

**Florida  
Power**  
CORPORATION

# NUCLEAR OPERATIONS TRAINING DEPARTMENT PROCEDURE

TDP-202 REV. 3

DATE: 06/21/85

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## TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

Document Section  
**INFORMATION ONLY**  
C. R. Nuclear

### 1.0 PURPOSE

This procedure describes the training and qualification process for Nuclear Regulatory Commission (NRC) licensed operator candidates at Crystal River Unit 3 (CR-3).

### 2.0 SCOPE

This procedure applies to the training and qualification of replacement operator candidates. This procedure addresses the requirements for Reactor Operator, Senior Reactor Operator Upgrade, and "Instant" Senior Reactor Operator candidate personnel.

### 3.0 REFERENCES

- 3.1 10CFR55 - "Operators' Licenses".
- 3.2 NUREG 0094 - "A Guide to the Licensing of Facility Operators, Including Senior Operators"; July, 1976.
- 3.3 FSAR Chapter 12.2 - Appendix B - "Training - Initial Operator Training Program"; July 1984.
- 3.4 ANSI N18.1-1971 - "Selection and Training of Nuclear Power Plant Personnel"; 1971.
- 3.5 Regulatory Guide 1.8 - "Personnel Selection and Training"; Rev. 1, 1975.
- 3.6 Crystal River Unit 3 - Technical Specification, Section 6.4 - "Training"; Amendment 57.

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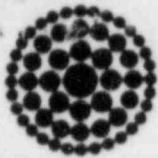
## REVIEW/CONCURRENCE\*

VAL

Department	Representative	Date
PIT. Mgr.	Paul G. TUS	6/26/85

	Date
NTS/NOTSS <i>M. L. Kelly</i>	6/18/85
NOTM <i>L. C. Kelly</i>	6/20/85
MSNOTS <i>L. C. Kelly for J. Albani</i>	6/21/85
DSNO* <i>E. M. M. Toward</i>	6/21/85

\* As applicable



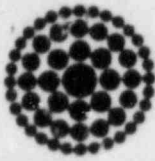
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- 3.7 NUREG 0737 - "Clarification of TMI Action Plan Requirements"; October 31, 1980.
- 3.8 Training Department Procedure (TDP)-105: "Lesson Plan Preparation".
- 3.9 TDP-106 - "Examination Preparation, Administration and Grading".
- 3.10 TDP-108 - "Training Program Evaluation".
- 3.11 TDP-109 - "Training Records Management".
- 3.12 TDP-203 - "Licensed Operator Requalification Program".
- 3.13 TDP-209 - "Operations Instructor Qualifications Training Program".
- 3.14 TDP-210 - "Licensed Operator Certification Process".
- 3.15 TDP-111 - "Instructor Training".

4.0 DEFINITIONS

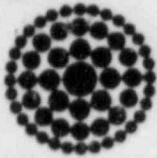
- 4.1 LICENSED OPERATOR - Any individual who is licensed by the Nuclear Regulatory Commission (NRC) to operate (Reactor Operator) or supervise the operation (Senior Reactor Operator) of Crystal River Unit 3.
- 4.2 REACTOR OPERATOR - An individual licensed by the NRC who manipulates a control of Crystal River Unit 3. An individual is deemed to manipulate a control if he directs others to manipulate a control.
- 4.3 SENIOR REACTOR OPERATOR - An individual licensed by the NRC designated to direct the licensed activities of licensed operators.
- 4.4 COLD LICENSE - An NRC license issued prior to Crystal River Unit 3 initial criticality.
- 4.5 HOT LICENSE - An NRC license issued after Crystal River Unit 3 initial criticality.



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- 4.6 REPLACEMENT OPERATOR - An operator who is licensed by the NRC after initial criticality at Crystal River Unit 3.
- 4.7 TECHNICAL TRAINING - The process by which new knowledge, skill, and/or abilities are relayed to others, usually under the direction of appropriately experienced personnel, and in accordance with pre-established procedures or instructions.
- 4.8 RESPONSIBLE POWER PLANT EXPERIENCE - Experience acquired in the design, construction, preoperational, and startup testing activities or in the operation, maintenance, or other technical services related to a fossil or nuclear power plant. For an INSTANT SRO, this experience means as a Control Room operator, (fossil or nuclear) or as a power plant staff engineer involved in the day-to-day activities commencing with the final year of construction.
- 4.9 NUCLEAR POWER PLANT EXPERIENCE - Experience acquired in the design, construction, preoperational and startup testing activities, or operation of nuclear power plants as follows:
- 1) Two years of experience acquired at naval nuclear plants may qualify as equivalent experience on a one-for-one time basis.
  - 2) Experience acquired in non-power plants such as test, research, or production facilities may qualify on a one-for-one basis up to one year.

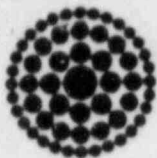


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- 4.10 EDUCATION - The teaching of knowledge or facts in a formal academic setting, especially in high schools or colleges and universities.
- 4.11 FACILITY CERTIFICATION - The process by which Florida Power Corporation attests to the NRC that a license candidate or operator has met all applicable education, training and experience requirements as specified by NRC regulations (TDP-210) and FPC commitments.
- 4.12 REQUALIFICATION - The process by which licensed operators maintain knowledge and skills necessary to proficiently operate Crystal River Unit 3 in a safe, legal and efficient manner.
- 4.13 CONTROLS - Apparatus and mechanisms the manipulation of which directly affects the reactivity or power level of the reactor.
- 4.14 SATISFACTORY COMPLETION - For written examination purposes, an overall grade of at least 80% and at least 70% in each category if the exam is divided into categories. For oral and walk-through examinations, the candidate or licensed operator is able to provide reasonably accurate answers to most questions with little prompting.





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For simulator training and startup certification, satisfactory completion will be demonstrated by the candidate in his ability to provide reasonably correct answers to most questions with little prompting and his ability to demonstrate to the simulator examiner procedurally correct operations on the simulator control board.

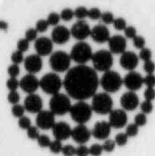
4.15 UPGRADE SENIOR REACTOR OPERATOR - An SRO candidate who has been a reactor operator for at least one year.

4.16 "INSTANT" SENIOR REACTOR OPERATOR - An SRO candidate who holds a four-year degree in Engineering or an applied science and has not been an RO for one year.

5.0 RESPONSIBILITIES

5.1 Vice President Nuclear Operations - Responsible for certifying to the NRC that the license candidate is technically competent to manipulate the controls, and the license is needed to operate Crystal River Unit 3.

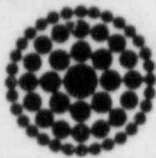
5.2 Nuclear Operations Training Manager (NOTM) - Responsible for:  
Certifying to the NRC that the license candidate has satisfactorily completed all applicable education, experience, and training requirements; managing the development and implementation of the Replacement Operator Training Program; reviewing training program waivers; ensuring that all Training Department License Candidates meet the education and experience requirements.



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- 5.3 Nuclear Operations Training Supervisor (NOTS) - Responsible for:  
Implementing the Training Program; scheduling the classes and  
examinations, assigning and evaluating instructors; administering the  
application for license; recording and documenting training  
completed.
- 5.4 Operations Superintendent - Responsible for: Selecting and/or  
approving personnel for entrance into the licensed operator training  
program; ensuring that the Operations Department candidates meet all  
applicable education and experience requirements; assigning  
Operations personnel as oral board and walkthrough examiners when  
requested by NOTS.
- 5.5 Shift Supervisor: Responsible for: Supervising the on-shift  
training time and activities of license candidates and evaluating  
their on-shift training performance.
- 6.0 ACTION
- 6.1 REPLACEMENT OPERATOR CANDIDATE TRAINING PROGRAMS OVERVIEW
- The Replacement Operator Candidate Training Program is designed to  
provide the knowledge, skills and abilities necessary to safely and  
proficiently operate Crystal River Unit 3 in a safe, legal and  
efficient manner. The program is described in detail in Appendix A  
of this procedure for Reactor Operator Candidates and Appendix B of  
this procedure for Senior Reactor Operator Candidates.



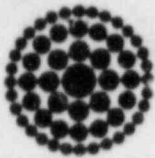
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Briefly, the program consists of four phases: Technical classroom training, simulator training, on-shift training, and review and evaluation. Each phase will build on the existing capabilities and training that the candidates have previously received, including the Non-Licensed Operator (NLO) Training Program. Military nuclear programs, colleges and universities. Training program waivers may be granted based on past experience and training.

Upon completion of the training program and medical examination, FPC management will certify to the NRC that the candidate's education, training, experience, and medical requirements have been met and the candidate is ready for licensing by the NRC.

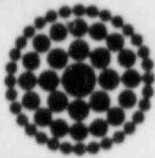
The NRC licensing process consists of a review of the candidate's application and the administration of a written exam and an operating test. If the application review is satisfactory and the examinations are passed, the NRC then issues a license which is valid for a period of two years provided the licensed operator participates in the approved Requalification Training Program described in TDP-203.



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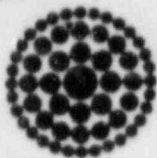
- 6.2 Replacement Operator Training Program Details
- 6.2.1 The Operations Superintendent must select and/or approve the persons to be placed in the Replacement Operator Training Program. This selection should be based on the criteria specified in Appendix A of this procedure for Reactor Operator Candidates and Appendix B for Senior Reactor Operator Upgrade Candidates and "Instant" Senior Reactor Operator Candidates.
- 6.2.1.1 Requests for training waivers for any part of the Program requirements of Appendix A or B must be specified by the Operations Superintendent, concurred with by the NOTM, and approved by the Operations Manager.
- 6.2.2 Phase 1 - Technical Classroom Training
  - Each Reactor Operator Candidate or Senior Reactor Operator candidate (Upgrade or Instant) must satisfactorily complete the following classroom technical training subjects which are listed in detail in Appendix C. Training must include operational feedback and industry experience related to LER's, SOER's, SER's, IE Bulletins, notices and circulars, etc.
  - 6.2.2.1 Reactor Fundamentals: Approximately 180 hours of classroom lectures, discussion, self-study, and examinations consisting of reactor theory, heat transfer, fluid flow, thermodynamics, pressurized thermal shock and degraded core characteristics. This program shall include a minimum of 42 hours of Heat Transfer/Fluid Flow/Thermodynamics and 16 hours of mitigation of core damage.



