



Duquesne Light

Nuclear Group
P.O. Box 4
Shippingport, PA 15077-0004

Telephone (412) 393-6000

September 30, 1986

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Attn: Mr. Peter S. Tam, Project Manager
Project Directorate No. 2
Division of PWR Licensing - A
Washington, DC 20555
- Mail Stop 340 -

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Operations Training Program

Gentlemen:

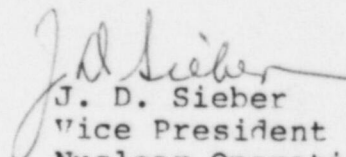
On June 30, 1986 we submitted our response to your request for additional information dated April 28, 1986. Within that submittal there were several responses that indicated additional revisions to the Nuclear Group Training Administrative Manual (NGTAM) would be necessary and that we would forward these to the NRC upon their completion. Attached for your information and review are the following sections of the NGTAM:

- Section 2.2; Licensed Operator Retraining
- Figure 2.2.7; On-Shift Individual Retraining Report
- Section 2.7; Refueling License Retraining Program
- Section 2.9; Unit 1/2 Operator Cross-Training Program
Description - Licensed
- Section 12.5; License Retraining Program

Collectively these sections provide the information which we indicated would be incorporated into the NGTAM through our earlier submittal.

If you have any questions regarding this submittal, please contact me or members of my staff.

Very truly yours,


J. D. Sieber
Vice President
Nuclear Operations

8610200405 860930
PDR ADOCK 05000334
V PDR

Moo

Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Operations Training Program
Page 2

Attachment

Mr. W. M. Troskoski, Resident Inspector
U. S. Nuclear Regulatory Commission
Beaver Valley Power Station
Shippingport, PA 15077

U. S. Nuclear Regulatory Commission
c/o Document Management Branch
Washington, DC 20555

Director, Safety Evaluation & Control
Virginia Electric & Power Company
P. O. Box 26666
One James River Plaza
Richmond, VA 23261

2.2 LICENSED OPERATOR RETRAINING

2.2.1 Program Objective

The objective of the Licensed Operator Retraining Program is to assure that licensed personnel remain competent to operate the Beaver Valley Power Station in a safe, reliable and efficient manner under normal, abnormal, and emergency operating conditions.

2.2.2 Program Applicability

Personnel licensed as Reactor Operators or Senior Reactor Operators for the Beaver Valley Power Station (licensees) will complete the Licensed Operator Retraining Program.

The Licensed Operator Retraining Program will be conducted continuously for 24 months and upon conclusion will be followed by successive 24-month programs, each of which will begin promptly at the conclusion of the preceding program. Each 24-month retraining program is comprised of two retraining cycles 1 year in length.

2.2.3 Scope of Training

The Licensed Operator Retraining Program is conducted in five (5) phases of instruction or evaluation, as follows:

1. Phase 1 - Annual Written Examinations. Licensees are administered a comprehensive written examination similar in scope and style to USNRC licensing examinations.
2. Phase 2 - Formal Classroom Training. Structured classroom training based in part on the results of annual written examinations.
3. Phase 3 Plant Manipulations Training. Licensees perform or supervise the performance of control manipulations in the plant or at the Beaver Valley control room simulator.
4. Phase 4 - Individual Study. Review and self-study of significant operating experience reports, Incident Reports, design changes and procedure changes.

5. Phase 5 - Performance Evaluation. Organized evaluations of general performance and competence via the Beaver Valley Power Station performance review program.

2.2.4 Training Outline

2.2.4.1 Annual Written Examinations

Once each year, licensees will complete a comprehensive written examination similar in scope and style to licensing examinations administered by the USNRC. The purposes of these examinations will be to evaluate effectiveness of the prior year's retraining, and to identify areas where training may be required to upgrade knowledge. An overall grade of 80% combined with a grade of at least 70% in each category will be considered passing. The Director, Operations Training, is responsible for development and approval of the annual written examination. The Director, Operations Training, will designate another Senior Reactor Operator on a rotating basis to review and approve the examination in conjunction with the Director.

1. Licensees who fail the annual written examination will be relieved of Control Room duties requiring a license and will participate in an accelerated retraining program. Refer to Subsection 2.2.5.3.
2. During the subsequent retraining cycle, licensees will be required to complete formal classroom training in any category for which a score of less than 80% is earned.
3. The Director, Operations Training, the Director, Site Operations, and the Plant Manager will review the results of written examinations to determine where emphasis in retraining is needed.

