

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-458/94-01

License: NPF-47

Licensee: Entergy Operations, Inc.
P.O. Box 220
St. Francisville, Louisiana

Facility Name: River Bend Station

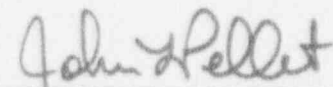
Inspection At: River Bend Station

Inspection Conducted: January 10-28, 1994

Inspectors: S. L. McCrory, Examiner/Inspector, Operations Branch, Division of
Reactor Safety
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Accompanying
Personnel: J. Lynch, SEA Inc. (Contractor)

Approved:



J. L. Pellet, Chief, Operations Branch

2/10/94
Date

Inspection Summary

Areas Inspected: Non-routine, announced inspection of licensed operator and instrument and control technician training programs. The inspection used NUREG-1220, "Training Review Criteria and Procedures," Revision 1, as described in Inspection Procedure 41500, "Training and Qualification Effectiveness," to examine the licensee's implementation of a systems approach to training in these programs.

Results:

- The instrument and control technician and licensed operator requalification training programs conformed to a systems approach to training and were conducted in accordance with approved guidance and procedures (Sections 1.3 and 2.3).

- The high quality of the instrument and control technician training materials, classroom presentations, and on-the-job training and evaluation was noteworthy (Section 1.2).
- The licensee's process for revising training materials only prior to use, particularly lesson plans, was vulnerable to loss of feedback information (Section 1.2.4).
- Formally removing licensed operators from performance of licensed duties during evaluation periods was regarded as a good practice (Section 2.1).
- Communication discipline among licensed shift operators had significantly improved and was considered a strength (Section 2.2.4).
- The licensee's use of maintenance work orders in lieu of condition reports to report conditions of unknown safety significance was vulnerable to untimely operability determination (Section 3).

Summary of Inspection Findings:

- Within the areas inspected no violations or deviations were identified.

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - List of Documents Reviewed

DETAILS

1 INSTRUMENTATION AND CONTROLS TECHNICIAN TRAINING PROGRAM (4!500)

The instrumentation and controls (I&C) technician training program was reviewed to determine if technicians have been trained and qualified commensurate with the performance requirements of their jobs and to evaluate the effectiveness of the implementation of the systems approach to training. This program review included: evaluation of the methods of licensee training and qualification by observation of classroom and on-the-job (OJT) activities, interviews with trainers, technicians and supervisors of both, documentation review of selected procedures and training materials, review of self-assessments and corrective actions, and observations of I&C maintenance activities.

1.1 Program Requirements

Procedure TPP-7-015, Revision 6, "Instrumentation and Control Maintenance Training and Qualification Program," delineated the I&C technician qualification process. This procedure specified the format and content of the training and qualification matrix. The inspectors reviewed the most recent revision of the matrix and identified minor inconsistencies between the procedure and the matrix. When those inconsistencies were reported to the training staff, the staff promptly initiated a procedure change to correct the deficiencies.

Procedure TAP-5-005, Revision 6, "Configuration Management of Training Systems," specified the use of the Material Review Form (Attachment 1 to TAP-5-005) for the review of documents to be considered as sources for changes to the training program. The form identified 33 cognizant individuals who were required to sign the form to indicate review of a document with potential impact on training needs. The system was administratively controlled by the librarian in the training center technical library and required that the cognizant individuals review the documents at the library. The system appeared awkward and provided no assurance of timely review. As an example, a listing of new procedures issued in November 1993 was entered in the system for review. As of January 11, 1994, only 2 of the required 33 reviews had been conducted. The new configuration management procedure had become effective the week prior to the inspection. The Training Manager indicated that the system would be reviewed in about 6 months to assess its effectiveness.

The inspectors reviewed several other procedures, referenced in Attachment 2, that established requirements for the I&C training program as well as selected lesson plans. The inspectors concluded that the elements of a systems approach to training were contained within the scope of the governing procedures and that the program was adequate to assure I&C technician qualification and proficiency.

