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TMI TRAINING DEPARTMENT ADMINISTRATIVE MANUAL

PROCEDURE NO. 6211-ADM-2523.2

ITLE: AUXILIARY OPERATOR TRAINING PROGRAM UNIT I

RESPONSIBLE OFFICE TMI TRAINING

APPLICABILITY: TMI TRAINING DEPARTMENT

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REVISION 4

TITLE: AUXILIARY OPERATOR TRAINING PROGRAM

1.0 Purpose

The purpose of the Auxiliary Operator Training Program is to maximize plant operating efficiency and ensure the safety of the plant personnel and the general public by developing and maintaining a staff of in-plant operating personnel with the theoretical and practical background necessary to enable them to:

1.1 Understand how and why specific tasks are performed
1.2 Understand the consequences of their actions on overall plant operation
1.3 Respond correctly to situations they may encounter during normal, abnormal, and emergency conditions

2.0 References

a. ANSI N 18.1 - 1977, Sections 4.5.1, 5.1, 5.3, 5.4, 5.5, 5.6
b. USNR R.G.1.8, Revision 1-R (9/75), Section C
c. ANSI/ANS 3.1 - 1978, Sections 4.1, 5.1, 5.3, 5.4, 5.5, 5.6
d. ANSI/ANS 3.1, Draft Revision 10/80, Sections 4.1, 4.5.1, 5.1, 5.3.5, 5.4, 5.5., 5.5.2, 5.6
e. USNRC R.G. 1.8, Second Proposed Revision 2 (9/80) Section C.3.1
f. USNRC R.G. 1.101, Annex A, Section 8; Annex B, Section 2.3
g. USNRC R.G. 1.120, Sections C.2, C.3
h. USNRC R.G. 1.33, Section C.4
i. 10 CFR 19, Section 19.12
j. 10 CFR 50, Appendix R
k. Technical Specifications, TMI-I, Section 6
l. FSAR, TMI-I, Chapter 12
m. HPP 1670.9
n. HPP 1690
o. AP 1038

3.0 Definitions

3.1 Student

An individual designated by the Manager - Plant Operations to participate in the Auxiliary Operator Initial Training Program. This individual may be newly hired as or promoted to Auxiliary Operator - C - Nuclear, newly hired as an Auxiliary Operator - A - Nuclear, or newly hired as a Control Room Operator - Nuclear. Additionally, Auxiliary Operators who are promoted to Control Room Operator - Nuclear, and who have not had the benefit of certain segments of this program in their previous Auxiliary Operator Training Program may be designated to participate in all or selected parts of this program.

3.2 Task Examiner

That individual conducting a checkout on a specific OJT task and certifying by his signature on the OJT sheet that the task has been satisfactorily completed. The task examiner shall be either a fully qualified Auxiliary Operator - A - Nuclear or a RO - licensed Control Room Operator.

3.3 Qualification Checklist Examiner

That individual conducting the final evaluation of the student in a particular OJT area following the completion of all individual tasks in that area. This individual shall be a SRO - licensed Shift Supervisor or Shift Foreman.

4.0 Program Description

4.1 Auxiliary Operator Initial Training

4.1.1 Applicability

A. This program shall be considered applicable to personnel:

1. Newly hired as or transferred to the position of Auxiliary Operator - C - Nuclear.
2. Newly hired as Auxiliary Operator - A - Nuclear.
3. Newly hired as or promoted to the position of Control Room Operator - Nuclear.

4.1.2 Objectives

The objectives of this program are to:

A. Provide the plant equipment operator with an applied knowledge of the principles of nuclear power plant operation and safety including:

1. Mathematics for use in problem solving and computations.
2. Fundamentals of Fluid Flow, Heat Transfer and Thermodynamics to enable the operator to evaluate plant performance through readings and indications.
3. Mechanical Equipment Construction/Operation to enable the operator to operate and evaluate the operation of mechanical equipment throughout the plant.

4. Fundamental of Electricity/Electrical Equipment Operation to enable the operator to operate and evaluate the operation of electrical equipment throughout the plant.
5. Chemistry and Water/Waste Treatment to provide the operator with the theory and principles involved in water/waste treatment and the consequences of improper treatment.
6. Basic Nuclear Physics to provide the requisite background for an understanding of Reactor Physics.
7. Reactor Physics to provide an understanding of operation of the heat source and the effects of operator actions on reactor performance, thereby enabling the operator to respond correctly to normal, transient and abnormal plant conditions.
8. Radiation Protection to enable the operators to be effective contributors to the ALARA program.
9. Plant Fluid systems to apply the concepts of items 2 and 3 above in the performance of specific functions necessary for the operation of the plant.
10. Instrumentation and Control Systems to enable the operator to control systems under his cognizance and provide him with background knowledge of null plant control.
11. Operational, Transient, and Accident Analysis to provide the operator with the design bases of the overall plant and specific systems, and to enable him to predict and/or respond correctly to operational, transient, and abnormal conditions.
12. Administrative, Operating, Abnormal, and Emergency Procedures to enable the operator to perform in accordance with established, approved methods of plant control and of response to a variety of potential plant situations.
13. Fire Protection to enable the operator to properly use plant systems and procedures to mitigate the consequences of fire emergencies.
14. Industrial Safety to enable the operator to practice the principles of personnel safety in his daily, on-the-job activities.
15. Procedural compliance to elicit operator actions that are in strict compliance with approved procedures by stressing the necessity of strict procedural compliance and providing examples and consequences of both sound and unsound operating practices.

B. Certify the competence of personnel to operate plant equipment safely and efficiently under all plant conditions.

4.1.3 Outline

Classroom Training

A. General Employee Training

1. Station Organization
2. Station Security
3. Quality Assurance/Control
4. Industrial Safety
5. Fire Protection/Prevention
6. Basic Health Physics
7. Radiation Worker Certification

B. Nuclear Power Orientation

1. Nuclear Energy
2. Nuclear Power Plant Design
3. Nuclear Plant Construction and Licensing

C. Mathematics Review

1. Arithmetic Operations
2. Algebraic Signs and Symbols
3. Powers, Roots, and Reciprocals
4. Algebraic Operations
5. Equations and Formulas
6. Scientific Notation
7. Common Logarithms
8. Natural Logarithms
9. Problem Solving Techniques
10. Presentations of Mathematical Data

D. Basic Nuclear Concepts

1. The Atom
2. Equivalence of Mass and Energy
3. Radiation (types and origins)
4. Interactions of Radiation with Matter
5. Numbers of Atoms (abundance, mass/atom density)
6. Radioactive Decay

7. Induced Nuclear Reactions
8. Nuclear Fission
9. Microscopic Cross Sections
10. Macroscopic Cross Sections
11. Neutron Interactions with Reactor Materials
12. Neutron Moderation and Diffusion

E. Reactor Physics

1. Neutron Multiplication
2. Multiplication Factors
3. Flux Distribution
4. Neutron Kinetics
5. Reactor Kinetics
6. Reactor Control
7. Coefficients
8. Reactivity Variations
9. Fission Product Poisons
10. Core Characteristics
11. Subcritical Multiplication
12. Power Operations
13. Reactor Shutdown

F. Fluid Flow/Heat Transfer/Thermodynamics

1. Basic Steam Cycles
2. Properties of Systems
3. Gas Laws
4. Effects of Heat
5. Cycle Diagrams
6. Steam Tables/Mollier Diagram
7. Conservation of Energy-First Law of Thermodynamics
8. Forms of Energy
9. Energy Conversion
10. Second Law of Thermodynamics/Cycle Efficiency
11. Refrigeration Cycle
12. Heat Transfer Principles/Parameters
13. Boiling Heat Transfer
14. Steam Turbines
15. Condensing Equipment
16. Fluid Mechanics
17. Pumps
18. Heat Balances
19. Reactor Thermal/Hydraulic Performance
20. PWR Fuel and Core Design
21. PWR Performance

G. Mechanical Fundamentals

1. Bearings and Lubrication
2. Heat Exchangers
3. Standard Valves
4. Safety and Relief Valves
5. Piping Auxiliaries
6. Steam Traps
7. Positive Displacement Pumps
8. Centrifugal Pumps

H. Electrical Fundamentals

1. Concepts of Electricity
2. Magnetism
3. Current Flow
4. Measuring Electricity
5. Resistance and Conductance
6. Circuits
7. Work and Power
8. AC: What It Is
9. Inductance
10. Capacitance
11. Impedance
12. Power in AC Circuits
13. AC Generators
14. Excitation Systems
15. Buses, Bus Ducts, and Disconnects
16. Circuit Breakers and Switchgear
17. Transformers
18. Three Phase Power
19. Power Plant Motors
20. Control and Special Services
21. Auxiliary Power Supplies
22. Power System Protection
23. Motor Control
24. Storage Batteries
25. Rectifiers
26. Electrical Switching
27. Reading Electrical Drawings

I. Radiation Protection

1. Biological Effects of Radiation
2. Units, Guides, and Limits
3. Protection against Radiation

4. Protection against Contamination
5. Radiation Detection
6. Personnel Monitoring
7. Survey Techniques
8. In-plant Monitors
9. Radioactive Material Control
10. Environmental Considerations and Emergency Planning

J. Chemistry and Water/Waste Treatment

1. Basic Chemistry Concepts
2. Corrosion of Plant Materials
3. Effects of Nuclear Operations
4. Chemistry Control Equipment
5. Primary Water Chemistry
6. Secondary Water Chemistry
7. Radioactive Waste
8. Radwaste Discharge

K. Instrumentation and Control Fundamentals

1. Instrumentation Systems Fundamentals
2. Neutron Detection Instruments
3. NI Process and Display
4. Plant Control
5. Protection Concepts
6. Flow Diagrams
7. Control Applications (Feedwater)
8. Reactor Control Systems
9. Reactor Protection System

L. Safety Analysis

1. FSAR
2. Transients
3. Accident Analysis
4. Technical Specifications
5. Typical Plant Occurrences

M. Plant Systems

The classroom phase of plant systems training shall be unit specific. Each system presentation shall include, as applicable:

1. System function during normal, abnormal, and/or emergency conditions
2. System/component design and construction
3. System/component controls and interlocks
4. Interface/interconnection with other systems
5. System/component operations and operational modes
6. Technical specification limiting conditions for operation
7. Hazards/precautions

Systems to be covered include:

Balance of Plant Electrical
Class IE Electrical
AC/DC Vital Electrical
Emergency Diesel Generators and Auxiliaries
Screen Wash and Sluice
Secondary Service River Water
Mechanical Draft Cooling Tower
Nuclear Service River Water
Decay Heat River Water
Reactor Building Emergency Cooling
River Water Chlorination
Condenser Circulating Water
Circulating Water Chlorination and Chemical Feed
Amertap (Condenser Tube Cleaning)
Fire Protection
Cycle Makeup Pre-Treatment
Cycle Makeup Demineralizers
Demineralized Water
Domestic Water
Reclaimed Water
Condensate
Condensate Chemical Feed
Feedwater
Emergency Feedwater
Main Steam
Extraction Steam
Auxiliary Steam
Auxiliary Boilers
Stage Heater Vents and Drains
Condenser Air Extraction
Main Turbine - Generator
Turbine Lube Oil
Generator Gas and Vents
Generator Seal Oil

Turbine - Generator Electro - Hydraulic Control
Gland Sealing Steam
Generator Stator Cooling
Isolated Phase Bus Duct Cooling
Generator Core Monitor
Instrument/Control Air
Station Service Air
Secondary Service Closed Cooling
Reactor Coolant System
Reactor Coolant Pumps
Reactor Vessel Construction
Make up and Purification (HPI)
Decay Heat Removal (LPI)
Core Flood
Reactor Building Spray
Decay Heat Closed Cooling
Intermediate Closed Cooling
Nuclear Service Closed Cooling
Spent Fuel Cooling
Chemical Addition - Nuclear
Fluid Block
Penetration Pressurization
Engineered Safeguards Actuation (ESAS)
Waste Disposal - Liquid
Rad Waste Evaporators
Waste Disposal - Gas
Waste Disposal - Solid
Fuel Handling
Radiation Monitoring (RMS)
Nuclear Instrumentation
Non-Nuclear Instrumentation
Reactor Protection (RPS)
Control Rod Drive - Mechanical
Control Rod Drive - Electrical
Integrated Control System (ICS)
H&V Reactor Building
Reactor Building Normal Cooling
H&V: Auxiliary & Fuel Handling Building
H&V: Control Building
Industrial Waste Treatment

N. Procedures

Formal training in station procedures shall include the scope and applicable requirements of selected administrative (AP), operating (OP) and emergency (EP) procedures, including:

1. AP 1001: Document Control
2. AP 1002: Rules for the Protection of Employees Working on Electrical and Mechanical Apparatus
3. AP 1004: Emergency Plan and Procedures
4. AP 1008: Good Housekeeping
5. AP 1009: Organization and Chain Command
6. AP 1010: Technical Specifications Surveillance Program
7. AP 1012: Shift Relief and Log Entries
8. AP 1016: Operations Surveillance Program
9. AP 1030: Control of Access to Primary System Openings
10. AP 1031: Nuclear Plant Staff Working Hours
11. AP 1033: Operating Memo's and Standing Orders
12. AP 1037: Control of Caution and DNO Tags
13. OP 1102-1: Plant Heat up to 525 Degrees F
14. OP 1102-2: Plant Startup
15. OP 1102-4: Power Operation
16. OP 1102-10: Plant Shutdown
17. OP 1102-11: Plant Cooldown
18. EP 1202-2,2A: Station Blackout
19. EP 1202-3: Turbine Trip
20. EP 1202-4: Reactor Trip
21. EP 1202-6A,B,C: Loss of Reactor Coolant/Reactor Coolant System Pressure
22. EP 1202-26 A,B: Loss of Feed to OTSG(s)
23. EP 1202-36 A,B: Loss of Instrument Air
24. EP 1202-37: Cooldown from Outside Control Room

O. Fire Protection

This training will be used to develop and certify the competence of personnel to serve as members of the Station Fire Brigade. It shall include:

1. Pre-Fire Planning and Strategies
2. Fire-Fighting Procedures and Tactics
3. General Fire Concepts and Equipment
4. Practical Fire Fighting Experience
5. Fire Detection and Suppression Systems

P. Industrial Safety

This training will be used to develop and certify the competence of personnel to serve as members of the First Aid Rescue Team. It shall include:

1. General Plant Safety Rules and Practices
2. Standard (Red Cross) Multi-Media First Aid
3. Cardio-Pulmonary Resuscitation (CPR)

On-The-Job Training

A. This training will provide the student with practical experience in all phases of plant operation for which an Auxiliary Operator - A - Nuclear is responsible and will be used to certify the compentence of personnel to perform operations in the following areas:

1. Administrative Requirements
2. Plant Support Systems (Out-buildings)
3. Secondary Plant Readings
4. Secondary Plant Operations
5. Primary Plant Readings
6. Primary Plant Operations
7. Nuclear Fuel Handling

4.1.4 Administration

A. General

1. Personnel who satisfy the prerequisites for selection to the position of Auxiliary Operator - C - Nuclear shall participate in both classroom and in-plant, on-the-job training.

