VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

R. H. LEASBURG
VICE PRESIDENT
NUCLEAR OPERATIONS

May 24, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Serial No. 277
NO/DWL,FBC:acm
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

SURRY POWER STATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
RE: NUREG-0737 ITEMS I.A.2.1 AND II.B.4

In response to your request for additional information dated April 29, 1982, regarding the Upgraded SRO and RO Training Program (Item I.A.2.1) and Training for Mitigating Core Damage (Item II.B.4), the following information is provided:

Enclosure 1 - Specific responses to questions regarding the Surry Power Station Training and Requalification Programs. (References made to remaining enclosures.)

Enclosure 2 - Surry Power Station Organizational Chart.

Enclosure 3 - RO/SRO Training Course Outline.

Enclosure 4 - STA Training Course Outline.

Enclosure 5 - RO/SRO Training Course Schedule.

We trust that this information will provide the necessary detail for the NRC Staff/consultants to complete their review of the subject NUREG-0737 items. Please contact us if we can be of further assistance.

Very truly yours,

R. H. Leasburg

cc: Dr. R. T. Liner
Science Applications, Inc.
1710 Goodridge Drive
McLean, Virginia 22102

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REPLY TO LICENSING ACTION REQUEST FOR ADDITIONAL INFORMATION

A. Training Program

1. Lectures and quizzes are provided for all RO/SRO Licensed Managment and Operations Personnel and Shift Technical Advisors. See Enclosure 2 for the Organization Chart of those personnel who receive training in Accident Mitigation.

2. The RO/SRO Training Program involves at least 80 contact hours of Heat Transfer, Fluid Flow, Thermodynamics, and Accident Mitigation. The RO/SRO Retraining Program, which follows the Training Program Outline but has less scheduled time, encompasses at least 50 contact hours of Heat Transfer, Fluid Flow, Thermodynamics and Accident Mitigation. Shift Technical Advisors receive 40 contact hours of Heat Transfer, Fluid Flow and Thermodynamics. They also receive 20 hours Accident Analysis and more than 20 hours of Systems and Emergency/Abnormal Procedures in classroom and simulator training sessions. After this initial training they are enrolled in the RO/SRO Retraining Program. See Enclosure 3 & 4 for program outlines. See Enclosure 5 for length of instruction (contact hours).

3. Increased emphasis has been placed on reactor and plant transients of both normal and abnormal nature. The use of the simulator has, in itself, provided the necessary increased emphasis but the contact hours have also been increased in this area.

4. The RO/SRO Training Program includes Heat Transfer, Fluid Flow and Thermodynamics and the basic physics necessary to prerequisite those courses. Calculations are performed to show magnitude and reinforce the concepts taught. The simulator is also used to reinforce and help students to apply the concepts taught. These teaching techniques have been incorporated as our attempt to satisfy Mr. Denton's concern for the knowledge level of nuclear operators. See Enclosure 3 for a course outline.

5. The RO/SRO Training Program includes a lesson on LOCA Mitigation which was specifically designed based on Enclosure 3 of Mr. Denton's letter and is Item #45 of Enclosure 3.

B. Requalification Program

1. The Requalification Program uses the same lesson plans as the initial Training Program thus the course outline is the same. The Requalification Program only differs in that it has less contact hours of instruction for two reasons:

   a. The material is covered to recoup and reinforce previous knowledge.

   b. Shift work allows the licensed operator to be trained four days every five weeks.

   The material is presented in the same fashion as Item A-4, thus is in keeping with the level of detail required by Mr. Denton.

2. As above, the Requalification Program is essentially the same as the initial Training Program and satisfies Enclosure 3 of Mr. Denton's letter since Enclosure 3 was the basis for LOCA Mitigation. See Item #45 of Enclosure 3.

3. Instructors are kept apprised of current operating history, problems and changes to procedures and administrative limitations by required procedure reviews and required reading which encompass the areas above plus many other subjects. All licensed instructors are enrolled in the Vepco LORP.