1.2 Implementation

1.2.1 Initial Training

In response to an NRC concern regarding the use of technicians not currently qualified, the licensee committed to place all newly hired I&C technicians into initial training within 6 months of their hire date (GSU response NT-3882/S-CRB-17591, December 12, 1991, to NRC Inspection Report 50-458/91-20). The inspectors evaluated the effectiveness of the training of newly hired I&C technicians under that commitment. The inspectors determined that the fundamentals course, if taught on a continuous basis, would take 23 weeks to complete. The course was being taught in sections, however, with no time requirement for completion of the fundamental qualification requirements. Two new-hire I&C technicians had been in fundamentals training for about one year, but had not yet completed it. Therefore, they were not authorized to perform maintenance independently. The inspectors determined that there were three staff positions associated with I&C maintenance training. The two permanent positions were filled; however, the rotational position was vacant and had been so for several months. Through interviews, the inspectors determined that the prolonged vacancy in the rotational position had significantly contributed to the delays in completion of initial training for the new-hire I&C technicians. The protracted time to qualify those technicians to perform independent maintenance had the potential to adversely affect other I&C technicians during high maintenance activity periods. The potential impact was that fully qualified technicians may have been required to work more overtime to meet maintenance schedules with the attendant potential for increased errors due to fatigue.

The licensee was vulnerable to developing training backlogs after outages. The practice of augmenting the maintenance work force with training staff during outages could be beneficial to both the training program and the maintenance program. However, scheduling training around outages without providing sufficient resources to provide the training could have resulted in failure to meet program requirements with regard to proficiency training and evaluation.

1.2.2 OJT and Classroom Training

The inspectors reviewed the I&C program for OJT and observed an OJT evaluation. The evaluation was very thorough and included the use of a mock-up to demonstrate proficiency, verbal questions on the system, and questions pertaining to industry events. The evaluation included previously established job task standards and an immediate feedback mechanism. The I&C technician demonstrated good system knowledge and excellent repeat back during simulated communications with the control room.

An inspector observed laboratory training of Laboratory IC-204, "Crimping, Splicing, and Termination." The laboratory session was well organized and professionally presented. There was excellent interaction between the

instructor and the trainees. Training aids were good, and the actual tools and cables used in the plant were used for demonstration.

1.2.3 I&C Maintenance Activities

In order to further assess the adequacy of the I&C training program, the inspectors observed ongoing work in the plant. An inspector witnessed a preventive maintenance inspection of the oil for Penetration Valve Leakage Control System Valve 1LSV*PV10B, conducted under Maintenance Work Order P569110. This activity involved checking proper oil level and water content of the oil. The activity was performed by a certified I&C technician and a technician under instruction in accordance with the maintenance instructions. The certified technician was very knowledgeable of the valve operation and was very effective in explaining the steps taken and the reason for each step.

During the performance of this activity, the inspector observed that an electrical conduit four-way box in the overhead was missing its cover and wires were extending approximately 12 to 18 inches outside the box. When the inspector informed the I&C technicians, they indicated that they would document the condition by writing a maintenance work order request (MWOR). The inspector discussed the methodology for reporting this observation with I&C supervision because it was not evident that a timely operability evaluation would result from the initiation of a MWOR. I&C personnel did not generate a condition report (CR) until the inspector expressed concern that a MWOR may not receive the same level of evaluation as a CR. The team further investigated how training addressed the use of CRs (see Section 1.2.4) and how MWORs were used to identify deficient conditions (see Section 3).

An inspector also witnessed the performance of MWO R143162, which involved replacing a 10 ohm potentiometer in the D average power range monitor for Division 2 of the reactor protection system. Technicians were knowledgeable and meticulous in the performance of this operation. During this activity, the inspector observed a buildup of dust inside of APRM Cabinet H13-P672, sufficient to present a hazard of unwanted conductive paths or increased risk of fire in the panels. The I&C technicians responded to the inspector's concern by initiating a CR. The technicians collected samples of the dust material for analysis and informed the system engineer so that he could observe the identified condition.

1.2.4 The Feedback Process

The inspectors reviewed the feedback mechanisms for trainee critique of training received. The inspectors determined that course critique forms were properly designed to encourage meaningful feedback and were widely used. A recent innovation using the instructional technologyist to conduct post-training interviews with trainees appeared to be well received and effective in obtaining meaningful feedback. However, in interviews, trainees expressed concern that there was no formal process to inform them of how their feedback had been dispositioned once submitted. The I&C trainers generally agreed that this was a problem that needed to be resolved.

