in liquid radioactive wastes so that corrective action can be taken in a timely manner.

Response

Georgia Power Company is committed to reducing the excessive generation of liquid radwaste. The Management commitment to this liquid volume reduction will be enhanced through establishment of a higher priority for maintenance of plant systems contributing to liquid radwaste and increased operator attention to trends and awareness of sources of liquid radwaste. Significant improvements will be achieved by June of 1982.

SOLID RADIOACTIVE WASTE

PERFORMANCE OBJECTIVE: **Minimize solid radioactive waste volumes.**

Finding (RC.7-1)

Improvement is needed in efforts to reduce solid radioactive waste volumes. Items such as unused sheet metal, packing material, and scrap material from uncontrolled areas were observed in radioactive waste receptacles.

Recommendation Increase efforts to reduce the volume of radioactive waste generated in the radiologically controlled areas in the following ways:

a. enforcing the requirements of the plant's program to minimize material taken into the radiologically controlled areas

b. emphasizing solid radioactive waste reduction methods in the general employee training and retraining program

Response New employee training now includes emphasis on the need to minimize solid radwaste generation by proper use of drums, minimizing materials taken into radiologically controlled areas, and maximizing reuse of decontaminated tools and materials.

HP supervisory personnel are now conducting routine inspections to enforce the requirements of the plant program to reduce solid radwaste reduction.

RADIOACTIVE CONTAMINATION CONTROL

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

Finding (RC.9-1) **Increased efforts are needed to control radioactive contamination.**

Recommendation The plant's contamination control program should be evaluated and upgraded where necessary. Specific recommendations are as follows:

a. Determine the common causes of skin and clothing contaminations, and take appropriate actions to eliminate the causes.

b. Establish a program to eliminate or minimize sources of radioactive contamination, and reduce the number of controlled loose surface contamination areas in the plant.

c. Ensure that all tools and equipment exiting the rear of the turbine building are properly frisked to minimize the potential spread of contamination to clean areas of the plant.

d. Develop a system to mark contaminated tools and equipment using color coding and/or radioactive contamination stickers as appropriate to preclude their use in uncontrolled areas of the plant.

Response

A program has been implemented to determine causes of skin and clothing contamination. A program is being developed to eliminate or minimize the sources of contamination and the number of contaminated areas around the plant. This program will be fully implemented by May 1982.

Procedure HNP-8028, "Release Survey for Trash and Materials Leaving Operating Buildings," addresses the prevention of contaminated tools and equipment from exiting the plant. A reemphasis of these requirements to plant personnel has been made by issuance of Management Memo 185, and increased surveillance by Health Physics personnel will be performed in this area. A system is being developed for control of contaminated tools and equipment which will include some type of positive identification marking. Full implementation of this system will be completed by May 1982.

Finding (RC.9-2)

Criteria for the use of anticontamination clothing are insufficient for personnel performing routine surveillances. Presently the general RWPs allow plant personnel to enter contaminated areas or handle contaminated material with a minimum of protective clothing regardless of the contamination levels. Examples of this practice are as follows:

a. Chemistry technicians sampled reactor coolant wearing only rubber overshoes and gloves.

b. Chemistry technicians analyzed reactor coolant samples wearing only plastic gloves.

c. Operations personnel were observed entering several contaminated areas to perform surveillances wearing only rubber overshoes and gloves.

Recommendation

Develop more detailed criteria for the use of anticontamination clothing during routine surveillances. These criteria should be based on the contamination level and the surveillances to be performed. Laboratory coats should be considered for addition to the protective clothing inventory.

Response

More conservative dress-out requirements for technicians sampling and analyzing reactor coolant were established as of November 6, 1981.

Health Physics will, by February 1982, develop more detailed criteria for use of anticontamination clothing during routine surveillances.

CHEMISTRY

PERFORMANCE OBJECTIVE: Ensure accurate measurement and effective control of chemistry parameters.

Finding (RC.10-1)

Analytical methods for determining chemical concentrations in plant systems should be examined. Several problem areas noted during the evaluation were as follows:

a. chloride analysis
b. metals analyses
c. pH determination

Additionally, procedures for determining chemical concentrations do not contain the reference used for the development of the analytical methodology and do not identify common interferences that might affect the results of the analysis.

