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MIDDLE SOUTH UTILITIES SYSTEM

September 19, 1984

W3P84-2573
3-A1.01.04
3-A19.09.09.03

Director of Nuclear Reactor Regulation
Attention: Mr. G.W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: Waterford SES Unit 3
Docket No. 50-382
Completion of Procedures Generation
Package Review

REFERENCE: (1) Letter dated May 7, 1984
from Knighton (NRC) to Leddick (LP&L)
(2) Letter dated May 30, 1984
from Knighton (NRC) to Leddick (LP&L)
(3) W3P84-2062 dated July 31, 1984

Dear Sir:

In your Reference (1) and (2) letters you provided comments following the Staff review of the Waterford 3 Procedures Generation Package. These comments were addressed through the submittal of a revision to the PGP by Reference (3).

On September 14, 1984, in a conference call with NRC/PSRB Staff Messrs. Clifford and Goodman, the final resolution of NRC comments on the PGP was discussed. During the course of the discussion the Staff indicated that all PGP concerns have been adequately addressed by LP&L save that additional clarification was requested concerning the Writer's Guide questions 16, 17, 18 and 19 of Reference (1). Enclosed please find the affected PGP page changes necessary to complete the NRC review.

It is LP&L's understanding that with this submittal no impediments remain to NRC closure of the Waterford 3 PGP review. We therefore request that the review results be documented in the next Supplement to the SER including acceptable closure of items I.C.1, I.C.7, I.C.8, and 15.8 of NUREG 0737 and the PGP requirements of Supplement 1 to NUREG 0737.

Enclosed also please find update material of selected areas of the PGP as discussed with your Staff.

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Should you require further information on this matter please contact Mark Jones (504-464-3373) of our Operations Group or Mike Meisner (504-363-8938) of our Licensing Group.

Yours very truly,

K.W. Cook
Nuclear Support & Licensing Manager

KWC/MJM/pcl

Enclosures

cc: W.M. Stevenson, E.L. Blake, J.T. Collins, D.M. Crutchfield, J. Wilson, J. Clifford, M. Goodman, G.L. Constable

A control room walk-through of the EOPs was performed to ensure incorporation of correct control panel nomenclature, and to identify any problems (traffic flow, etc.) that might be encountered in the Waterford-3 control room in executing the procedure.

Finally, a simulator evaluation of the EOPs was conducted to conclude validation of the EOPs. Waterford-3 does not now have a plant-reference simulator. To accomplish a simulator validation of the EOPs, Waterford-3 arranged for simulator time on the San Onofre simulator. San Onofre is a similar plant in design and vintage to Waterford-3.

The development, review, and approval process for Waterford-3 EOPs is detailed in UNT-1-012 Emergency Operating Procedure Development, Review and Approval; Revision; and Deletion. This administrative procedure makes specific reference to the Writers Guide for Emergency Procedures (document WG-001) where required. Also included in the administrative procedure is specific instructions on where to locate EOPs and Plant Specific Technical Guidelines within the control room to ensure document accessibility.

DESCRIPTION OF METHOD USED TO TRAIN THE INITIAL GROUP OF OPERATORS IN THE USE OF EMERGENCY OPERATING PROCEDURES

Who Will Be Trained

Emergency Operating Procedures training will be provided to all License Candidates. Shift Technical Advisors (STAs) will participate in this training while fulfilling the role of STA during plant emergencies. The initial group of licensed operators has completed the training on the Function Based EOPs.

Method for Deriving Training Objectives

Training objectives for this program are derived by the training staff's evaluation of the following sources:

1. Emergency Operating Procedures
2. Station Emergency Plan
3. Chapter 13.2 of the Waterford-3 FSAR
4. Chapter 15 of the Waterford-3 FSAR
5. TMI Lessons Learned Implementation Report
6. Post-Three Mile Island Training Materials, Volumes I and II
7. NSSS Transient Performance
8. Emergency Operating Procedures Technical Guide
9. Responses of Waterford staff to plant emergency exercise conducted on a simulator.