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- 6.2.2.2 Crystal River Unit 3 Systems Technology - Approximately 180 hours of lectures, seminars, self-study and examinations on plant specific systems covering design bases, flow paths, components, instrumentation and control, and operational and transient aspects.
- 6.2.2.3 Crystal River Unit 3 Operations and Administration - Approximately 130 hours of lectures, seminar, self-study and examinations on CR-3 normal and abnormal operations, verification, radiation, administrative, surveillance and emergency procedures, technical specifications and the emergency plan. For SRO's management and supervision courses must be covered during this phase of training.
- 6.2.2.4 "Instant" SRO candidates shall receive special courses and classroom training equivalent to ANSI N18.1 1971 Cold License Training as defined in Appendix B. These additional courses must be identified by the NOTS and approved by the NOTM.
- 6.2.2.5 Each of the above subject areas shall be tested by written examinations. Each examination must be passed satisfactorily. Any failed exams shall result in a remedial program identified by the NOTS and reviewed and approved by the NOTM. If three exams are failed the candidate must be removed from the program. The candidate may be returned to the program upon agreement by the NOTS, NOTM, Operations Superintendent and Operations Manager. This decision will be contingent upon the candidate completing additional training as specified by the NOTS and NOTM to enhance his chances of successfully completing the course.
- 6.2.2.6 The NOTS must complete Attachment 1 to document successful completion of Phase 1.

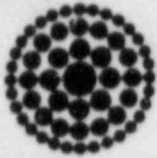


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- 6.2.3 Reactor Startup Training (for Instant SRO's only).
- 6.2.3.1 "Instant" SRO candidates shall perform at least ten reactor startups on either CR-3, or another operating reactor such as the Research Reactor at the University of Florida, or on an approved simulator such as the PowerSafety International simulator at Lynchburg, VA.
- 6.2.3.2 Satisfactory completion of this training must be documented by the NOTS using Attachment 5. The "Instant" SRO Reactor Startup Training Curriculum is described in Appendix F. If this training is not completed satisfactorily, remedial training must be initiated and completed satisfactorily.
- 6.2.4 Phase 2 - Simulator Training.
- Each license candidate shall satisfactorily complete this phase of training. This phase is conducted by the PowerSafety Internatinoal Company under the direction of FPC and is taught on their simulator in Lynchburg, VA.
- Phase 2 Training for Reactor Operator candidates should be 120 hours long. The minimum shall be 40 hours of training. Startup Certification (Items 6.2.4.1 - 6.2.4.4) must be satisfactorily completed during this phase. The simulator curriculum is described in Appendix D.
- Phase 2 Training for SRO Upgrade candidates should be 80 hours long. The SRO simulator curriculum is described in Appendix D.





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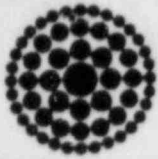
Phase 2 Training for "Instant" SRO candidates should be 200 hours long. The minimum shall be 40 hours of training. Startup Certification (Items 6.2.4.1 - 6.2.4.4) must be completed satisfactorily during this phase. The "Instant" SRO simulator curriculum is described in detail in Appendix D.

Satisfactory completion of this phase shall be demonstrated by the candidate's ability to: (NUREG 0094 F.D.)

- 6.2.4.1 Manipulate the controls and keep the reactor under control during a reactor startup.
- 6.2.4.2 Predict instrument response and use the instrumentation during a reactor startup.
- 6.2.4.3 Follow the simulator facility startup procedure.
- 6.2.4.4 Explain alarms and annunciators that may occur during reactor startups.
- 6.2.4.5 Respond to plant abnormal and emergency conditions by correctly following FPC approved EP's and AP's.

Upon completion of this phase, the NOTS must ensure that candidate evaluations are completed which will document the candidate's satisfactory performance of the above items. These evaluations may be furnished by the POWERSAFETY INTERNATIONAL Simulator Training organization.

The NOTS must complete Attachment 2 to document satisfactory completion of this phase of training. If this phase is not satisfactorily complete, remedial training recommended by the NOTS, received and approved by the NOTM, and concurred with by the Operations Superintendent and another evaluation on the simulator must be completed (satisfactorily). Otherwise, the person must be removed from the License program.



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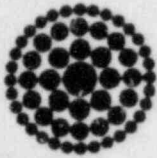
6.2.5 Phase 3 - On-Shift Training

Upon satisfactory completion of Phases 1 and 2, the CR-3 Operations Superintendent will assign license operator candidates to shifts. The assigned Shift Supervisor must monitor the progress of the candidates during this phase of training.

6.2.5.1 Reactor Operator candidates shall participate in at least 65 days of on-shift training time as an RO in training on-shift in the Control Room. SRO candidates shall participate in at least 65 days of on-shift time as an SRO in training. Candidates will have no other duties assigned to them during Phase 3.

In order to ensure this training is of maximum benefit to the candidates, each RO candidate shall perform at least five significant reactivity changes and/or reactor manipulations from the list of appropriate manipulations identified in Appendix E. SRO Upgrade candidates must direct the performance of at least five significant reactivity changes or reactor manipulations identified in Appendix E. "Instant" SRO's shall perform at least five significant reactivity changes or manipulations and shall direct the performance of an additional five additional significant reactivity changes or plant manipulations in Appendix F.

If the manipulations cannot be done on CR-3 due to operating restrictions or plant conditions, then they must be completed on the PowerSafety International Simulator. It is not sufficient to observe and/or discuss this requirement - they must be performed or directed.



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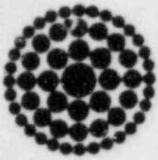
**REPLACEMENT OPERATOR TRAINING PROGRAM**

The Nuclear Shift Supervisor or Assistant Nuclear Shift Supervisor must initial the Reactivity Change/Manipulation Record Form (Attachment 3) upon satisfactory completion of the item. The performance of the item must include appropriate discussion of procedures used and plant response.

Every effort should be made to ensure each candidate is on at least one cycle of day shifts, afternoon shifts, and night shifts during the 65-day period in order to participate in as many different plant evolutions possible.

At least six hours must be completed in the Control Room to receive credit for one day of Control Room training. The NSS/ANSS must initial Attachment 4 "On-shift Training Record" upon satisfactory completion of the daily shift assignment. RO candidates must be assigned as Assistant Nuclear Operator (Control Room) or Nuclear Operator trainees while SRO Upgrade candidates must be assigned as Assistant Nuclear Shift Supervisor or Nuclear Shift Supervisor Trainees. Instant SRO candidates may be assigned to any of the three positions as a trainee; however, at least two-thirds of the time must be as an SRO trainee.

While on-shift each license candidate shall have at least one practice walkthrough exam conducted by the Shift Supervisor or Assistant Shift Supervisor. Any identified deficiencies must be discussed with the candidate.



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Attachment 5, 6 or 7 of TDP-106 must be used for documenting this exam. The attachment should be attached to Attachment 4 of this procedure when complete.

At the completion of this phase, and as part of Attachment 4, the Shift Supervisor must complete a written evaluation of the candidate's technical competence and attitude towards reactor safety which will then be forwarded to the NOTS to become part of the candidate's training record.

**6.2.6 Phase 4 - Review and Evaluation.**

Upon completion of the three phases described above, a comprehensive program review and candidate evaluation must occur prior to sitting for the NRC License Exam. The NOTS must ensure each candidate satisfactorily completes this phase of training which consists of a final written exam, a final plant walk-through, and a final oral exam/interview.

**6.2.6.1 The NOTS is responsible for developing and administering a comprehensive written examination which covers the following topics. This exam shall be similar in level of difficulty, length and format to the NRC written exam.**

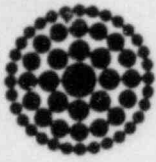
Categories of topics to be covered on written exams for Reactor Operators should be:

Category 1: Principles of Nuclear Power Plant Operation,  
Thermodynamics, Heat Transfer and Fluid Flow.

Category 2: Plant Design including Safety and Emergency Systems.

Category 3: Instruments and Controls.

Category 4: Procedures - Normal, Abnormal, Emergency and  
Radiological Controls.



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Categories of topics to be covered on written exams for Senior Reactor Operators shall be:

Category 5: Theory of Nuclear Power Plant Operations, Fluids, and Thermodynamics

Category 6: Plant System Design, Control, and Instrumentation

Category 7: Procedures - Normal, Abnormal, Emergency and Radiological Controls.

Category 8: Administrative Procedures, Conditions and Limitations

This written exam shall be completed satisfactorily by scoring at least 70% in each individual category and at least 80% overall. If the exam is not completed satisfactorily, the NOTS must develop a remedial training program which includes another exam. The remedial program must be reviewed and approved by the NOTM and concurred with by the Operations Superintendent.

- 6.2.6.2 Each license candidate shall satisfactorily complete a final plant walkthrough exam. The Operations Superintendent or his designee must conduct the walkthrough and document the candidate's performance using Attachment 5, 6 or 7 of TDP-106. This documentation must then be forwarded to the NOTS for inclusion in the candidate's training record. Satisfactory completion of this exam, as defined in 4.14 above, is necessary. Any unsatisfactory performance must be reviewed by the Operations Superintendent and NOTS and a remedial training program shall be provided by the NOTS, reviewed and approved by the NOTM, and concurred with by the Operations Superintendent. A subsequent examination must be administered by the Operations Superintendent or his designee.





