APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Report: 50-382/82-24

Docket: 50-382 Permit: CPPR-103

Licensee: Louisiana Power and Light Company
142 Delaronde Street
New Orleans, Louisiana 70174

Facility Name: Waterford Steam Electric Station, Unit 3

Inspection At: Taft, Louisiana

Inspection Conducted: October 4-8, 1982

Inspectors: E. H. Johnson — 11/5/82
E. H. Johnson, Director of Enforcement — Date

J. P. Jaudon — 11/5/82
J. P. Jaudon, Reactor Inspector, Reactor Project Section C — Date

T. A. Flippo — 11/5/82
T. A. Flippo, Reactor Inspector, Reactor Project Section C — Date

Reviewed: for W. D. Johnson — 11/5/82
W. D. Johnson, Chief, Reactor Project Section C — Date

Approved: W. A. Crossman — 11/5/82
W. A. Crossman, Chief, Reactor Project Section B — Date

Inspection Summary

Inspection Conducted October 4-8, 1982 (Report 50-382/82-24)

Areas Inspected: Special, announced inspection of the status of the applicant's training program to determine if training commitments made in the FSAR were being carried out and that necessary training would be completed by the scheduled fuel load date. The inspection involved 105 inspector-hours by three NRC inspectors.

Results: Within the areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

Louisiana Power and Light Company

C. Boudreaux, Training Coordinator, Instrument and Control
S. Bradford, Chemistry Technician (Acting Training Coordinator, Chemistry)
D. Clark, Nuclear Instructor
B. Collins, Nuclear Auxiliary Operator
R. Crawley, Training Coordinator, Fire Protection
W. Davies, Contract Instructor
W. Floyd, Training Coordinator, Electrical Maintenance
*T. Gerrets, QA Manager
B. Hall, Training Coordinator, Mechanical Maintenance
O. Hayes, STA Coordinator
W. Hellums, Acting Unit Supervisor for training, HP, Chemistry, Radiation Waste, and General Employee Training
J. Holmes, Contract Instructor
D. Hurshman, Acting HP Training Coordinator
M. Langan, Nuclear Instructor
*D. Lowe, Training Development Manager
J. McCullough, Contract Instructor
D. Melancon, Nuclear Auxiliary Operator
H. Miller, Nuclear Auxiliary Operator
D. Mitchell, Nuclear Auxiliary Operator
J. O'Hern, Acting Training Support Supervisor
D. Olsen, Nuclear Operations Supervisor
D. Ortego, Nuclear Plant Operator
*D. Packer, Acting Training Center Manager
G. Perhala, Nuclear Operations Supervisor
*G. Peeler, Operations Superintendent
*P. Prasankumar, Maintenance Superintendent
*Z. Sabri, Training Director, Nuclear
J. Schloredt, Contractor Instructor
T. Shreckengast, Nuclear Auxiliary Operator
*C. Toth, Manager, Nuclear Training
A. Vest, Nuclear Auxiliary Operator
J. Walker, Contract Instructor
S. Whitley, Contract Instructor
B. Wilson, Nuclear Auxiliary Operator
R. York, Nuclear Auxiliary Operator

The NRC inspectors also contacted other plant personnel including administrative, chemistry, clerical, engineering, health physics, maintenance, and operations personnel.

*Denotes presence at the exit interview conducted October 8, 1982.

2. Instructor Staffing and Certification

In December 1981, LP&L hired Dr. Z. Sabri as the Training Director-Nuclear to head up all corporate activities involved with training of Waterford 3 operations personnel. At the same time this position was elevated to report directly to the Vice President, Nuclear Operations. This puts the Training Director at the same management level as the Plant Superintendent and provides the necessary autonomy to the training department to ensure training retains an appropriate priority.

In September 1982, the Nuclear Training Department was given responsibility for all Waterford 3 training (except physical security), and under this centralized training concept was authorized a staffing allowance of 50 instructors and 4 supervisors. At present, the onboard staffing is five permanent LP&L instructors plus three LP&L supervisors. The balance of the training department is manned by contractor employees.