2.2.4.2 Formal Classroom Training

The scope, duration, and precise content of formal classroom training will vary according to needs identified for individual cycles of the Licensed Operator Retraining Program. Instruction will average at least 4 hours per month per licensee. Formal classroom training will be accomplished each cycle in 6 modules of instruction, repeated 6 times to accommodate the operating schedule cycle. Instructional emphasis will be placed where annual written examination results,

feedback from the Site Operations Section (i.e., Operations Supervisor, Shift Supervisor, or shift team members) or feedback from Simulator Training and Evaluations indicate that weaknesses may be developing. Classroom training will be scheduled in the following topics during each retraining program:

1. Topic I - Theory and Principles of Operation
2. Topic II - Thermodynamics, Heat Transfer and Fluid Flow
3. Topic III - Plant Instrumentation and Controls
4. Topic IV - Radiation Control and Safety
5. Topic V - Plant Protection/Engineered Safety Systems
6. Topic VI - Administrative Controls
7. Topic VII - Abnormal and Emergency Procedures Mitigating Core Damage
8. Topic VIII - Plant Status Updates

NOTE: Technical Specifications and applicable portions of Title 10 CFR are covered with the appropriate Topic.

Films, videotapes, and other effective training media may be used to supplement live instruction. The use of these media will not exceed 50% of the total time devoted to formal classroom training.

2.2.4.3 Plant Manipulations Training

Licensees will participate in control manipulations which demonstrate their skill and/or familiarity with reactivity control systems, and their proficiency with abnormal and emergency procedures. Senior Reactor Operator licensees are credited with control manipulations if they direct or evaluate the manipulations as they are performed. To the extent practical, as determined by the availability of station equipment and systems, control manipulations should be practiced on the controls of the Beaver Valley Power Station. The Beaver Valley control room simulator is used to supplement in-plant experience.

In the following list, items designated (*) will be performed at least annually. All other items will be performed at least once every 2 years. A diversity of control manipulations should be achieved for each licensee, and the use of boration or dilution as a training manipulation will be minimized. Completion of these control manipulations from NUREG 0737 will satisfy the reactivity control requirements of 10 CFR 55, Appendix A.

- *1. Plant or reactor startup to include a range that reactivity feed back from nuclear heat addition is noticeable and heatup rate is established.
2. Plant Shutdown.
- *3. Manual control of steam generator and/or feedwater during startup and shutdown.
4. Boration and/or dilution during power operation.
- *5. Any significant (>10%) power change in manual rod control.
- *6. Loss of coolant, including:
 - a. Significant PWR steam generator tube leaks.
 - b. Inside and outside containment.
 - c. Large and small, including leak-rate determination.
 - d. Saturated reactor coolant response.
7. Loss of instrument air.
8. Loss of electrical power (and/or degraded power sources).
- *9. Loss of core coolant flow/natural circulation.
10. Loss of condenser vacuum.
11. Loss of safety-related service water.
12. Loss of shutdown cooling.

13. Loss of component cooling system or cooling to an individual component.
14. Loss of normal feedwater or normal feedwater system failure.
- *15. Loss of all feedwater (normal and emergency).
16. Loss of protective system channel.
17. Mispositioned control rod or rods (or rod drops).
18. Inability to drive control rods.
19. Conditions requiring use of emergency boration.
20. Fuel cladding failure or high activity in reactor coolant.
21. Turbine or generator trip.
22. Malfunction of automatic control system(s) which affect reactivity.
23. Malfunction of reactor coolant pressure/volume control system.
24. Reactor trip.
25. Main steam line break (inside or outside containment).
26. Nuclear instrumentation failure(s).

2.2.4.4 Individual Study

Licensees will complete monthly reading assignments. The subjects covered in reading assignments may include, but not be limited to:

1. Facility Design Changes.
2. Facility Procedure Changes.
3. Technical Specification Changes.
4. Emergency Preparedness Plan.
5. Radiation Control Procedures.

6. Temporary Station Procedures.
7. Station Industrial Security Procedures.
8. Abnormal and Emergency Procedures.
9. Incident Reports.
10. Significant Operating Experience Reports.

2.2.4.5 Performance Evaluation

Evaluations of the performance and competency of Nuclear Control Operators, Nuclear Station Operating Foremen and Nuclear Station Shift Supervisors will be performed annually. Deficiencies or trends will be identified to the Director, Operations Training, for incorporation into the Licensed Operator Retraining Program. Evaluations should include a critique of the manner in which personnel recognize and respond to abnormal occurrences or off-normal operating conditions. Annual performance evaluations are implemented by Beaver Valley Power Station Administrative Procedure No. 15--Evaluation of Job Performance.

In addition to the foregoing, systematic evaluations of recognition and handling of off-normal, abnormal, or emergency conditions will be performed on the Beaver Valley control room simulator.

2.2.5 Program Administration

2.2.5.1 Responsibility

The Manager, Nuclear Training, is responsible to the General Manager, Nuclear Services, for performance and documentation of the Licensed Operator Regualification Program. This responsibility includes timely preparation and submittal of license renewal applications. Responsibility for coordination and supervision is delegated to the Director, Operations Training.

The Unit Operations Supervisor is responsible for the annual performance evaluations of Phase 5 (Subsection 2.2.4.5).

