APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-498/93-01
50-499/93-01

Operating Licenses: NPF-76
NPF-80

Licensee: Houston Lighting & Power Company
P.O. Box 1700
Houston, Texas 77001

Facility Name: South Texas Project (STP), Units 1 and 2

Inspection At: STP, Bay City, Texas

Inspection Conducted: January 11-15, 1993

Inspectors: T. O. McKernon, Lead Inspector, Operations Section
Division of Reactor Safety

R. E. Lantz, Examiner, Operations Section
Division of Reactor Safety

J. L. Pellet, Chief, Operations Section
Division of Reactor Safety

Accompanying Personnel: B. Hughes, Operator Licensing Branch, Office of Nuclear Reactor Regulation
M. M. Biamonte, Human Factors Branch, Office of Nuclear Reactor Regulation

Approved: John L. Pellet 2/9/93
J. L. Pellet, Chief, Operations Section Date
Division of Reactor Safety

Inspection Summary

Areas Inspected: Special announced inspection of the licensed operator requalification program, which included a review of administrative controls for licensed operator training, and observation of operators during the conduct of facility licensee annual licensed operator requalification examinations. The team also observed the performance of the examination evaluators in the simulator and during in-plant walkthroughs. The inspectors

used the guidance provided in Temporary Instruction 2515/117, Revision 0, issued December 8, 1992.

Results:

- Operators' performance during the operating examinations was good (Section 1.2).
- Evaluators' performance during the operating examinations was good (Section 1.3).
- The training department appeared effective in implementing the licensed operator requalification training program (Section 1.3).
- The lack of a formal approved training plan or formal sample plan, over at least a 6 month period, is indicative of a lack of effective self-analysis and prompt corrective actions.
- The lack of a formal revision system for the training plan is indicative of a weak tracking system.
- There appeared to be a prior lack of operations commitment to training needs identification (Section 1.1).
- Simulator fidelity appeared acceptable with one minor inconsistency observed regarding the safety injection accumulators modeling (Section 1.4).
- The training department did not have an approved biennial licensed operator training plan (Violation 498/9301-01; 499/9301-01) (Section 1.1).
- During the inspection a licensee health physicist entered the radiological control area without the required dosimetry (Noncited Violation) (Section 1.2).

Summary of Inspection Findings:

- Violation 498/9301-01; 499/9301-01 was opened (Section 1.1).
- A noncited violation was identified (Section 1.2).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Documents Reviewed
- Attachment 3 - Simulation Facility Report

DETAILS

1 LICENSED OPERATOR REQUALIFICATION PROGRAM EVALUATION (TI 2515/117)

During the inspection, the licensee's requalification program was assessed to determine whether the program incorporated appropriate requirements for both evaluating operator's mastery of training objectives and revising the program in accordance with 10 CFR 55. The licensed operator requalification program assessment included a review of training material for the past year, evaluation of the program's controls to assure a systems approach to training, and operating crew performance during annual requalification examinations. This included review of the facility documents listed in Attachment 2. Further, the inspectors assessed the effectiveness of the examination evaluators in conducting the examinations.

1.1 Licensed Operator Requalification Operating Examinations

The inspectors reviewed the licensee's simulator scenarios and job performance measures (JPMs) used in the examination. The inspectors discussed with the training specialists the sampling technique used in choosing the examination items. The training specialists stated that they used the verbal guidance of their supervisors, and the training department Procedure NTP-230. A review of Procedure NTP-230 indicated that guidance for developing simulator examination scenarios existed which included format, validation requirements, use of critical tasks, and failure criteria evaluation sheets. However, no formal guidance for sampling from the bank of some 59 scenarios existed. When queried, one evaluator, who constructed the examination, was unaware that one of the scenarios selected was also a scenario used in training during the past year. Other similar weaknesses were noted with the sampling methodology. For example, two of the scenarios utilized in examining one of the crews contained the same major plant events and two similar significant malfunctions. The inspectors considered the lack of a formalized sample plan as a program weakness and a vulnerability.