The training department is broken into three groups: training development (training program development and update); training center (simulator and laboratory training); and training implementation (the instructors who will provide actual training to each of the onsite functional groups). Training needs will be based upon position task analysis. These analyses, however, are just being developed and are not fully reflected in the current training program.

Since the centralized training concept has just been introduced, and has not yet been fully implemented, many of the existing training activities are still being conducted and managed within the individual departments. This has caused some variance in quality and scope of the training being provided to various skill groups.

With the expanded training department, the applicant is developing an instructor certification program, the procedures for which will be ready in January 1983. This program defines a basic instructor course and instructor qualification levels from intern, level I, level II, and finally senior instructor. Progression from level to level requires review by experienced members of the training department and additional classroom experience. A structured certification program is used to judge candidates completing the basic instructor course to determine if they are to be passed to the instructor intern level.

3. Licensed Operator Training

The applicant currently has 46 candidates in training for NRC cold licenses. Of this number, 40 are operations department personnel. The

balance are management, engineering, and training department personnel. Of the persons designated as shift watch-standers, seven have previously held NRC licenses at another commercial nuclear power facility. These persons are presently being used to write and review procedures in addition to pursuing their own qualifications.

The cold license training program is described in the FSAR section 13.2.1.1. The elements of this program are:

(a) 200-hour academic refresher course

(b) 600-hour basic nuclear fundamentals

(c) 120-hour research reactor operations course

(d) 10-week observation at an operating power plant

(e) 8-week simulator course

(f) 5-week NSSS lecture series.

This program was revised in November 1981 and again in April 1982 to include 240 hours of advanced theory (of which only 80 hours was actually completed due to the later program changes) and six weeks of plant systems instructions. Additionally, the 600-hour basic nuclear fundamentals was cut to 240 hours, and the 200-hour academic refresher was reduced to 160 hours.

At the time of the inspection, all of these elements had been completed for the cold license candidates. In August 1982, the applicant brought in a consultant to give NRC type examinations and walk-throughs to all of the candidates. The results of these examinations showed that only about six candidates would have been licensed as Reactor Operators, and only one would have received a Senior Reactor Operator license. The NRC inspector, in reviewing these results, noted that, at the time of this examination, two significant onshift periods, during the cold hyrostatic tests and hot functional testing, had not yet occurred; however, the above results were a source of concern in measuring the applicant's progress toward fuel load.

The NRC inspector noted that the contractor had indicated that these results pointed out areas in which more work would be required to ready candidates for the licensing examination, and that, in general, it was the opinion of the consultant that most of the candidates would pass the NRC licensing examination if this additional work were accomplished. The NRC inspector interviewed several cold license candidates to determine what additional steps were necessary to ensure that sufficient qualified operators would be available to support fuel load. The following paragraphs relate the findings and the concerns of the inspector.

The NRC inspector noted that because the cold licensing training program had gone through several revisions, it had become more reactive than proactive and with the closeness of the scheduled fuel load date, was now at a point where operators were required to study operating procedures, spend additional classroom time in intensive upgrading covering areas of noted weaknesses, spend time in the plant learning systems, and participate in the remaining portion of the plant startup. Each of these activities could very well occupy the remaining time until scheduled fuel load; and yet all are required to be conducted concurrently.

In interviews with various license candidates, the NRC inspector was able to determine that those individuals who had done well on the consultant's examination were those who had devoted significant overtime to studying plant systems. On the other hand, one previously licensed individual indicated that he was getting concerned for his own qualification because he had not yet been able to spend sufficient time in the plant to learn systems. Interviews with the nonlicensed operators confirmed that, in general, licensed operator candidates were weak in their understanding of the plant system locations and actual operating procedures.