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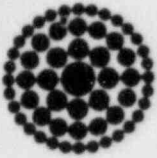
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- 6.2.6.3 Each license candidate shall satisfactorily complete a final oral exam in accordance with Reference 3.9. The candidate's performance must be administered and documented using Attachment 5, 6 or 7 of TDP-106 which must be forwarded to the NOTS for review and inclusion in the candidate's training record. Satisfactory completion is required as defined in 4.14 above. Any unsatisfactory performance must be reviewed by the NOTS and Operations Superintendent. The NOTS must develop and ensure completion of a remedial training program including another oral exam. This program must be reviewed and approved by the NOTM and concurred with by the Operations Superintendent.
- 6.2.6.4 The NOTS must complete Attachment 6 - Phase 4 Summary Report upon satisfactory completion of Phase 4 activities.
- 6.2.7 The four phases of the Replacement Operator Training Program should be completed in the sequential order of 1-4. However, Phase 4 - Review and Evaluation - must be the last phase completed in all instances.
- 6.3 PROGRAM EVALUATION
- The Replacement Operator Training Program shall be audited at least annually by the Nuclear General Review Committee in accordance with Technical Specifications Article 6.5.2.9.b. Additionally, the program must be evaluated in accordance with TDP-108 "Training Program Evaluation".





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6.4 INSTRUCTOR QUALIFICATIONS

The Instructors who teach or otherwise conduct training for this program shall meet the requirements of TDP-209 "Operations Instructor Qualification Program".

Systems which are common to all power plants such as Secondary Systems or fundamental and theoretical topics, such as reactor theory, may be taught by any technically competent person who has the necessary Instructor skills.

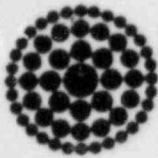
6.5 EXAMINATION PREPARATION

All examinations must be prepared, administered and graded in accordance with procedure TDP-106 "Examination Preparation, Administration and Evaluation".

6.6 LESSON PLANS

All Phase 1 lesson plans used and materials developed must be completed in accordance with TDP-105 "Lesson Plans Preparation".

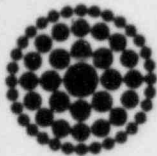
The NOTS is responsible for ensuring that lesson plans provide feedback of operating experience to trainees.



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- 6.7 Upon satisfactory completion of this program, the license candidates are considered to be technically competent for licensing by the NRC. Application to the NRC for an RO or SRO license, must be completed by using procedure TDP-210, "NRC License Application Process". In the event that the NRC Exam is failed by the candidate, TDP-210 provides guidance for remedial action.
- 7.0 ATTACHMENT AND APPENDICES
- 7.1 Appendix A - Reactor Operator Education, Experience and Training Requirements.
- 7.2 Appendix B - Upgrade and "Instant" Senior Reactor Operator Education, Experience and Training Requirements.
- 7.3 Appendix C - Phase 1 - Technical Classroom Training Description.
- 7.4 Appendix D - Phase 2 - Simulator Training Description.
- 7.5 Appendix E - Phase 3 - On-Shift Training Description - List of Significant Reactivity Changes and Plant Manipulations.
- 7.6 Appendix F - Reactor Startup Training for Instant SRO's.
- 7.7 Attachment 1 - Phase 1 - Technical Classroom Training Summary Report.
- 7.8 Attachment 2 - Phase 2 - Simulator Training Evaluation Report.
- 7.9 Attachment 3 - Phase 3 - Reactivity Change Record.
- 7.10 Attachment 4 - Phase 3 - On-Shift Training Record.
- 7.11 Attachment 5 - Instant SRO Reactor Startup Record.
- 7.12 Attachment 6 - Phase 4 - Final Review and Evaluation Summary Report: Comprehensive Written Exam Results, Plant Walk-through Exam Results and Oral Exam Results.



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8.0 QUALITY RECORDS

8.1 The following program records shall be maintained in accordance with TDP-109 "Training Records Management".

8.1.1 Replacement Operator Training Program (ROTP) description for each class.

8.1.2 ROTP schedule for each class.

8.1.3 Each lesson plan used.

8.1.4 Class attendance list. This record also must show who the Instructor is for each lesson.

8.1.5 Copy of each exam with answer key.

8.1.6 Class examination summary (TDP-106 Attachment 4).

8.2 The following individual student records shall be kept as part of each student's file.

8.2.1 Each written exam and corresponding answers (Attachment 1).

8.2.2 Simulator Training Evaluations (Attachment 2)

8.2.3 Reactivity Change/Manipulation Record (Attachment 3).

8.2.4 On-shift training record (Attachment 4).

8.2.5 Instant SRO Reactor Startup Record (Attachment 5).

8.2.6 Comprehensive Written Final Exam.

8.2.7 Final oral exam results (Attachment 5, 6 or 7 of TDP-106).

8.1.8 Final walk-through results (Attachment 5, 6 or 7 of TDP-106).

8.1.9 Any remedial training program description and results.

8.1.10 Any training program waivers.



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The Nuclear Operations Training Supervisor shall be contacted for any interpretation of this procedure.

Revision 0	Date 10/01/81	Original Release
Revision 1	Date 10/24/84	Complete Revision
Revision 2	Date 01/10/85	Partial Revision
Revision 3	Date 06/21/85	Complete Revision based on NRC Assessment Report and Quality Program Audit Results.

Date	Person Conducting Review	Comments
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### APPENDIX A

#### REACTOR OPERATOR

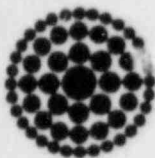
#### EDUCATION, EXPERIENCE AND TRAINING REQUIREMENTS

1. EDUCATION - High School Diploma or equivalent (ANSI N18.1 - 1971).
2. EXPERIENCE
  - 2.1 Minimum of two years power plant experience of which at least one year shall be nuclear power experience (ANSI N18.1 - 1971). Training time cannot be used to fulfil this requirement.
  - 2.2 Minimum of six months at CR-3 performing responsible activities (NUREG 0094, Appendix F, C.2).
  - 2.3 Satisfactory completion of NLO program. If the CR-3 NLO Program has not been completed, then additional training must be recommended by the NOTS, reviewed and approved by the NOTM, and concurred with by the Operations Superintendent.
- 3.0 TRAINING

The Reactor Operator Candidate will satisfactorily complete the four phased training program described in this procedure.

  - 3.1 Phase 1 - Technical Classroom Training

Approximately 500 hours of lectures, discussions, self-study, and examinations on topics listed in Appendix C, Part A. This training includes heat transfer, fluid flow, thermodynamics, using installed systems to control or mitigate core damage, reactor and plant transients. (H. Denton letter March 28, 1980, Enclosure 1A.2.C; NUREG 0094, Appendix F, Section B). Attachment 1 is used to document satisfactory completion of Phase 1. Credit may be given for previous training received. Documentation for any training waivers must be prepared per TDP-113, "Training Waivers".



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

3.2 Phase 2 - Simulator Training

Reactor Operator candidates must complete a minimum of 40 hours of simulator training in the approved PowerSafety International Training Program in Lynchburg, VA. This will include at least two reactor startups if no actual plant startups have been performed. (NUREG 0094, Appendix F.D). Startup certification must be completed during this phase. The evaluation report provided by the simulator vendor and Attachment 2 will document satisfactory completion of this phase. The Simulator Training program curriculum is described in Appendix D.

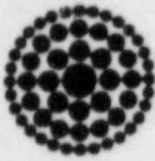
3.3 Phase 3 - On-shift Training.

Each Reactor Operator candidate will complete at least 65 days of on-shift time as an extra person in the Control Room. During this on-shift time, a minimum of five significant reactivity changes or plant manipulations identified in Appendix E shall be performed. If five significant manipulations cannot be performed on the plant, then they may be performed on a simulator. During this phase, the candidate will participate in reactor and plant operations at power levels of equal to or greater than 20% power. (H. Denton letter, March 28, 1980, Enclosure 1, Section A.2.6; NUREG 0094, Appendix F, Section C.3, C.4). Attachments 3 and 4 will be used to document satisfactory completion of this phase.

3.4 Phase 4 - Review and Evaluation.

Each reactor Operator candidate must satisfactorily complete a comprehensive final written, plant walk-through and oral exam/interview. (NUREG 0094, Appendix F.E.). Satisfactory completion of this phase will be documented using Attachment 6. Any unsatisfactory performance will result in retraining and retesting prior to the candidate taking the NRC Examination.





**TITLE:**

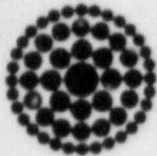
REPLACEMENT OPERATOR TRAINING PROGRAM

APPENDIX B

SENIOR REACTOR OPERATOR UPGRADE AND INSTANT CANDIDATES

EDUCATION, EXPERIENCE AND TRAINING REQUIREMENTS

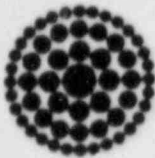
- 1.0 SENIOR REACTOR OPERATOR UPGRADE CANDIDATE - Without a four-year degree in Engineering or Applied Science:
  - 1.1 EDUCATION
    - High School Diploma or equivalent (ANSI N18.1 - 1971, Section 4.5.1).
  - 1.2 EXPERIENCE
    - 1.2.1 Minimum of four years of responsible power plant experience of which two years shall be nuclear. (H. Denton letter, 03/28/80, Enclosure 1, Section A.1a).
    - 1.2.2 At least one year shall be as a licensed reactor operator at CR-3 or at another nuclear power plant or in an equivalent military position on a one-for-one basis in the following ratings.
      - 1.2.2.1 Propulsion Plant Watch Officer.
      - 1.2.2.2 Engineering Watch Supervisor.
      - 1.2.2.3 Engineer Room Supervisor.
      - 1.2.2.4 Reactor Operator.
      - 1.2.2.5 Chief, Reactor Watch.
      - 1.2.2.6 Engineering Officer of the Watch.
      - 1.2.2.7 Propulsion Plant Watch Supervisor.
- (H. Denton letter, 03/28/80, Enclosure 1.A.1.6; NUREG 0737, Section 1.A.2.1; OLB Policy; NUREG 1021, ES-109, C.1.).