The overall EOP Training Program objectives are to ensure that the operating staff can:

a. Discuss the philosophy and development process of the Function Based EOPs including the following:
   1. Structure and Flowpath

2. Approach to Transient and Accident Mitigation
3. Control of Safety Functions
4. Accident Evaluation and Diagnosis
5. Achievement of Safe, Stable or Shutdown Conditions
6. Division of Responsibilities between Control Room Supervisor, Primary Plant Operator and Secondary Plant Operator during Procedure Implementation.

b. Describe the technical content of the EOPs including actions required to perform each step in all EOPs to achieve EOP objectives.

c. Explain the technical bases behind the EOP steps including the use of plant equipment and instrumentation.

d. Utilize the appropriate Function Based EOP's under operational conditions including multiple or sequential failure (during simulator exercises and/or control room walk-throughs) individually or as a team.

The training consists of classroom lectures and walk-throughs, and will be reinforced by utilizing the Waterford Emergency Operating Procedures during exercises on a simulator during the requalification or initial training of appropriate personnel.

Control Room training exercises were conducted for all licensed individuals and SRO certified instructors from May 12-25, 1984. Two members of the EOP Development Team and two instructors involved with the EOP classroom training conducted these walk-throughs. Real-time scenarios were utilized to exercise the teams on the Emergency Entry Procedure and the Recovery Procedure(s) necessary to stabilize plant conditions. In all cases plant conditions were established using multiple or sequential failure which required eventual kickout to the Safety Function Recovery Procedure.

Satisfactory completion of one (1) randomly selected walk-through was required due to the extensive classroom training provided. During the walk-through the team and each individual was evaluated on the following areas applicable to their shift position:

.Immediate Operator Actions
.Diagnostics
.Communications
.Control Board Interface
.Use of the Applicable Recovery Procedures
.Understanding of Expected Plant Responses

Initial team training on a generic simulator will be conducted during the Licensed Operator Requalification Course for the Waterford-3 Function Based EOP's. In addition to the required control manipulations, each team will utilize all of the Function Based EOP's during emergency conditions while assigned to their normal operator positions.

This initial team training is scheduled from August to November, 1984, for all licensed individuals, SRO certified instructors and STA's. The team concept will be reinforced annually during subsequent requalification simulator courses. Initial training for license candidates will be scheduled and conducted in accordance with the Licensed Reactor Operator Replacement Training Course Description.

The Licensed Reactor Operator Requalification Training Procedure (UNT-3-005) details the required control manipulations (including emergency conditions) in accordance with the Harold Denton Letter dated March 28, 1980, and NUREG 0737.

Simulator scenarios will be selected to exercise the team's and individual's skills in the following areas:

a. Immediate Operator Actions
b. Diagnostics
c. Communications

d. Control Board Interface
e. Use of All Recovery Procedures to the Maximum Extent Possible
f. Understanding of Expected Plant Responses

These simulator scenarios will include multiple and/or sequential failures.

In the event the generic simulator cannot fully simulate an EOP, a Waterford-3 training representative will require a walk-through of that portion of the procedure by the team.

Training Prerequisite Identification

Students who participate in Emergency Operating Procedures training are expected to have completed the following prerequisite training courses:

1. Nuclear Steam Supply Systems Lectures
2. Balance of Plant System Lectures
3. Nuclear Fundamental Lectures
4. Transient and Accident Analysis

Deviations from prerequisite training will be made on an individual case-by-case basis after considering the student's previous experience and training.

Prerequisite testing may be administered to ensure that the students have learned the required entry-level skills from this previous coursework and/or experience.

Instructional Materials

The use of lesson plans, student lesson notes, and simulator scenarios will serve to standardize course content, thereby ensuring all students are trained to established course objectives.

The following media are available for use in presenting the information and will be selected to provide the most effective presentation:

1. Simulator Scenarios
2. Student Handouts
3. Normal, Off-normal, and General Operating Procedures
4. Emergency Operating Procedures
5. Emergency Plan
6. Technical Specifications
7. Visual Aids (overheads, slides, chalkboard, white board, video tape, etc.).