One of the elements of the qualification program that is designed to aid operators in familiarizing themselves with the plant and system operations is participation in the testing program. At the time of the inspection, all operators had been assigned to shift work to assist in the cold hydrostatic tests. Interviews with operators showed that this experience had been of questionable value. Some operators were not given specific assignments to accomplish while on shift, and in many cases were not used as integral members of the test teams but were, instead, given tasks as Heise gauge watches, or were allowed to operate systems only under direct control of the startup engineers with procedures that the operators were not familiar with, and control boards that were not complete. Non licensed operators, who have spent all of their time on the station staff assigned to shift work, confirmed that the license candidates did not, in general, participate in the cold hydrostatic tests as fully as had been intended.

The NRC inspector noted that the licensee had, some time ago, developed both a qualification guide and system walk-down checklists, for cold license candidates to use on their own, for learning plant systems and plant operations. Both of these documents were no longer in use, and in spite of the fact that cold license candidates had been authorized up to four hours per day overtime for their own individual study, this time was not being used, except by a few individuals. The value of this overtime was apparent in the results of the contractor's examination. To exacerbate this, the applicant had not yet identified his shift alignment to allow the operators to work together as a team, and to allow the future supervisors an opportunity to excercise responsibility for the qualification progress of the watch section.

It was readily apparent to the NRC inspector that additional in-plant time would be required for all cold license candidates to gain the necessary understanding of plant systems and their operations. Further, this program must be carefully monitored by the licensee, such as is done for nonlicensed operators, as described in paragraph 4, to ensure that adequate progress is achieved and maintained in the short time remaining until fuel load.

An additional item of concern was raised by the NRC inspector concerning the qualification progress of plant management personnel. It was noted that the Operations Supervisor and the Assistant Plant Manager, both of whom are committed to NRC licenses or the equivalent, have been involved with administrative duties up to now, and they have not had the time to adequately pursue their own qualifications. The NRC inspector indicated that this was an unsatisfactory situation, and that both of these persons must be ready to take a licensing examination. Indeed, it was noted, the Operations Supervisor would be required by Technical Specifications to be licensed at the SRO level.

These concerns were discussed during the exit interview, and the NRC inspector was informed that a second examination of licensed candidates by the same consultant was planned for January or February 1983. The inspector responded that Region IV would be very interested to review these results, since, at present, it was not yet evident that the applicant had been very effective in providing the training necessary to produce a sufficient number of licensed operators to support the scheduled fuel load date.

4. Nonlicensed Operator Training

The applicant's nonlicensed operator training program consists of four parts. The first part is a general section on procedures and basic mechanical components, and includes a final certification. Following this is the qualification for Outside Tender, Turbine Building Operator, and finally as Reactor and Auxiliary Building Operator. The entire program takes 14 months. At present, the applicant has divided his nonlicensed operator staff into two groups, and at the time of fuel load, is scheduled to have 12 operators qualified as Outside Tender/Turbine Building, and an additional 12 as Turbine Building/Reactor and Auxiliary Building Operators.

All training is conducted on shift, except for a 30-hour classroom course that covered print reading, electrical distribution, quality control, watchstation duties, and the tagging procedure. Watchstation qualification is accomplished by system study, and demonstration of capability to perform necessary operations with each system. Progress toward watchstation qualification is outlined and recorded in each individual's qualification guide. The NRC inspector reviewed the content of this course and determined that it was adequate to meet the goal of providing qualified nonlicensed operators.

To monitor the progress of candidates, the applicant uses a qualification guide for each operator, and a member of the training staff reviews the status of qualification of each operator once a month. Where the progress does not meet standards, this followup interval is shortened to two weeks.

In addition, the applicant is currently developing a program for non-licensed operator training along the qualification guidelines established by INPO. The NRC inspector also reviewed this program.

It was apparent that because of the well laid out training program and the close attention that was being paid to the progress of individual candidates, this program should be very successful in producing well qualified nonlicensed operators.