2.2.5.2 Lesson Plans

Lesson plans for the Licensed Operator Retraining Program will be developed on an as-needed basis. They will be identified on

appropriate retraining/continuing schedules (Volume 1, Chapter 5), and maintained in the lesson plan file in accordance with Volume 1, Chapter 6.

2.2.5.3 Accelerated Retraining

Any licensee who scores less than 80% overall on the annual written examination, or scores less than 70% in any category, or fails to receive a satisfactory score on the annual Simulator Operating Evaluation will be relieved of Control Room duties requiring a license and will be placed in accelerated retraining under the direction of the Director, Operations Training. The licensee will be reinstated to licensed duties after completing the prescribed retraining and scoring at least 80% overall on re-examination and at least 70% in each category, or receiving a satisfactory on the defined weak areas of the Simulator Evaluation. The USNRC will be notified of the successful completion of accelerated retraining prior to the individual's return to Control Room licensed duties.

2.2.5.4 Periodic Examinations

Periodic written examinations or quizzes will be administered to assess licensees' knowledge of topics covered in Phase 2 formal classroom instruction. Remedial training will be performed for licensees who score less than 80% on periodic examinations.

2.2.5.5 Inactive Licenses

Any Licensee who does not work at least one (1) 8-hour shift per month or three (3) 8-hour shifts per quarter as the Reactor Operator or Senior Reactor Operator of record will not be permitted to perform shift operating crew duties requiring a License until satisfactory completion of the on shift individual retraining program (Section 2.2.5.6). The R.O. or S.R.O. of record is defined as filling a position within the assigned operating crew that is required by Technical Specifications. The Director, Site Operations, Unit Operations Supervisors and the Operations Support Coordinators are considered to meet this requirement by virtue of their job positions which require total day to day involvement in plant operations. Individuals holding Reactor Operator or Senior Reactor Operator Licenses in positions other than on shift operating crews (i.e., assigned to the Beaver Valley Power Station staff) are considered to be actively and extensively engaged as operators if they are currently enrolled in the License Requalification Program and have successfully completed the most recent cycle. These individuals would, however, be required to satisfactorily pass the on shift individual retraining program prior to on shift assignments as part of an operating crew, if the need arises.

The Unit Operations Supervisor is responsible:

1. To insure all members of the assigned Operating Crews and designated members of the Operations Section Staff meet the above minimum requirement.
2. To notify the Director, Operations Training, of any individual who does not meet the requirement.
3. For completion of the on shift individual retraining program and documentation via Figure 2.2.7.

2.2.5.6 On Shift Individual Retraining Program

Any Licensee not meeting the provision required for maintaining an active on shift operating status will complete the following 40 hour on shift retraining program satisfactorily.

1. Review the previous 30 days' narrative operating logs for the position to be filled; i.e., the Reactor Operator and Plant Operator, or Nuclear Station Operating Foreman and Nuclear Shift Supervisor for plant status update.
2. Review Special Operating Orders, Standing Night Orders, and the previous 30 days' daily Night Orders.
3. Review:
All Status Boards
Jumper and Lifted Lead Log
Caution Tag Log
Clearance Log
Out-of-Service Log
Temporary Operating Procedures
4. Complete a Control Board walkdown including determination and status of plant systems and all annunciators.
5. Complete an 8-hour tour of the Plant including all out buildings.
6. Complete two (2) 8-hour shifts as the second Nuclear Station Operating Foreman or Reactor Operator assigned to the N.S.O.F. or R.O. of record.
7. Satisfactorily complete a walkthrough/oral examination by the N.S.O.F. and N.S.S. concerning plant status and shift operating philosophy.

The Director, Operations Training, is responsible to notify the USNRC Region I of successful completion of retraining and examination prior to reinstatement to Control Room duties as part of an assigned operating crew requiring a License.

2.2.6 Program Documentation

Unless otherwise specified, each of the documents specified in this subsection will be maintained with the program records for each 24-month Licensed Operator Retraining Program.

1. Each module of the Licensed Operator Retraining Program will be scheduled via the Retraining/Continuing Training Schedule (Volume 1, Figure 5.2).
2. A record of each licensee's participation in the Licensed Operator Retraining Program will be maintained on the BVPS Licensed Operator Retraining Summary (Figure 2.2.1).
3. Attendance during Phase 2 formal classroom training will be reported on the Retraining Attendance Record (Volume 1, Figure 5.8).
4. Phase 5 individual study will be programmed on a monthly basis. The Director Operations Training will prepare the Individual Study Guide (Figure 2.2.2) and distribute a copy to each licensee.
5. A record of Phase 3 in-plant control manipulations will be maintained via the On-the-Job Training Record (Figure 2.2.3) as appropriate. Supervising Senior Reactor Operator licensees will place their initials in appropriate blocks. In addition, the Coordinator, Simulator Training, will forward a completed copy of the Simulator Evolution Summary Sheet (Figure 2.2.7) for each student at appropriate intervals. The requirement for reactivity manipulations will be met via the Simulator Retraining Program.
6. A copy of each annual examination, periodic examination, or quiz, answer keys and the answers provided by licensees will be maintained with the individual's examination file and in the License Retraining Examination file.