Recommendation

Analytical methods used to produce data required by Technical Specifications and vendor fuel warranty limits should be evaluated. This evaluation should include the analysis of standards by the analytical method normally used by the plant. The standards should be prepared as follows:

a. in the same physical form as that of routinely analyzed samples

b. in concentrations specified in the applicable specifications

Appropriate actions should be taken based on the results of this evaluation. References used for development of analytical methods and common interferences should be included in the plant's procedures.

Response

Georgia Power Company and a qualified consultant will perform an evaluation of our analytical methods. This will include the analysis of standards by the analytical method normally used by the plant. The standards should be prepared as close to the same physical form as that of routinely analyzed samples. We will also look at concentrations as low as those specified in applicable specifications.

Appropriate actions will be taken as a result of these evaluations by June 1982.

Georgia Power Company will also evaluate the need for references used for development of analytical methods and common interferences to be included in our procedures. Based on consultant findings, our procedures will be revised to include references by June 1982.

Finding (RC.10-2)

The chemistry, radiochemistry, and counting laboratory quality control programs should be expanded. Additions should include the following:

a. the requirement that all chemistry technicians analyze unknown standard and spiked samples on a regular basis (these samples should be made up in the concentrations that approximate those set forth in the plant's Technical Specifications and vendor fuel warranty limits)

b. trend plotting of instrument efficiency and analytical results needed for the purpose of evaluating problems in the chemistry program

Recommendation

Expand the quality control program to provide appropriate checks on the quality of analyses. Known standards should be analyzed in conjunction with routine plant samples.

Periodically, unknown samples should be substituted for known samples to provide a check on technician performance, laboratory procedures, reagents, and instrumentation.

A program of trend plotting key parameters and data should be implemented to aid in the detection and evaluation of instrument problems, technician errors, changes in plant chemistry and radiochemistry, and chemical reagent degradation.

Response

Procedures dealing with the Quality Control program (i.e., HNP-7651 and HNP-7652) are being revised to include analysis of unknown standard and spiked samples on a regular basis. General Electric and INPO are being consulted to make suggestions to improve chemistry control programs. Expanded quality control program features will be in place by November 1982.

Finding (RC.10-3)

A regularly scheduled chemistry retraining program is needed. Chemistry technicians rotate among job assignments on a periodic basis and may not be able to maintain their job skills in areas where they have not recently worked.

Recommendation

Implement a regularly scheduled retraining program for chemistry technicians and foremen. The retraining program should address the operation of new equipment; changes in procedures; recurring problems identified by chemistry supervisors; and routine chemical, radiochemical, and counting laboratory analyses.

Response

A regularly scheduled chemistry retraining program is being developed that will address operation of new equipment, procedure changes affecting the chemistry program, repetitive problems occurring in the chemistry area, as well as methods for performing routine laboratory practices.

Planning schedules will be completed by the end of first quarter 1982. The retraining program instruction will begin at the start of the third quarter of 1982.

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)

The training of newly hired engineers is informal and not well developed. New engineers receive on-the-job training in an unstructured format. An orientation course has been outlined for the training of new engineers which appears to be comprehensive; however, it has not yet been implemented.

Recommendation

Implement the orientation training outlined for new engineers following appropriate review and approval. Include new engineers in follow-on training sessions, courses, and seminars as appropriate.

Response

A comprehensive training program for new engineers has been developed in an outline form. The Superintendent of Engineering Services issued an engineering practices memo in December to formally inaugurate this training guideline. Actual implementation commenced on January 1, 1982.

PLANT EFFICIENCY AND RELIABILITY

PERFORMANCE OBJECTIVE: Optimize plant thermal efficiency and reliability.

Finding (TS.2-1)

The plant performance monitoring program (PPMP) needs improvement to include regular and detailed performance monitoring of all equipment essential to optimizing plant efficiency. Some of the thermal performance monitoring equipment installed on Unit One has not been installed on Unit Two. Vendor design data is not utilized as extensively as it could be, nor is maximum use made of computer programs or computer models to handle performance data and predict plant, system, or equipment performance. The present PPMP relies on plant process instrumentation that is scheduled for calibration on a 60-month frequency.