5. Maintenance Training

The applicant has divided maintenance training into three functional skills, Instrument and Control (I&C), Electrical, and Mechanical. These are discussed in the subsequent paragraphs.

a. I&C Training

In the FSAR, the applicant committed to basic academic training plus additional training at the level I and level II technician ratings. The I&C group is divided into three subspecialities. These are computer, analog, and metrology technicians.

The academic training described in the FSAR for this group includes basic math, trigonometry, algebra, and basic calculus. A screening test is given to determine if prospective technicians need training in this area. A review of the test showed that it was at a very basic level and that nearly all candidates passed it. Therefore, the applicant had found no need to teach the basic mathematics course. The NRC inspector was also informed by applicant representatives, that the trigonometry and algebra sections of the basic academic training had not yet been developed, and that the calculus course would be taught only to level II technician trainees. It was noted that the FSAR had not yet been revised to reflect this change in commitment.

The NRC inspector noted that there was no cross training between the three subgroups within I&C. Accordingly, there appeared to be no potential for personnel shifts between groups; thus, if one group suffered higher than expected attrition, no relief was available from the other subspecialities.

The applicant had established a goal that each analog technician should be qualified as Level II on at least five instrument systems by the scheduled fuel load date. The NRC inspector did not find any schedules or other implementing documents to indicate that the applicant had a definitive program to achieve this goal by fuel load.

The licensee also stated that a modular laboratory would be used in future to provide "hands on" training for technicians. This modular laboratory was scheduled to go into service on April 1983. The NRC inspector reviewed documentation on this training device which, it was noted, would be among the first in use in a nuclear power plant. Its use should be of significant benefit in improving technical skills.

It was noted that analog technicians had been given systems lectures, but similar lectures have not been given to either metrology or computer technicians. Records indicated that analog technician supervisors had not attended most of the systems lectures given.

The NRC inspector noted from training records that the applicant had provided approximately 4 days of training in procedures, manuals, appropriate FSAR information, and related administrative controls. There was, however, no record of any testing to verify the effectiveness of this training.

It was also found that a special level I technician examination had been given to analog technicians. This examination was variously described to the NRC inspector as requiring a passing score of "80" and, later, of "70." Review of training records indicated that 70 was, in fact, the passing score. On this basis all analog technicians were considered to be level I qualified. The licensee was, however, continuing level I technician training through a series of 58 video-tape and workbook lectures. These lectures, which were being given at the rate of one per week, comprise the bulk of the 200 classroom hours for level I qualification committed in the FSAR.

The NRC inspector expressed his concern that the training program currently defined in the FSAR for level II analog technicians was not being strictly adhered to, and that sufficient numbers of personnel trained to this level might not be available in time for fuel load without a concerted effort on the part of the applicant.

b. Electrical Training

The electrical maintenance training program described in the FSAR includes approximately 250 hours of classroom training in technical areas and 160 hours of laboratory or practical training. At the time of this inspection, completed training had covered approximately two-thirds of the technical ares. There had also been 40 hours of lectures on plant systems. In this latter case there had been no testing to verify the effectiveness of this systems training.

The applicant's representatives stated that they planned to resume lectures to electricians in January 1983. It appeared that this schedule would allow completion of the FSAR committments in this area by the scheduled fuel load date. It was further stated that a final examination would be given at the completion of lectures.

A laboratory trainer had been purchased but was not yet at the site. Applicant representatives stated that a purchase order for it had been approved and that delivery was expected in December 1982. The laboratory trainer is scheduled to be placed in service during January 1983. With careful scheduling the 160 hours of committed laboratory training and the lecture program should be completed by scheduled fuel load.

c. Mechanical Training

The FSAR mechanical maintenance training program consists of 68 hours of training in basic sciences, 70 hours in mechanical fundamentals and skills, 110 hours of systems and procedures, and 90 hours of laboratory training. The program in place to meet these commitments includes programmed self study in a variety of basic skill areas (e.g., hand tools, plant safety, pumps, print reading, etc.), and lecture series including an introduction section (30 lectures), systems (50 lectures), procedures (44 lectures), requalification-administrative (13 lectures) and vendor courses (12 lectures). The NRC inspector determined that the actual training conducted, although appearing to meet the applicant's needs, was not accurately reflected in the FSAR.