The licensee had conducted various training sessions to ensure that maintenance personnel fully understood the CR process and how to obtain the information required to complete the form. The maintenance training supervisor stated that CR training was also incorporated into the fundamentals training for all I&C technicians (Lesson Plan IC-201-00). An inspector reviewed the lesson plan and noted that the process for the CR processing was thoroughly covered; however, the lesson plan introduced the CR by stating "A Condition Report is a high level document and should not be used lightly," and "A Condition Report should be written only when there is no other means of correcting a problem." These admonitions contradicted station management's intent to have a low threshold for the use of a CR to document problems. The lesson plan had not been used in the last 2 years. The inspectors inquired how and when the lesson plan would be revised to appropriately convey management's expectations. The licensee's staff indicated that lesson plans were reviewed and revised by the responsible instructor prior to each use. No formal tracking system had been established to ensure that infrequently used lesson plans would be revised to incorporate feedback or training needs identified after the last use of the lesson plan. The inspectors concluded that this was a generic area of vulnerability in the training programs since the practice was common to the other training programs as well.

1.3 Conclusions

The inspectors concluded that River Bend Station had developed and implemented an adequate systems approach to training in the I&C maintenance technician area. The overall quality of training materials and OJT and classroom training were noteworthy. Vulnerabilities were identified as a result of the process for updating training materials and of instructor staffing below authorized levels. Generally, the inspectors observed enthusiastic support for the training program from both the training department and the I&C maintenance staff.

2 LICENSED OPERATOR REQUALIFICATION TRAINING PROGRAM (41500)

The licensed operator requalification training program was reviewed to determine if operators have been trained and qualified commensurate with the performance requirements of their jobs and to evaluate the effectiveness of the implementation of the systems approach to training. This program review included: evaluation of the methods of licensee training and qualification by observation of classroom activities, interviews with instructors, operators and operations and training supervisors, documentation review of selected procedures and training materials, review of self-assessments and corrective actions, and observation of part of the annual requalification examinations and evaluations.

2.1 Program Requirements

The inspectors reviewed TPP-7-011, "Licensed Operator Requalification Training Program," Revision 4, and other selected procedures referenced in Attachment 2, for adherence to the guidelines for a systems approach to

training. The inspectors also reviewed task lists, task-to-training matrices, course outlines, and selected lesson plans, and interviewed the individuals responsible for maintaining and implementing various program elements. The inspectors concluded that the program adequately incorporated the elements that comprise a systems approach to training.

An inspector noted that the facility had recently initiated the practice of administratively removing operators from licensed duties for the duration of their annual requalification examinations. The administrative restriction remained in effect until preliminary results of the examinations were obtained. A facility evaluator explained that this practice precipitated from a recent event where an operator had returned to licensed duties on shift before the preliminary examination results had been obtained. Subsequently, his performance was evaluated as unsatisfactory, and another licensed operator had to relieve the onshift operator, causing embarrassment for both individuals. The inspector did not observe any adverse reactions from the candidates when this practice was reviewed during the pre-examination briefing. The inspectors concluded that this was a good practice because it not only reduced examinee stress, but also reduced the likelihood that an operator would inadvertently perform licensed duties after having been evaluated as unsatisfactory during the requalification examinations.

2.2 Program Implementation

2.2.1 Classroom Training

An inspector attended two classroom presentations that were conducted by certified training instructors. In both cases, the instructors were effective and conducted their respective presentations with enthusiasm and in accordance with the approved lesson plans. The classes began at the scheduled times and the subject matter presented was of the appropriate scope and depth.

2.2.2 Instructor Qualifications

The inspectors reviewed instructor qualification records and interviewed several instructors. The qualification records were complete and current. In addition to having completed the minimum required instructional technology training, most of the instructors were also qualified as simulator instructors. The instructors were knowledgeable and enthusiastic about licensed operator requalification training. Each instructor was aware of his or her responsibilities and expressed positive comments regarding training material improvements and an improving training program.

2.2.3 Testing and Evaluation

An inspector observed six facility evaluators conduct plant walkthroughs and dynamic simulator scenario requalification examinations. The examinations were conducted professionally and in accordance with the guidance in NUREG-1021, Revision 7, "Examiner Standards" (which were formally adopted as program requirements through the licensee's procedures). Examination briefs

were thorough and adequately prepared the candidates for the administration of the examinations. The inspector observed the evaluators' post-scenario critiques of the candidates' performance. The lead evaluator guided the discussions and questioned the other evaluators, which resulted in an organized and thorough critique.