4. Our list of reactor control manipulations, stipulated in the Requalification Program, need not be changed since:

   a. Our Annual Item 3 is the same as Mr. Denton's Item 5 with the exception of "or recirculation flow" which is not applicable to our plant.

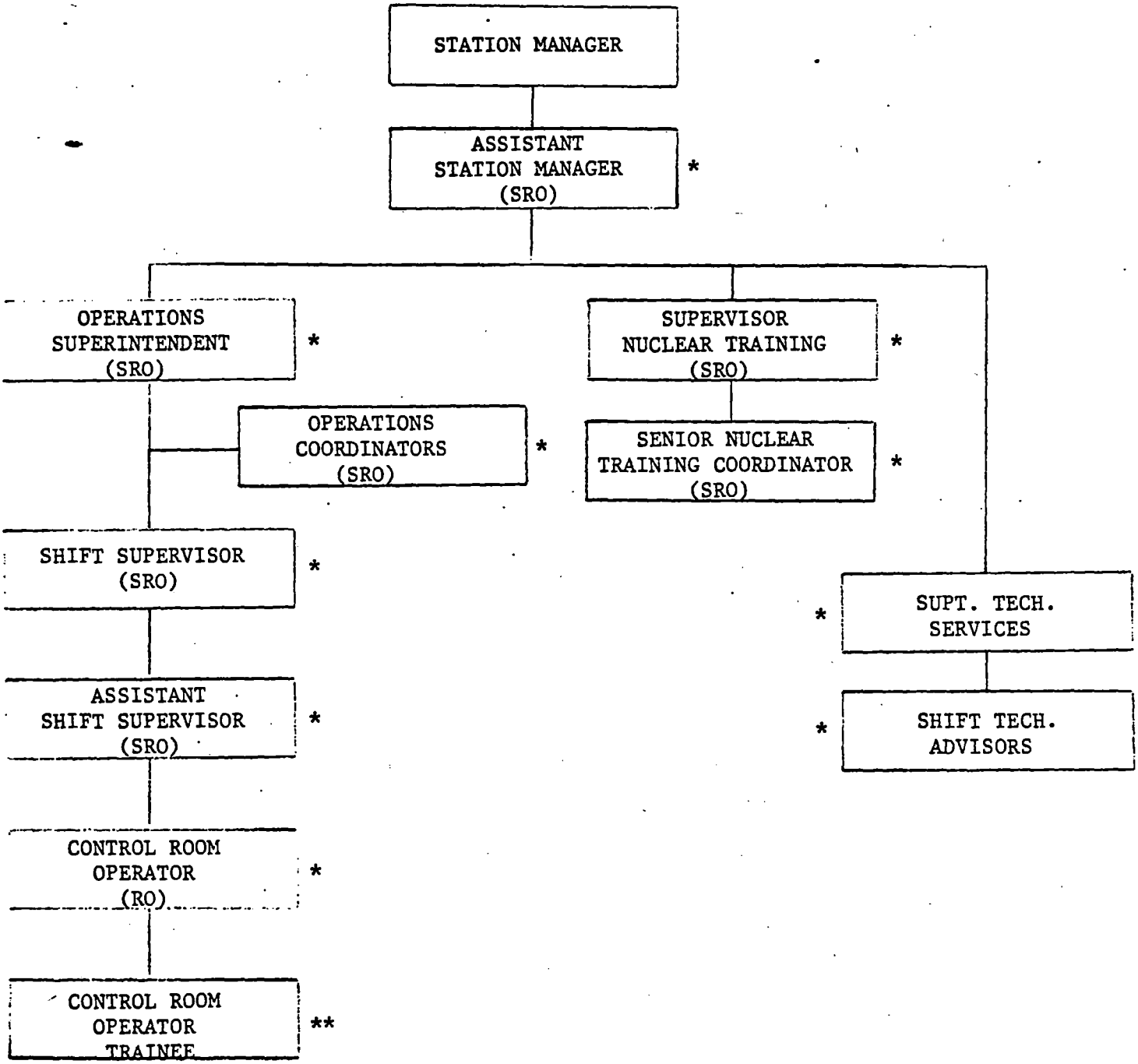
   b. Our Bi-Annual Item 3 is the same as Mr. Denton's Item 8.

   c. Our Bi-Annual Item 4 is the same as Mr. Denton's Item 9.