7. The Summary of Recommendations (Figure 2.2.5) will be used to document the recommendations for training emphasis arising from the reviews of annual written examination results.
8. At the conclusion of each 1-year retraining program cycle, the Manager, Nuclear Training, will address a report to the General Manager, Nuclear Services, which evaluates the effectiveness of the program. A copy of this report will be maintained with program records. An acceptable format for this report is provided in Figure 2.2.6, Retraining Program Cycle Report.
9. The Oral Examination Report (Figure 2.2.4) may be used to document any oral examinations conducted in connection with the Licensed Operator Retraining Program, except Subsection 2.2.5.6 for which the on-shift Individual Retraining Report will be utilized.
10. All records associated with required accelerated retraining will be maintained in the individuals LRT file. The records will include a description of the accelerated retraining program, original and retake examination scores, and all pertinent information.
11. Performance evaluations will be maintained in accordance with Section 12.5.6.2.

2.2.7 Program References

2.2.7.1 Requirements/Commitments

1. 10 CFR 50, Definition (t) and Part 50.54 (i-1).
2. 10 CFR 55, Appendix A.
3. Regulatory Guide 1.8.
4. ANSI N18.1-1971, Section 5.1.
5. Final Safety Analysis Report (Updated), Section 12.2.4.

6. NUREG-0737, Sections I.A.2.1, 1.A.2.3, 1.C.5 and II.B.4.
7. March 28, 1980 Letter from H. R. Denton--Qualifications of Reactor Operators.

2.2.7.2 Recommendations/Guidance

1. NUREG-1021, Sections ES109 and ES601.
2. INPO GPG-02., Regualification Training and Evaluation.
3. INPO 82-026., Technical Instructor Training and Qualifications.
4. INPO STG-01., Nuclear Guidelines for Training To Recognize and Mitigate the Consequences of Core Damage.
5. INPO STG-02., Guidelines for Heat Transfer, Fluid Flow and Thermodynamics Instruction.

2.2.8 Summary of Figures

1. BVPS Licensed Operator Retraining Summary - Figure 2.2.1
2. Individual Study Guide - Figure 2.2.2
3. On-the-Job Training Record - Figure 2.2.3
4. Oral Examination Report - Figure 2.2.4
5. Summary of Recommendations - Figure 2.2.5
6. Retraining Program Cycle Report - Figure 2.2.6
7. Retraining/Continuing Training Schedule - Volume 1, Figure 5.2
8. Retraining Attendance Record - Volume 1, Figure 5.8
9. Simulator Evolution Summary Sheet - Volume 2, Figure 12.5.7
10. On shift Individual Retraining Report - Figure 2.2.7

DUQUESNE LIGHT COMPANY
Nuclear Group
Training Administrative Manual

Volume 2
Chapter 2
Figure 2.2.7
Page 1 of 3

ON-SHIFT INDIVIDUAL RETRAINING REPORT

Name

Date

Approval for Shift Operating Duties
N.S.S. Signature

Reviewed by Director, Operations Training

Licensee
Initials

Date

1. Nuclear Control Operator

R.O. Logs

P.O. Logs

Nuclear Station Operating Foreman

N.S.O.F. Logs

N.S.S. Logs

(Review previous 30 days.)

2. Special Operating Orders

Standing Night Orders

Daily Night Orders

3. Temporary Operating Procedures

Status Boards

Jumper and Lifted Lead Log

Caution Tag Log

Clearance Log

O.O.S. Log

ON-SHIFT INDIVIDUAL RETRAINING REPORT (Continued)

	<u>Licensee</u> <u>Initials</u>	<u>Date</u>
4. Control Board Walkdown	_____	_____
Status of All Alarms	_____	_____
5. Plant Tour		
Water Treating	_____	_____
Turbine Building	_____	_____
Auxiliary Building	_____	_____
Outside Tour	_____	_____
6. Training Shifts Completed		
<u>Position Assigned</u>	<u>N.S.S. Signature</u>	<u>Date / Shift</u>
R.O./P.O./N.S.O.F.	_____	_____
R.O./P.O./N.S.O.F.	_____	_____
7. Walkthrough / Oral Examination		
Areas covered:		
a)		

Overall:

SAT _____

UNSAT _____

N.S.O.F.

NAME (Print)

Signature

Date

ON-SHIFT INDIVIDUAL RETRAINING REPORT (Continued)

7. Walkthrough / Oral Examination (Continued)

Areas covered:

b)

Overall:

SAT

UNSAT

N.S.S.

NAME (Print)

Signature

Date

2.7 REFUELING LICENSE RETRAINING PROGRAM

2.7.1 Program Objective

The objective of refueling license retraining is to assure the continued competency of personnel assigned as Refueling Shift Supervisors during refueling and core alterations.