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

- 1.2.3 The remaining years of responsible power plant experience as specified in Section 1.2.1 above should be obtained as a Control Room Operator (nuclear or fossil).  
(H. Denton letter, 03/28/80, Enclosure 1A.1.a).
- 1.2.4 At least six months of the nuclear power plant experience shall be at CR-3. (H. Denton letter, 03/28/80, Enclosure 1A.1.a).
- 1.2.5 Satisfactory completion of CR-3 NLO Program. If the NLO Program has not been completed, then the NOTS must recommend additional training, approved by the NOTM, and concurred with by the Operations Superintendent.
- 1.3 TRAINING
- Each SRO Upgrade candidate will satisfactorily complete the four phased training program described in this procedure.
- 1.3.1 Phase 1 - Technical Classroom Training.
- Approximately 500 hours of lecture, discussions, self-study, and examinations on topics listed in Appendix C, Part B. This training includes heat transfer, fluid flow and thermodynamics; use of installed plant systems to control or mitigate severe core damage accidents; and reactor and plant transients. (NUREG 0094, Appendix F.B; (H. Denton letter, 03/28/80, Enclosure 1.A.2.c). Successful completion of this phase will be documented using Attachment 1.
- A waiver for previous training as a non-licensed operator or licensed operator at CR-3 or another plant may be given.



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

1.3.2 Phase 2 - Simulator Training

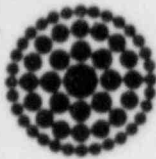
The Senior Reactor Operator Upgrade Candidate should participate in a 80 hours of simulator training in the approved PowerSafety International Training program in Lynchburg, VA. This phase will be documented using Attachment 2 and the evaluations provided by the simulator vendor. (NUREG 0094, F.D.) The Simulator Training Program curriculum is described in Appendix D.

1.3.3 Phase 3 - On-Shift Training

Each Senior Reactor Operator Upgrade candidate shall complete 65 days of on-shift training as an extra person. The purpose of this training is to familiarize the SRO Upgrade candidate of the duties and responsibilities of an SRO. As such, the candidate need not confine himself to the Control Room, but instead should perform and observe those activities normally accomplished by the SRO on-shift. (H. Denton letter, 03/28/80, Enclosure 1.A.2.a).

During the 65 days on-shift, the SRO candidate shall direct the performance of at least five significant reactivity changes or major plant evolutions identified in Appendix F. (NUREG 0094, Appendix F.C.4)

This phase will be documented using Attachments 3 and 4 which will include an evaluation of candidate's performance written by the Shift Supervisor and forwarded to the NOTS for entry into the operator candidate's training record.



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

1.3.4 Phase 4 - Review and Evaluation

Each Senior Reactor Operator Upgrade candidate will satisfactorily complete a comprehensive final written exam, final plant walk-through, and final oral exam as the final phase of training. Any unsatisfactory performance will result in retraining and retesting prior to application for a license. This phase will be documented using Attachment 6. (NUREG 0094, Appendix F.E.)

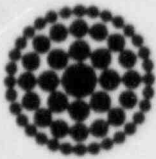
2.0 "INSTANT" SENIOR REACTOR OPERATOR CANDIDATE - holds a four-year degree in Engineering or applied science without at least one year as an RO or equivalent as defined in this Appendix Section 1.2.2.

2.1 EDUCATION

At least a four-year degree in Engineering or applied science. Bachelor of Science degrees in the following areas are considered to meet this requirement. Other degrees may be considered on a case-by-case basis:

Electrical Engineering, Mechanical Engineering, Nuclear Engineering, Chemical Engineering, Systems Engineering, Mathematics, Physics, Chemistry and Marine Engineering. General degrees from the Military Academies and the Merchant Marine Academy also meet this requirement.

A person who has been through the Naval Officer Nuclear Power School, regardless of degree, meets this requirement (NUREG 0737, I.A.2.1).



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

2.2 EXPERIENCE

2.2.1 Minimum of two years of responsible nuclear power plant experience as a staff engineer involved in the day-to-day operations. Other engineers who are FPC employees will be considered on a case-by-case basis. (NUREG 0737, I.A.2.1)

2.2.2 A minimum of six months will be on-site at Crystal River Unit 3. (NUREG 0094, Appendix F, Section C.2; H. Denton Letter, 03/28/80, Enclosure 1,A.1.)

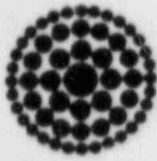
2.3 TRAINING

The training program for "Instant" SRO candidates shall be equivalent to an ANSI N18.1 1971 Cold License Program.

The "Instant" SRO Training program is a combination of the Reactor Operator Candidate program, the Senior Reactor Operator Upgrade program, special supplementary courses and programs, and credit for previous college courses and technical training.

2.3.1 Phase 1a - Technical Classroom Training

Each "Instant" SRO candidate will attend the SRO Upgrade Technical Classroom Training identified in Appendix C. In addition, special courses in the following subjects will be taught if not received by previous training or college/academic courses to meet ANSI N18.1 Section 5.2.2 Training Requirements (NUREG 0737 I.A.2.1).



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

- ° Design features of the CR-3 Nuclear Plant (can be obtained by attendance of portions of the NLO Program).
- ° Health Physics and Radiation Control and Safety.

Attachment 1 will be used to document satisfactory completion of this phase.

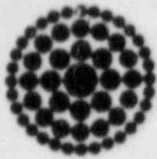
**2.3.2 Phase 1b - Reactor Startup Training**

Each "Instant" SRO will perform 10 reactor startups at CR-3, or on the Research Reactor at the University of Florida, or at the simulator described in Phase 3 below. (FSAR Chapter 12.2, Appendix B) The startup curriculum used at the Research Reactor and the simulator are identified in Appendix F. This phase is intended to acquaint the candidate with principles of reactor operation. Satisfactory completion of this phase will be documented using Attachment 5.

**2.3.3 Phase 2 - Simulator Training**

This phase is intended to acquaint the candidate with the general and specific operating characteristics of the CR-3 Nuclear Power Plant. Each "Instant" SRO candidate should participate in 200 hours of simulator training. This training should be divided into two parts. The instant SRO should attend the 120-Hour RO Candidate Simulator Training and the 80-Hour SRO Upgrade Candidate Simulator Training. An effort will be made to separate the two parts by the three-month on-shift training phase in order to maximize the training effect of the simulator "hands-on" experience. A minimum of 40 hours Simulator Training for startup certification must be completed.





**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

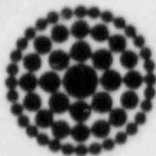
Curriculum for this phase is described in Appendix D. (FSAR 12.1, Appendix B; NUREG 0094, Appendix F.D.) Satisfactory completion will be documented using Attachment 2.

**2.3.4 Phase 3 - On-Shift Training**

Each "Instant" SRO candidate will complete 65 days of on-shift training time. During this period, the candidate will perform at least five significant reactivity changes or plant manipulations identified in Appendix E. Additionally, the candidate will direct the performance of five additional reactivity changes or manipulations identified in Appendix E. (NUREG 0737, I.A.2.1.) This phase will be documented using Attachments 3 and 4.

**2.3.5 Phase 4 - Review and Evaluation**

Each "Instant" SRO candidate will satisfactorily pass a comprehensive final written examination, final plant walk-through, and a final oral exam/review prior to certification. Any weaknesses found will be reviewed and additional training and testing will be conducted. (NUREG 0094, Appendix F.E.) Satisfactory completion of this phase of training will be documented using Attachment 6.



TITLE:

EPLACEMENT OPERATOR TRAINING PROGRAM

APPENDIX C

PHASE 1 - TECHNICAL CLASSROOM

TRAINING DESCRIPTION

- A. The Reactor Operator candidate program consists of lectures, discussions, self-study and examinations on the following topics:

A.1 REACTOR FUNDAMENTALS

TITLE - DESCRIPTION

NOTES

NUCLEAR THEORY

Nuclear Reactions

Energy Production

Heat Transfer

NUCLEAR THEORY

Fission Yields

Neutron Sources

Cross Sections

NUCLEAR THEORY

Reaction Rates

Moderators

Six Factor Formula

NUCLEAR THEORY

Reactivity

Subcritical Multiplication

1/M Plots

NUCLEAR THEORY

Prompt and Delayed Neutrons

Neutron Generation Time

Delayed Neutron Fractions

NUCLEAR THEORY

Reactor Kinetics Equations

Reactivity Coefficients and Control

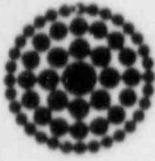
Reactor Control

NUCLEAR THEORY

Fission Product Poisons

NUCLEAR THEORY

Reactivity Variations



**Florida  
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## NUCLEAR OPERATIONS TRAINING DEPARTMENT PROCEDURE

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TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