The NRC inspector also noted that there were qualification cards for "helpers" and for three levels of mechanics (A, B, and C). These cards had been only recently developed, and there had been few sign-offs completed on them. The level of skill required for sign off on these cards was not defined. There were separate records of on-the-job training completed, but these were not correlated to the qualification cards.

At the time of this inspection, the mechanical maintenance training program had not been incorporated into the centralized training program. The mechanical group training coordinator was himself a new employee. System lectures were being given at the rate of one per week, with the only other training in the self-study areas.

In the area of mechanical maintenance training, the NRC inspector was able to conclude that the training program actually in use was not accurately reflected in the applicant's FSAR, although, it may match the perceived needs. More importantly, however, it was determined that the schedule currently in use for this training program was such that the elements defined would not be completed by fuel load.

6. Health Physics Technician Training

The FSAR committments for health physics (HP) technician training include entry level training (50 hrs), training at three levels of junior HP technician and finally qualification as a senior HP technician. The length for each level of junior HP technician training are 24, 60, and 110 hours, respectively. There are also experience requirements for progression from one level to another. These can be waived for personnel with previous experience upon completion of required classroom training.

At the time of the inspection, the applicant had taken an initial group through entry level and junior HP-1 training. Although there was an apparent change from the FSAR commitments in the number of hours required at each level, the NRC inspector concluded that the applicant was meeting his committed training goals for HP technicians. Applicant representatives stated that the original group would soon start junior HP-2 classroom training; and a second group would begin entry level training.

The NRC inspector noted that the applicant was not providing any practical training onsite for inexperienced HP trainees. In lieu of this, HP trainees have been sent to other sites for practical experience. This program, while conceptually sound, appeared to have broken down in implementation. For example, one HP trainee spent his entire time at another site cleaning and issuing respirator masks.

In summary, the applicant appears to be generally following his commitments for HP training. The quality of practical training has not been established as fully satisfactory. The current rate of progress in HP training will support scheduled fuel load, if sustained, and as long as the input to the program is essentially experienced personnel.

A related area of training is radwaste handling. The FSAR states that training for personnel involved in this activity requires Junior HP Technician-1 training plus specific area training (e.g., resin tranfer, solid waste compaction, etc.). There had been no training conducted in specific areas, and the lessons plans for this training were still under development.

It would appear that the area of radwaste handling will need significant emphasis to ensure that personnel are properly trained to support fuel load and plant startup.

7. Chemistry Training

The applicant committed in the FSAR to provide training in chemistry, radiochemistry, systems, physics, waste management, corrosion and corrosion prevention, radiological process monitoring, analytical and sampling techniques, liquid and gaseous waste monitoring, effluent accounting, post-accident analysis and sampling, calibration, quality assurance, and technical specifications. A course of approximately 250 hours duration was run. This included eight tests and a final examination. This appeared to meet the FSAR committments. However, since the time when this course was initially completed, the applicant has experienced high attrition in the chemistry group. Additionally, the original instructor was no longer available to repeat the course. The applicant was attempting to have the original course rates and lesson plans converted to a self study, programmed instruction format for replacement chemists. The contract for this work was let in October 1982 according to applicant representatives, who also stated that they hoped to have this course ready for use in November 1982. The NRC inspector expressed concern that this was very optimistic planning.

At the time of the inspection, the chemists remaining from the orginally trained group were reviewing analysis procedures for adequacy and training in their use. Formal sign off of qualification to perform each procedure was in use. The rate of progress of this phase of qualification was such that, if sustained, it would support the scheduled fuel load date.