Recommendation

Include feedwater heater design data and turbine cycle data in procedures or data packages available to the control room. Monitor this and other appropriate equipment data on a regular and defined frequency. Consider the use of an appropriate model of Plant Hatch to predict and track performance of both units. Establish an appropriate calibration schedule that will ensure

required instrument accuracy for all instruments used to gather PPMP data.

Response The plant engineering staff has previously recognized plant efficiency and reliability monitoring as an area needing emphasis. Enhanced emphasis of plant efficiency and reliability monitoring will be made in the overall turbine cycle area. The instrument calibration schedule will be reviewed to require that all instruments used to gather PPMP data are calibrated annually or biennially. Corrective action to eliminate large losses to heat rate such as steam leaks and feedwater heater leaks will be completed. Then a computer modeling package will be considered for further fine improvements to heat rate. Implementation of this upgraded program will be completed by December 1982.

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) **A mechanism should be established to ensure prompt notification to other utilities of significant events with generic implications that may originate at Plant Hatch.** NUCLEAR NOTEPAD is not regularly utilized for this purpose.

Recommendation Establish a procedure for use of NOTEPAD to inform the industry in a timely manner of events that may occur at Plant Hatch. Consider inclusion of such items as personnel involved in making a NOTEPAD entry, and review and screening for approval of an entry.

Response A management memo was developed which specified that the shift technical advisors in the course of performing their routine operating experience assessment reviews are to identify significant events of possible interest to other utilities.

Proposed NOTEPAD entries will be approved by Plant Management prior to release.

Implementation of this recommendation was completed in December 1981.

Finding (TS.3-2)

Action on some recommendations included in INPO Significant Operating Experience Reports (SOERs) has not been completed. SOER recommendation status for SOERs 80-1 through 80-6 and 81- 1 through 81-14 is as follows:

Number of Recommendations	Action Taken
23	Satisfactory
29	Not applicable
27	Pending
2	Need Further Review

The recommendations pending action are:

SOER Number	Recommendation Number
80-2	1, 2
80-6	6, 7, 10
81-2	1, 2, 3, 4, 5, 6
81-3	1, 2, 3
81-8	1, 2, 3, 4
81-10	1
81-13	2, 3, 4, 6, 9, 12, 14, 15, (2, 3, 4, 9, 11, 12, 15 BWR Owners, Group Action Item)

The recommendations needing further review are:

SOER Number	Recommendation Number
80-1	1, 2

Recommendation

Initiate further review or complete action as appropriate on SOER recommendations listed above. Advise INPO of the status of each recommendation in the response to this report.

Response

Further review and action was completed on SOER 80-1 in December 1981. Action on outstanding SOERs for 1980 and 1981 should be complete by August 1982. An update of the status of these recommendations will be provided in Georgia Power's follow-on responses within six months of the date of this report.

Finding (TS.3-3)

The following Good Practice was noted: Licensed operators receive an Operating Experience Assessment Report (OEAR) each month that includes a distilled presentation of information pertaining to operation of Plant Hatch. The report ensures that

licensed personnel are informed in a timely manner, it eliminates large volumes of extraneous material, and it prevents the duplication and contradiction of information passed to the operators from different sources. The report is prepared by the shift technical advisors (STAs). Specific contents of the OEAR include the following:

a. a narrative report of operation for the month

b. a description of pertinent LERs and design change requests (DCRs)

c. a description of amendments to the technical specifications

d. a description of significant operating events at other plants (such as significant event reports and operating and maintenance reminders)

e. a listing of pertinent procedures revised during the month

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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)

The methods of incorporating vendor guidelines into procedures and disseminating the information to operators and STAs needs improvement to ensure consistency of operating philosophy. An example of such guidelines is the Pre-Conditioning Interim Operating Management Recommendations (PCIOMRs) from the fuel vendor. It is recognized that a standing order has recently been issued regarding one of the vendor guidelines.

Recommendation

Include vendor guidelines in operating procedures as appropriate, and initiate a review of such information at regular intervals during training and retraining of operators and STAs. Provide simulator instructors with appropriate teaching material relative to vendor guidelines and associated plant procedures.