The inspectors reviewed the JPMs used in the simulator, control room, and plant walkthrough portion of the examination. The JPMs had been developed acceptably in accordance with Procedure NTP-230. However, similar to the examination scenarios there was no formalized sample plan which guided the training specialists in their sampling from the JPM bank. In discussions, training specialists stated that they were instructed verbally as to what types of scenarios and JPMs to select.

The inspectors inquired as to the existence of a sample plan and a biennial licensed operator training plan. The licensee representatives stated that a formalized biennial training plan did not exist, but rather an informal uncontrolled training matrix marked in pencil was used. This matrix allowed the training manager to revise the plan easily. The matrix did not appear to provide a controlled method for tracking training tasks in that no assurance

existed that a training task would not inadvertently be deleted. The inspectors concluded that the informal matrix appeared to be a weak tracking system. Similarly, the inspectors noted an apparent lack of prior input by the operations department into the requalification program training requirements. This condition appeared to be improving as a result of establishing the curriculum review council. The inspectors reviewed Procedure NTP-230 which indicated that no guidance for a sample plan existed. However, Procedure NTP-230, paragraphs 6.3.5.3 and 6.3.5.4 requires that a biennial licensed operator training plan be approved by the technical advisory council (TAC). The inspectors determined that no formalized and controlled training plan existed or was approved by that council. The program's effectiveness resided with training department personnel in lieu of a controlled and delineated process. The inspectors also noted that due to conflicting procedures, it was not obvious which members of the facility comprised the TAC. The failure to have an approved biennial licensed operator training plan is a violation of Appendix B of 10 CFR 50, Criterion V, for failure to follow an approved procedure (498/9301-01; 499/9301-01).

In addition to the above, the inspectors reviewed the lesson plans for licensed operator requalification (LOR) Course LOR925. The course included classroom training (lessons learned, plant modifications, industry information, discussions of plant evolutions and events, and other information), required reading, simulator sessions, and other training needs. The inspectors noted that the majority of lessons plans consisted of the base information alone such as a licensee event report, a procedure, plant modifications, and others. Much of the training utilized the information from licensed operator training course lesson plans in lieu of separate LOR lesson plans. The inspectors noted that a recent independent third-party audit of the licensed operator requalification program had observed the same condition. The inspectors considered the lack of a formalized specific requalification curriculum a vulnerability to the program's effectiveness.

1.2 Conduct of Operating Tests

The inspectors also observed two operating crews in the dynamic simulator and performing JPMs. A staff crew was observed in the dynamic simulator. The inspectors noted that the examinations were conducted as planned and errors discovered were documented and tracked for correction by a deficiency report. No major crew or operator performance errors occurred during the examinations. Those minor problems observed were adequately addressed by the evaluators. The post simulator examination critiques by the evaluators were effective in identifying the strengths and weaknesses of the crew and in adequately appraising the performance. The inspectors also observed that licensee management guidance paralleled crew performance during the simulator examinations. For example, the operating crews were expected to transition to the appropriate contingency action procedure, if the shift supervisor was confident in the diagnosis of the event, rather than waiting until the step in the parent procedure was reached. This performance was apparent when transitioning to the procedure for isolation of a faulted steam generator when the operators recognized a significant steam generator tube rupture condition.

The licensee had also incorporated industry events into the testing by using such scenarios as lifted or leaking pressurizer pressure operated relief valves. During the simulator scenario examinations, the inspectors observed good operator performance. The operators' understanding and interpretation of annunciators and alarm signals were good, as well as their subsequent diagnosis of events and conditions. The operators' control board operation was good and the operators demonstrated the appropriate level of plant knowledge. Overall, communications in the crews observed was closed-loop, professional, and succinct. The crews demonstrated the proper compliance with plant procedures and Technical Specifications. In all instances, the responsible individual (e.g., unit supervisor) demonstrated good supervisory command and control. Similarly, during the JPM portion of the examination, the operators demonstrated good knowledge and abilities in performing the JPMs. The inspectors considered the performance of the operators as good.