2.7.2 Program Applications

Personnel who possess a Senior Reactor Operator's license limited to fuel handling will be continuously enrolled in the Refueling License Retraining Program.

The Refueling License Retraining Program will be conducted continuously for 24 months and upon completion will be followed by successive 24-month programs, each of which will begin promptly at the conclusion of the preceding program. Each 24-month retraining program is comprised of two (2) retraining cycles 1 year in length.

2.7.3 Scope of Training

Refueling license retraining is conducted in four (4) phases of instruction or practice, as follows..

1. Phase 1 - Annual Written Examinations. Licensees are administered a comprehensive written examination limited in scope to the duties and responsibilities of Fuel Handling SROs.
2. Phase 2 - Formal Classroom Training. Structured classroom training based in part on the results of annual written examinations.
3. Phase 3 - Oral Examinations. Walk-through of procedures, controls and indications related to Fuel Handling SRO duties.
4. Phase 4 - Individual Study. Review and self-study of significant operating experience reports, procedure reviews, Incident Reports, design changes and procedure changes.

2.7.4 Training Outline

2.7.4.1 Annual Written Examinations

Once each year, licensees will complete a comprehensive written examination similar in scope and style to licensing examinations administered for Fuel Handling SROs by the USNRC. The purposes of these examinations will be to evaluate effectiveness of the prior year's retraining, and to identify areas where training may be required to upgrade knowledge. An overall grade of 80% combined with a grade of at least 70% in each category will be considered passing. The Director, Operations Training, is responsible for development and approval of the annual written examination. The Director, Operations Training, will designate another Senior Reactor Operator to review and approve the examination in conjunction with the Director.

1. Licensees who fail the annual written examination will be relieved of duties requiring a license and will participate in an accelerated retraining program. Refer to Subsection 2.7.5.2.
2. Licensees will be required to complete formal classroom training in any category for which a score of less than 80% is earned.
3. The Director, Operations Training, the Director, Site Operations, and the Plant Manager will review the results of written examinations to determine where emphasis in retraining is needed. Where appropriate, results of this review will be incorporated into Phase 2.

2.7.4.2 Formal Classroom Training

The scope, duration, and precise content of formal classroom training will vary according to needs identified for individual cycles of the Refueling License Retraining Program. Instructional emphasis will be placed where annual written examinations indicate that weaknesses may be developing. Fuel Handling SROs will attend Modules I through IV of the Licensed Operator Retraining Program each cycle. (Refer to Section 2.2.) Modules V and VI will be developed specifically for Fuel Handling SROs. Module V will consist of formal classroom training and the Phase 3 oral examinations. Module VI will consist of

formal classroom training and the annual written examinations of Phase 1.

1. Topic IX - Reactor and Fuel Characteristics.
2. Topic X - Equipment, Instrumentation, and Design Descriptions.
3. Topic XI - Procedures and Limitations.
4. Topic XII - Emergency Systems and Safety Devices.
5. Health Physics and Radiation Protection.

NOTE: Technical Specifications and applicable portions of Title 10 CFR are covered with the appropriate Topic.

2.7.4.3 Oral Examinations

Proficiency with normal, abnormal and emergency procedures will be maintained by requiring licensees to demonstrate their familiarity with controls, indications, actions to be taken and expected plant responses. As a minimum, this will be achieved by walk-through exercises and will be considered as a periodic performance evaluation.

2.7.4.4 Individual Study

Licensees will complete periodic reading assignments. The subjects covered in reading assignments may include, but not be limited to, the following as they relate to the duties and responsibilities of Fuel Handling SROs:

1. Facility Design Changes
2. Facility Procedure Changes.
3. Technical Specification Changes.
4. Emergency Preparedness Plan.
5. Radiological Control Procedures.
6. Temporary Station Procedures.

7. Station Industrial Security Procedures.
8. Abnormal and Emergency Procedures.
9. Incident Reports.
10. Significant Operating Experience Reports

2.7.5 Program Administration

2.7.5.1 Responsibility

Responsibility for coordination and supervision of the Refueling License Training Program is delegated to the Director, Operations Training.

2.7.5.2 Accelerated Retraining

Any licensee who scores less than 80% overall on the annual written examination, or scores less than 70% in any category, or fails to receive a satisfactory score on the annual oral examination, will be relieved of duties requiring a license and will be placed in accelerated retraining under the direction of the Director, Operations Training, or his alternate. The licensee will be reinstated to licensed duties after completing the prescribed retraining and scoring at least 80% overall on re-examination and at least 70% in each category, or receiving a satisfactory on the defined weak areas of the annual oral examination.

2.7.5.3 Periodic Examinations

Periodic written examinations or quizzes will be administered to assess licensees' knowledge of topics covered in Phase 2 formal classroom instruction. Remedial training will be performed for licensees who score less than 80% on periodic examinations.