TITLE - DESCRIPTION

NOTES

NUCLEAR THEORY

Neutron Distribution

Peaking Factors

NUCLEAR THEORY

Xenon Oscillations

Reactor Core Characteristics

Core Parameters

NUCLEAR THEORY

Fuel Loading and Startup

Power Operation

Safety Considerations

NUCLEAR THEORY

Course Review

HEAT TRANSFER, FLUID FLOW AND THERMODYNAMICS

Introduction to Thermodynamics and Basic Concepts

Heat, Work and Property Diagrams

Thermodynamic Laws and Cycles

Efficiency/Introduction to Heat Transfer

Heat Transfer Applications

Basic Concepts of Fluid Flow

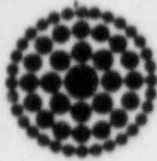
Basic Fluid Flow Relationships

Real System Fluid Characteristics and Measurement of Fluid Flow

Pump Theory

Pump Theory and Review

Reactor Heat Transfer and Thermal Hydraulics/STS Thermal Limits



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

TITLE - DESCRIPTION

NOTES

MITIGATING CORE DAMAGE

Incore Instrumentation

Excore Nuclear Instrumentation

Vital Instrumentation

Primary Chemistry

Radiation Monitoring

Gas Generation

Fission Product Release and Transport

ATOG - Natural Circulation

ATOG - Loss of Coolant

ATOG - OTSG Tube Rupture

ATOG - Over/Under Cooling

ATOG - Loss of Offsite Power

Turbine Water Induction

PRESSURIZED THERMAL SHOCK

B&W Guidelines

A.2

SYSTEM TECHNOLOGY

INCORE MONITORING

LOOSE PARTS MONITORING

PLANT COMPUTER

NON-NUCLEAR INSTRUMENTATION

REACTOR PROTECTION

MAIN STEAM RUPTURE MATRIX

ELECTRO-HYDRAULIC CONTROL

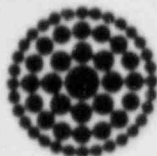
EMERGENCY SAFEGUARDS ACTUATION

FUEL HANDLING EQUIPMENT REVIEW

INTEGRATED CONTROL SYSTEM

EMERGENCY DOSE ASSESSMENT SYSTEM

RECALL SYSTEM



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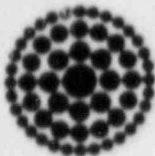
DATE: 06/21/85

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TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

<u>TITLE - DESCRIPTION</u>	<u>NOTES</u>
EMERGENCY FEEDWATER INITIATION AND CONTROL	
POST ACCIDENT SAMPLING SYSTEM	
SAFETY PARAMETER DISPLAY SYSTEM	
SEISMIC MONITORING SYSTEM	
REMOTE SHUTDOWN PANEL	
ELECTRICAL DISTRIBUTION	
6,900 Volt Bus	
4,160 Unit/ES Bus	
480 Unit/ES Bus	
120 Vital Bus	
250/125 DC Bus	
PRIMARY SYSTEMS	
Reactor Coolant	
Make-up and Purification	
Decay Heat	
Core Flood	
Reactor Building Spray	
PRIMARY SUPPORT SYSTEMS	
Nuclear Services Cooling Water	
Decay Heat Closed Cycle Cooling	
Nuclear Services and Decay	
Heat Raw Water	
EMERGENCY CORE COOLING AND REACTOR BUILDING ISOLATION	
INSTRUMENT AND STATION AIR	
SPENT FUEL COOLING	
SECONDARY SYSTEMS	
Main Steam	
Auxiliary Steam	
Moisture Separator and Reheat Steam	
Condensate	
Main Feedwater	
EMERGENCY FEEDWATER	
FIRE PROTECTION	
EMERGENCY DIESEL GENERATOR	
Electrical	
Mechanical	



TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

TITLE - DESCRIPTION  
NUCLEAR INSTRUMENTATION

NOTES

RADIATION MONITORING

VENTILATION

Reactor Building

Auxiliary Building

Control Complex

Turbine Building

A.3

OPERATIONS AND ADMINISTRATION

STS/ETS

Sec. 1.0

STS/ETS

Sec. 2.0

STS/ETS

Sec. 3.0, 4.0

STS/ETS

Sec. 3/4.1, 3/4.2

STS/ETS

Sec. 3/4.3, 3/4.4

STS/ETS

Sec. 3/4.5, 3.4.6

STS/ETS

Sec. 3/4.7, 3/4.8

STS/ETS

Sec. 3/4.9, 3/4.10

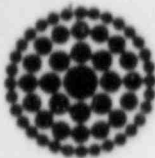
STS/ETS

Sec. 3/4.11, 3/4.12

STS/ETS

Sec. 5.0





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TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

TITLE - DESCRIPTION

NOTES

STS/ETS

Sec. 6.0

STS/ETS

Appendix B

STS/ETS

STS/ETS Worksheet

OPERATING PROCEDURES

OP-202, OP-203, OP-204,  
OP-210

OPERATING PROCEDURES

OP-208, OP-209, OP-211

OPERATING PROCEDURES

OP-305

OPERATING PROCEDURES

OP-304

OPERATING PROCEDURES

OP-302, OP-501, OP-502,  
OP-504, OP-503, OP-401

SURVEILLANCE PROCEDURES

SP-312

SURVEILLANCE PROCEDURES

SP-317

SURVEILLANCE PROCEDURES

SP-421

SURVEILLANCE PROCEDURES

SP-325, SP-362

SURVEILLANCE PROCEDURES

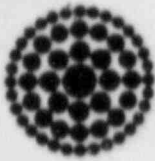
SP-356, SP-357, SP-358

SURVEILLANCE PROCEDURES

SP-440, SP-441, SP-442,  
SP-443

EMERGENCY/ABNORMAL PROCEDURES

Familiarization of Annunciator Procedures/NO's/AP's



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TITLE:

### REPLACEMENT OPERATOR TRAINING PROGRAM

#### TITLE - DESCRIPTION

#### NOTES

##### EMERGENCY/ABNORMAL PROCEDURES

AP-241	AP-330	AP-541	AP-990	EP-120
242	360	542	1013	140
243	380	543	1061	220
244	450	550	961	260
245	460	555	1071	290
251	513	580	1072	390
272	521	660	1076	
277	530	770		
320	540	880		

##### TRANSIENT ASSESSMENT PROGRAM

##### VERIFICATION PROCEDURES

VP-540, VP-580

##### EMERGENCY PLAN

Radiological Emergency  
Response Plan

##### EMERGENCY PLAN

EM-103, EM-205, EM-206,  
EM-207, EM-201

##### EMERGENCY PLAN

EM-204A, B, C

##### FUEL HANDLING PROCEDURES

##### ADMINISTRATION

OSIM, AI-500

##### ADMINISTRATION

AI-400, AI-401, AI-402

##### ADMINISTRATION

CP-111, CP-114, CP-115,  
CP-118, CP-122

##### ADMINISTRATION

Safety Listing

##### ADMINISTRATION

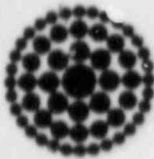
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##### RADIATION PROTECTION

RSP-101, RSP-106, HPP-107  
RP-201, RP-202

##### CURVES

OP-103



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

- B. The Senior Reactor Operator - Upgrade and Instant Candidate program consists of lectures, discussions, self-study, and examinations in the following topics:

B.1 **REACTOR FUNDAMENTALS**

TITLE - DESCRIPTION

NOTES

NUCLEAR THEORY  
Nuclear Reactions  
Energy Production  
Heat Transfer

NUCLEAR THEORY  
Fission Yields  
Neutron Sources  
Cross Sections

NUCLEAR THEORY  
Reaction Rates  
Moderators  
Six-Factor Formula

NUCLEAR THEORY  
Reactivity  
Subcritical Multiplication  
1/M Plots

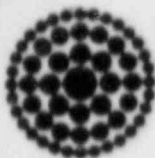
NUCLEAR THEORY  
Prompt and Delayed Neutrons  
Neutron Generation Time  
Delayed Neutron Fractions

NUCLEAR THEORY  
Reactor Kinetics Equations  
Reactivity Coefficients and Control  
Reactor Control

NUCLEAR THEORY  
Fission Product Poisons

NUCLEAR THEORY  
Reactivity Variations

NUCLEAR THEORY  
Neutron Distribution  
Peaking Factors



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TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

TITLE - DESCRIPTION

NOTES

NUCLEAR THEORY

Xenon Oscillations

Reactor Core Characteristics

Core Parameters

NUCLEAR THEORY

Fuel Loading and Startup

Power Operation

Safety Considerations

NUCLEAR THEORY

Problem Solving

NUCLEAR THEORY

Course Review

HEAT TRANSFER, FLUID FLOW AND THERMODYNAMICS

Introduction to Thermodynamics and Basic Concepts;

Heat, Work and Property Diagrams

Thermodynamic Laws and Cycles

Efficiency/Introduction to Heat Transfer

Heat Transfer Applications

Reactor Heat Transfer and Thermal Hydraulics

Reactor Heat Transfer and Thermal Hydraulics; STS Thermal Limits and Bases

Basic Concepts of Fluid Flow

Basic Fluid Flow Relationships

Real System Fluid Characteristics and Measurement of Fluid Flow

Pump Theory

Pump Theory and Review

MITIGATING CORE DAMAGE

Incore Instrumentation

Excore Nuclear Instrumentation

Vital Instrumentation

Primary Chemistry

Radiation Monitoring

Gas Generation

Fission Product Release and Transport

ATOG - Natural Circulation

ATOG - Loss of Coolant

ATOG - OTSG Tube Rupture

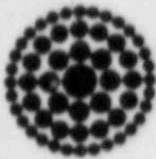
ATOG - Over/Under Cooling

ATOG - Loss of Offsite Power

PRESSURIZED THERMAL SHOCK

B&W Guidelines

HANDLING, DISPOSAL AND HAZARDS OF RADIOACTIVE WASTES



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

TITLE - DESCRIPTION  
TURBINE WATER INDUCTION

NOTES

B.2

**SYSTEM TECHNOLOGY**

EMERGENCY CORE COOLING AND  
REACTOR BUILDING ISOLATION

SPENT FUEL COOLING

FUEL HANDLING EQUIPMENT REVIEW

**SECONDARY SYSTEMS**

Main Steam

Auxiliary Steam

Moisture Separator and

Reheat Steam

Condensate

Main Feedwater

EMERGENCY FEEDWATER

INSTRUMENT AND STATION AIR

FIRE PROTECTION

**VENTILATION**

Reactor Building

Auxiliary Building

Control Complex

Turbine Building

RADIATION MONITORING

EMERGENCY DIESEL GENERATOR

Mechanical

Electrical

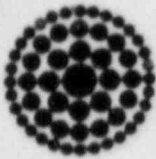
CONTROL ROD DRIVE

Mechanical

Electrical

NUCLEAR INSTRUMENTATION

INCORE MONITORING



**Florida  
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## NUCLEAR OPERATIONS TRAINING DEPARTMENT PROCEDURE

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TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