2. Personnel who satisfy the prerequisites and are hired directly as Auxiliary Operators - A - Nuclear shall participate in in-plant, on-the-job training and, as a minimum, the general employee, systems, fire protection, procedures, and industrial safety portions of the classroom training. Participation requirements for the remainder of the classroom training topics shall be determined by procedures detailed in paragraph 4.1.4.C.

3. Personnel who satisfy the prerequisites and are hired as Control Room Operator - Nuclear, shall participate in a specialized on-the-job training program and as a minimum, the same classroom training as the direct-hire Auxiliary Operator - A - Nuclear

personnel. Participation requirements for the remainder of the classroom training topics shall be determined by procedures detailed in paragraph 4.1.4.C.

4. Performance in the training program shall be judged and documented by the results of oral and written examinations.

5. Personnel who perform satisfactorily shall automatically advance through the various phases of the training program to the position of Auxiliary Operator - Nuclear as follows:

   a. Satisfaction of prerequisites and selection as Auxiliary Operator - C - Nuclear
   b. Initial on-shift assignment
   c. Formal (Classroom) Training
   d. Comprehensive written examinations (except personnel newly hired as Control Room Operators - Nuclear)
   e. Advancement to Auxiliary Operator - B - Nuclear (if applicable)
   f. On-the-job training
   g. Comprehensive written and oral examinations (except personnel newly hired as Control Room Operators - Nuclear)
   h. Advancement to Auxiliary Operator - A - Nuclear (if applicable)

B. Prerequisites

Auxiliary Operator - C - Nuclear

To be selected for assignment to the position of Auxiliary Operator - C - Nuclear, an individual must:

1. Be a high school graduate or equivalent
2. Have a strong background in mathematics and the physical sciences including satisfactory completion of high school level courses in algebra, trigonometry*, and physics*. (*These educational requirements may be waived on an individual basis by the Manager-Plant Operations. Any requirement(s) initially waived should be completed by the individual prior to the commencement of classroom training.)

3. Satisfactorily complete the aptitude and/or comprehension test(s) required for assignment to this classification.
4. Satisfy any additional prerequisites for assignment to this classification as stated in sections B, C, and D of the specifications for Job No. 1072: Auxiliary Operator - C - Nuclear.

Direct-hire Auxiliary Operator - A - Nuclear

To be selected for direct assignment to the position of Auxiliary Operator - A - Nuclear, an individual must:

1. Meet the prerequisites set forth in Sections B.2., B.4., C, and D of the Specifications of Job No. 1070 - Auxiliary Operator - A - Nuclear.
2. Have at least two (2) years experience as an operator at a commercial or military nuclear facility.

Control Room Operator

The prerequisites for selection as a Control Room Operator are contained in the Replacement Operator Training Program Description.

C. Program Presentation

1. Initial on-shift assignment

   a. A student selected and assigned as Auxiliary Operator - C - Nuclear or as Auxiliary Operator - A - Nuclear shall complete the General Employee Training Program for radiation workers (GET - RWP)

   b. The student shall then be assigned to a rotating Operations Department shift.

      1) While on shift the student will be under the administrative control of the Operations Department.
      2) The initial on-shift assignment shall be for a period of at least three (3) months.
      3) The first 90 days of this assignment shall be the "probationary period" during which the student's performance will be evaluated by his/her Shift Foreman/Shift Supervisor.

4) During the probationary period, the student shall complete the "Administrative Requirements" section of the on-the-job training program (refer: Appendix A). Adequate knowledge of administrative procedural requirements and proficiency in the use of applicable Administrative Procedures must be certified by the qualification checklist examiner prior to the end of the probationary period.

5) Upon successful completion of the probationary period, the student will gain operational experience by accompanying and assisting fully qualified Auxiliary Operators - A - Nuclear in the performance of their duties until the beginning of the formal classroom training program.

2. Classroom training

a. During the formal classroom phase of the training program, the student will be under the administrative control of the Training Department.

1) Use of accrued vacation will not be routinely authorized during active participation in classroom training.

2) A brief recess from formal training will occur at the approximate mid-point of the classroom program.
a) A student may take accrued vacation during this recess in accordance with standard Company policy and practice.
b) A student not having or not wishing to take accrued vacation will be returned to an on-shift status during the recess from classroom training.

3) The student will be responsible for all material presented. If a student misses more than one consecutive week, the Supervisor, Non-Licensed Operator Training will review the situation to determine if the student will be able to catch up with his/her class and make a recommendation to the Operator Training Manager and the Manager - Plant Operations, TMI-I regarding continuation in the program.

b. The content and duration of the classroom training program will be approximately as follows:

1) General Employee Training - 2 days
2) Nuclear Power Orientation - 3 days
3) Mathematics Review - 2 weeks
4) Basic Nuclear Concepts - 3 weeks
5) Reactor Operation - 4 weeks
6) Fluid Flow, Heat Transfer, Thermodynamics - 3 weeks
7) Mechanical Fundamentals - 1 week
8) Electrical Fundamentals - 4 weeks
9) Radiation Protection - 2 weeks
10) Chemistry and Water/Waste Treatment - 2 weeks
11) Instrumentation and Control Fundamentals - 1 week
12) Safety Analysis - 1 week
13) Plant Systems - 12 weeks
14) Procedures - 2 weeks
15) Fire Protection - 3 days
16) Industrial Safety - 2 days
17) Review and Comprehensive Examination - 1 week

c. A waiver may be granted to preclude a student's participation in any portion(s) of the classroom program subject to the following conditions.

1) The student must provide formal documentation that he/she has satisfactorily completed equivalent training or education previously.
2) An oral and/or written evaluation by the Training Department must demonstrate that the student has maintained an adequate level of proficiency in the particular area. This evaluation shall be documented and retained on file with the student's record. If oral, the evaluation shall be documented using an Oral Examination Summary Sheet from Appendix C.

d. The student shall work normal Training shift hours while participating in the classroom phase of the training program.

1) There will be approximately 4 - 6 hours each day devoted to presentation of material and/or examination.
2) The remaining 2 - 4 hours each day will be for individual review/study of the appropriate material either in the plant or in the classroom for completion of "homework" assignments.
3) Instructors will be made available during study periods to assist the students as necessary.

3. On-The-Job Training

a. The student shall be under the administrative control of the Operations Department during the on-the-job phase of the training program.
b. The program shall consist of a combination of study assignments and practical evolutions in the following general areas:

1) Administrative Requirements
2) Plant Support Systems (Out-Buildings)
3) Secondary Plant Readings
4) Secondary Plant Operations
5) Primary Plant Readings
6) Primary Plant Operations
7) Nuclear Fuel Handling

c. A qualification checklist for each of these areas shall be provided to the individual in the format of Appendix A. (Control Room Operator license candidates shall complete the specifically designated items from Appendix A).

1) Satisfactory completion of the individual tasks on each qualification checklist shall be verified by a task examiner and indicated by date and task examiner signature in the appropriate spaces of the qualification checklist.

(NOTE: The student may indicate completion of reading/study assignments by signing/dating the checklist in the spaces provided for the task examiner.)

2) Upon completion of the individual assignments of a particular qualification checklist, the student shall be examined/evaluated by a qualification checklist examiner. Satisfactory completion of the evaluation shall be entered on the checklist. This final entry shall certify that the student is considered qualified to independently perform the duties of an Auxiliary Operator in that particular area. Details of this evaluation shall be documented using the Oral Evaluation Summary Sheet (refer: Appendix C).

3) A student should not be assigned responsibilities without the direct supervision of at least a fully qualified AO-A-Nuclear Operator until he/she has satisfactorily completed the appropriate qualification checklist, including SS/SF evaluation.

d. The "Administrative Requirements" portion of the OJT program shall be completed during the student's probationary period.

e. The remaining portions of the OJT program shall be completed during the eleven (11) months immediately following the student's completion of classroom training and return to on-shift status. Newly hired Control Room Operators - Nuclear shall complete their OJT program within 3 months of completion of the classroom program.

D. Evaluation Criteria

1. On-The-Job Training

a. Comprehensive oral checkouts shall be administered by the task examiners for specific task sign-offs and documented by the examiner's signature. This verification shall be entered on the checklist only after the student has demonstrated that he/she is capable of performing the specified evolution correctly without direct supervision by either actual

accomplishment or step-by-step simulation of the task.

b. The ultimate responsibility for determining student qualification rests with the Shift Supervisor or Shift Foreman who shall evaluate the performance of the student by qualification checklist oral check out and/or written questioning, using the Oral Examination Summary Sheet from Appendix C.

c. Student performance in the OJT program shall be reviewed periodically (monthly) to determine if satisfactory progress is being made toward completion within the required time frame. This review shall be performed by the Operator Training Section and the Operations Department shall be notified of the results.

d. All tasks which cannot be performed are to be simulated. Performance or simulation of a task shall not alone constitute successful completion of the task. Discussion and oral questioning by the task and qualification checklist examiners must be included to substantiate successful completion of the task.

e. A student failing to achieve a "pass" grade on a checklist final evaluation shall be:

1) Informed of weak areas and given direction on the material that should be studied up-grade his/her performance.
2) Re-examined within two weeks of the initial failure.

If a student fails the second section evaluation the Manager-Plant Operations, TMI-I and the Operator Training Manager shall review his/her overall progress and performance and determine the corrective action to be taken.

f. Completed qualification checklists and SS/SF evaluation forms shall be forwarded to the Supervisor of Non-Licensed Operator Training for formal documentation and retention.

2. Periodic Written Examinations and Quizzes

a. Written examinations shall be administered each week (40 hours) during Plant Systems and Procedures training and at the conclusion of each other section in the classroom program.

(NOTE: Exceptions to the above examination guidelines:

1) General Employee-Radiation Worker Training
2) Fire Protection
3) Industrial Safety

Procedures governing the conduct of these programs specify examination/certification guidelines).

1) These examinations may include a review of material from previous portions of the training program.
2) The exam duration may be from one (1) to four (4) hours, as recommended by the cognizant instructor(s) and concurred with by the supervisor of non-licensed operator training.
3) The minimum passing score on all written examinations shall be seventy (70) percent.
   a) Any failed examination shall be reviewed with the student and his/her bargaining unit representative.

4) Failure of an examination will result in a second written exam on the same material being administered approximately one week after the initial exam.
   a) The reexam may be from one (1) to four (4) hours, as recommended by the cognizant instructor(s) and concurred with by the supervisor of non-licensed operator training.
   b) The minimum passing score shall be 70%.
   c) Any failed reexam shall be reviewed with the student and his/her bargaining unit representative.

5) A student who fails both the initial exam and reexam on the same material shall be evaluated by the Operating Training Manager and Manager-Plant Operations, TMI-I who shall determine the appropriate action to be taken. Any individual dropped from the training program shall be returned to the job classification held prior to being selected and assigned to participate in the training program.

6) Following satisfactory completion of all required classroom sessions the Control Room Operator license candidate shall be assigned to complete the OJT phase of his training program.

b. Unannounced written quizzes may be administered periodically throughout the training program. Such quizzes shall provide information to the instructor and students relative to program pace and areas of general or individual weakness. They shall not be used as a formal measure of student performance or standing in the training program.

c. Quizzes and examinations shall be promptly graded and reviewed with the students.

5. Comprehensive Written Exam

a. A final written examination shall be administered by the Training Department at the conclusion of the classroom phase of the training program.

b. This examination will be comprehensive in nature and may include questions from any or all of the following areas:

1) Basic Nuclear Concepts
2) Reactor Physics
3) Fluid Flow, Heat Transfer, Thermodynamics
4) Mechanical Fundamentals
5) Electrical Fundamentals
6) Radiation Protection
7) Chemistry and Water/Waste Treatment

8) Instrumentation and Operational Analysis
9) Plant Systems
10) Administrative, Operating & Emergency Procedures

c. The exam duration may be from four (4) to eight (8) hours, as recommended by the cognizant instructor(s) and concurred with by the supervisor of non-licensed operator training.

d. The minimum passing score shall be 70% overall.

1) The examination shall be promptly graded and reviewed.
2) A failed exam will be reviewed with the student and his/her bargaining unit representative.

e. A student who fails the comprehensive written exam shall be administered a written reexam approximately two weeks after the initial exam.

1) The reexam duration may be from four (4) to eight (8) hours as recommended by the cognizant instructor(s) and concurred with by the supervisor of non-licensed operator training.
2) The minimum passing score shall be 70% overall.
3) A failed reexam will be reviewed with the student and his/her bargaining unit representative.

f. A student who fails both the initial comprehensive written exam and reexam shall be evaluated by the Operator Training Manager and the Manager - Plant Operations, TMI-I, who shall determine the appropriate action to be taken. Any individual dropped from the training program shall be returned to the classification held prior to being selected and assigned to participate in the training program.

g. Upon satisfactory completion of the comprehensive written exam or reexam and after at least one year as an AO-C-Nuclear, the student shall be promoted to Auxiliary Operator

B-Nuclear and assigned to a rotating Operations Department shift to complete the remainder of the on-the-job training program. Direct-hire Auxiliary Operators-A-Nuclear shall be similarly assigned.

4. Comprehensive Written/Oral Examinations

(Post OJT Program)

a. Written Exam(s)

1) A written examination shall be administered by the Training Department during the student's twelth month in the on-the-job training program.

2) The exam will be comprehensive in nature and may include questions from any or all of the following areas:

a) Fluid Flow, Heat Transfer & Thermodynamics
b) Mechanical Fundamentals
c) Electrical Fundamentals
d) Radiation Protection
e) Chemistry and Water/Waste Treatment
f) Plant Systems
g) Administrative, Operating & Emergency Procedures
h) Industrial Safety

3) The exam duration may be from four (4) to eight (8) hours, as recommended by the cognizant instructor(s) and concurred with by the supervisor of non-licensed operator training.

4) The minimum passing score shall be 70% overall.

a) The examination shall be promptly graded and reviewed.
b) A failed exam will be reviewed with the individual and his/her bargaining unit representative.

5) A student who fails the initial written exam shall be administered a written reexam approximately two weeks after the initial exam.

   a) The reexam duration may be from four (4) to eight (8) hours as recommended by the cognizant instructor(s) and concurred with by the supervisor of non-licensed operator training.
   b) The minimum passing score for the reexam shall be 70% overall.
   c) A failed reexam shall be reviewed with the individual and his/her bargaining unit representative.

6) A student who fails both the initial comprehensive written exam and reexam shall be evaluated by the Operator Training Manager and Manager-Plant Operations, TMI-1, who shall determine the appropriate action to be taken.

   Any individual dropped from the training program shall be returned to the classification held prior to being selected and assigned to participate in the training program.

b. Oral Exam(s)

1) An oral examination shall be administered by a SRO-licensed Shift Supervisor or Shift Foreman during the twelth month of the post-classroom, on-the-job training program and documented using the Oral Examination Summary Sheet from Appendix C.