During the performance of JPM walkthroughs, one of the operators being evaluated was required to enter the radiological control area (RCA). Upon arrival at the RCA access control point the operator being evaluated observed an alarming dosimeter (ALNOR) left in the automatic reader. The health physics (HP) personnel were informed. HP personnel quickly identified the individual as an HP technician who had recently entered the RCA with a survey meter. The HP personnel retrieved the technician from the RCA and determined that the individual had been in a low dose area for 10 minutes. HP personnel also issued a Radiological Occurrence Report ROR 1-93-0016, to document the incident. The HP technician was counseled on the importance of radiological work permit compliance. The inspectors noted that the incident was a violation of the licensee's Technical Specification Section 6.11 and Station Procedure OPGP03-ZR-0002 which requires obtaining the necessary dosimetry prior to RCA entry. However, the inspectors noted that the following enforcement discretion criteria applied: (a) the condition was identified by the licensee; (b) the violation appeared to be an isolated incident, was not considered safety significant, and was not a repeat of a previous violation; (c) the licensee took prompt corrective action by retrieving the individual from the RCA, determined the dosage for the area entered, documented the incident, counseled the individual on work permit compliance, and informed the NRC; and (d) it was not a willful violation. This violation will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria specified in Section VII.B.2 of Appendix C to 10 CFR 2.

1.3 Licensee's Requalification Examination Evaluators

During the examinations and training, the inspectors assessed the effectiveness of the licensee's evaluators. The inspectors observed the evaluators control and coordination of examinees, pre-examination briefings, simulator scenarios and post simulator scenario critiques, classroom training, and JPM walkthroughs (in the control room, simulator, and in-plant). The simulator scenarios and JPMs appeared clearly written and contained relevant critical tasks and objective performance standards. Performance standards were used objectively and consistently by the evaluators, and critiques of the

operators and crews were accomplished in a disciplined and structured manner. Training supervisors and training specialists appeared knowledgeable about the application of performance standards. Classroom training on the emergency response plan, while not as formal and practiced in presentation as possible, was still effective in presenting the material to the operators.

Other training materials reviewed which were incorporated into the operators requalification training included lessons learned from both industry events and events/operator errors at the facility which had occurred since the last requalification period. Examples included past problems with unplanned engineered safety features actuation of a component cooling water pump and misinterpretation of training needs required to support a modification to the toxic gas monitoring system. Overall, the performance of the examination evaluators was good and training appeared effective.

1.4 Simulator Fidelity

The inspectors discussed with key licensee managers and training staff the capabilities of the simulator to support licensed operator training. Training staff members stated that a critical key in selecting and developing scenarios for the simulator was whether the simulator would function adequately. Licensee management agreed that simulator modeling and capability had been a long standing problem and funding had been allocated to upgrade the simulator by 1995. An example of simulator incorrect modeling occurred when an operator performing a JPM could not complete the task (drain down of a safety injection accumulator) due to the accumulator's level dropping quickly as described in Attachment 3. In subsequent questioning, it was determined that the training instructors selecting and preparing the JPM examination had not dynamically validated the JPMs, but rather had only statically validated the JPM text against the controls and procedures. The inspectors considered the lack of dynamic validation of the JPMs as another example of the training program's weakness in not having formalized and controlled guidance to ensure consistency and effectiveness. With the exception of the one inconsistency observed, simulator fidelity appeared acceptable.

1.5 Examination Security

Review of Procedure NTP-230 indicated that appropriate administrative guidance was included with respect to maintenance of examination security, prevention of examination compromise, and examination replacement actions should compromise occur

Interviews with the training staff and key managers demonstrated that they were knowledgeable of the examination security procedures and were confident in ensuring examination integrity.