5. The Requalification Program is the same as the initial Training Program thus the lecture series is presented as indicated by Item B-1. Quizzes are given for each retraining session. The Organization Chart is the same and is Enclosure 2.

6. The RO/SRO Retraining Program encompasses at least 50 contact hours of Heat Transfer, Fluid Flow, Thermodynamics and Accident Mitigation. Less time is appropriated by the two reasons given in Item 1.

STATION ORGANIZATION
FOR TRAINING IDENTIFICATION



** Receives initial training (11 months) in preparation for licensing.

* Previously received initial training and currently enrolled in the Retraining Program.

8. Properties of Solids

   a. Structure of Matter
   b. Density
   c. Elasticity
   d. Stress and Strain
   e. Brittle and Ductile Material
   f. Yield and Ultimate Strength
   g. Nil-Ductility Temperature

9. Properties of Fluids

   a. Density
   b. Pressure
   c. Archimedes Principle

10. Temperature and Expansion

   a. Temperature and Thermal Energy
   b. Temperature Scales
   c. Linear, Area, and Volume Expansion
   d. Expansion of Water

11. Quantity of Heat

   a. Definition of Heat
   b. Heat and Mechanical Energy
   c. Specific Heat Capacity
   d. Change of Phase

12. Thermal Properties of Matter

   a. Ideal Gas
   b. Ideal Gas Law

13. Thermodynamics

   a. Heat and Work
   b. First Law of Thermodynamics
   c. Second Law of Thermodynamics
   d. Properties of Water and Steam
   e. Steam Tables - Mollier Diagram
   f. Thermodynamic Cycles

14. Fluid Dynamics

   a. Fluid Flow
   b. Continuity Equation
   c. Bernoulli's Equation
   d. Reynolds Number
   e. Fluid Friction
   f. Pump Characteristics

15. Heat Transfer

    a. Conduction
    b. Radiation
    c. Convection
    d. Boiling Heat Transfer

16. Health Physics I

    a. General Employee Training
    b. Definitions and Units
    c. Radiation Control Procedures
    d. Respiratory Protection

17. Chemistry

    a. Introduction to Chemistry
    b. Chemical Terms
    c. Fundamentals of Chemistry
    d. Chemical Reactions in Nuclear Power Plants
    e. Nuclear Power Plant Chemistry Control
    f. Water Analysis for Nuclear Power Plants

18. Nuclear Physics

    a. Atomic Structure
    b. Nuclear Terminology
    c. Properties of the Nucleus
    d. Binding Energy and Mass Defect
    e. Nuclear Fission

        1) Fission Cross Sections
        2) Mechanism of the Fission Process
        3) Reaction Rate and Power Production
        4) Fission Products
        5) Radioactivity of Fission Products

19. Neutron Physics

    a. Neutron Sources
    b. Neutron Reactions
    c. Cross Sections

        1) Macroscopic Cross Section and Mean Free Patch
        2) Cross Section Energy Dependence

    d. Classification of Neutrons
    e. Neutron Flux and Reaction Rate
    f. Neutron Moderation

SRO/RO 81-3 LICENSE CLASS OUTLINE

1. Orientation

    a. Introduction to Course
    b. Taking Notes
    c. Study Habits
    d. Taking Exams

2. Mathematics

    a. Fractions
    b. Decimal Fractions
    c. Percentage
    d. Square Roots of Numbers