2) The oral exam will be comprehensive in nature and may include questioning in any or all of same areas as the comprehensive written exam.

3) The oral exam will be graded on a satisfactory/unsatisfactory (S/U) basis.

4) A student with an overall evaluation of unsatisfactory on the initial oral exam will be administered a second oral exam approximately two weeks after the initial exam. The student may have his/her bargaining unit representative present during the oral reexamination.

5) A student with an overall grade of unsatisfactory on both oral examinations shall be evaluated by the Operator Training Manaer and Manager-Plant Operations, TMI-I, who shall determine the appropriate action to be taken. Any individual dropped from the training program shall be returned to the classification held prior to being selected and assigned to participate in the training program.

c. A student who satisfactorily completes the written and oral exams (or reexams) and who has been an Auxiliary Operator-B-Nuclear for at least one year shall be advanced to Auxiliary Operator-A-Nuclear.

Completion of the written and oral exams shall certify satisfactory completion of the training program for direct-hire Auxiliary Operators-A-Nuclear.

4.2 Auxiliary Operator Retraining

4.2.1 Applicability

This program shall be considered applicable to personnel who have successfully completed the classroom portion of the Auxiliary Operator Initial Training Progam and are currently employed as Auxiliary "A" or "B" Operators.

4.2.2 Objectives

The objectives of this program are to:

A. Maintain the level of knowledge and job proficiency achieved in the initial Auxiliary Operator Training Program.

B. Recertify the competence of personnel to operate inplant equipment safely and efficiently under all plant conditions.

C. Upgrade the level of knowledge and job proficiency in selected areas as deemed necessary by reviews of industry and facility experiences.

4.2.3 Program Outline

A. General Employee Retraining

1. Facility/Industry Experience
2. Station Security
3. Quality Assurance/Control
4. Radiation Worker recertification in accordance with Training Department Procedure
5. Emergency Plan training in accordance with Training Department Procedure
6. Fire Brigade training in accordance with Training Department Procedure
7. Industrial Safety training, to include:
   a. First Aid recertification (as necessary)
   b. Cardiopulmonary resuscitation and emergency cardiac care recertification (as necessary)
   c. General Safety practices
8. Unit Systems Review
9. Unit Procedures Review

B. Fundamentals Retraining

1. Mathematics (refer: Section 4.1.3.C)
2. Basic Nuclear Concepts (refer: Section 4.1.3.D)
3. Fluid-flow, Heat transfer, Thermodynamics (refer: Section 4.1.3.F)
4. Mechanical Fundamentals (refer: Section 4.1.3.G)
5. Electrical Fundamentals (refer: Section 4.1.3.H)
6. Chemistry and Water/Waste Treatment (refer: Section 4.1.3.J)
7. Instrumentation and Control Fundamentals (refer: Section 4.1.3.K)
8. Safety Analysis (refer: Section 4.1.3.L)

4.2.4 Administration

A. Auxiliary Operators "A" and "B" who have successfully completed the classroom phase of the Auxiliary Operator

Initial Training Program shall participate in a cyclic retraining program.

B. As a minimum, the topics required for General Employee Retraining (refer 4.2.3.A above) shall be presented each year.

C. Plant fundamentals training/retraining (refer: 4.2.3.B above) shall also be included in the cyclic retraining program as necessary or appropriate.

D. The cyclic retraining program shall be conducted on a continuing basis, with a weekly schedule of classes designed to be repeated for each shift when that shift is designated for its training week.

1. All on-shift Auxiliary Operators "A" and "B" should attend the retraining program during their scheduled training week.
2. The Operations Department Shift Supervisor/Foreman should ensure that Auxiliary Operators are not assigned responsibilities which conflict with their scheduled participation in the retraining program.
3. Absences should be approved in advance by the Manager - Plant Operations, TMI-1 or the Operations and Maintenance Director, TMI-1 and should be limited to one training week per year. In any case the Operator who misses training shall be responsible for the material presented in his absence if his participation cannot be rescheduled, and will take the quiz that was given on the missed material.
4. Repeated absences shall be reported to the Manager - Plant Operations, TMI-1 who shall determine the appropriate corrective action.

E. Weekly quizzes/exams shall be administered when appropriate to evaluate the effectiveness of the retraining program and operator progress.

1. Quizzes and exams shall be graded promptly.
2. The minimum satisfactory score on quizzes/exams shall be 70%.
3. Unsatisfactory performance on a quiz/exam for one of the topics required for General Employee Retraining shall result in either tutoring, self-study or retraining and the administration of another quiz/exam.

4. Unsatisfactory performance on a final or review exam for one of the Plant Fundamentals Training/Retraining topics shall result in either tutoring, self-study or retraining as appropriate and the administration of another exam.
5. Repeated unsatisfactory performance on quizzes/exams shall be reported to the Manager - Plant Operations, TMI-1 who shall determine the appropriate corrective action.

4.3 Responsibilities

4.3.1 The SRO - licensed Shift Supervisor/Shift Foreman is responsible for the following:

A. Ensuring an adequate level of achievement and progress in the OJT phase of the program by students assigned to his/her shift.

B. Verification of the competence of Auxiliary Operators C and B - Nuclear in specific sections by providing the final qualification signature of each OJT checklist.

C. Administration of the comprehensive oral examinations for advancement to Auxiliary Operator - A - Nuclear or certification of completion of the training program for direct hire Auxiliary Operators A.

4.3.2 The Supervisor, Non-Licensed Operator Training is responsible for the following:

A. General supervision of the development and conduct of the Auxiliary Operator Training Program.

B. Approval of the development, coordination, scheduling and administration of the Auxiliary Operator Training Program including course outlines, lesson plans, student handout, and evaluation exams.

C. Scheduling classes, students, classroom, and facilities necessary to conduct the training program.

D. Interfacing with Operations Department in all matters impacting the training programs.

E. Assuring that the program content is updated and revised to meet current requirements and supervising revision of the program content, descriptions, lesson plans, test, and exams.

F. Evaluation of course instruction and student progress to determine the effectiveness of the training program and reporting these evaluations to the Operator Training Manager.

G. Monitoring and conducting spot checks on the quality of OJT.

H. Initiating the necessary records and reports of training.

I. Developing and conducting oral exams.

J. Evaluation of individual critiques of the training received.

4.3.3 The Operator Training Manager is responsible for the following:

A. Assuring the quality of the Auxiliary Operator Training Programs by written approval of materials including course outline, lesson plans, student handouts, outlines, technical content of quizzes and exams.

B. Assuring the compatibility of the Auxiliary Operator Training Program with other Operator Training Programs.

C. Reviewing the completion of qualification records and reporting results to the Manager - Plant Training and Operations and Maintenance Director, TMI-1.

4.4 Records and Reports

4.4.1 A Training Program Administrative form shall be completed and submitted to the Administrative Section for each classroom lecture or lesson by the instructor who presented the material.

4.4.2 Current and past schedules, lesson plans, student handouts, completed OJT task sheets, completed Oral Examination Summary Sheets, exam keys, and completed exams both written and oral, as well as any additional pertinent qualification records shall be maintained on file in the Training Department.

4.4.3 A copy of the Student Progress Report from Appendix C shall be initiated for each student and updated as follows:

A. Following each quiz/exam during the classroom phase.
B. Following the comprehensive written exam at the end of the classroom phase.
C. Following the periodic reviews of OJT training.
D. Following the comprehensive examinations at the end of the OJT Program.

The student Progress Report shall be maintained at the training center. Copies of the updated report shall be submitted by the Supervisor of Non-Licensed Operator Training to the Manager - Plant Training and Manager - Plant Operations, TMI-1 via the Operator Training Manager quarterly throughout the duration of the Training Program, or more frequently on a case basis if requested by any of the reviewing individuals.

4.5 Evaluation

4.5.1 At the conclusion of each section of classroom training and the conclusion of OJT, students will be asked to complete a training critique form to assist in program evaluation. For the retraining program, one shift section shall be selected to critique each training cycle. The completed critiques will be reviewed by the Supervisor of Non-Licensed Operator Training and forwarded, along with recommendations or corrective action taken to the Manager - Plant Training via the Operator Training Manager.

4.5.2 The Auxiliary Operator Initial Training Program and its contents will be reviewed and updated at the end of each program presentation by the instructors presenting the course and the Supervisor of Non-Licensed Operator Training. He will report the results of this review, along with recommendations or corrective action taken to the Manager - Plant Training via the Operator Training Manager. During the presentation of the course no changes in course content shall be made without prior approval of the Operator Training Manager.

4.5.3 Annually, an internal team will be formed by the Supervisor of Non-Licensed Operator Training to review the Auxiliary Operator Training Program. The review team will consist of instructors from the Operator Training Section and be headed by a licensed Senior Reactor Operator.

A. The team will assess the adequacy of the program for:

1. Meeting new requirements
2. Adequacy of records
3. Quality of material and presentations
4. Effectiveness

B. In conducting the review, the team may use any records maintained by the Training or Operations Departments to assist them. They may include:

1. NRC Inspections
2. QA Audits
3. Other Audits or Reviews
4. Regulatory Changes
5. Industry Experiences
6. Student Critiques
7. The review team will report the results to the Manager - Plant Training and the Manager - Plant Operations, TMI-1 via the Supervisor of Non-Licensed Operator Training and the Operator Training Manager.

4.6 Changes and Lesson Plan Corrections

4.6.1 The program shall be maintained to reflect the following:

A. Changes in regulatory requirements
B. Changes in applicable codes, standards and guides
C. Significant experiences at the facility
D. Significant experience throughout the industry
E. Remedial action recommended by review/audit findings
F. Regularly scheduled participant critiques

4.7 Program Scheduling

The Auxiliary Operator Initial Training Program will normally be scheduled on an annual basis. The Auxiliary Operator retraining program shall be normally scheduled for every sixth week for each operating shift on a continuing basis.

4.8 Program Approval

4.8.1 The Manager - Plant Operations, TMI-1 retains the responsibility to ensure that the overall level of training of plant operators is satisfactory through the approval of program content, schedules, and administrative procedures.

4.8.2 The Manager - Plant Training through the Operator Training Manager, is responsible to ensure the training program is developed to meet the requirements established by the Director, TMI-1 through the Manager - Plant Operations, TMI-1 and that proper records and documentation are provided and maintained.

4.8.3 Lesson plans for implementation of the training program will be reviewed by the Supervisor, Non-Licensed Operator Training and approved by the Operator Training Manager prior to use. They may be forwarded to the Operations Department and/or Technical Functions Division as required, or otherwise deemed necessary by the Operator Training Manager.

TMI-1
APPENDIX A: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION 1: ADMINISTRATIVE REQUIREMENTS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRD	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
1		1001	Read: "TMI Document Control".			
2			State when a POR is/may be used.			
3			Initiate a POR.			
4			State when a TON is/may be used.			
5			Initiate a TON.			
6			Initiate a temporary change to a valve lineup.			
7			State the requirements for proper usage of written procedures.			
8		1002	Read: "Rules for the Protection of Employees Working On Electrical and Mechanical Apparatus".			
9			State the limits and precautions associated with the use of "Red Tags".			
10			State the limits and precautions associated with the use of "Blue Tags".			
11			Indicate the proper location for placement of tags. (Refer: Enclosure 5).			
12			Rack out and tag a 4160 V BUS and associated extension control(s).			
13			Clear tags on a 4160 V BUS (and associated extension controls) and rack it in.			
14			Rack out and tag a 480 V BUS and associated extension control(s).			
15			Clear tags on a 480 V BUS (and associated extension controls) and rack it in.			
			TOTAL HOURS THIS PAGE			

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TMI-1
APPENDIX A: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION 1: ADMINISTRATIVE REQUIREMENTS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRD	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
16	X	1004	Read: 1004.1 "Unusual Event".			
17	X		Read: 1004.2 "Alert".			
18	X		Read: 1004.3 "Site Emergency".			
19	X		Read: 1004.4 "General Emergency".			
20	X		Read: 1004.9 "In-Plant Radiological Controls During Emergencies".			
21	X		Read 1004.10 "On-Site Radiological Monitoring".			
22	X		Read: 1004.11 "Off-Site Radiological Monitoring".			
23	X		Read: 1004.18 "Search and Rescue".			
24	X		Read: 1004.21 "Emergency Repair Operations".			
25	X		State your responsibilities and reporting requirements during a declared emergency.			
26		1008	Read: "Good Housekeeping".			
27			Describe the four (4) zones of cleanliness. (Include Examples).			
28			State the restrictions regarding entry of the various zones.(Refer: Table 1).			
29		1009	Read: "Unit 1 Organization and Chain of Command".			
30			State the chain of personnel from Senior Vice President to Auxiliary Operator.			
				TOTAL HOURS THIS PAGE		

IMI-1
APPENDIX A: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION 1: ADMINISTRATIVE REQUIREMENTS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
31		1009	State your responsibilities and reporting requirements per Sections 2			
32		1010	Read: "Technic... Surveillance Program".			
33			Define: "deficiency".			
34			Define: "exception".			
35			Complete a TSS data sheet.			
36			Demonstrate the procedure for correcting an error on a TSS date Sheet.			
37			Prepare an "Exception and Deficiency List Sheet".			
38	X	1011	Read: "Controlled Key Locker Control".			
39	X		State the personnel authorized to issue controlled keys.			
40	X		Perform a switching order that requires repositioning of a locked valve.			
41		1012	Read: "Shift Relief and Log Entries".			
42			Prepare a shift turnover checklist.			
43			State the requirements for maintaining recorder charts.			
44			Demonstrate the procedure for correcting log entries.			
45		1013	Read: "Bypass of Safety Functions and Jumper Control".			
				TOTAL HOURS THIS PAGE		

TM1-1
APPENDIX A: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION 1: ADMINISTRATIVE REQUIREMENTS

NAME: SOCIAL SECURITY NUMBER: - EMPLOYEE NUMBER:

NUMBER	CRD	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
46		1013	State the responsibilities of Operations Department personnel regarding bypassing of safety functions.			
47			State the limits and precautions associated with the bypassing of safety functions.			
48			Describe the procedure to be used for the bypassing of safety functions.			
49	X	1016	Read: "Operations Surveillance Program".			
50	X		Perform and properly document a weekly operations surveillance.			
51		1021 A/B	Read: "Plant Modifications".			
52			Initiate a change/modification request.			
53	X	1030	Read: "Control of Access to Primary Openings".			
54	X		State the responsibilities of an Exclusion Area Monitor.			
55.	X		Maintain an Exclusion Area Log.			
56		1031	Read: "Nuclear Plant Staff Working Hours".			
57			State the requirements regarding plant staff working hours.(Refer: Section 3).			
58	X	1033	Read: "Operating Memo's and Standing Orders".			
59	X		Read: the "Ops. Memo's and Standing Orders " Book.			
60		1034	Read: "Plant Operations Review Committee Charter".			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION 1: ADMINISTRATIVE REQUIREMENTS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
61	X	1034	State the membership (by functional title) of the PRG.			
62	X		State the general responsibilities of the PRG.			
63	X	1035	Read: "Control of Transient Combustible Material".			
64			State the limits and precautions regarding transient combustible material.			
65	X		State the responsibilities of a "Fire Watch Patrol".			
66	X	1036	Read: "Instrumentation Out-Of-Service Control".			
67	X		Read: the "OOS Sticker Log".			
68	X	1037	Read: "Control of Caution and DNO Tags".			
69	X		State when a "Caution" tag is/may be used.			
70	X		State when a "DNO tag is/may be used.			
71	X		State the requirements for control of "Caution" and "DNO" tags.			
72	X	1038	Read: "Administrative Controls - Fire Protection Program Plan".			
73	X		State the makeup of the Station Fire Brigade and how the members are designated.			
74		1043	Read: "Engineering Change Modifications".			
75			State when a Field Questionnaire is/may be used.			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION 1: ADMINISTRATIVE REQUIREMENTS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
76		1003	Initiate a Field Questionnaire.			
77	X	1044	Read: "Event Review and Reporting Requirements".			
78	X		State your responsibility for event reporting.			
79	X		State the types of events which are considered "reportable".			
				TOTAL HOURS THIS PAGE		
				TOTAL HOURS THIS CHECKLIST		

FINAL CHECKLIST EVALUATION:

I have examined the above named individual and certify that he/she is qualified to independently perform the duties of an Auxiliary Operator associated with administrative requirements.