In summary, the training of the orginial group of chemists appeared to meet the FSAR commitments and supports the scheduled fuel load date. Training of replacement personnel will require continued emphasis to meet training goals by fuel load dates.

8. Shift Technical Advisor (STA) Training

The NRC inspector reviewed the licensee's program to determine if the commitments made in the FSAR concerning STA training are being implemented. The licensee's program appears to meet the FSAR commitments, in that the five phases of academic training are being presented to the STA candidates. The five phases of academic training are listed below:

Phase I	Basic Academics
Phase II	Management/Administrative Controls
Phase III	Systems Training
Phase IV	Transient/Accident Analyses
Phase V	Simulator

As of August 1982, the initial class of STA candidates has completed required academic training, and returned to their normal job assignments at the plant. However, no program has been established to keep the STA candidates abreast of design changes made in the plant system prior to fuel load. The NRC inspector expressed his concern that it would be difficult for the STA to perform his assigned duties and responsibilities at the time of fuel load, if he were not kept informed of plant design changes. In order to assure STA proficiency, it would appear necessary to implement a program that would ensure the STA's review of plant design changes.

9. Fire Protection Training

The applicant has committed to provide training consistent with 10 CFR Part 50, Appendix R. The applicant's training program for fire brigade members included a five da· course (classroom and practical training) taught at an offsite facility. The classroom phase of offsite training was accomplished by site personnel, who also watched the practical training and administered their own test. At the time of this inspection, 68 potential fire brigade members had completed this training. This training was also given to some maintenance personnel to provide backup support to the fire brigades. The applicant also had courses for command of the fire brigade and for indoctrination of offsite fire companies.

Additional fire protection training is included in general employee indoctrination. Additionally, a short, overview course for all first-line supervisors and managers, and a short course in handling flammables, toxic liquids, etc., for storekeepers and first-line supervisors have been developed.

The NRC inspector concluded that the applicant was meeting his FSAR committments for fire protection training. It was also concluded that at the current rate of progress, fire protection training would support the scheduled fuel load date.

10. General Employee Training

The NRC inspector reviewed the licensee's general employee training program with the purpose of determining if the program was being implemented as committed in the FSAR. The licensee's program, consisting of the subjects shown below, appears to meet the commitments made in the FSAR.

(a) General Orientation

(b) Radiation Protection

(c) Emergency Plan

(d) Job-Related Procedures and Instructions

(e) Industrial Safety

(f) Fire Protection Plan

(g) Security Plan

(h) Quality Assurance Program

At the present time, the general employee training is being conducted on a regular weekly basis, and will be presented to all designated employees before fuel receipt. The NRC inspector had no further questions in this area of training.

11. Systems Training

In this FSAR, the applicant committed to provide plant systems training to most non-operations groups. Previous to the development of a

centralized training department, the implementation of this training had been left up to each of the individual groups, without a definitive program as to what was required. While the applicant has brought some training activities under the centralized training department, systems training has still been left largely to the individual groups.

The NRC inspector found that some groups had done little systems training, while other groups were conducting an extensive program. It was apparent that no uniform standards had been developed to set the tone for the various programs in existence, and that some duplication of effort was, therefore, inevitable.

The NRC inspector recommended that this area be reviewed and that the appropriate standards be developed. The inspector noted that there would have to be some tailoring of the systems training depending on the needs of the particular skill group receiving the training; however, some minimum standards are needed to ensure that overall objectives are met.

12. Exit Interview

An exit interview was conducted with Dr. Sabri and members of her staff at the conclusion of the inspection. The findings and concerns noted above were discussed. Specifically stressed were the concerns that significant changes in methods would be required to assure a sufficient number of licensed operators were available to support fuel load, that management personnel be freed from some duties to ensure they could pursue necessary qualification, and that certain departments had defined very broad training to be accomplished prior to fuel load and had not drawn up schedules that assured this training would be accomplished.