Instructor Qualification

Instructors who teach transient and accident training will be examined to the Senior Reactor Operator level. Additionally, Instructors will be evaluated to ascertain the possession of instructional skills conducive to effective training and will receive instructional design and presentation training. The initial group of instructors who will conduct Emergency Operating Procedures training will become familiar with the procedures through the following mechanisms:

1. Attendance at briefings provided by the procedure development team
2. Providing of simulator support to the procedure development team
3. Exercising of procedures on the SONGS simulator
4. Self-study
5. Researching material for lesson plans, student lesson notes, and simulator scenario preparation.

Subsequent groups of instructors who teach Emergency Operating Procedures training will receive equivalent training.

Evaluation and Testing

Critiques are used to appraise students of their overall performance throughout the training session. Evaluations of student performance on the simulator exercises are entered into the student's training record. In addition to critiques and evaluations of the student's performance on the simulator exercises, written quizzes are given to determine student knowledge of material presented through classroom lectures. Quizzes and evaluations are prepared to match the behaviors, conditions, and standards outlined in the student objectives.

The results of student evaluations and quizzes are used to determine the necessity of additional training on the Emergency Operating Procedures. License Candidates must satisfactorily complete this training as a prerequisite for being recommended for Nuclear Regulatory Commission administered license examination. Shift Technical Advisors must satisfactorily complete applicable portions of this training prior to being fully certified to perform the duties of a Shift Technical Advisor.

Training Evaluation and Revision

During Transient and Accident Analysis Training, License Candidates and Instructors are encouraged to submit recommendations concerning the upgrading of Emergency Operating Procedures.

Shift Technical Advisors participate in Transient and Accident Analysis training as described in the Waterford-3 FSAR Section 13.2.1.3.2, and are given the opportunity to submit recommendations concerning the upgrading of Emergency Operating Procedures.

These recommendations along with formal instructor evaluation, instructor retraining, and curriculum additions will be factored into the course lesson plans using a formalized procedure.

Training Retention and Transfer

The training of License Operator Candidates in the use of Emergency Operating Procedures is described in the Waterford-3 FSAR Section 13.2.1.1.1.

The retraining of Licensed Reactor Operators and Licensed Senior Reactor Operators in the use of Emergency Operating Procedures is described in the Waterford-3 FSAR Section 13.2.2.1.

The testing which accompanies training and retraining will be used to ensure that knowledge is retained. In addition, operator supervisors will be advised to indicate the transfer of training to the work place by periodic performance evaluations. Indications of a problem in transfer of training to the work place will be communicated to the Training Department.

3.12 Attachments

Attachments can be graphics or operator aids (e.g. checklists, reset procedures). Refer to each graphic as an "attachment".

In the right corner include the procedure number, revision number, and date of issue as described earlier. Also, include the page number within the attachment (Page aa of bb). Place the attachment number on the bottom right corner of each page.

Number attachments consecutively according to their initial reference within each procedure (i.e., the first attachment referred to in each procedure will be Attachment 1; the second attachment referred to will be Attachment 2). Each attachment will receive only one number within a procedure, regardless of how often it is referenced. Duplicate versions of a single attachment should not occur. Each attachment should appear only once.

Ensure graphics (i.e., figures and tables) are concise, informative and readable. Graphics should contain only information relevant to performing the designated task. Prepare these according to standard graphics practices (see NUREG-0799, Section 4.4.2.2, pages 4-13 and 4-14).

Provide a short title describing the information. Put all attachments on standard size (8 1/2 x 11 inch) pages as appropriate at the end of the procedure. Arrange the attachments in numerical order. (See Appendix 1, page 40 through 46 and pages 74 through 84.)

For example:

Attachment 1: Break Identification Chart.

3.13 Foldouts

Center and underline the title "Foldout: Safety Function Status Checklist. Use a two-column format with the left column titled "Safety Function" and the right column titled "Criteria". Each Safety Function will be listed under the left column and will be numbered consecutively. The criteria for each Safety Function will be listed directly across from the Safety Function to which they pertain. The criteria for each Safety Function will be labeled with lowercase letters (See Appendix 1, pages 47 and 85).