SRO-Licensed SS/SF/ DATE

(Attach Appendix C.2 "Oral Examination Summary Sheet" and forward to Operator Training section.)

Oral Examination Summary Sheet

_____
Student's Name

_____
Examiner

_____
Date

Purpose: (Check One)

( ) OJT Qualification Checklist Examination

( ) Op. Trng. Section OJT Spot Check

( ) Final Comprehensive Oral Examination

( ) Other (Specify) _____

Summary of questions asked — Grade (Pass/Fail)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

(Attach additional sheets if necessary.)

Weak Areas Noted:

_____

_____

Overall Evaluation (Pass/Fail)

Further Action Required (If none, so state)

_____

_____

Examiner: _____
Signature/Date

Examinee: _____
Signature/Date

Reviewed by: _____
Supervisor, Non-Licensed/Date Operator Training

Form 6211-ADM-2523.2-A1-7

CONTROLLED COPY

AUXILIARY OPERATOR
ORAL EXAMINATION

STUDENT: _____

	SYSTEMS										
1. SYSTEM FUNCTIONS											
2. MAJOR COMPONENT LOCATION											
3. MAJOR COMPONENT OPERATION											
4. ELECTRICAL POWER SUPPLIES											
5. READINGS/INSTRUMENTATION											
6. INTERLOCKS											
7. SETPOINTS											
8. INTERFACE WITH OTHER SYSTEMS											
9. FLOW PATHS											
10. MODES OF OPERATION											
11. MAJOR PARAMETERS											
12. OPERATING LIMITS/PRECAUTIONS											
13. OPERATING PROCEDURES											
14. TRANSIENT RESPONSE											
15. ALARM RESPONSES											

COMMENTS: _____

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TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : OUTBUILDINGS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
1		OPS-S003	WTP 24A/B Strainer Clean			
2		OPS-S006	Screenhouse Bar Rakes, Vent Fan Lube			
3		OPS-S017	Circ Water Building Checks and Lubrication			
4		OPS-S020	Pretreatment Equipment Lube and Check			
5		OPS-S021	Screenhouse Lubrication			
6		OPS-S023	SW-P-2A Lube and Operational Check			
7		OPS-S037	Chemicals Inventory (Applicable to Outbuildings)			
8		OPS-S044	South East Dike and Swave Inspection			
9		OPS-S046	Fire System Check - Circ Water			
10		OPS-S052	Nuclear Services River Water Pumps Surveillance			
11		OPS-S055	Decay Heat River Water Pump A & B			
12		OPS-S080	Misc. Outbuildings Equipment Lubrication			
13		OPS-S082	Screenhouse Equipment (Lubrication)			
14		OPS-S085	OPS Winterization Checks			
15		OPS-S086	WT P 24A/B Strainer Cleaning			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : OUTBUILDINGS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
16		OPS-S090	Screenhouse Equipment Lubrication			
17		OPS-S091	Pretreatment Building Equipment Lubrication			
18		OPS-S096	Pretreatment Dual Gravity Filt Air Lancing			
19		OPS-S118	Operations Department Vehicle Check			
20		OPS-S123	FS-P-6 Test			
21		OPS-S134	FO-S-1A/2B Strainer Delta Press Check			
22		OPS-S144	Sewage Lift System			
23		OPS-S148	Site Air Compressors and Air Handler			
24		OPS-S149	Air Handler For Site Air Compressor			
25		OPS-S163	Pretreatment Building Clay Feeder Check			
26		OPS-S217	Riverwater Pump Log - Status			
27		OPS-S221	Lube and Cycle Manual Distr. Valves			
28		OPS-S227	DR-P-1A/B Periodic Operation			
29		1104-22	Manually Desludge Pretreatment			
30		3303-M1	Run the Circ Water Diesel			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : OUTBUILDINGS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
31		3303-M1	Run the River Water Diesel			
32		1104-22	Properly Fill All Chemical Addition Tanks in Pretreat.			
33		1104-22	Operate Pretreatment Manually			
34		1104-22	Switch Pretreatment from Manual to Auto			
35		1104-35/36	Change Chlorine Bottle (River Water or Circ. Water)			
36		1104-33	Select S.W. Pl A/B For Operation			
37		1104-33	Manually Operate Screens and Rakes			
38		1104-9	Line Up Circ. Water Pumps for Startup			
39	X	1104-37	Switch M.D.G.T.Fans for Deicing Operating			
40	X	N/A	Open and Close Disconnects in Switchyard			
41		1104-45D	Reset A Fire Deluge Valve			
42		N/A	Operate U-1 Warehouse Fire System Air Compressor			
43		1102-12	Change H_2 Bottles - Primary Side			
44		1202-32	Locate All Flood Gates (Applicable to Outbuildings)			
45		1104-22	Manually Backwash Pretreatment Filters			
				TOTAL HOURS THIS PAGE		

TMI-I
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : OUTBUILDINGS

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
46		1004-50A	Operate I.W.T.S.			
47		1104-50B	Operate I.W.F.S.			
48		1104-35	Line up Circ. Water Chlorination & Chemical Add. for Op.			
49		1104-36	Line up River Water Chlorination For Operation			
50			Change H_2 Bottle for M.D.C.T. & N.D.C.T.			
51		1106-8	Line up Secondary H_2			
52		1104-60	Place North and/or South Chemical Pits on Recirc.			
53			Fill Circ. Water Diesel Fuel Tank			
54	X		Check Substation Outside Breaker Cabinet			
55	X		Take Outbuilding Readings			
56		1301-6.7	Monitoring of Silt Buildup in River Water			

TOTAL HOURS THIS PAGE

NAME _____

FINAL CHECKLIST EVALUATION:

I have examined the above named individual and certify that he/she is qualified to independently perform the duties of an auxiliary operator associated with _____

_____.

_____ / _____

SRO Licensed SS/SF / Date

(Attach Appendix C.2 "Oral Examination Summary Sheet" and retain with Checklist record.)

Oral Examination Summary Sheet

_____
Student's Name

_____
Examiner

_____
Date

Purpose: (Check One)

( ) OJT Qualification Checklist Examination

( ) Op. Trng. Section OJT Spot Check

( ) Final Comprehensive Oral Examination

( ) Other (Specify) _____

Summary of questions asked — Grade (Pass/Fail)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

(Attach additional sheets if necessary.)

Weak Areas Noted:

_____

_____

Overall Evaluation (Pass/Fail)

Further Action Required (If none, so state)

_____

_____

Examiner: _____
Signature/Date

Examinee: _____
Signature/Date

Reviewed by: _____
Supervisor, Non-Licensed/Date Operator Training

Form 6211-ADM-2523.2-A2-6

AUXILIARY OPERATOR
ORAL EXAMINATION

STUDENT: _____

	SYSTEMS										
1. SYSTEM FUNCTIONS											
2. MAJOR COMPONENT LOCATION											
3. MAJOR COMPONENT OPERATION											
4. ELECTRICAL POWER SUPPLIES											
5. READINGS/INSTRUMENTATION											
6. INTERLOCKS											
7. SETPOINTS											
8. INTERFACE WITH OTHER SYSTEMS											
9. FLOW PATHS											
0. MODES OF OPERATION											
11. MAJOR PARAMETERS											
12. OPERATING LIMITS/PRECAUTIONS											
13. OPERATING PROCEDURES											
14. TRANSIENT RESPONSE											
15. ALARM RESPONSES											

COMMENTS: _____

Form 6211-ADM-2523.2-A2-7

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
1	X	1104-23	Startup IWT			
2	X	1104-23	Shutdown IWT			
3	X	1104-23	Regenerate Cation and Anion String on IWT			
4	X	1104-23	Regenerate Mixed Bed on IWT			
5	X	1104-18	Neutralize IWT Waste Tank			
6		1104-18	Fill and Flush IWT Chem. Moat			
7		1104-18	Determine Level of IWT Vacuum Pumps			
8		1104-23	Add Oil to IWT Vacuum Pumps (If Needed)			
9		1104-23	Drain Water From IWT Vacuum Pumps			
10		1104-18	Take on Acid or Caustic For IWT			
11		1104-23	Operate Conductivity Instrument at the IWT			
12		1104-23	Demonstrate Manual Operation of Air Valves at IWT			
13		1104-49	Add Hydrochlorite to Domestic Water Chem. Add. Tank			
14		1104-23	Demonstrate Proper System Lineups For IWT Flow to Hotwell, Cond. Storage Tank, Primary Plant, 10^6 Tank			
15		1104-49	Regenerate Domestic Water Softner			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
16		OPS-S001	Main Generator Core Monitor Annual			
17		OPS-S004	Aux/FH/Diesel Bldgs Fan Lubrication			
18		OPS-S005	Interm/Turb Bldg 4th Floor Misc. Lube			
19		OPS-S008	Miscellaneous Equipment Lube			
20		OPS-S010	Main Generator Core Monitor Weekly			
21		OPS-S012	Amertap System Ball Inspection & Pump Lubrication			
22		OPS-S013	Turb./Intermed. Bldg Misc. Pump Checks			
23		OPS-S018	Turb Lift Pump Suction Strainers			
24		OPS-S019	Eyewash and Emergency Shower Flush			
25		OPS-S025	Service Air Compressor Standby Run			
26		OPS-S026	6.9 Kv SWGR-RC-P AMP/Volt Check			
27		OPS-S027	Industrial Cooler Performance/RB Heat Removal			
28		OPS-S029	Electro-Hydraulic Control System Surveillance			
29		OPS-S032	EG-Y-1A/B Fuel Pump/Air Start Surveillance			
30		OPS-S037	Chemicals Inventory (Secondary Side)			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
31		OPS-S039	Stator Cooling System - Main Generator			
32		OPS-S041	Instrument Air Compressors 1A-P-1A/B			
33		OPS-S056	Turbine Generator Lube Oil Pumping			
34		OPS-S062	Flood Preparedness			
35		OPS-S061	Main Turbine Control Valve Linkage Lubrication			
36		OPS-S066	Fire Service Valve Checklist			
37		OPS-S071	Turbine Control/Stop Valve Tightness			
38		OPS-S075	Industrial Coolers Inspection/Lubrication			
39		OPS-S077	Combined Intermediate Valve Linkage Lubrication			
40		OPS-S078	Main Generator Core Monitor Qtly.			
41		OPS-S079	Int., Control Bldgs, Mach Shop Eq. Lube			
42		OPS-S081	Turbine Building Ground Floor Equipment Lubrication			
43		OPS-S083	Turbine Building, 2nd Floor Equipment, Roof Vent Fan			
44		OPS-S092	Miscellaneous Turbine Building Lubrication			
45		OPS-S093	Generator and Exciter Field Ground Relay			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRD	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
46		OPS-S094	Run Time ES Components-4160V D/E Swgr			
47		OPS-S095	Watt Meter Readings for RC-P-1A/D			
48		OPS-S100	Control Building Chillers-Alternate OPS			
49		OPS-S101	Feedrater Pump Turbine Surveillance			
50		OPS-S102	Turbine Lube Oil Pumping System			
51		OPS-S103	Turbine Lube Oil Pumping System Surveillance			
52		OPS-S104	Turbine Lube Oil Pumping			
53		OPS-S105	Feed Pump Turbine Emer. Gov. Exercise			
54		OPS-S108	Core Monitoring Performance Surveillance			
55		OPS-S109	Turbine Gland Steam Supply			
56		OPS-S110	Hydrogen Seal Oil System Surveillance			
57		OPS-S111	Hydrogen Seal Oil			
58		OPS-S113	Hydrogen Seal Oil System			
59		OPS-S117	Backwash Secondary River Coolers			
60		OPS-S121	Amertap Normal Backwash			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
61		OPS-S124	Emergency Diesel Fire Prevention			
62		OPS-S125	Instrument Air System			
63		OPS-S129	Feedwater Heater Leak Check			
64		OPS-S137	Instrument Air Dew Point Recorder			
65		OPS-S143	Lub/Insp Industrial Cooler Fan Bearings			
66		OPS-S152	Fire Fighting Emergency Equipment Inventory			
67	X	OPS-S153	Exercise Main Turbine Turning Gear			
68		OPS-S156	Main Turbine Front Standard Lubrication			
69		OPS-S157	A-B FWPT Manual Lubrication			
70	X	OPS-S160	Exercise A & B FWPT Turning Gears			
71		OPS-S164	Backup Instrument Air System Checks			
72		OPS-S168	FS Valve Lineup Verification			
73		OPS-S169	Fire Hose Station Inspection			
74		OPS-S170	Fire System Valve Cycling			
75		OPS-S182	Fire Hose Station Inspection			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
76		OPS-S184	Fire Hydrant Hose House Inventory			
77		OPS-S186	Fire Hydrant Hose Inspection			
78		OPS-S191	Flush at 2" Drain Deluge/Sprinkler			
79		OPS-S192	Feedwater Heater Nitrogen Blanket			
80		OPS-S194	FS Deluge/Sprinkler System Inspection			
81		OPS-S195	FS Deluge/Sprinkler Header/Nozzle			
82		OPS-S209	IWT Acid/Caustic Tank Moat Inspection			
83		OPS-S219	UPS Diesel Generator No Load Test			
84		OPS-S220	Load Test of UPS Diesel Inv. System			
85		OPS-S228	Industrial Cooler Inspection			
86	X	1106-13	Remove A Powdex Vessel From Service			
87	X	1106-13	Precoat A Powdex Vessel			
88	X	1106-13	Place a Powdex Vessel In Service			
89	X		Fill Main Turbine Boot Seals			
90			Shift The Oil Filters On Main Feed Pump			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
91		1106-3	Shift and Vent Coolers on Main Feed Pump			
92		1104-34	Add Oil To Feed Pump Oil Bowser			
93		1104-34	Add Oil To Main Turbine Lube Oil Bowser			
94			Shift Coolers on Main Lube Oil Reservoir			
95	X		Rack Out And Rack In 480 Volt Brk			
96	X		Rack Out And Rack In 4160 Volt Brk			
97	X	1106-2	Place 8th Stage Heating On Line			
98		1106-8	Purge Generator With CO-2			
99		1106-8	Fill Generator with H_2,			
100		1106-8	Fill Generator With I.A.			
101	X	1106-10	Place Gland Seal Steam In Operation			
102		1106-10	Swap Gland Steam Exhausters			
103		1104-3	Fill Hydrazine & Ammonia Tanks for Cond. & Boilers			
104		1104-3	Place Condensate Chemical Feed In Service			
105		1106-4	Place Aux Boiler Chemical Feed In Service			
			TOTAL HOURS THIS PAGE			

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : SECONDARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
106	X	1106-4	Place an Aux Boiler In Service			
107		1106-17	Add Oil to E.H.C.			
108			Show How To Bypass A Steam Trap			
109		1106-7	Add Water To Stetor Cooling			
110		1106-2	Recharge Condensate Storage Tank			
111		1104-9	Adjust Circ Water Blowdown			
112	X	1303-4.16	An Emergency Diesel Generator In E.S. St/By			
113	X	1303-4.16	Perform Emergency Diesel Run Surveillance			
114	X		Place Turbine Bypass EF-V-30A/B Valve In Manual Auto			
115			Secondary "A.O." Actions On A Plant Trip			
116	X	1300-3F A/B	Test Run EF-P-2 A/B			
117	X	1300-3G A/B	Test Run EF-P-1			
118	X	Rdgs.Sheet	Complete Secondary Readings			

TOTAL HOURS THIS PAGE

NAME _____

FINAL CHECKLIST EVALUATION:

I have examined the above named individual and certify that he/she is qualified to independently perform the duties of an auxiliary operator associated with _____

_____.

_____ / _____
SRO Licensed SS/SF / Date

(Attach Appendix C.2 "Oral Examination Summary Sheet" and retain with Checklist record.)