1.6 Conclusions

The inspectors concluded that the performance of licensed operators and evaluators, as represented by those observed during the annual examinations,

was good. During the examinations, one minor simulator fidelity problem was observed, but the simulator modeling supported effective examinations. The inspectors also observed one violation of health physics procedures due to entry into the radiologically controlled area without dosimetry required by procedure, which was not cited. The training department appeared to be effective in implementing the licensed operator requalification program. However, the inspectors determined that the training and operations groups failed to develop and maintain a formal training plan, as required by facility procedures, which constituted a violation of the facility license. The informal training plan also exemplified a weak tracking system. The licensee was in the process of improving the program but corrective actions, such as revising training procedures, did not appear prompt. In addition, the lack of comprehensive and effective examination construction guidance or sample plan, and the ineffective validation of material used on the examination were indicative of ineffective problem self-identification. The inspectors considered these weaknesses as a vulnerability in the licensee's requalification program because the program's effectiveness depends solely on the efforts of knowledgeable personnel rather than underlying formalized and controlled guidance.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

S. Ard, Training Specialist
*C. Ayala, Supervising Engineer
*J. Blevins, Supervisor, Procedure Control
*F. Comcaux, Consulting Engineer
*M. Chakravorty, Executive Director, Nuclear Safety Review Board
G. Chitwood, Training Specialist
*K. Christian, Manager, Plant Operations
*R. Dally-Piggott, Licensing Engineering Specialist
R. Graham, Training Staff
*D. Hall, Group Vice President, Nuclear
*M. Johnson, Nuclear Licensing Technician
*W. Jump, General Manager, Nuclear Licensing
*W. Kinsey, Vice President Nuclear Generation
*M. Ludwig, Manager, Nuclear Training
*T. Meinicki, Manager, Planning & Assessment
W. Muntz, Training Instructor
*R. Rehkugler, Director, Quality Assurance
*J. Robbins, Organizational Development Consultant
*L. Weldon, Manager, Operations Training

1.2 NRC Personnel

*J. Tapia, Senior Resident Inspector

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

* Denotes personnel that attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on January 15, 1993. During this meeting, the inspectors reviewed the scope and findings of the inspection. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT 2

DOCUMENTS REVIEWED

Course Attendance Record For Licensed Operator Requalification Course LOR925 Courses LOR921-925

Curriculum Review Committee Minutes from December 1, 1992

Interdepartmental Procedure IP-8.24, "Simulator Configuration Management," Revision 2

Interdepartmental Procedure IP-8.1Q, "Training Program Review and Advisory Process," Revision 4

Interdepartmental Procedure IP-8.9Q, "Licensed Operator Requalification," Revision 4

Interdepartmental Procedure IP-3.07Q, "ASME Section XI Repair/Replacement Program," Revision 5

Lesson Plans for Training Course LOR925, Code No.s LOR700.01, LOT503.01, and LOR700.02

Licensed Operator Feedback Forms from Course LOR924

Licensed Operator Requalification Training Audit, dated September 23, 1992

Nuclear Training Department Procedure NTP-230, "Conduct of Licensed Requalification and Simulator Training Programs," Revision 2

Nuclear Training Department Procedure NTP-303.1, "Analysis of System Data," Revision 2

Operations Department Procedure OPOP04-ZO-0005, "Chemical Spills/Toxic Gas Release," Revision 1

Schedule Summary for Licensed Operator/Shift Technical Advisor Training, (CMA Activity Completions Input Form)

Station Procedure CPGP03-ZE-0020, "Post-Maintenance Testing Program," Revision 3

Station Procedure OPOP01-ZA-018, "Emergency Operating Procedures User's Guide," Revision 3

Station Procedure OPGP03-ZR-0002, "Radiologically Controlled Area Access and Work Control," Revision 9

Station Procedure OPGP03-ZE-0031, "Design Change Implementation," Revision 9

Station Procedure OPGP03-ZX-0002, "Corrective Action Program," Revision 0

ATTACHMENT 3

SIMULATION FACILITY REPORT

Facility Licensee: Houston Lighting & Power Company

Facility Dockets: 50-498
50-499

Operating Tests Administered on: January 14, 1993

During the conduct of simulator job performance measures portion of the operating tests, the following item was observed:

ITEM	DESCRIPTION
"A" SI Accumulator level indication	During performance of a JPM the operator was required to drain down the "A" SI Accumulator in order to reestablish proper level and boron concentration. However, upon establishing the proper system lineup the accumulator level abruptly fell. The sudden change in accumulator level was not consistent with the real plant.