APPENDIX 3

CONSTRAINED LANGUAGE LIST AND INDEX

CONSTRAINED LANGUAGE LIST

Activate	Formally institute special activity/function. To place into operation.
Align	Place systems or components, for example, valves and breakers, in proper positions for accomplishing specified function.
And	As a logic term, establishes that two or more actions must be performed with no alternatives available, e.g., Locally open AND rack out the supply breaker. As a logic term, establishes that one action must be performed on two or more pieces of equipment/systems with no alternatives available, e.g., IF SST A32 FEEDER AND SST B32 FEEDER breakers were cycled. Use emphasis techniques to draw the reader's attention to the logic term, (i.e., AND). As a conjunctive term, connects two action statements or two sentences, e.g., Trip one Main Feed pump and verify the associated valves closed. Do not use emphasis techniques with the conjuctive term, (i.e., and).
Can	Refers to possible response of equipment.
Check	Determine present status. Determine if in proper condition/status.
Close	For valves, generally involves completely stopping flow, e.g., Close PZR PWR Relief (1NC-31). For electrical devices, such as breakers, refers to making an electrical connection to supply power.
Complete	To accomplish specific procedural requirements.
Cycle	To perform a process which ends where it began.
Decrease	See "lower" or "drop." Do NOT use the word "decrease."
De-energize	Remove power supply.
Depress	Refers to pushbutton operation.
Determine	Implies technical knowledge. Make a decision based on operational knowledge.
Drive	Movement of reactor control rods, either in or out.
Drop	Used to describe a decrease in a parameter; the result of an operator or equipment action.

Energize	Supply power.
Ensure	See "verify." Do NOT use the word "ensure."
Establish	Perform actions necessary to meet stated condition.
Evaluate	Appraise the situation. Implies technical knowledge.
Faulted	The piece of equipment which has recently become inoperable.
Go	Proceed to and remain where specified. In the case of procedures, discontinue use of present procedure and perform actions of cited procedure.
If	Establishes a prerequisite which must be met before performing step. Provides starting statement of optional actions.
Implement	Commence a required program or series of procedures.
Increase	See "raise" or "rise." Do NOT use the word "increase."
Initiate	Take actions to begin a process.
Inspect	Examine or review present condition.
Isolate	Remove from service.
Locally	Take action outside the control room.
Lockout	Place a device's control switch to a position which causes the device to be out of service.
Lower	An action taken by an operator to decrease a parameter.
Maintain	Take appropriate actions to prevent fluctuation/changing.
Manually Initiate	Operator action which activates a function which is normally initiated automatically due to plant conditions.
Manually Trip	Operator action to activate a Reactor Trip or stop an operating piece of equipment such as a pump.
May	Refers to an operation which is possible, but perhaps is not necessary.
Modulate	Position a valve to a required position by use of a controller to establish a required parameter.
Monitor	Periodically check status. Observe current trend.
Nonfaulted	An operational component which is redundant to one which has malfunctioned.

Notify	Inform specified personnel.
Open	For valves, generally involves removing barrier to allow flow, e.g., Open RCP BLEED-OFF (RC 606). For electrical devices, such as breakers, refers to breaking an electrical connection which removes a power supply.
Operate	For valves, open and close as necessary to perform the intended function. For pumps and breakers, place in a state necessary to perform its intended function.
Or	Indicates alternatives. Establishes that one of a series of alternatives can be chosen. As a logic term, "OR" indicates that one of a series of actions must be performed, e.g., Throttle OR stop Safety Inject flow one train at a time. As a logic term, "OR" indicates one of a series of pieces of equipment/systems must be selected. e.g., Level is being restored by either: a) $\geq .378 \times 10^6$ lbm/hr Main Feedwater flow OR b) $\geq$150 gpm Emergency Feedwater flow. As a conjuctive term, "or" indicates that one of a series of alternatives can be chosen. Avoid the use of the conjuctive "or".
Per	As specified in or by name procedure. Implies that referencing the document is optional.
Place	Physically position a switch to the specified location.
Rack in	Place an electrical breaker in service by physically connecting it to its associated power source.
Rack out	Remove an electrical breaker from service by physically disconnecting it from its associated power source.
Raise	An action taken by an operator to increase a parameter.
Record	Document requested information on form provided.
Refer	Use as a supplement. Perform applicable actions of cited procedure and return to the controlling procedure.
Regulate	Control or restrict.
Restore	Return to service.
Rise	Used to describe an increase in a parameter; the result of an operator or automatic equipment action.