Oral Examination Summary Sheet

Purpose: (Check One)

_____ ( ) OJT Qualification Checklist Examination

Student's Name

_____ ( ) Op. Trng. Section OJT Spot Check

Examiner

_____ ( ) Final Comprehensive Oral Examination

_____ ( ) Other (Specify) _____

Date

Summary of questions asked — Grade (Pass/Fail)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

(Attach additional sheets if necessary.)

Weak Areas Noted:

_____

_____

Overall Evaluation (Pass/Fail)

Further Action Required (If none, so state)

_____

_____

Examiner: _____
Signature/Date

Examinee: _____
Signature/Date

Reviewed by: _____
Supervisor, Non-Licensed/Date
Operator Training

Form 6211-ADM-2523.2-A3-10

AUXILIARY OPERATOR
ORAL EXAMINATION

STUDENT: _____

	SYSTEMS										
1. SYSTEM FUNCTIONS											
2. MAJOR COMPONENT LOCATION											
3. MAJOR COMPONENT OPERATION											
4. ELECTRICAL POWER SUPPLIES											
5. READINGS/INSTRUMENTATION											
6. INTERLOCKS											
7. SETPOINTS											
8. INTERFACE WITH OTHER SYSTEMS											
9. FLOW PATHS											
2. MODES OF OPERATION											
11. MAJOR PARAMETERS											
12. OPERATING LIMITS/PRECAUTIONS											
13. OPERATING PROCEDURES											
14. TRANSIENT RESPONSE											
15. ALARM RESPONSES											

COMMENTS: _____

Form 6211-ADM-2523.2-A3-11

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : PRIMARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRD	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
1		OPS-S007	Aux. Bldg. - Chem. Add Equipt Lube			
2		OPS-S011	Spent Fuel Clg. System Pump Cks/Lubrication			
3		OPS-S015	Liquid Waste Disposal System Pump Check			
4		OPS-S016	Liquid Waste Disposal System Pump Check/Lube			
5		OPS-S022	Penetration - Pressurization Checks			
6		OPS-S024	Rx. Bldg. Atmosphere Cleanup			
7		OPS-S031	RB Main Steam Line Snubber Inspection .			
8		OPS-S037	Chemicals Inventory			
9		OPS-S042	RB Spray/Decay Heat Removal Surveillance			
10		OPS-S048	Cooldown - Outside Control Room Readiness			
11		OPS-S059	Aux. Bldg. Floor Drain Check			
12		OPS-S098	RB Entry Data Requirements & Inspections			
13		OPS-S114	Backwash Nuclear River Water Cooler			
14		OPS-S115	Backwash Decay Heat River Coolers			
15		OPS-S116	Backwash Intermediate Coolers			
				TOTAL HOURS THIS PAGE		

TMI-I
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : PRIMARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRD	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
16		OPS-S128	Ops Check Fuel Transfer System Air Motors			
17		OPS-S147	AHE-9A/B Penetration Cooling Fans			
18		OPS-S158	Hand Rotation of Reactor Coolant Pump			
19		OPS-S227	DR-P-1A/B Periodic Operation			
20		OPS-S231	Monitor Transfer Tube Bellows Leak Rate			
21		OPS-S235	Waste Gas Seperator Blowdown			
22		1104-53	Change Resin in Waste Evap. Cond. Demins.			
23		1104-29Y	Precoat the Precoat Filter & Place In Service			
24		1104-52	Resin Regeneration & Replacement for Debor. Demin.			
25		1104-54	Replace Resin In Makeup & Purif. Demin.			
26		1104-51	Cation Demin. Resin Replacement			
27		1104-29N	Decant. Spent Resin and Used Precoat Tank			
28		1104-27	Manually Purge RM-A-7			
29		1104-29Q	Startup, Operate, & Shutdown, Misc. Evap.			
30	X	1104-29S	Perform A Liquid Release			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : PRIMARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
31	X	1104-27	Perform A Gas Release			
32	X	1104-29S	Manually Flush RM-L-6			
33		1104-29A	Place R.C. Bleed Tank on Cleanup			
34		1104-29C	Place BWST on Cleanup			
35		1104-29C	Place Decay Heat Removal on Cleanup			
36		1104-29C	Place Spent Fuel Pool on Cleanup			
37		1104-29	Recirc. A CWST, RCBT, RBAT, WECST			
38		1104-27	Drain Moisture Traps on Waste Gas System			
39		1104-29K	LWST Transfer			
40		1104-2	Place Seal Injection Filter In Service			
41		1104-2	Remove Seal Injection Filter From Service			
42		1104-2	Adjust Seal Injection Flow to RCP's			
43		1104-2	Adjust #1 Seal Return Back Pressure			
44		1104-2	Adjust Makeup Bypass Flow			
45		1104-2	Transfer MUP Cooling From CC to NSCC			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : PRIMARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
46		1104-2	Seal Return Filter Replacement			
47		1410-F-3	Changing RC Letdown Filters/Make Up Filters			
48			Change Hydrogen Bottles			
49		1104-11	N-2 Blanket RCS			
50		1104-21	Pressurize Penetration Pressurization Tank			
51		1104-4	Add Oil to DH-P-1A/B			
52	X	1507-5	Move Fuel with Spent Fuel Bridge			
53	X	1507-5	Move a Control Rod with S.F. Bridge			
54	X	1507-5	Operate & Shutdown Fuel Handling Bridge			
55	X	1507-7	Operate Fuel Transfer System			
56		1104-62	Startup, Operate & Shutdown H-2 Recombiner			
57			Reset Dampers in Air Intake Tunnel			
58		1104-45 I	Remove Air Intake Tunnel Halon System From Service			
59		1104-45 I	Return Air Intake Tunnel Halon System To Service			
60		1104-4	Place Decay Heat Removal In Service			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : PRIMARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRD	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
61		1104-4	Lineup Pressurizer Aux. Spray			
62		1104-5	Place NaOH Tank on Recirc.			
63		1104-11	Add Chemicals to NSCC			
64		1104-8	Add Chemicals to ICCW			
65		1104-47B	Adjust CA-P-1 Stroke			
66	X	1104-47B	Lineup BAHT to all Possible Paths			
67		1104-47B	Mix Boric Acid in 7% Tank			
68		1104-47B	Mix Boric Acid in 4% Tank			
69		1104-47B	Make an Addition to CFT's			
70		1104-47A	Fill Reclaimed Water Stor. Tank			
71		1104-29E	Lineup RBAT to Makeup System			
72	X	1104-1	Press. CFT's			
73			Open & Close RB Doors			
74			Open and Close Aux. Bldg. Doors			
75		1104-11	Adjust NSCC to RCP Coolers			
				TOTAL HOURS THIS PAGE		

TMI-1
APPENDIX A.1: AUXILIARY OPERATOR QUALIFICATION CHECKLIST
SECTION : PRIMARY

NAME: SOCIAL SECURITY NUMBER: - - EMPLOYEE NUMBER:

NUMBER	CRO	PROCEDURE	TASK	TASK EXAMINER SIG.	DATE	HOURS
76		1106-16	Put OTSG's on Recirc.			
77		1104-8	Change CRDM Filters (A-B or B-A)			
78		1300-3?	NSCDW Pump and Valve Functional Test			
79	X		Primary Readings			

TOTAL HOURS THIS PAGE

NAME _____

FINAL CHECKLIST EVALUATION:

I have examined the above named individual and certify that he/she is qualified to independently perform the duties of an auxiliary operator associated with _____

_____.

_____ / _____

SRO Licensed SS/SF / Date

(Attach Appendix C.2 "Oral Examination Summary Sheet" and retain with Checklist record.)

Form 6211-ADM-2523.2-A4-7

Oral Examination Summary Sheet

_____
Student's Name

_____
Examiner

_____
Date

Purpose: (Check One)

( ) OJT Qualification Checklist Examination

( ) Op. Trng. Section OJT Spot Check

( ) Final Comprehensive Oral Examination

( ) Other (Specify) _____

Summary of questions asked	Grade (Pass/Fail)

(Attach additional sheets if necessary.)

Weak Areas Noted:

_____

_____

Overall Evaluation (Pass/Fail)

Further Action Required (If none, so state)

_____

_____

Examiner: _____
Signature/Date

Examinee: _____
Signature/Date

Reviewed by: _____
Supervisor, Non-Licensed/Date Operator Training

Form 6211-ADM-2523.2-A4-8

AUXILIARY OPERATOR
ORAL EXAMINATION

STUDENT: _____

	SYSTEMS										
1. SYSTEM FUNCTIONS											
2. MAJOR COMPONENT LOCATION											
3. MAJOR COMPONENT OPERATION											
4. ELECTRICAL POWER SUPPLIES											
5. READINGS/INSTRUMENTATION											
6. INTERLOCKS											
7. SETPOINTS											
8. INTERFACE WITH OTHER SYSTEMS											
9. FLOW PATHS											
10. MODES OF OPERATION											
11. MAJOR PARAMETERS											
12. OPERATING LIMITS/PRECAUTIONS											
13. OPERATING PROCEDURES											
14. TRANSIENT RESPONSE											
15. ALARM RESPONSES											

COMMENTS: _____

APPENDIX B

TYPICAL PROGRAM CLASSROOM SCHEDULE

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #1 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	GET	GET	GET	NUC. PWR.ORIENT.	NUC PWR.ORIENT.	0700
0800	SITE ORIENT. ORGANIZATION SECURITY QA/QC SAFETY FIRE PROTECTION	INTERMEDIATE HEALTH PHYSICS (RWP)	RWP PRACTICAL FACTORS	NUCLEAR POWER NET 1-1	NUCLEAR POWER	0800
0900						0900
1000				STUDY	NET 1-1	1000
1100					STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	GET	GET	GET	MATH REVIEW ARITHMETIC OPERATIONS INTRODUCTION TO ALGEBRA	MATH POWER, ROOTS & RECIPROCALS	1230
1330	BASIC HEALTH PHYSICS	INTERMEDIATE HEALTH PHYSICS (RWP)	RWP PRACTICAL EXAMS	STUDY	STUDY SYMBOLS: + & - QUANTITIES: ALGEBRAIC OP'S	1330
1430	EXAM	EXAM			STUDY	1430
1530						1530

WEEK OF: #2

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	NUC PWR.ORIENT.	NUC.PWR.ORIENT.	NUC.PWR.ORIENT.	NUC.PWR.ORIENT.	NUC.PWR.ORIENT.	0700
0800	THE NUCLEAR POWER PLANT NET 1-2	THE NUCLEAR POWER PLANT	NUCLEAR PLANT CONST.& LICENS. NET 1-3	NUCLEAR PLANT CONST. & LICEN-SING NET 1-3	EXAM	0800
0900						0900
1000	STUDY	NET 1-2	STUDY	STUDY		1000
1100		STUDY				1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	MATH QUIZ #1 ALGEBRAIC MULTIPLICATION	MATH ALGEBRAIC DIVISION	MATH EQUATIONS AND FORMULAS	MATH QUIZ #2 SCIENTIFIC NOTATION	MATH COMMON LOGARITHMS	1230
1330						1330
1430	STUDY	STUDY	STUDY	STUDY	STUDY	1430
1530						1530

Form 6211-ADM-2523.2-B1-1

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #3 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	BASIC NUCLEAR CONCEPTS	BNC	BNC	BNC	BNC	0700
0800	THE ATOM	THE ATOM	THE ATOM	EQUIVALENCY OF MASS AND ENERGY	EQUIVALENCY OF MASS AND ENERGY	0800
0900	NET 2-5	NET 2-5	NET 2-5	NET 2-6	NET 2-6	0900
1000	STUDY	STUDY	STUDY	STUDY	STUDY	1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	MATH NATURAL LOGARITHMS	MATH QUIZ #3 APPLICATION: MATHEMATICAL MANIPULATIONS	MATH APPLICATION: MATHEMATICAL MANIPULATIONS NET 2-1	MATH APPLICATION: EXPONENTS AND LOGS	MATH APPLICATION: EXPONENTS AND LOGS NET 2-2	1230
1330		NET 2-1		NET 2-2		1330
1430	STUDY	STUDY	STUDY	STUDY	STUDY	1430
1530						1530

WEEK OF: WEEK #4

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	BNC QUIZ #1	BNC	BNC	BNC	BNC	0700
0800	RADIATION TYPES AND ORIGINS	RADIATION TYPES AND ORIGINS	INTERACTION OF RADIATION WITH MATTER	INTERACTION OF RADIATION WITH MATTER	INTERACTION OF RADIATION WITH MATTER	0800
0900	NET 2-7	NET 2-7	NET 2-8	NET 2-8	NET 2-8	0900
1000	STUDY	STUDY	STUDY	STUDY	STUDY	1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	MATH QUIZ#4 GRAPHIC PRESENTATION	MATH GRAPHIC PRESENTATION	MATH PRESENTATION OF MATHMETICAL DATA	MATH PRESENTATION OF MATHMETICAL DATA	MATH FINAL EXAM	1230
1330	NET 2-3	NET 2-3		NET 2-4		1330
1430	STUDY	STUDY	NET 2-4 STUDY	STUDY		1430
1530						1530