Response

The plant staff will conduct a review at regular intervals of operating procedures with regard to vendor guidelines including PCIOMRs. Any necessary corrective action will be taken to incorporate items in operating procedures. Guidelines relating to fuel preconditioning will be included in annual simulator training. Notification of changes made will be provided to licensed personnel, STAs, and training personnel.

The initial review and necessary procedure revision will be completed by March 1982.

Finding (TS.5-2)

Control of software changes relating to nuclear core calculations performed by the process computer needs improvement. Plant procedure HNP-909 addresses changes to Technical Specification limits and beginning-of-cycle data that change with a core reload. However, it does not cover changes to all computer parameters, functions, and displays.

Recommendation

Expand HNP-909 to include all computer software changes. Establish guidelines for those changes that should receive a second, independent review, and that must be reviewed by the Plant Review Board (PRB) as design change requests (DCRs). Establish installation procedures and documentation appropriate for each category of computer program change.

Response

HNP-909 will be revised by the end of January 1982 to require that all process computer software changes be independently reviewed and approved as appropriate by the PRB or a second party having process computer software familiarity. Installation instructions and documentation requirements will also be reviewed for adequacy and revised as necessary.

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)

The following Good Practice was noted: Goals and objectives are continuously monitored and trended. Major goals and objectives established in various areas are continuously trended and are incorporated into a monthly document that is used by corporate and senior plant management to periodically evaluate progress toward achievement of these objectives. This is accomplished through a monthly meeting that uses the document as a basis for discussion.

ORGANIZATIONAL STRUCTURE

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

Finding (OA.2-1)

The following Good Practice was noted: Comprehensive position descriptions have been developed for all supervisory and management personnel. These documents include detailed position descriptions, primary responsibilities, and accountabilities. Coupled with these position descriptions is an excellent performance appraisal program based on accountabilities relative to the achievement of assigned personal goals that support overall station goals.

MANPOWER RESOURCES

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

Finding (OA.3-1)

The following Good Practice was noted: The "Management Planning for Nuclear Generation" book is an excellent management tool. The document defines previous attrition rates in all personnel areas and includes anticipated manpower changes, projections of

future manning, qualifications and experience of personnel, and a method of selection for filling future job positions.

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)

The quality control (QC) program needs to be expanded to include various important balance-of-plant (BOP) equipment. Currently, complete quality control exists for all equipment associated with the "Q" list. Occasional QC functions are extended to various BOP equipment, but this is left to the discretion of the individual inspector.

Recommendation

Evaluate BOP equipment and establish a list of components determined to be important from a safety or reliability standpoint. Appropriate quality control should be established for these components and should include maintenance observations such as "hold points."

Response

By March 1, 1982, a listing of critical BOP equipment will be compiled. By September 1, 1982, Quality Control inspection of these critical BOP items will commence.

SURVEILLANCE PROGRAM

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

Finding (OA.6-1)

Several additional important operating parameters of the emergency diesel generators should be observed during the course of the monthly surveillance operability tests. Parameters not included are crankcase pressure, cylinder temperatures, lube oil pressure and temperature, and jacket water temperature and pressure.

Recommendation Establish guidance for operators relative to completing thorough checks of operating equipment during surveillance tests. Implement appropriate training as necessary. Evaluate the need for upgrading the surveillance test, based on vendor recommendations, to reflect additional operating parameter information either through a checklist format, acceptance criteria, or other mechanism.

Response The plan of action in response to finding OA.6-1 is to tentatively revise the monthly surveillance operability procedures for the diesel generators on both units to include the recommended parameters that are not presently being monitored. This is a tentative revision pending contact with the vendor and subsequent agreement by them. Following the inclusion of the parameters agreed upon by the vendor and Georgia Power Company, all affected personnel will be made cognizant of their inclusion into the procedures. The addition of these parameters to the lesson plan for diesel generators for operator's licensing school in addition to ensuring that all affected personnel are aware of their inclusion into the surveillance procedures should be sufficient for providing appropriate guidance and training.

The aforementioned action will be complete by December 1982.

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.8 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.

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