TITLE - DESCRIPTION  
LOOSE PARTS MONITORING

NOTES

PLANT COMPUTER

NON-NUCLEAR INSTRUMENTATION

REACTOR PROTECTION

ELECTRICAL DISTRIBUTION

6,900 Volt Bus

4,160 Unit/ES Bus

480 Unit/ES Bus

120 Vital Bus

250/125 DC Bus

PRIMARY SYSTEMS

Reactor Coolant

Make-up and Purification

Decay Heat

Core Flood

Reactor Building Spray

PRIMARY SUPPORT SYSTEMS

Nuclear Services Cooling Water

Decay Heat Closed Cycle Cooling

Nuclear Services and Decay

Heat Raw Water

MAIN STEAM RUPTURE MATRIX

ELECTRO-HYDRAULIC CONTROL

EMERGENCY SAFEGUARDS ACTUATION

INTEGRATED CONTROL SYSTEM

EMERGENCY DOSE ASSESSMENT SYSTEM

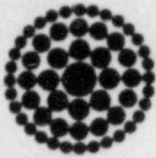
RECALL SYSTEM

EMERGENCY FEEDWATER INITIATION AND CONTROL

POST ACCIDENT SAMPLING SYSTEM

SAFETY PARAMETER DISPLAY SYSTEM





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Power**  
CORPORATION

## NUCLEAR OPERATIONS TRAINING DEPARTMENT PROCEDURE

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TITLE - DESCRIPTION  
SEISMIC MONITORING SYSTEM

NOTES

REMOTE SHUTDOWN PANEL

B.3

OPERATIONS AND ADMINISTRATION

STS/ETS  
Sec. 1.0

STS/ETS  
Sec. 2.0

STS/ETS  
Sec. 3.0, 4.0

STS/ETS  
Sec. 3/4.1, 3/4.2

STS/ETS  
Sec. 3/4.3, 3/4.4

STS/ETS  
Sec. 3/4.5, 3/4.6

STS/ETS  
Sec. 3/4.7, 3/4.8

STS/ETS  
Sec. 3/4.9, 3/4.10

STS/ETS  
Sec. 3/4.11, 3/4.12

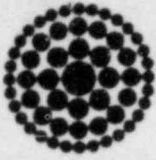
STS/ETS  
Sec. 5.0

STS/ETS  
Sec. 6.0

STS/ETS  
Appendix B

STS/ETS  
STS/ETS Worksheet

CURVES  
OP-103



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OPERATING PROCEDURES

OP-202, OP-203, OP-204,  
OP-210

OPERATING PROCEDURES

OP-208, OP-209, OP-211

OPERATING PROCEDURES

OP-305

OPERATING PROCEDURES

OP-304

OPERATING PROCEDURES

OP-302, OP-501, OP-502,  
OP-504, OP-503, OP-401

SURVEILLANCE PROCEDURES

SP-312	SP-362
SP-317	SP-421
SP-325	SP-440
SP-356	SP-441
SP-357	SP-442
SP-358	SP-443

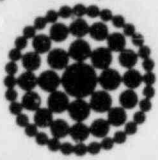
EMERGENCY/ABNORMAL PROCEDURES

Familiarization of Annunciator Procedures/EP's/AP's

EMERGENCY/ABNORMAL PROCEDURES

AP-241	AP-450	AP-580	EP-120
242	460	660	140
243	513	770	220
244	521	880	260
245	530	990	290
251	540	1013	390
272	541	961	
277	542	1071	
320	543	1072	
330	550	1076	
360	555		
380			

TRANSIENT ASSESSMENT PROGRAM



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### REPLACEMENT OPERATOR TRAINING PROGRAM

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OPERATING PROCEDURES  
Remote Shutdown

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VERIFICATION PROCEDURES  
VP-540, VP-580

EMERGENCY PLAN  
Radiological Emergency  
Response Plan

EMERGENCY PLAN  
EM-103, EM-205, EM-206,  
EM-207, EM-201

FPC CORPORATE EMERGENCY SUPPORT PLAN

EMERGENCY COORDINATORS HANDBOOK

EMERGENCY COORDINATOR TRAINING

EMERGENCY PLAN  
EM-202

EMERGENCY PLAN  
EM-204 A, B, C

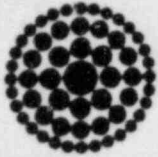
FUEL HANDLING PROCEDURES

ADMINISTRATION  
OSIM, AI-500

ADMINISTRATION  
AI-400, AI-401, AI-402

ADMINISTRATION  
CP-111, CP-114, CP-115  
CP-118, CP-122

ADMINISTRATION  
Safety Listing



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ADMINISTRATION

10 CFR 50/55

RADIATION PROTECTION

RSP-101, RSP-106, HPP-106

RP-201, RP-202

MANAGEMENT/SUPERVISION

Role of Supervisor

MANAGEMENT/SUPERVISION

The Planning Process

MANAGEMENT/SUPERVISION

Controlling the work

MANAGEMENT/SUPERVISION

Managing Conflict

MANAGEMENT/SUPERVISION

Solving Problems

MANAGEMENT/SUPERVISION

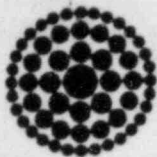
Decision Making

MANAGEMENT/SUPERVISION

Performance Feedback

MANAGEMENT/SUPERVISION

Team Building



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**NUCLEAR OPERATIONS TRAINING  
DEPARTMENT PROCEDURE**

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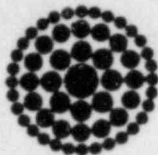
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**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

APPENDIX D

SIMULATOR TRAINING PROGRAM DESCRIPTION



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

APPENDIX E

ON-SHIFT TRAINING PROGRAM DESCRIPTION

A. REACTOR OPERATOR CANDIDATES

A.1 Reactor Operator Candidates will be in the Control Room for at least sixty-five (65) days as an RO in training on shift. The candidate must satisfactorily perform at least five significant reactivity changes or plant maneuvers identified in Attachment 3. Additionally, all evolutions identified in the attached Table 1 will be satisfactorily performed, or observed and discussed, or simulated and discussed and properly recorded by the Nuclear Shift Supervisor or Assistant Nuclear Shift Supervisor on Attachment 4.

A.2 The duties and responsibilities of the RO (Assistant Nuclear Operator [Control Room] or Nuclear Operator) are as follows. The RO candidate must demonstrate satisfactory proficiency in the performance of these items during his training on-shift.

A.3 Nuclear Operator (NO)

A. Purpose

The NO is responsible to implement operational and maneuvering requirements.

B. Principle Activities and Results:

1. Maintains cognizance of Primary and Secondary status.
2. Manipulates the controls of the power plant.

A.4 Assistant Nuclear Operator (ANO)

A. Purpose

The ANO (Control Room) is responsible to the NO and assistant the NO in implementing operational and maneuvering requirements.





## NUCLEAR OPERATIONS TRAINING DEPARTMENT PROCEDURE

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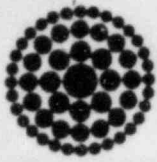
TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

### APPENDIX E

#### ON-SHIFT TRAINING PROGRAM DESCRIPTION

- A.4 (Cont) B. Principle Activities and Results:
1. Records Operating data.
  2. Operates plant equipment in assigned area.
  3. Maintains cognizance of emergency safe-guards systems (Control Room ANO).
  4. Assures that appropriate emergency and abnormal procedures are reviewed and executed during plant transients and abnormal operation (Control Room ANO).
- B. SENIOR REACTOR OPERATOR CANDIDATES
- B.1 Instant SRO candidates will be on-shift as an SRO in training for at least sixty-five (65) days. These candidates must perform at least five manipulations and/or plant evolutions and direct the performance of an additional five manipulations and/or plant evolutions identified in Attachment 3. Additionally Instant SRO candidates must satisfactorily perform or observe and discuss, or simulate and discuss all the evolutions in the attached Table 1. On-shift training and reactivity manipulations must be documented using Attachments 3 and 4.
- B.2 Upgrade SRO candidates will be on-shift as an SRO (NSS or ANSS) in training in training for at least sixty-five (65) days. These candidates must satisfactorily direct the performance of at least five reactivity changes or plant evolutions. Additionally, if the SRO Upgrade candidate was not an RO on CR-3, the person must satisfactorily perform, or observe and discuss, or simulate and discuss, all items in Table 1. On-shift training and manipulations must be documented using Attachments 3 and 4.
- B.3 The duties and responsibilities of the NSS or ANSS are as follows. The SRO candidate must demonstrate satisfactory proficiency in the performance of these items during his training on-shift.