Form 6211-ADM-2523.2-B1-2

GROUP/SHIFT: _____ PROGRAM: AO INTITAL TRAINING

WEEK OF: #5 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	BNC QUIZ # 2	BNC NUMBER OF ATOMS NET 2-9	BNC NUMBER OF ATOMS NET 2-9	BNC RADIOACTIVE DECAY	BNC RADIOACTIVE DECAY NET 2-10	0700
0800	NUMBER OF ATOMS NET 2-9					0800
0900						0900
1000	STUDY	STUDY	STUDY	NET 2-10	STUDY	1000
1100				STUDY		1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	ELECTRICAL FUNDAMENTALS: ELECTRICAL PRIMER (GPU) PPEF-1B	EF CONCEPTS OF ELECTRICITY PPEF-2A	EF MAGNETISM PPEF-2B	EF CURRENT FLOW PPEF-2C	EF QUIZ #1 MEASURING ELECTRICITY PPEF-2D	1230
1330						1330
1430	STUDY	STUDY	STUDY	STUDY	STUDY	1430
1530						1530

WEEK OF: WEEK #6

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	BNC QUIZ #3	BNC INDUCED NUCLEAR REACTIONS NET 2-11	BNC NUCLEAR FISSION	BNC NUCLEAR FISSION NET 2-12	BNC QUIZ #4 MICROSCOPIC CROSS SECTION NET 2-13	0700
0800	INDUCES NUCLEAR REACTIONS NET 2-11					0800
0900		STUDY	NET 2-12			0900
1000	STUDY		STUDY	STUDY	STUDY	1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	EF RESISTANCE AND CONDUCTANCE PPEF-2E	EF CIRCUITS AND PATHS PPEF - 2F	EF WORK AND POWER PPEF-2G	EF AC: WHAT IT IS PPEF-2H	EF QUIZ # 2 INDUCTANCE PPEF-2I	1230
1330						1330
1430	STUDY	STUDY	STUDY	STUDY	STUDY	1430
1530						1530

Form 6211-ADM-2523.2-B1-3

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #7 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700	BNC	BNC	BNC	BNC	BNC
0800	MICROSCOPIC CROSS SECTION	MACROSCOPIC CROSS SECTION NET 2-14	MACROSCOPIC CROSS SECTION NET 2-14	FLUX AND REACTION RATE NET 2-14, 15	QUIZ #5
0900					NEUTRON INTERACTION W/Rx MATERIALS NET 2-15
1000	NET 2-13	STUDY	STUDY	STUDY	
1100	STUDY				STUDY
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1230	EF CAPACITANCE	EF IMPEDANCE	EF POWER IN AC CIRCUITS	EF AC GENERATOR PRINCIPLES	EF QUIZ # 3
1330	PPEF-2 J	PPEF-2K	PPEF-2L	PPEF-3A,B,C	EXCITATION SYSTEMS PPEF - 3D
1430	STUDY	STUDY	STUDY	STUDY	STUDY
1530					

WEEK OF: #8

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700	BNC	BNC	BNC	BNC	BNC
0800	NEUTRON INTERACTIONS W/Rx MATERIALS	o^{n^1} MODERATION & DIFFUSION	o^{n^1} MODERATION & DIFFUSION	REVIEW	FINAL
0900	NET 2-15	NET 2-16			EXAM
1000	STUDY	STUDY	NET 2-16	STUDY	
1100			STUDY		
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1230	EF BUSES BUS DUCTS DISCONNECTS	EF CIRCUIT BKRS SWITCHGEAR	EF TRANSFORMER PRINCIPLES	EF THREE PHASE POWER	EF QUIZ # 4
1330	PPEF-3E	PPEF-3F	PPEF-3G,H,I	PPEF 3J	POWER PLANT MOTORS PPEF-3K
1430	STUDY	STUDY	STUDY	STUDY	STUDY
1530					

Form 6211-ADM-2523.2-B1-4

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #9 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	REACTOR OPERATION NEUTRON MULTIPLICATION	RO NEUTRON MULTIPLICATION	RO MULTIPLICATION FACTORS	RO MULTIPLICATION FACTORS	RO QUIZ # 1	0700
0800						0800
0900	NET 3-1	NET-3-1	NET-3-2	NET 3-2	MULTIPLICATION FACTORS	0900
1000	STUDY	STUDY	STUDY	STUDY	NET 3-3	1000
1100					STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	EF CONTROL AND SPECIAL SERVICES	EF POWER GENERATORS	EF POWER GENERATORS	EF EXCITER SYSTEMS	EF QUIZ #5	1230
1330	PPEF-3L	PPEF-4A	PPEF-4A	PPEF-4B	POWER TRANSFORMERS	1330
1430	STUDY	STUDY	STUDY	STUDY	PPEF-4C	1430
1530					STUDY	1530

WEEK OF: #10

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	RO MULTIPLICATION FACTORS	RO Rx FLUX DISTRIBUTION	RO Rx FLUX DISTRIBUTION	RO QUIZ # 2	RO NEUTRON KINETICS	0700
0800						0800
0900	NET 3-3	NET-3-4	NET 3-4	NEUTRON KINETICS	NET 3-5	0900
1000	STUDY	STUDY	STUDY	NET 3-5	STUDY	1000
1100				STUDY		1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	EF AUXILIARY POWER SUPPLIES	EF POWER SYSTEM PROTECTION	EF POWER SYSTEM PROTECTION	EF AC MOTORS	EF QUIZ #6	1230
1330	PPEF-4D	PPEF-4E	PPEF-4E	PPEF-4F	DC MOTORS	1330
1430	STUDY	STUDY	STUDY	STUDY	PPEF-4F	1430
1530					STUDY	1530

Form 6211-ADM-2523.2-B1-5

Form 1000-PQL-1218.1-2 (1/81)

REVISION NO. 4

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #11 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	RO	RO	RO	RO	RO	0700
0800	REACTOR KINETICS	REACTOR KINETICS	REACTOR CONTROL	REACTOR CONTROL	QUIZ #3	0800
0900	NET 3-6	NET 3-6	NET 3-7	NET 3-7	COEFFICIENTS AND CONTROLS	0900
1000	STUDY	STUDY	STUDY	STUDY	NET 3-8	1000
1100					STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	EF MOTOR CONTROL	EF STORAGE BATTERIES	EF RECTIFIERS	EF READING ELECTRICAL DRAWINGS	EF QUIZ #7	1230
1330	PPEF-4G	PPEF-4H	PPEF-4I		SWITCHING AND AUX POWER	1330
1430	STUDY	STUDY	STUDY	STUDY	PPEF-5A	1430
1530					STUDY	1530

WEEK OF: #12

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	RO	RO	RO	RO	RO	0700
0800	COEFFICIENTS & CONTROL	REACTIVITY VARIATIONS	REACTIVITY VARIATIONS	QUIZ #4 FISSION PRODUCT POISONS	FISSION PRODUCT POISONS	0800
0900	NET 3-8	NET 3-9	NET 3-9	NET 3-10	NET 3-10	0900
1000	STUDY	STUDY	STUDY	STUDY	STUDY	1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	EF PROTECTIVE CLOTHING AND EQUIPMENT	EF REVIEW	EF FINAL EXAM	HEAT TRANSFER FLUID FLOW INTRODUCTION TO THERMO.	HT/FF PRESSURE	1230
1330	PPEF-5C, D			ME-1,2	ME-3	1330
1430	STUDY	STUDY		STUDY	STUDY	1430
1530						1530

Form 6211-ADM-2523.2-B1-6

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #13 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	RO	RO	RO	RO	RO	0700
0800	Rx CORE CHARACTERISTICS	Rx CORE CHARACTERISTICS	QUIZ #5	FUEL LOAD AND START UP	POWER OPERATION	0800
0900	NET 3-11	NET 3-11	FUEL LOAD AND START UP	NET 3-12	NET 3-13	0900
1000	STUDY	STUDY	NET 3-12 STUDY	STUDY	STUDY	1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
	HT/FF	HT/FF	HT/FF	HT/FF	HT/FF	
1230	TEMPERATURE	ENERGIES OF A SYSTEM	REVIEW	FIRST LAW: OPEN SYSTEM	FIRST LAW: OPEN SYSTEM	1230
1330	ME-4	ME-5	ME-6	ME-9	ME-9	1330
1430	STUDY	STUDY	QUIZ # 1	STUDY	STUDY	1430
1530			ME-7, 8			1530

WEEK OF: #14

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	RO	RO	RO	RO	RO	0700
0800	POWER OPERATION	REACTOR SHUTDOWN	REACTOR SHUTDOWN	REVIEW	FINAL	0800
0900	NET 3-13	NET 3-14	NET 3-14		EXAM	0900
1000	STUDY	STUDY	STUDY	STUDY		1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
	HT/FF	HT/FF	HT/FF	HT/FF	HT/FF	
1230	FIRST LAW: CLOSED SYSTEM	HEAT TRANSFER	HEAT EXCHANGERS	REVIEW	FLUID FLOW	1230
1330	ME-10	ME-11	ME-12	ME-13	ME-16	1330
1430	STUDY	STUDY	STUDY	QUIZ # 2	STUDY	1430
1530				M-14, 15		1530

Form 6211-ADM-2523.2-B1-7

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #15 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	RADIATION PROTECTION	RP	RP	RP	RP	0700
0800	BIOLIGICAL EFFECTS	UNITS GUIDES LIMITS NET 5-2	UNITS GUIDES LIMITS NET 5-2	RADIATION PROTECTION TECHNIQUES	PROTECTION AGAINST CONTAMINATION	0800
0900						0900
1000	NET 5-1	STUDY	STUDY	NET 5-3	NET 5-4	1000
1100	STUDY			STUDY	STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	HT/FF BERNOULLI'S EQUATION	HT/FF BERNOULLI'S EQUATION	HT/FF PUMPS: GENERAL, ROTARY	HT/FF PUMPS: RECIPROCATING, CENTRIFUGAL	HT/FF VALVES	1230
1330	ME-17	ME-17	ME-18	ME-18	ME-18	1330
1430	STUDY	STUDY	STUDY	STUDY	STUDY	1430
1530						1530

WEEK OF: #16

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	RP QUIZ #1	RP RADIATION	RP PERSONNEL	RP PERSONNEL	RP SURVEY	0700
0800	RADIATION	DETECTION	MONITORING	MONITORING	TECHNIQUES	0800
0900	DETECTION	NET 5-5	NET 5-6	NET 5-6		0900
1000	NET 5-5	STUDY	STUDY	STUDY	NET 5-7	1000
1100	STUDY				STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	HT/FF PERFECT GAS LAWS	HT/FF GAS PROCESSES	HT/FF REVIEW	HT/FF EFFECTS OF HEAT	HT/FF INTRODUCTION TO VAPORS STEAM TABLES	1230
1330	ME-19	ME-20	ME-21	ME-24,25	ME-26,27,28	1330
1430	STUDY	STUDY	QUIZ #3	STUDY	STUDY	1430
1530			ME-22,23			1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #17 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	RP IN PLANT MONITORS	RP IN PLANT MONITORS	RP QUIZ #2	RP RADIOACTIVE MATERIAL CONTROL	RP ENVIRONMENTAL CONSIDERATIONS & EMERGENCY PLANNING	0800
0900	NET 5-8	NET 5-8	RADIOACTIVE MATERIAL CONTROL NET 5-9	NET 5-9		0900
1000	STUDY	STUDY		STUDY	NET 5-10	1000
1100			STUDY		STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	HT/FF VAPOR POWER CYCLES	HT/FF REHEAT AND REGENERATIVE	HT/FF GAS POWER CYCLES	HT/FF REVIEW AND	HT/FF REVIEW AND	1230
1330	ME-29	CYCLES ME-30	ME-31	APPLICATION: STEAM POWER CYCLE	APPLICATION: THERMODYNAMICS	1330
1430	STUDY	STUDY	STUDY	NET 4-1	NET 4-1	1430
1530				STUDY	STUDY	1530

WEEK OF: #18

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	RP PROBLEM	RP REVIEW	RP FINAL EXAM	CHEMISTRY AND WATER/WASTE TREATMENT BASIC CONCEPTS	CHEM BASIC CONCEPTS	0800
0900				NET 6-1	NET 6-1	0900
1000	SOLVING	STUDY		STUDY	STUDY	1000
1100	NET 5-11					1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	HT/FF REVIEW AND APPLICATION :	HT/FF REVIEW AND APPLICATION:	HT/FF REVIEW AND APPLICATION:	HT/FF REVIEW AND APPLICATION:	HT/FF QUIZ #4	1230
1330	STEAM BOILERS	TURBINE GENER.	CONDENSER	PUMPS		1330
1430	NET 4-3	NET 4-4	NET 4-5	NET 4-6		1430
1530	STUDY	STUDY	STUDY	STUDY	STUDY	1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #19 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	CHEM	CHEM	CHEM	CHEM	CHEM	0700
0800	CORROSION OF PLANT MATERIALS	CORROSION OF PLANT MATERIALS	EFFECTS OF NUCL. OPS	EFFECTS OF NUC. OPS.	QUIZ #1	0800
0900	NET 6-2	NET 6-2	NET 6-3	NET 6-3	CHEM. CONTROL EQUIPMENT NET 6-4	0900
1000	STUDY	STUDY	STUD	STUDY	STUDY	1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	HT/FF STEAM PLANT CALCULATIONS	HT/FF STEAM PLANT CALCULATIONS	HT/FF Rx THERMAL & HYDRAULIC PERFORMANCE	HT/FF Rx THERMAL & HYDRAULIC PERFORMANCE	HT/FF Rx FUEL AND CORE DESIGN	1230
1330	NET 4-7	NET 4-7	NET 4-8	NET 4-8	NET 4-9	1330
1430	STUDY	STUDY	STUDY	STUDY	STUDY	1430
1530						1530

WEEK OF: #20

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	CHEM	CHEM	CHEM	CHEM	CHEM	0700
0800	CHEM. CONTROL EQUIPMENT	PRIMARY CHEMISTRY	PRIMARY CHEMISTRY	QUIZ #2	SECONDARY CHEMISTRY	0800
0900	NET 6-4	NET 6-5	NET 6-5	SECONDARY CHEMISTRY	NET 6-6	0900
1000	STUDY	STUDY	STUDY	NET 6-6 STUDY	STUDY	1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	HT/FF Rx FUEL AND CORE DESIGN	HT/FF PWR PERFORMANCE	HT/FF PWR PERFORMANCE	HT/FF REVIEW	HT/FF FINAL	1230
1330	NET 4-9	NET 4-10	NET 4-10			1330
1430	STUDY	STUDY	STUDY	STUDY	EXAM	1430
1530						1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #21 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	CHEM RADIOACTIVE WASTE NET 6-7	CHEM RADIOACTIVE WASTE NET 6-7	CHEM RADIOACTIVE DISCHARGE NET 6-8	CHEM RADIOACTIVE DISCHARGE NET 6-8	CHEM FINAL EXAM	0700
0800						0800
0900						0900
1000	STUDY	STUDY	STUDY	STUDY		1000
1100						100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	MECHANICAL FUNDAMENTALS BEARINGS AND LUBRICATION	MF PIPING AUXILIARIES	MF STEAM TRAPS	MF VALVE OPERATORS	MF FINAL EXAM	1230
1330						1330
1430	STUDY	STUDY	STUDY	STUDY		1430
1530						1530