2.7.5.4 Active Licenses

Any Licensee that is current and satisfactory within the scope of the Refueling License Retraining Program and participates in pre-refueling activities, including testing of fuel handling equipment, review

of procedures, and supervision of personnel performing refueling activities shall be considered as having an active license in accordance with 10 CFR 55.31(e). Any Licensee that does not meet this requirement will be considered inactive and will require satisfactory completion of an oral examination administered by an individual with an active refueling Senior Operator License.

2.7.6 Program Documentation

Each of the documents specified in this Subsection will be maintained with the program records for each cycle of the Refueling License Retraining Program.

1. A record of each licensee's participation in the Licensed Operator Retraining Program will be maintained on the Refueling License Retraining Summary (Figure 2.7.1).
2. Attendance during Phase 2 formal classroom training will be reported on the Retraining Attendance Record (Volume 1, Figure 5.8).
3. Phase 4 individual study will be programmed on a monthly basis. The Director Operations Training will prepare the Individual Study Guide (Figure 2.2.2) and distribute a copy to each licensee.
4. Completion of Phase 3 oral examinations will be documented on the Fuel Handling SRO Walk-Through Training Checklist (Figure 2.7.2).
5. A copy of each annual examination, periodic examination, or quiz, answer keys and the answers provided by licensees will be maintained with the individual's examination file and in the Refueling License Retraining Examination file.
6. The Summary of Recommendations (Figure 2.2.5) will be used to document the recommendations for training emphasis arising from the reviews of annual written examination results.

7. All records associated with required accelerated retraining will be maintained in the individual's RLRT file. The records will include a description of the accelerated retraining program, original and retake exam scores, and all pertinent information.

2.7.7 Program References

1. U.S. Nuclear Regulatory Commission Memorandum; Limited License November 21, 1967.
2. 10 CFR 50.54 2(iv).
3. Beaver Valley Refueling Procedures.
4. BVPS-1 - Updated FSAR Section 14.2.1, Fuel Handling Accident.

2.7.8 Summary of Figures

1. Refueling License Retraining Summary - Figure 2.7.1
2. Fuel Handling SRO Walk-through Training Checklist - Figure 2.7.2
3. Retraining Attendance Record - Volume 1, Figure 5.8
4. Individual Study Guide - Volume 2, Figure 2.2.2
5. Summary of Recommendations - Volume 2, Figure 2.2.5

2.9 UNIT 1/2 OPERATOR CROSS-TRAINING PROGRAM DESCRIPTION - LICENSED

2.9.1 Purpose

The objective of Unit 2 Cross-Training Program is to prepare Beaver Valley Power Station personnel for licensing on Unit 2, either as an individual license or a dual (Unit 1/2) license. Individuals to license on Unit 2 will be either of two (2) categories: experienced licensed operators or senior operators from Unit 1, or individuals completing the initial licensed operator training program for Unit 1. Training goals are to familiarize operating personnel with:

1. Unit 2 systems and components and the differences between Unit 1 and Unit 2 systems.
2. The approved methods for operating Unit 2 systems and components by use of normal operating procedures.
3. Reactor and plant controls and station parameters to the extent that operating personnel are able to take correct action in the event of an unusual occurrence or emergency.
4. Use of Unit 2 abnormal and emergency procedures.

2.9.2 Personnel to be Trained

Unit 1/2 Cross-Training will be completed by personnel licensed on Unit 1 or have completed Unit 1 training and are required to hold a Unit 1/2 dual license or a Unit 2 operating license. The training program is applicable to Reactor Operator and Senior Operator licensees.

2.9.3 Scope of Training

The Unit 2 Cross-Training Program is approximately 8 months in length and includes Unit 2 System Difference Training, Procedure Training, Simulator Training and License Review Series.

2.9.4 Training and Outline and Schedule

2.9.4.1 Unit 11 System Difference Phase

The 15-week System Difference Training phase is based on the differences between Unit 1 and Unit 2 systems. The student, who is already knowledgeable of Unit 1 systems, is taught the differences, such that he/she may qualify on the associated Unit 2 systems. Approved lesson plans have been developed for this phase to specifically explain these differences. A copy of the Unit 1/2 Difference Analysis is also provided to each student.

In addition to classroom instruction on each of the selected systems, the student is provided with ample study time and time to trace out the systems in Unit 2. Systems with limited differences may be covered by study packages provided to the student, and an Instructor will be available for questions and answers.

2.9.4.2 Plant Layout Phase

The student is given several weeks of in-plant familiarization at Beaver Valley Power Station Unit 1.

Several days are provided at the beginning of the Unit 2 System Difference Training phase for initial Unit 2 exposure and familiarization. This portion of the training consists of guided tours by qualified Instructors, and time for students to tour the plant individually. Three (3) weeks are scheduled at the end of the Unit 2 System Difference Training phase for in-plant training and familiarization. The student is given a detailed list of major equipment and components which he/she is required to locate and sign off on. This component checklist is part of the system checkout process.