**TITLE:**

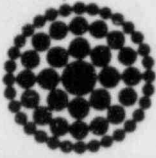
REPLACEMENT OPERATOR TRAINING PROGRAM

APPENDIX E

ON-SHIFT TRAINING PROGRAM DESCRIPTION

B. SENIOR REACTOR OPERATOR CANDIDATES

- R.1 Instant SRO candidates will be on-shift as an SRO in training for at least sixty-five (65) days. These candidates must perform at least five manipulations and/or plant evolutions and direct the performance of an additional five manipulations and/or plant evolutions identified in Attachment 3. Additionally, Instant SRO candidates must satisfactorily perform or observe and discuss, or simulate and discuss all the evolutions in the attached Table 1. On-shift training and reactivity manipulations must be documented using Attachments 3 and 4.
- B.2 Upgrade SRO candidates will be on-shift as an SRO (NSS or ANSS) in training in training for at least sixty-five (65) days. These candidates must satisfactorily direct the performance of at least five reactivity changes or plant evolutions. Additionally, if the SRO Upgrade candidate was not an RO on CR-3 the person must satisfactorily perform, or observe and discuss, or simulate and discuss all items in Table 1.
- B.3. The duties and responsibilities of the NSS or ANSS are as follows. The SRO candidate must demonstrate satisfactory proficiency in the performance of these items during his training on-shift.



**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

APPENDIX E

ON-SHIFT TRAINING PROGRAM DESCRIPTION

B.4 Nuclear Shift Supervisor

A. Purpose:

To insure Crystal River Unit 3 operation at maximum electrical output in a safe and efficient manner in compliance with Standard Technical Specifications, approved Operating Procedures, Governmental Regulations and company policy. Company commitment to the Nuclear Shift Supervisor's authority is contained in OSIM Section V "Memoranda of Understanding and Policy".

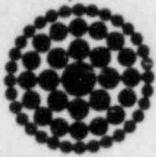
B. Principle Activities and Results:

1. Insures plant operations are within required limits of Standard Technical Specifications and other Governmental Regulations.
2. Reviews and approves work to be performed, clearances and completed procedures.
3. Evaluates and monitors employee work performance.
4. Attends the daily planning coordination meeting as the Operations section representative.

B.5 Assistant Nuclear Shift Supervisor (ANSS)

A. Purpose:

Provide assistance to the NSS as required and perform the duties of the NSS in his absence. The ANSS is responsible to the NSS to help plan, supervise and coordinate the duties of the shift operations personnel. The ANSS also helps the NSS in planning equipment outages. ANSS conducts shift safety meetings and personnel training.



**TITLE:**

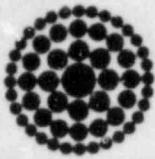
REPLACEMENT OPERATOR TRAINING PROGRAM

APPENDIX E

ON-SHIFT TRAINING PROGRAM DESCRIPTION

B. Principal Activities and Results:

1. Supervises specific operations of the nuclear plant, as directed by the NSS, verifying that the unit is properly performing in accordance with and within the limits of Technical Specifications and complies with all regulations for safe operation.
2. Reviews routine operational data.
3. Functions as Fire Team Leader.
4. Assists the NSS in assuring proper operation of the plant through proper administration and control of RWP's, Work Requests, clearances and switching and tagging orders.
5. Attends the daily planning coordination meeting in lieu of NSS as required.



**TITLE:**

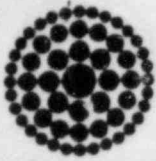
REPLACEMENT OPERATOR TRAINING PROGRAM

TABLE 1

PLANT EVOLUTIONS

		Performed or Observed NSS/ANS Initials/Date
1	- Change Makeup Prefilters	_____
2	- Change Spent Fuel Filters	_____
3	- Plant Shutdown from 15% Power to Hot Standby	_____
4	- Turbine Valve Testing	_____
5	- ICS Operation in Auto or Manual	_____
6	- In-Core Flux Map Evaluation	_____
7	- Perform A Liquid/Gaseous Waste Release	_____
8	- General Computer Operation	_____
9	- Requisition of an RP/SRWP	_____
10	- Reactor Critical Approach and ECP Calculation	_____
11	- Emergency Plan/Drill Participation	_____
12	- NNI Input Signal Selector Switch Operation	_____
13	- Radiation Detector Instrument Operation	_____
14	- Plant Startup From Cold Shutdown to at least 20% Power	_____
15	- Perform Hot Channel Factors Calculation	_____
16	- Makeup for RCS Leakage	_____
17	- Perform an RCS Boration/Dilution	_____
18	- Operate the Waste Evaporators	_____
19	- Pump the RCDT to the MWST	_____
20	- Bubble Nitrogen through the CFT for Sampling	_____





**TITLE:**

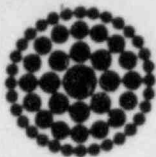
REPLACEMENT OPERATOR TRAINING PROGRAM

PLANT EVOLUTIONS (con'd)

Performed or Observed  
NSS/ANS Initials/Date

- 21 - Degas Through the MUT
- 22 - RM-A hi Rad Alarm and Evacuation
- 23 - Initial Fill and Vent of the RCS
- 24 - Valve Lineups on the RCS and OTSGs
- 25 - RCP Seal Flow Adjustment
- 26 - Vent CRDMs
- 27 - Manual Rotation of the RCPs
- 28 - Change ECST Demins
- 29 - Manual Operation of the Diamond
- 30 - Operate Turbine Output Breakers
- 31 - Take the Plant from Mode 1 to Mode 3
- 32 - Cooldown from 579°F to 532°F
- 33 - Remove and/or Place a Condenser in Service
- 34 - Solpoison Calculation
- 35 - Dropped Rod Actions and Recovery
- 36 - Fire System Testing
- 37 - Mode 5 to Mode 4
- 38 - Starting and Stopping RCPs
- 39 - APSR Operation
- 40 - Shutdown Margin Calculation





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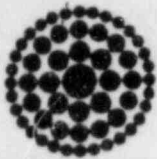
TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

### PLANT EVOLUTIONS (con'd)

Performed or Observed  
NSS/ANS Initials/Date

- |    |   |   |       |
|----|---|---|-------|
| 41 | - | Fuel Receipt (FP-302)   | _____ |
| 42 | - | Control Rod Exercising  | _____ |
| 43 | - | EDG Operation (fast start)  | _____ |
| 44 | - | RB Purge  | _____ |
| 45 | - | H <sub>2</sub> Addition   | _____ |
| 46 | - | Recirc BWST   | _____ |
| 47 | - | Alarm System Testing  | _____ |
| 48 | - | Estimated Boron Concentration Calculation                             | _____ |
| 49 | - | Switchyard Inspection   | _____ |
| 50 | - | SP-104 Hot Channel Calculations                                       | _____ |
| 51 | - | SP-130 Monthly ES Functional Tests                                    | _____ |
| 52 | - | SP-112 RPS Calibration  | _____ |
| 53 | - | SP-113 Power Range Instrument Calibration                             | _____ |
| 54 | - | SP-300 Daily Logs   | _____ |
| 55 | - | SP-301 Shutdown Daily Logs  | _____ |
| 56 | - | SP-310 Daily Loos Parts Monitor Checks                                | _____ |
| 57 | - | SP-312 Heat Balance Calculation                                       | _____ |
| 58 | - | SP-317 RCS Water Inventory  | _____ |
| 59 | - | SP-321 Power Distribution Breaker Alignment and<br>Availability Check | _____ |
| 60 | - | SP-322 Cable Tunnel Sump Pumps Operational<br>Verification            | _____ |



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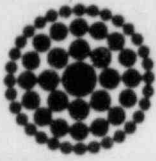
TITLE:

REPLACEMENT OPERATOR TRAINING PROGRAM

### PLANT EVOLUTIONS (con'd)

Performed or Observed  
NSS/ANS Initials/Date

61	-	SP-324 Containment Inspection	_____
62	-	SP-325 Turbine Generator Checks	_____
63	-	SP-340 ECCS Pump Operability	_____
64	-	SP-343 MSIVs Part Stroke Exercise	_____
65	-	SP-345 Auxiliary Building Ventilation Exhaust System Monthly Test	_____
66	-	SP-349 EFW Operability Demonstration	_____
67	-	SP-354 EDG Fuel Oil & EDG Monthly Test	_____
68	-	SP-421 Reactivity Balance Calculations	_____



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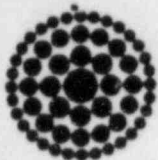
**TITLE:**

REPLACEMENT OPERATOR TRAINING PROGRAM

### APPENDIX F

REACTOR STARTUP TRAINING PROGRAM DESCRIPTION FOR  
INSTANT SRO CANDIDATES

(See Attached)



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### ATTACHMENT 1

#### PHASE 1 - TECHNICAL CLASSROOM TRAINING SUMMARY REPORT

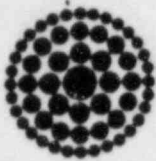
Name: \_\_\_\_\_ Program \_\_\_\_\_ Year \_\_\_\_\_

License No. \_\_\_\_\_ (if applicable)

	Category				Overall Score	
Exam #1 Score						NOTS Signature
Exam #2 Score						NOTS Signature
Exam #3 Score						NOTS Signature
Exam #4 Score						NOTS Signature
Exam #5 Score						NOTS Signature
Exam #6 Score						NOTS Signature
Exam #7 Score						NOTS Signature
Exam #8 Score						NOTS Signature
Exam #9 Score						NOTS Signature
Exam #10 Score						NOTS Signature
Average scores of all exams						

I hereby certify that the above named individual did successfully complete Phase 1 training by obtaining greater than or equal to 80% average overall.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor



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### ATTACHMENT 2

### PHASE 2 - SIMULATOR TRAINING EVALUATION REPORT

Name: \_\_\_\_\_ Program \_\_\_\_\_ Year \_\_\_\_\_

License No. \_\_\_\_\_ (if applicable)

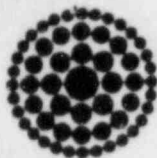
#### NOTE

This evaluation is to be marked Satisfactory (SAT), Unsatisfactory (UNSAT) or Not Observed (N/O). Any unsatisfactory evaluation must be explained here. (Use additional pages as necessary).