WEEK OF: #22

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800			SUSPENSION OF FORMAL TRAINING			0800
0900						0900
1000			STUDENTS ASSIGNED TO OPS. DEPT. SHIFTS			1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230						1230
1330						1330
1430						1430
1530						1530

Form 6211-ADM-2523.2-B1-11

Form 1000-PQL-1218.1-2 (1/81)

REVISION NO. 4

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #23 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	SUSPENSION OF FORMAL TRAINING STUDENTS ASSIGNED TO OPS. DEPT. SHIFT					0800
0900						0900
1000						1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230						1230
1330						1330
1430						1430
1530						1530

WEEK OF: #24

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	SUSPENSION OF FORMAL TRAINING STUDENTS ASSIGNED TO OPS. DEPT. SHIFT					0800
0900						0900
1000						1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230						1230
1330						1330
1430						1430
1530						1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: # 25 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	INSTRUMENTATION & OPERATIONAL ANALYSIS INHSTRUMENTATION SYSTEMS NET 7-1	IOA INSTRUMENTATION SYSTEMS NET 7-1	IOA INSTRUMENTATION SYSTEMS NET 7-2	IOA INSTRUMENTATION SYSTEMS NET 7-2	IOA QUIZ #1 NEUTRON DETECTORS NET 7-3	0700
0800						0800
0900						0900
1000	STUDY	STUDY	STUDY	STUDY		1000
1100					STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	PLANT SYSTEMS FLOW DIAGRAMS NET 7-7	SUBSTATION	BOP ELECTRICAL	CLASS IE ELECTRICAL	AC/DC VITAL ELECTRICAL	1230
1330						1330
1430	STUDY	STUDY	STUDY			1430
1530				STUDY	STUDY	1530

WEEK OF: #26

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	IOA	IOA	IOA	IOA QUIZ #2	IOA PLANT CONTROL NET 7-5	0700
0800	NEUTRON DETECTORS NET 7-3	NI PROCESS & DISPLAY NET 7-4	NI PROCESS & DISPLAY NET 7-4	PLANT CONTROL NET 7-5		0800
0900						0900
1000	STUDY	STUDY	STUDY		STUDY	1000
1100				STUDY		1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	IN-PLANT TOURS ELEC. SYSTEMS	EMERGENCY DIESEL GENERATORS	EDG AUXILIARIES	IN-PLANT TOURS (EDG'S)	STUDY	1230
1330						1330
1430						1430
1530		STUDY	STUDY	STUDY	SYSTEMS EXAM #1	1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #27 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	IOA PROTECTION CONCEPTS	IOA PROTECTION CONCEPTS	IOA CONTROL APPLICATIONS	IOA RX. CONTROL & PROTECTION	IOA QUIZ #3	0700
0800	NET 7-6	NET 7-6	NET 7-8	NET 7-9,10	FSAR	0800
0900					NET 7-11	0900
1000	STUDY	STUDY	STUDY	STUDY		1000
1100					STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	SCREEN WASH & SLUICE	SECONDARY SERV. RIVER WATER	NUC. SERVICE RIVER WATER	RX. BLDG. EMERGENCY COOLING		1230
1330		MECH. DRAFT COOLING TWR.	DECAY HEAT RIVER WATER	RIVER WATER CHLORINATION	IN-PLANT TOURS	1330
1430	STUDY	STUDY	STUDY	STUDY		1430
1530						1530

WEEK OF: #28

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	IOA	IOA	IOA	IOA	IOA QUIZ #4	0700
0800	TRANSIENTS	TRANSIENTS	ACCIDENT ANALYSIS	ACCIDENT ANALYSIS	TECHNICAL SPECIFICATIONS	0800
0900	NET 7-12	NET 7-12	NET 7-13	NET 7-13	NET 7-14	0900
1000	STUDY	STUDY	STUDY	STUDY		1000
1100					STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	CYCLE MAKEUP PRETREATMENT	CIRCULATING WATER	CW CHLOR. & CHEMICAL FEED	IN-PLANT TOURS	STUDY	1230
1330			AMERTAP (COND. TUBE CLEANING)			1330
1430	STUDY	STUDY	STUDY		SYSTEMS EXAM #2	1430
1530						1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #29 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	IOA TYPICAL PLANT OCCURENCES NET 7-15	IOA REVIEW	IOA	CONDENSATE		0700
0800			FINAL EXAM		IN-PLANT TOURS	0800
0900	STUDY	STUDY		STUDY		0900
1000						1000
1100	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1100
1130	FIRE PROTECTION	CYCLE MAKEUP DEMINERALIZERS	DOMESTIC, DEMINERALIZED & RECLAIMED WATER	CONDENSATE POLISHING	STUDY	1130
1230				CONDENSATE CHEMICAL FEED		1230
1330		STUDY	STUDY	STUDY	SYSTEMS EXAM #3	1330
1430	STUDY					1430
1530						1530

WEEK OF: #30

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	MAIN FEEDWATER	EMERGENCY FEEDWATER	MAIN STEAM	EXTRACTION STEAM		0700
0800					IN-PLANT TOURS	0800
0900	STUDY	STUDY	STUDY	STUDY		0900
1000						1000
1100	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1100
1130	MAIN FEEDWATER PUMP TURBINES	IN-PLANT TOURS	TURBINE BYPASS	AUXILIARY BOILERS	STUDY	1130
1230						1230
1330	STUDY		STUDY	AUXILIARY STEAM	SYSTEMS EXAM #4	1330
1430				STUDY		1430
1530						1530

Form 6211-ADM-2523.2-B1-15

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #31 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	STAGE HEATER VENTS & DRAINS	CONDENSER AIR EXTRACTION	MAIN TURBINE GENERATOR	TURBINE GENERATOR EHC	IN-PLANT TOURS	0800
0900	STUDY	STUDY	STUDY	STUDY		0900
1000						1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	STAGE HEATER VENTS & DRAINS	MAIN TURBINE GENERATOR	TURBINE GENERATOR EHC	TURBINE GENERATOR EHC	STUDY	1230
1330	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #5	1330
1430						1430
1530						1530

WEEK OF: #32

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	TURBINE LUBE OIL	GENERATOR GAS & VENTS	GLAND SEALING STEAM	ISOLATED Φ BUS DUCT. CLNG. GENERATOR CORE MONITOR	IN-PLANT TOURS	0800
0900	STUDY	STUDY	STUDY	STUDY		0900
1000						1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	TURBINE LUBE OIL	GENERATOR SEAL OIL	GENERATOR STATOR COOLING	SECONDARY SERVICE CLOSED CLNG.	STUDY	1230
1330	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #6	1330
1430						1430
1530						1530

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #33 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	INSTRUMENT & CONTROL AIR	STATION SERVICE AIR	H & V CONTROL BLDG.	INDUSTRIAL WASTE TREATMENT SYSTEM	IN-PLANT TOURS	0700
0800						0800
0900	STUDY	STUDY	STUDY	STUDY		0900
1000						1000
1100	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1100
1130	INSTRUMENT & CONTROL AIR	H & V SERVICE BLDG.	SUMPS & DRAINAGE (SECONDARY)	INDUSTRIAL WASTE FILTER SYSTEMS	STUDY	1130
1230						1230
1330	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #7	1330
1430						1430
1530						1530

WEEK OF: #34

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	REACTOR COOLANT SYSTEM	REACTOR COOLANT PUMPS	MAKEUP & PURIFICATION	REACTOR BLDG. SPRAY	IN-PLANT TOURS	0700
0800				CORE FLOOD		0800
0900	STUDY	STUDY	STUDY	STUDY		0900
1000						1000
1100	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1100
1130	REACTOR VESSEL CONSTRUCTION	MAKEUP & PURIFICATION	DECAY HEAT REMOVAL	CHEMICAL ADDITION (NUCLEAR)	STUDY	1130
1230						1230
1330	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #8	1330
1430						1430
1530						1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #35 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	DECAY HEAT CLOSED COOLING	NUCLEAR SERVICE CLOSED CLNG.	H & V REACTOR BLDG.	RX. BLDG. PENETRATION PRESSURIZATION	IN-PLANT TOURS	0700
0800						0800
0900						0900
1000	STUDY	STUDY	STUDY	STUDY		1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	INTERMEDIATE CLOSED COOLING	SPENT FUEL COOLING	RX. BLDG. NORMAL COOLING	FLUID BLOCK	STUDY	1230
1330				RX. BLDG. PENETRATION COOLING		1330
1430	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #9	1430
1530						1530

WEEK OF: #36

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	ENGINEERED SAFEGUARDS ACTUATION (ESAS)	CONTROL ROD DRIVE MECHANICAL	NON-NUCLEAR INSTRUMENTATION	NUCLEAR INSTRUMENTATION (EXCORE)	IN-PLANT TOURS	0700
0800						0800
0900						0900
1000	STUDY	STUDY	STUDY	STUDY		1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	ENGINERRED SAFEGUARDS ACTUATION (ESAS)	CONTROL ROD DRIVE ELECTRICAL	NON-NUCLEAR INSTRUMENTATION	NON-NUCLEAR INSTRUMENTATION (IN-CORE)	STUDY	1230
1330						1330
1430	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #10	1430
1530						1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #37 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	REACTOR PROTECTION (RPS)	INTEGRATED CONTROL (ICS)	INTEGRATED CONTROL (ICS)	INTEGRATED CONTROL (ICS)	IN-PLANT TOURS	0800
0900	STUDY	STUDY	STUDY	STUDY		0900
1000						1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	REACTOR PROTECTION (RPS)	INTEGRATED CONTROL (ICS)	INTEGRATED CONTROL (ICS)	INTEGRATED CONTROL (ICS)	STUDY	1230
1330						1330
1430	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #11	1430
1530						1530

WEEK OF: #38

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700						0700
0800	SUMPS AND DRAINAGE (PRIMARY)	RAD. WASTE DISPOSAL LIQUID	RAD. WASTE DISPOSAL GAS	RAD. WASTE DISPOSAL SOLID	IN - PLANT TOURS	0800
0900	STUDY	STUDY	STUDY	STUDY		0900
1000						1000
1100						1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	RAD. WASTE DISPOSAL LIQUID	RAD. WASTE EVAPORATORS	H &N 2 2 NUCLEAR	H&V AUXILIARY & FUEL HANDLING BUILDINGS	STUDY	1230
1330						1330
1430	STUDY	STUDY	STUDY	STUDY	SYSTEMS EXAM #12	1430
1530						1530

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GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #39 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	NUCLEAR FUEL HANDLING	RADIATION MONITORING (RMS)	IN-PLANT TOURS	AP 1001 DOCUMENT CONTROL	AP 1004 EMERGENCY PLAN	0700
0800						0800
0900						0900
1000	STUDY	STUDY				1000
1100				STUDY	STUDY	1100
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1130
1230	NUCLEAR FUEL HANDLING	RADIATION MONITORING (RMS)	STUDY	AP 1002 SWITCHING & TAGGING	AP 1008 HOUSEKEEPING AP 1009 ORGANIZATION	1230
1330					AP 1010 TECH.SPEC. SURVEILLANCE	1330
1430	STUDY	STUDY	SYSTEMS EXAM #13	STUDY	STUDY	1430
1530						1530

WEEK OF: #40

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
0700	AP 1012 SHIFT RELIEF	OP 1102-1 PLANT HEATUP TO 525°F	OP 1102-2 PLANT STARTUP	STUDY	OP 1102-4 POWER OPERATION	0700
0800	AP 1016 OPERATIONS SURVEILLANCE					0800
0900	AP 1030 ACCESS TO PRI. OPENINGS					0900
1000	STUDY	STUDY	STUDY		STUDY	1000
1100	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	1100
1130	AP 1031 NUC. PLANT STAFF HOURS	OP 1102-1 PLANT HEATUP TO 525°F	OP 1102-2 PLANT STARTUP	STUDY	OP 1102-4 POWER OPERATION	1130
1230	AP 1033 OR-MEMO's & STANDING ORDERS					1230
1330	AP 1037 CAUTION & DNO TAGS			PROCEDURES EXAM #1		1330
1430	STUDY	STUDY	STUDY		STUDY	1430
1530						1530

Form 6211-ADM-2523.2-B1-20

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #41 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700	OP 1 02-10 PLANT SHUTDOWN	EP 1202-2,2A STATION BLACKOUT	EP 1202-6A, B,C LOSS OF RC/ RCS PRESSURE	EP 1202-36A,B LOSS OF INST/ CONTROL AIR	STUDY
0800					
0900					
1000	STUDY	STUDY	STUDY	STUDY	
1100					
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1230	OP 1102-11 PLANT COOLDOWN	EP 1202-3 TURBINE TRIP	EP 1202-26A,B LOSS OF FEED TO OTSG(S)	EP 1202-37 COOLDOWN FROM OUTSIDE CONTROL RM.	STUDY
1330		EP 1202-4 REACTOR TRIP			PROCEDURE EXAM #2
1430	STUDY	STUDY	STUDY	STUDY	
1530					

WEEK OF: #42

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700	REVIEW	REVIEW	REVIEW	REVIEW	
0800	BASIC NUCLEAR CONCEPTS	FLUID FLOW HEAT TRANSFER THERMODYNAMICS	RADIATION PROTECTION	INSTRUMENTATION & OP'S ANALYSIS	COMPREHENSIVE WRITTEN EXAM
0900					
1000	STUDY	STUDY	STUDY	STUDY	
1100					
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1230	REVIEW REACTOR PHYSICS	REVIEW MECHANICAL/ ELECTRICAL FUNDAMENTALS	REVIEW CHEMISTRY & WATER/WASTE TREATMENT	REVIEW SYSTEMS & PROCEDURES	COMPREHENSIVE WRITTEN EXAM
1330					
1430	STUDY	STUDY	STUDY	STUDY	
1530					