Trainees will review and study plant system differences and complete system checkouts by participating in system-oriented oral and/or written examinations along with the component checklist described above.

2.9.4.3 Procedures/Technical Specifications Training Phase

This phase will cover normal operating procedures (startup and shutdown), emergency procedures, and abnormal procedures, with emphasis on the differences between Unit 1 and Unit 2. Technical Specifications will also be covered during this phase.

2.9.4.4 License Review Series Phase

This phase will consist of a review of major safety-related system differences, instrumentation and control functions, administrative procedures (including Technical Specifications), and various areas of related theory. This program will be based on the results of a pre-examination administered by the Training Section.

2.9.4.5 Simulator Training Phase

A Simulator Training program consisting of a minimum of thirty (30) Simulator hours has been developed to ensure all candidates applying for a Unit 2 license or a Unit 1/2 dual license receive simulator training and practice on the categories of control manipulations specified in NUREG-0737. This program is optional based on the need of the candidate, that is all Unit 1 licensed personnel receive simulator training as part of their License Retraining Program, which meets the same requirement, those individuals completing Unit 1 initial operator training also meet or exceed the basis for this program.

2.9.5 Program Administration

Responsibility for administration of the Unit 1/2 Cross-Training Program is delegated to the Director, Operations Training.

2.9.6 Program Documentation

1. The results of individual written examinations will be documented on the Examination Grade Report (Volume 1, Figure 5.10) and filed with program records.
2. The results of written examinations will be transcribed onto the Personnel Grade Summary (Volume Figure 5.11). After the completion of training, Personnel Grade Summaries will be maintained with program records.
3. A Training Roster (Volume 1, Figure 5.7) will be initiated as applicable at the completion of phases or courses.

4. The Unit 1/2 Cross-Training Program will be scheduled on the 10-week Training Program Schedule (Volume 1, Figure 5.5). Following the completion of training, 10-week Schedules will be filed with program records as permanent documentation of how the program was conducted.

2.9.7 Program References

2.9.7.1 Requirements/Commitments

1. NUREG - 1021, Section ES - 106; Administration of Examinations at Multi-Unit Facilities.

2.9.7.2 Recommendations/Guidance

None.

2.9.8 Summary of Figures

1. 10-Week Training Program Schedule - Volume 1, Figure 5.5
2. Training Roster - Volume 1, Figure 5.7
3. Examination Grade Report - Volume 1, Figure 5.10
4. Personnel Grade Summary - Volume 1, Figure 5.11

12.5 LICENSE RETRAINING PROGRAM

12.5.1 Program Objective

The objective of the License Retraining Program is to document and maintain the operating proficiency of the Beaver Valley operating organization and training staff.

12.5.2 Program Application

The License Retraining Program is implemented in conjunction with the Licensed Operator Retraining Program (Chapter 2, Section 2.2) for licensed or certified Reactor Operators and Senior Reactor Operators for the Beaver Valley Power Station.

12.5.3 Scope of Training

The License Retraining Program is a continuous retraining program to requalify licensed or certified operators as described in Volume 2, Section 2.2. The simulator schedule is designed to ensure compliance with NUREG-0737 guidelines for both the type and periodicity of evolutions to be performed by each student. Completion of all required control manipulations will occur during each 2-year retraining program.

This program provides thirty (30) hours of simulator training per year for each licensed or certified operator. An additional day will be reserved for USNRC requalification examinations.

In addition to the training discussed above, simulator time will be reserved for accelerated requalification. This segment of the program is intended to remedially requalify those students who fail to meet the annual retraining minimum passing criteria established in Volume 2, Section 2.2. Duration and scope of the accelerated requalification training will be determined by the Training Staff and will be modified to the individual's weak or unsatisfactory areas.

12.5.4 Training Outline

12.5.4.1 Type of Training

1. Classroom Instruction (Optional)

a. 2 hours per day.

The classroom portion of each day of simulator training will be divided into two (2) one-hour sessions. The first hour will precede the simulator session, and will consist of discussions of material pertaining to the simulator evolutions to be performed that day. The second hour will serve as a critique/review session and will follow the simulator session.

b. Accelerated Requalification

Subject material to be determined based on individual's needs.

2. Simulator Training

a. 30 hours.

1) Not to exceed 8 hours per day.

b. Accelerated Requalification

Subject material to be determined based on individual's needs.

12.5.4.2 Curriculum

1. Classroom

a. The classroom curriculum will be established by the Nuclear Training Department.

2. Simulator (Annual and Biennial Curriculum)

a. Plant or reactor startup to include a range that reactivity feedback from nuclear heat additions is

noticeable and heatup rate is established. (Must be completed annually by each licensee.)