SKILL DEMONSTRATION	EVALUATION
1. Communication Skills	
2. Use of Procedures	
3. Response to Alarms	
4. Use of Indications	
5. Ability to Predict Plant Response	
6. Tech Spec Knowledge	
7. Casualty Response	
8. Accident Assessment	
9. Establishment of Priorities	
10. Ability to direct the Actions of Shift Members (SRO only)	
11. Overall Evaluation	

I hereby certify that this individual has satisfactorily completed Phase 2 Training. See attached Evaluations from PowerSafety if applicable.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor



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### ATTACHMENT 3

#### PHASE 3 - ON-SHIFT TRAINING REACTIVITY CHANGE RECORD

Name: \_\_\_\_\_ Program \_\_\_\_\_ Year \_\_\_\_\_

License No. \_\_\_\_\_ (if applicable) Location: \_\_\_\_\_

Reactivity

Change      Description

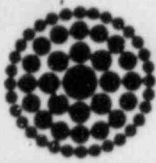
- A      Plant or reactor startup to include a range that reactivity feedback from nuclear heat addition is noticeable and heatup rate is established.
- B      Plant Shutdown from greater than 60% power to less than 20% power.
- C      Manual control of steam generators and/or feedwater during a startup or shutdown.
- D      Boration and/or dilution during power operation.
- E      Any significant (>10%) power changes in manual rod control.
- F      Any reactor power change of 10% or greater where load change is performed with the load limit control on manual.
- G      Reactor Shutdown from >20% power to all Rods in and subcritical.

	<u>Reactivity Change</u>	<u>Date Performed*</u>	<u>NSS/ANSS Initials</u>
1 -	_____	_____	_____
2 -	_____	_____	_____
3 -	_____	_____	_____
4 -	_____	_____	_____
5 -	_____	_____	_____
6 -	_____	_____	_____
7 -	_____	_____	_____
8 -	_____	_____	_____
9 -	_____	_____	_____
10 -	_____	_____	_____

I hereby certify that the above named individual has satisfactorily completed this portion of Phase 3. \*Includes appropriate discussion of procedures used and plant response.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor





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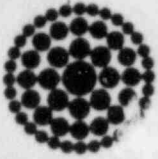
REPLACEMENT OPERATOR TRAINING PROGRAM

## ATTACHMENT 4

### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
<u>Date/Time</u>	<u>Extra Man Position(1)</u>	<u>Procedures/Evolutions Performed from Table 1 - Appendix E</u>	<u>NSS/ANSS Initials</u>
<u>Day 1</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 2</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 3</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 4</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 5</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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TITLE:

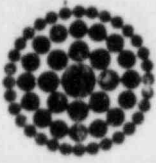
REPLACEMENT OPERATOR TRAINING PROGRAM

### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 6	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 7	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 8	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 9	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 10	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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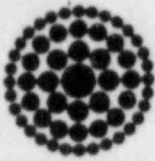
REPLACEMENT OPERATOR TRAINING PROGRAM

### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 11	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 12	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 13	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 14	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 15	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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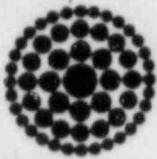
REPLACEMENT OPERATOR TRAINING PROGRAM

### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
<u>Date/Time</u>	<u>Extra Man Position(1)</u>	<u>Procedures/Evolutions Performed from Table 1 - Appendix E</u>	<u>NSS/ANSS Initials</u>
<u>Day 31</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 32</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 33</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 34</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
<u>Day 35</u>	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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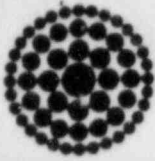
REPLACEMENT OPERATOR TRAINING PROGRAM

### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 21	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 22	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 23	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 24	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 25	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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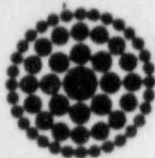
### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
<u>Date/Time</u>	<u>Extra Man Position(1)</u>	<u>Procedures/Evolutions Performed from Table 1 - Appendix E</u>	<u>NSS/ANSS Initials</u>
<u>Day 26</u>	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
<u>Day 27</u>	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
<u>Day 28</u>	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
<u>Day 29</u>	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
<u>Day 30</u>	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)





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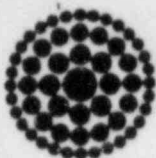
REPLACEMENT OPERATOR TRAINING PROGRAM

### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 31	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 32	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 33	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 34	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 35	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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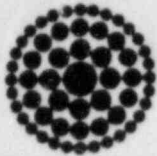
REPLACEMENT OPERATOR TRAINING PROGRAM

### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 36	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 37	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 38	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 39	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 40	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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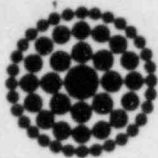
REPLACEMENT OPERATOR TRAINING PROGRAM

## ATTACHMENT 4 (Continued)

### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 41	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 42	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 43	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 44	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 45	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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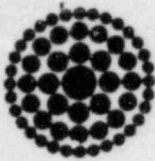
### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: \_\_\_\_\_ Program \_\_\_\_\_ Year \_\_\_\_\_

Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 46	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 47	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 48	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 49	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 50	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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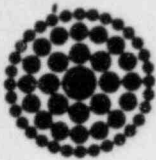
REPLACEMENT OPERATOR TRAINING PROGRAM

### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 51	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 52	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 53	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 54	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 55	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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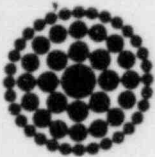
### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: _____	Program _____	Year _____	
Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 56	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 57	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 58	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 59	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____
Day 60	_____	1) _____	_____
_____	_____	2) _____	_____
_____	_____	3) _____	_____
_____	_____	4) _____	_____
_____	_____	5) _____	_____

(1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)





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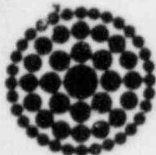
### ATTACHMENT 4 (Continued)

#### PHASE 3 - ON-SHIFT TRAINING RECORD

Name: \_\_\_\_\_ Program \_\_\_\_\_ Year \_\_\_\_\_

Date/Time	Extra Man Position(1)	Procedures/Evolutions Performed from Table 1 - Appendix E	NSS/ANSS Initials
Day 61	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 62	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 63	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 64	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____
Day 65	_____	1) _____ 2) _____ 3) _____ 4) _____ 5) _____	_____

- (1) Nuclear Operator (RO, Inst. SRO)  
Assistant Shift Supervisor (SRO Upgrade or Instant SRO)  
Shift Supervisor (SRO, Inst. SRO)



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PHASE 3 - ON-SHIFT TRAINING RECORD

Name: \_\_\_\_\_ Program \_\_\_\_\_ Date \_\_\_\_\_

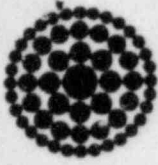
### NOTE

This evaluation is to be marked Satisfactory (SAT), Unsatisfactory (UNSAT) or Not Observed (N/O). Any unsatisfactory evaluation must be explained here. (Use additional pages as necessary)

SKILL DEMONSTRATION	EVALUATION
1. Communication Skills	
2. Plant System Knowledge	
3. Use of Procedures	
4. Response to Alarms	
5. Use of Indications	
6. Ability to Predict Plant Response	
7. Tech Spec Knowledge	
8. Casualty Response	
9. Accident Assessment	
10. Establishment of Priorities	
11. Ability to direct the Actions of Shift Members (SRO only)	
12. Attitude towards safety (Himself and others)	
13. Attitude towards professional responsibilities	
14. Responsibly questions work instructions from supervisor	
15. Works well with peers	
16. Arrives for work on time	
17. Performs job responsibilities with minimum supervision	
18. Personal appearance	
19. Health	
20. Overall Evaluation	

I hereby certify that the above named individual has satisfactorily/  
unsatisfactorily completed the on-shift training phase.

Shift Supervisor/Date \_\_\_\_\_



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### ATTACHMENT 5

#### INSTANT SRO REACTOR START-UP RECORD

Name: \_\_\_\_\_

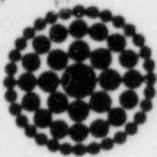
Year \_\_\_\_\_

	<u>Date</u>	<u>Reactor Used</u>	<u>SS/Instructor Initials</u>
1 -	_____	_____	_____
2 -	_____	_____	_____
3 -	_____	_____	_____
4 -	_____	_____	_____
5 -	_____	_____	_____
6 -	_____	_____	_____
7 -	_____	_____	_____
8 -	_____	_____	_____
9 -	_____	_____	_____
10 -	_____	_____	_____
11 -	_____	_____	_____
12 -	_____	_____	_____
13 -	_____	_____	_____
14 -	_____	_____	_____
15 -	_____	_____	_____
16 -	_____	_____	_____
17 -	_____	_____	_____
18 -	_____	_____	_____
19 -	_____	_____	_____
20 -	_____	_____	_____

Attached are the evaluations of startup performance.

I hereby certify that the above named person has successfully completed Phase 2.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor



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ATTACHMENT 6

PHASE 4 - FINAL REVIEW AND EXAMINATION SUMMARY REPORT

Name: \_\_\_\_\_ Program: \_\_\_\_\_ Year \_\_\_\_\_

License No. \_\_\_\_\_ (if applicable)

I hereby certify that the above named individual has satisfactorily completed a final comprehensive written exam. See the attached report.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor

\_\_\_\_\_  
Date

I hereby certify that the above named person has satisfactorily completed a final plant walkthrough. See the attached report.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor

\_\_\_\_\_  
Date

I hereby certify that the above named person has satisfactorily passed a final oral exam/review. See the attached report.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor

\_\_\_\_\_  
Date

I have reviewed the above named person's records against the program requirements of this procedure and have determined that all requirements have been met.

\_\_\_\_\_  
Nuclear Operations  
Training Supervisor

\_\_\_\_\_  
Date