Form 6211-ADM-2523.2-B1-21

GROUP/SHIFT: _____ PROGRAM: AO INITIAL TRAINING

WEEK OF: #43 UNIT: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700					
0800	(RED CROSS) MULTIMEDIA FIRST AID	GENERAL PLANT SAFETY	FIRE PROTECTION	FIRE PROTECTION	FIRE PROTECTION
0900			GENERAL FIRE CONCEPTS AND EQUIPMENT	PROCEDURES AND TACTICS	PRE-FIRE PLANNING AND STRATEGY
1000					
1100					
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1230	(RED CROSS) MULTIMEDIA FIRST AID	CARDIO-PULMONARY RESUSCITATION (CPR)	FIRE PROTECTION	FIRE PROTECTION	
1330			INSTALLED DETECTION AND SUPPRESSION SYSTEMS	PRACTICAL FIRE FIGHTING EXPERIENCE	COMPREHENSIVE EXAM REVIEW
1430					
1530					

WEEK OF: _____

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700					
0800	STUDENTS ASSIGNED TO OPS. DEPT. SHIFT FOR OJT PHASE				
0900					
1000					
1100					
1130	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1230					
1330					
1430					
1530					

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APPENDIX C
STUDENT PROGRESS REPORT

(NAME) (EMP. NO) (SOC. SEC. NO.) (UNIT)

1. INITIAL OJT

REVIEW NO.			
REVIEW DATE			
ACTUAL SIGNATURES			
REQ'D. SIGNATURES			

MILESTONE	DATE
DESIGNATED AOC	
DESIGNATED AOB	
DESIGNATED AOA	
DESIGNATED CRO	
BEGIN CLASSROOM	

2. CLASSROOM TRAINING

SUBJECT	QUIZ 1	2	3	4	5	6	7	FINAL EXAM	FINAL REEXAM
GENERAL EMPLOYEE TRAINING									
NUCLEAR POWER ORIENTATION									
MATHEMATICS REVIEW									
BASIC NUCLEAR CONCEPTS									
REACTOR PHYSICS									
THERMODYNAMICS, FLUID FLOW & HEAT TRANSFER									
MECHANICAL FUNDAMENTALS									
ELECTRICAL FUNDAMENTALS									
RADIATION PROTECTION									
CHEMISTRY & WATER/WASTE TREATMENT									
INSTRUMENTATION & CONTROL FUNDAMENTALS									
PLANT SYSTEMS WEEK 1									
PLANT SYSTEMS WEEK 2									
PLANT SYSTEMS WEEK 3									
PLANT SYSTEMS WEEK 4									
PLANT SYSTEMS WEEK 5									
PLANT SYSTEMS WEEK 6									
PLANT SYSTEMS WEEK 7									

SUBJECT	QUIZ 1	2	3	4	5	6	7	FINAL EXAM	FINAL REEXAM
PLANT SYSTEMS WEEK 8									
PLANT SYSTEMS WEEK 9									
PLANT SYSTEMS WEEK 10									
PLANT SYSTEMS WEEK 11									
PLANT SYSTEMS WEEK 12									
PLANT SYSTEMS WEEK 13									
SAFETY ANALYSIS									
PLANT PROCEDURES WEEK 1									
PLANT PROCEDURES WEEK 2									
FIRE PROTECTION									
INDUSTRIAL SAFETY									
COMPREHENSIVE WRITTEN EXAMINATIONS	EXAM DATE:_____			REEXAM DATE:_____					

IN-PLANT OJT

REVIEW NO.	1	2	3	4	5	6	7	8	9	10	11
REVIEW DATE											
ACTUAL SIGNATURES											
REQ'D. SIGNATURES											

OJT SECTION QUALIFICATION

SECTION	DATE COMPLETED
ADMINISTRATIVE REQUIREMENTS	
PLANT SUPPORT SYSTEMS (OUT-BUILDINGS)	
SECONDARY PLANT READINGS	
SECONDARY PLANT OPERATIONS	
PRIMARY PLANT READINGS	
PRIMARY PLANT OPERATIONS	
NUCLEAR FUEL HANDLING	

COMMENTS:

4. COMPREHENSIVE WRITTEN EXAM: _____/_____
   WRITTEN REEXAM: _____/_____

5. COMPREHENSIVE ORAL EXAM: _____/_____
   ORAL REEXAM: _____/_____

SUBMITTED: _____ REVIEWED: _____
SUPV.-NLO TRNG, OPER. TRNG. MGR. /MGR-TRNG/MGR-PLANT OPS

Form 6211-ADM-2523.2-C1-2

Inter-Office Memorandum

REFERENCE 1

GPU Nuclear

Date May 2, 1983
RPC-83-012

Subject Meeting of 4/22/83 - Operator Training Concerns

To H. Hukill, Vice President - TMI-1 Location Parsippany

Once again let me thank you for taking the amount of time you did to sit down with me and discuss the concerns you have about the operator training program. I concur that we must address this issue right now, and as indicated, I am prepared to have my people sit down with a designated operations team to do an in-depth look at the individual segments of the program.

I have met with Dr. Long to share with him the contents of our conversation, and I would envision this task being approached the following way.

1. A letter from yourself direct to me requesting an internal review of the program and highlighting in detail the areas of concern that you wish the review to address.

2. A meeting between myself and Messrs. Toole, Ross, and Harbin to discuss concerns that they have in addition to the ones that you shared with me. I would appreciate if you would advise them that I will be contacting them to meet as soon as possible and the nature of my request.

3. The appointment of a team comprised of selected operations people and training people to conduct an in-depth review of the program with the ultimate goal of generating a report indicating corrective action where appropriate.

4. The appointment of a group chairman, preferably training, to develop an agenda for the first meeting based on items inputted from both groups.

5. At the initial meeting of this group, you and Dr. Long, and I should attend to reinforce the concerns that we have and the importance of the group's charter.

6. As the subsequent work sessions begin, I will personally plan to be in attendance to see that the operator training issues remain the primary focus of the group's time.

7. As the group moves toward the culmination of its assignment, I would suggest that you and I have an interim meeting with the group to assure that they have topically addressed all of the areas of concern with supportive recommendations.

8. The final effort of the group should be a detailed presentation of their findings to you and Dr. Long, and I, and if satisfactory at our levels, dismissal of the group.

9. At this point, you and I, and Dr. Long should sit down and assess what corrective action is recommended for the program and what resource commitments will be needed by both our departments to address these recommendations. We will also have to consider a realistic timetable to work on and implement acceptable revisions.

In summary let me say that the training department will be committed to the strengthening of any program where feasible, but will expect an equal commitment of effort and resources from all of the training-user groups. I would appreciate meeting with you as soon as possible after receipt of this document so that we can begin this project as soon as possible.

Richard P. Coe
Director, Training & Education

RPC:ek
cc: R. L. Long, Vice President
Nuclear Assurance
R. A. Knief, Manager, Plant Training

Inter-Office Memorandum

Date MAY 20, 1983

GPU Nuclear

Subject OPERATOR TRAINING REVIEW TEAM

REFERENCE 2

To MIKE ROSS, MANAGER OF OPERATIONS, UNIT I
RON HARBIN, TRAINING COORDINATOR, UNIT I
DENNIS BOLTZ, SUPERVISOR, SIMULATOR INSTRUCTOR
DARYL WILT, ADMINISTRATOR NUCLEAR TECHNICAL TRAINING
STEVE MARTIN, SHIFT FOREMAN, UNIT I
THOMAS GOODLAVAGE, CONTROL ROOM OPERATOR, UNIT I

Location TMI NUCLEAR STATION
6211-83-0432

An Operator Training Review team has been formed to conduct an in-depth review of the TMI-1 Operator Training Programs. You have been selected as a member of the Review Team and will fulfill a vital role in the assessment of Unit I programs. The membership of the team is shown below.

Team Leader: Bruce Leonard

Operations Team Members: Mike Ross
Ron Harbin
Steve Martin
Thomas Goodlavage

Training Team Members: Dennis Boltz
Daryl Wilt

The scope of the review shall include but not be limited to the following:

- The technical content of the training programs.
- The administration and delivery of the training program.

  This is to include teaching techniques, on the job training, simulator training, exams and training aids.
- Assessment of the results of the training program, including job performance, mock NRC examination and NRC examination performance.

The ultimate goal of the review team will be the generation of a report indicating problem areas and proposed solutions for each of these areas. This report will be addressed to Dr. Richard Coe Director, Training and Education, and H. Hukill, Vice President TMI-1.

The first meeting will be conducted on May 23, 1983 at 1300 in Room 132, TMI Training Building.

The purpose of this meeting is to formulate a charter for the team and to issue a working agenda for future business. It is requested that each team member be ready to present issues for discussion as Review Team action items. It is imperative that the Review Team establish its goals early and identify problem areas that require review.

The review process and subsequent report will need to be both thorough and timely. Your cooperation in all areas of commitment for the team will be both necessary and appreciated.

Bruce Leonard

Bruce Leonard
Operator Training Manager

BL/mss

cc: H. Hukill, Vice President, TMI-1
Dr. Richard Coe, Director, Training and Education
Sam Newton, Manager, Plant Training
Ron Toole, Operations and Maintenance Director, Unit 1
CARIRS

Inter-Office Memorandum

GPU Nuclear

Date MAY 24, 1983

Subject MINUTES OF TRAINING REVIEW TEAM MEETING, MAY 23, 1983

To DISTRIBUTION

Location THREE MILE ISLAND
6211/83-0450

A meeting of the Unit I Training Review Team was conducted on May 23, 1983, at 1300 in the Training Building. In attendance were the following people:

Review Team Members	Non-Members
Bruce Leonard	H. Hukill
Mike Ross	Dr. Richard Coe
Ed Frederick	Sam Newton
Steve Martin	
Tom Goodlavage	
Daryl Wilt	
Ron Harbin	

Denny Boltz, who was appointed to the team, was absent due to prior commitments.

After the meeting was called to order the Team Leader introduced the team members and gave a brief summary of the teams charter. He then introduced H. Hukill, R. Coe and S. Newton for their presentation of the team's goals. Each of the guests addressed the group with their philosophies on training and what concerns they had regarding Unit I Operator Training. These concerns and philosophies are summarized below:

Dr. Richard Coe, Director Training and Education

Dr. Coe stressed the ultimate goal of the review team. The charter of the team was:

1. Review every segment of operator training and report any deficiencies existing.
2. For each deficiency make a recommendation, either short range or long range, or both.
3. Point out good aspects as well as bad of training programs to ensure positive areas are reinforced.
4. Proceed in a rapid manner and publish a team report as soon as possible.

H. Hukill, Vice-President TMI-I

Mr. Hukill reinforced Dr. Coe's comments and stressed the following points:

H. Hukill (continued)

1. It is imperative that the operations representatives (Goodlavage and Martin) use their peers as an information pool. The input from the operator ranks is essential.
2. The review team must be sensitive to looking at areas in which we need to train. The review should validate each area of training as well as look at new areas and ideas.
3. The review effort and subsequent corrective action should be a joint operations and training effort.
4. Look at ways to incorporate plant conditions and equipment into the training program. This would improve hands-on training and information retention.
5. Some concerns that Mr. Hukill would like addressed are:

   a) Evaluate segmenting the annual requal exam so that the annual comprehensive can be eliminated.
   b) Evaluate the degree of training presently being done in the theory areas (HT/FF, Reactor Theory, Mechanical Fundamentals) and determine need.
   c) Evaluate the Auxiliary Operator Program for effectiveness of classroom versus in-plant training.
   d) Evaluate future use and upkeep of the Operations Plant Manual.
   e) Evaluate concerns addressed during the INPO visit (May 1983).
   f) Evaluate increasing SRO billets in operations so that additional manpower can be alloted to training, if needed.

Sam Newton, Manager - Plant Training, TMI

Sam Newton was emphatic in pointing out that the effort being made must be a TMI effort, rather than an operations or training commitment. This echoed H. Hukill's comments. Some additional areas that he stressed were:

1. Our programs are presently in the legal process. Any changes to the program content would mean notification of legal counsel. This should not deter any recommendations for program change.
2. Evaluate assignment of a training department member to each operating shift to perform training functions.

After R. Coe, H. Hukill, and S. Newton addressed the team an open discussion followed in which concerns were openly addressed. These concerns should be addressed by the team in their review process. Evaluation was requested for the following items:

1. Assigning one training instructor for use as a shift instructor. He would be used to conduct IER/SER training, OJT training, oral exams, etc. The number of instructors needed should be determined in the evaluation.

2. The double standard that is perceived by auxiliary operators with regards to control room operator training needs investigation. Biased treatment of ex-Navy nukes has affected the morale of AO's and made them less eager for career moves.
3. Use of STA's as instructors on an as needed basis depending on STA manning.
4. Long term plans to rotate operators to the training department to supplement the training staff.

Some of these concerns were discussed but a decision was made to evaluate them in conjunction with the program reviews.

The final phase of the meeting was devoted to setting an agenda for the next meeting and developing an overall plan for the review of training programs.

The review process will be divided into three phases. These phases are: (I) Replacement Programs (II) Requalification Programs and (III) Supplemental Material. A matrix of the evaluation process is outlined below:

EVALUATION MATRIX

PHASE	PROGRAMS INCLUDED	REVIEW AREAS
I. Replacement Programs	Auxiliary Operator Reactor Operator Senior Reactor Operator	A. On-the-job training B. Classroom C. Simulator
II. Requalification Programs	Licensed Operator Non-Licensed Operator	A. Preplanned Lecture Series B. Operational Review C. Special Training D. Evaluation Methods
III. Supplemental Material	Operations Plant Manual	A. Utilization and Effectiveness

This matrix reflects the chronological approach that will be used in evaluating the programs. When each area is assigned for review, guidelines will be published with meeting minutes. These guidelines will be used to point out areas that need emphasis or ones that have been indicated as potential problem areas.

The on-the-job training segments of the training programs were designated as the initial review area (I.A.). A meeting was scheduled for 0800 on June 2, 1983 to discuss review results. Team members were assigned programs as shown:

PROGRAM	TEAM MEMBER
Senior Reactor Operator	E. Frederick, S. Martin
Reactor Operator	T. Goodlavage, S. Martin, R. Harbin
Auxiliary Operator	D. Wilt

Mike Ross and Bruce Leonard were assigned to review all programs. Members were requested to canvas their peers, but not to allow the canvassing procedure to delay their results significantly.

Items that need to be addressed in Phase I.A. are outlined in attachment (1).

Bruce P. Leonard

B. P. Leonard
Operator Training Manager

BPL/drg
Attachment (OJT Replacement Program)
cc: Carirs
R. J. Toole
R. L. Long

ATTACHMENT (1)

ON THE JOB TRAINING REPLACEMENT PROGRAMS

Items for consideration in review:

1. Use of qualification standard for OJT.
2. Permanent placement of classroom on the island.
3. Review program as written and compare against operator's and reviewer's conception of ideal program.
4. Weighing of in-plant versus classroom training for OJT tasks.
5. Utilization of communication devices to improve communications during in plant tours at power (or when noisy).
6. How well does OJT prepare operator to do his job?
7. Validity and use of final verification signature.
8. Techniques to provide for demonstration of equipment.
9. Validity and use of OJT exams.
10. Performance requirements for tasks (i.e., perform, simulate, observe).
11. Is time allotted for OJT adequate?
12. Evaluate degree of shift personnel in performance of OJT.