2.2.4 Crew Communications

The inspectors noted that communications, both in the simulated control room during evaluated dynamic scenarios and among operating crew members in the actual control room, were significantly more formalized than previously observed. The facility has adopted a strict regimen of three-part communication; a message is directed to an individual, the message is repeated (not necessarily verbatim, but with the intent to show comprehension), then the originator acknowledges the correct communication by stating, "that is correct." The inspectors were impressed with the consistency of usage of this regimen during the rapidly evolving dynamic simulator scenarios. In a previous evaluation (NRC Examination Report 50-458/OL 91-03), communications had been identified as a significant weakness. A subsequent evaluation (NRC Inspection Report 50-458/93-06) observed notable improvement in communications. The inspectors concluded that the licensed operator requalification training program has been effective in improving and sustaining crew communication skills.

2.2.5 Operations - Training Interface

Through interviews with operations and training supervisors, the inspectors determined that there was a vigorous and dynamic interaction between the operations and training departments. This was partly the result of several of the training supervisory positions being filled with individuals who had extensive operational experience. The interaction was further enhanced by the practice of assigning operations personnel to rotational positions within the licensed operator requalification training program. The inspectors concluded that this active interface between operations and training had been a significant contributor to the overall success of the training department.

2.3 Conclusions

The inspectors concluded that the River Bend Station had developed and implemented an adequate systems approach to training in the licensed operator requalification training program. The inspectors regarded suspension of responsibility to licensed duties during evaluation periods as a good practice. Training instructors were well qualified and proficient in classroom training, as well as testing and evaluation. Licensed operator crew communications were a notable strength. There was a vigorous and productive interaction between the operations and training departments. Generally, the inspectors observed enthusiastic support for the licensed operator requalification training program from both the training department personnel and the operations staff.

3 IDENTIFYING DEFICIENT AND NONCONFORMING CONDITIONS

The recent Operational Safety Team Inspection (NRC Inspection Report No. 50-458/93-25) concluded that maintenance personnel did not routinely generate CRs when a deficient or nonconforming condition was identified. The response of I&C maintenance personnel to the inspector-identified electrical conduit deficiency (Section 1.2.4) precipitated concern among the inspectors that operability determinations may not have been timely. That prompted the inspectors to further investigate the use of MWORs over CRs to initially identify deficient and nonconforming conditions. The inspectors reviewed Procedures ADM-0028, "Maintenance Work Order," Revision 12, and RBNP-030, "Initiation and Processing of Condition Reports," Revision 3, and interviewed cognizant operations, maintenance, and supervisory personnel regarding the use of MWORs to initially identify deficient or nonconforming conditions.

In the interviews, the inspectors determined that the general practice of personnel identifying a deficient or nonconforming condition was to initiate a MWOR, unless the individual was reasonably certain the condition had safety significance. Therefore, conditions which were indeterminate to the identifying individual were more likely be initially identified through the MWOR process. No direction was given by ADM-0028 to the shift supervisor to make an operability determination when reviewing a MWOR; whereas, RBNP-030 provided specific guidance to the shift supervisor regarding operability assessment. Operations and maintenance supervision contended that the review to determine the work priority classification would accomplish an operability assessment. However, during interviews, senior reactor operators clearly stated that they gave more attention to CRs over MWORs with respect to making operability determinations. Moreover, the senior operators indicated that a MWOR may have been reviewed by a qualified senior operator on duty at the work control center in lieu of being sent to the control room for review by an on-shift senior operator. In contrast, all CRs were reviewed by the on-shift supervisor. While both a MWOR and a CR were rigorously screened by a review group following a senior operator review, the opportunity for a timely operability assessment may have been missed. The inspectors did not identify any examples of untimely operability determination. However, the inspectors concluded that the licensee was vulnerable to untimely operability determinations with regard to deficient or nonconforming conditions that were initially reported on a MWOR.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