Rotate	Turn a rotary multiposition switch to the required position. In reference to pump, hand-rotate before energizing.
Secure	Remove from service. Take appropriate action to prevent return.
Shall	Implies mandatory requirement.
Shift	Specifies changing mode of operation.
Should	Implies nonmandatory, preferred, or desired method.
Survey	Inspect, examine. Complete survey form.
Suspend	Stop actions at that point. Leave system as it stands at that time.
Then	Indicates actions to be performed after stated conditions have been established.
Throttle	Place a valve in an intermediate position to restrict flow to the required amount.
Trip	Effect a complete and total immediate shutdown.
Verify	Take necessary/appropriate actions to guarantee component, reading, etc., is as specified.
When	Indicates certain conditions must be established before the step can be performed.

CONSTRAINED LANGUAGE INDEX

Safety Functions	Criteria	Bases
RCS AND Core Heat Removal	a. CET temperatures satisfy BOTH of the following: 1) <600°F 2) NOT steadily rising for more than 15 minutes b. At least one Steam Generator is satisfying either: 1) Level is BOTH: a) >50% Wide Range b) Constant OR rising OR 2) Level is being restored by either: a) > .378 x 10^6 lbm/hr MFW flow OR b) > 150 gpm EFW flow. c. T_C ≤550°F.	(Technical Guideline, Section 5.10, Parameter Values Document. Table 5-3, Temperature.) Maximum CET reading to ensure adequate subcooling based on Combustion Engineering plant-specific analysis. (CEN-152, page 9-20) Decay heat levels may not be high enough to require a feedwater flow of 150 gpm. If this is the case, once steam generator level is returned to the zero power level band and feedwater remains available to maintain that level, then RCS heat removal is being satisfied. 550°F is based on not lifting the steam generator secondary safety valves.
Containment Temperature AND Pressure Control	a. Containment pressure <17.1 psia AND NO CSAS.	17.1 psia is based on high containment pressure setpoint. It is not expected for selected events that containment pressure will increase to the setpoint.
Containment Isolation	a. NO Containment area radiation monitors alarming b. NO Steam Plant radiation monitors alarming.	No radiation is anticipated in the containment for a loss of forced flow. No radiation is anticipated in the steam plant for a loss of forced flow.
Containment Combustible Gas	a. Hydrogen Concentration <0.5%.	Hydrogen concentration in the containment should not rise for a loss of forced flow.
Vital Auxiliaries	a. BOTH of the following exist: 1) A AND B 6.9KV busses energized 2) A AND B 4.16KV nonsafety busses energized b. A AND B 4.16KV safety busses energized.	Having both A and B trains of nonsafety busses energized ensures that all required auxiliaries are available and that the operator remains within the bounds of the Loss of Forced Flow Procedure which does not include degraded electrical distribution system.

Completed, redo. See Insert next 2 pages →

Insert.

(To replace RCS + Core Heat Removal criteria)

a. RCS ≥ 28°F subcooled

b. At least one Steam Generator is satisfying either:

1) Level is BOTH:

a) ≥ 50% Wide Range

b) Constant OR rising

OR

2) Level is being restored by either:

a) ≥ .378 $\times 10^6$ lbm/hr MFW flow

OR

b) ≥ 150 gpm EFW flow

c. T_c ≤ 550°F

Insert

(To replace RCS Core Heat Removal Bases)

(CEN-152, page 9-20)

~~[20]~~ $^{0}_{F}$ ~~F~~ 25.4 subcooled margin is based on engineering judgement to assure adequate core cooling accounting for temperature variations in the RCS. Best estimate analysis shows that the noted events will fall in the selected ranges.

Decay heat levels may not be high enough to require a feedwater flow of [150] gpm. If this is the case, once steam generator level is returned to the zero power level band and feedwater remains available to maintain that level, then RCS heat removal is being satisfied

550°F

~~[545]~~ ^{0}F is based on not lifting the steam generator secondary safety valves.