- b. Plant Shutdown
- c. Manual control of steam generator and/or feedwater during startup and shutdown. (Must be completed annually by each licensee.)
- d. Boration and/or dilution during power operation.
- e. Any significant ($>10\%$) power change in manual rod control. (Must be completed annually by each licensee.)
- f. Loss of coolant, including (Must be completed annually by each licensee.):
 - 1) Significant PWR steam generator tube leaks.
 - 2) Inside and outside containment.
 - 3) Large and small, including leak-rate determination.
 - 4) Saturated reactor coolant response.
- g. Loss of instrument air.
- h. Loss of electrical power (and/or degraded power sources).
- i. Loss of core coolant flow/natural circulation. (Must be completed annually by each licensee.)
- j. Loss of condenser vacuum.
- k. Loss of safety-related service water.
- l. Loss of shutdown cooling.
- m. Loss of component cooling system or cooling to an individual component.

- n. Loss of normal feedwater or normal feedwater system failure.
- o. Loss of all feedwater (normal and emergency). (Must be completed annually by each licensee.)
- p. Loss of protective system channel.
- q. Mispositioned control rod or rods (or rod drops).
- r. Inability to drive control rods.
- s. Conditions requiring use of emergency boration.
- t. Fuel cladding failure or high activity in reactor coolant.
- u. Turbine or generator trip.
- v. Malfunction of automatic control system(s) which affect reactivity.
- w. Malfunction of reactor coolant pressure/volume control system.
- x. Reactor trip.
- y. Main steam break (inside or outside containment).
- z. Nuclear instrumentation failure(s).

12.5.5.3 Schedule

The Daily Training Schedule for License Retraining is given in Figure 12.5.1.

12.5.5.4 Training Materials

1. Classroom

- a. To be determined by the Nuclear Training Department.

2. Simulator

- a. Site-Specific simulated Control Room.
- b. Documents and manuals normally found in the Control Room, including:
 - 1) Operating Manuals
 - 2) System Prints
 - 3) Electrical One-Line Diagrams
 - 4) Technical Specifications
 - 5) Emergency Procedures
 - 6) Operating Procedures
 - 7) Abnormal Procedures
 - 8) General Operating Procedures
 - 9) Alarm Response Manual
 - 10) Reactor Operator's Log
 - 11) Emergency Plan
 - 12) Health Physics Manual
 - 13) Station Curve Book
 - 14) Conduct of Operations
- c. Status Board(s)
- d. Simulator Drill Guides

12.5.5 Program Administration

12.5.5.1 Responsibility

Responsibility for coordination and supervision of the License Re-training Program is delegated to the Coordinator, Simulator Training.

12.5.5.2 Instructional Resources

1. Beaver Valley's Westinghouse NSSS Documents
2. Beaver Valley's Administrative Procedures
3. Code of Federal Regulations
4. Beaver Valley's Emergency Plan
5. Beaver Valley's Health Physics Manual
6. Beaver Valley's ALARA Program
7. Beaver Valley's Flow Diagrams
8. Beaver Valley's Limits and Precautions
9. Beaver Valley's FSAR
10. Beaver Valley's Technical Specifications
11. Beaver Valley's Alarm Response Manual
12. Beaver Valley's Mitigating Core Damage Program
13. License Event Reports
14. I&E Bulletins
15. ANSI Standards
16. NRC Regulations
17. Beaver Valley's System Descriptions
18. Beaver Valley's Procedures

12.5.5.5 Prerequisites

The student must hold a current NRC license or certification at Beaver Valley.

12.5.5.6 Performance Criteria

To successfully complete the simulator portion of the License Retraining Program, the student must meet the following conditions:

Participate in the simulator training portion of the License Retraining Program, and complete all the simulator evolutions specified in NUREG-0737.

12.5.5.7 Evaluation Procedure

Operational evaluations will be performed for each student for each day of simulator training.

12.5.6 Program Documentation

12.5.6.1 Documentation

1. Evaluations will be filed in the class files and the individual student files.
2. Attendance records will be kept and filed with the weekly schedule.

12.5.6.2 Records

The following documents will be maintained in the class and/or individual personnel files as permanent records for the time requirement established by NRC Regulatory Guides:

1. Attendance Records
2. Evaluations
3. Program Schedule
4. Simulator Evolution Summary Sheets

12.5.7 Program References

12.5.7.1 Requirements/Commitments

1. NUREG-0737, Sections I.A.2.1 and II.B.4.
2. March 28, 1980, Letter from H. R. Denton -- Qualifications of Reactor Operators.

12.5.7.2 Recommendations/Guidance

1. INPO GPG-02; Requalification Training and Evaluation
2. ANSI/ANS 3.1 - 1981

3. ANSII/ANS 3.5 - 1981
4. Regulatory Guide 1.149

12.5.8 Summary of Figures

1. Daily Training Schedule - Figure 12.5.1
2. Daily Evaluation Form - Figure 12.1.3
3. Training Roster - Volume 1, Figure 5.7
4. Simulator Evolution Summary Sheet - Figure 12.1.6