- *J. Fisicaro, Manager-Safety Assessment and Quality Verification
 - J. McGaha, Vice President - River Bend Station
 - M. Sellman, Plant Manger - River Bend Station
- *W. Beck, Manager - Training
- *W. Trudell, Operations Supervisor, Acting
- *E. Ewing, Assistant Plant Manager, Maintenance
- *R. Findish, Supervisor - Maintenance Training
 - G. Widajewski, Quality Coordinator - Maintenance
- *O. Bulich, Director - Licensing
- *D. Lorfing, Supervisor - Licensing
- *J. Venable, Assistant Plant Manager - Operations
- *R. Kelly, I&C Supervisor - Maintenance
- *R. Godwin, Coordinator - Operator License Training
- *L. Woods, Supervisor Operations Training
 - G. Baily, Nuclear Training Representative
 - K. Hughes, Quality Assurance Engineer
 - B. Pfeiffer, I&C Nuclear Training Representative
- *K. Giadrosich, Director - Quality Assurance
- *K. Suhrke, Manager Site Support
- M. Wright, Project Manager - EOI Headquarters
 - G. Kimmell, Supervisor - General Maintenance
 - S. Brawner, Supervisor - Training Standards
 - B. Jarrell, Instructor - Training Standards
 - G. Degraw, Instructor - Operator Licensing Training
 - B. Daniel, Instructional Technologist
 - V. Carlson, Work Management Center Supervisor
 - G. Turner, Shift Supervisor
 - D. Dietzel, Requalification Trainer/Crew Lead
 - D. Chase, Requalification Trainer/Crew Lead
 - B. Herrel, Instructor
 - P. Hensley, Instructor
 - C. Bailey, I&C Technician Training
 - S. Smith, I&C Technician
 - C. Stout, I&C Technician
 - B. Olinde, I&C Supervisor
 - C. Heil, I&C Technician
 - T. Harris, I&C Technician
 - B. Anderson, I&C Technician
 - D. Boyd, I&C OJT Evaluator
 - T. Fredieu, Supervisor, Maintenance Services

* Denotes personnel that attended the exit meeting. In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on January 31, 1994. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee acknowledged the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by the inspectors.

ATTACHMENT 2

1 DOCUMENTS REVIEWED

- GSU-SQS-93-042 S-CRB-19580, 02/25/93, GSU QA Audits of Operations I&C Qualification Matrix, 01/05/94
- I&C Training Program Job Task Analysis Task List, Revision 2, 3/3/93
- Control Operating Foreman, Shift Supervisor, and Nuclear Control Operator Task Lists, 12/9/93
- Licensed Operator Task-to-Training Matrix
- IC-0201-00, "Initial Procedures"
- IC-204/204L, "Crimping and Termination," lesson plan, 04/15/92
- IC-505-0, "Loose Parts Monitoring System," lesson plan, 04/09/92
- IC-512-0, "Seismic Monitoring," lesson plan, 11/22/91
- Minutes of I&C TAC 93-01 through 93-08; 01/04/93 through 12/07/93
- MSP-0028, "Qualification of Contract Maintenance Personnel," Revision 3A
- MSP-0040, "Qualification Process for Instrumentation and Control Personnel"
- MSP-0041, "Maintenance Training Advisory Committees," Revision 0
- PS/MD-047, "Management Direction and Support of Training Activities," Revision 4
- TAP-5-002, "Instructor Training and Qualification," Revision 4
- TAP-5-005, "Configuration Management of Training Systems," Revision 7
- TMP-6-004 OJT Instructional Evaluation Form Evaluation Phase Checklists - 1993
- TMP-6-006, "Program Evaluation," Revision 6
- TMP-6-008, "Analysis, Design, and Development," Revision 1
- TMP-6-009, "Implementation and Student Evaluation," Revision 1
- TPP-7-005, "Maintenance Planner Training Program," Revision 0
- TPP-7-008, "SRO/RO Certification Programs," Revision 3

- TPP-7-011, "Licensed Operator Requalification Training Program," Revision 4
- TPP-7-011, "Licensed Operator Requalification Training Program," Revision 3
- TPP-7-015, "Instrumentation and Control Maintenance Training and Qualification Program," Revision 6
- TPP-7-023, "Instructor Development Training Program," Revision 4
- TQ.3 PA-93-02-04, "1993 Training Self Evaluation Report," 02/26/93
- Biennial Requalification Training Program (Outline), Revision 2
- Condition Report 93-0931 (Document Qualification), 12/27/93
- Lesson Plan REQ-302-0, "Low Pressure Core Spray," 4/10/87
- Lesson Plan REQ-311-2, "Emergency Core Cooling System Review," 3/5/93
- Lesson Plan REQ-339-0, "Feedwater Level Control," 10/21/91
- Training Program Report AUDIT 93-01-0-PTQL/TRNG, 2/25/93
- Training Self Evaluation Report PA-93-02-04, 2/26/93
- ADM-0028, "Maintenance Work Order," Revision 12
- RBNP-030, "Initiation and Processing of Condition Reports," Revision 3