3. Algebra

    a. Operations with Algebraic Expressions
    b. Algebraic Equations
    c. Special Products and Factoring
    d. Graphing
    e. Exponents, Powers, and Roots
    f. Scientific Notation
    g. Ratio, Proportion, Variation

4. Geometry

    a. Essentials of Plane Geometry
    b. Solid Figures

5. Trigonometry

    a. Trigonometric Functions
    b. Solutions of Triangles
    c. Vectors

6. Logarithms

    a. Introduction
    b. Laws of Logarithms
    c. Base Ten and Natural Logarithms

7. Mechanics

    a. Systems of Units and Measurement
    b. Uniformly Accelerated Motion
    c. Relationship Between Mass and Weight
    d. Energy, Work, Power
    e. Impulse and Momentum
    f. Simple Machines
    g. Friction

1) Logarithmic Energy Decrement
2) Slowing Down Power
3) Moderating Ratio
4) Fermi Age and Thermal Diffusion Length

g. Neutron Multiplication

20. Reactor Kinetics

a. Reactivity and Period
b. Fission Neutrons

1) Prompt and Delayed
2) Generation Time, Lifetime and Travel
3) β and β_{eff}

c. Exponential Power Equation

21. Reactivity Coefficients and Poison Effects

a. Fuel Temperature Coefficient
b. Moderator Temperature Coefficient
c. Void Coefficient
d. Pressure Coefficient
e. Redistribution Coefficient
f. Xenon
g. Samarium

22. Subcritical Multiplication and Installed Sources

23. Reactivity Control

24. Flux Distribution and Control

a. Distribution and Control
b. $\Delta\phi$ and Axial Offset
c. Hot Channel Factors

25. ECP, OP-1F and 1/M Plots

a. ECP
b. OP-1F, Shutdown Margin
c. 1/M Plots

26. Reactor Vessel & Core Components

27. Containment Vessel & Subsystems

28. Reactor Coolant System

29. Residual Heat Removal System

30. Chemical and Volume Control System

31. Secondary Systems I

    a. Main Steam
    b. Steam Generators
    c. Main Feed
    d. Main Condensate
    e. Main Turbine
    f. Reheat Steam
    g. Extraction Steam
    h. HP & LP Heater Drain Systems
    i. Auxiliary Feed System

32. Health Physics II

    a. Radiation Detection
    b. Radiation Detection Devices
    c. Detector Efficiency Determination
    d. Radiation Monitoring System
    e. Technical Specifications
    f. 10 CFR 100
    g. FSAR

33. Nuclear Instrumentation

    a. Excore Instrumentation
    b. Incore Flux Mapping System
    c. Incore Thermocouple System

34. Tave/Rod Control

    a. ΔT/Tave Control
    b. Tave Control System
    c. Rod Control System
    d. Rod Position Indication System

35. Reactor Protection and Control

    a. Reactor Protection - General
    b. Process Protection Instrumentation
    c. Overpower-Overtemperature Delta T Protection
    d. Miscellaneous RCS Instrumentation
    e. Pressurizer Pressure Control System
    f. Pressurizer Level Control System
    g. Steam Dump Control System
    h. Steam Generator Level Control System

36. Main Turbine Protection and Control

37. Engineered Safeguards Systems

a. Safety Injection System
b. Containment Spray System
c. Recirc Spray System
d. CLS

38. Secondary Systems II

a. Turbine Lube Oil
b. Turning Gear
c. Gland Seal
d. Auxiliary Steam
e. Circulating Water
f. Bearing Cooling Water
g. Hydrogen Gas
h. Hydrogen Seal Oil
i. Chemical Feed
j. Secondary Drains
k. Condensate Polishing
l. S/G Recirc. and N_2 Systems

39. Support Systems

a. Service and Instrument Air
b. Fire and Domestic Water
c. Fuel Oil
d. Service Water
e. Component Cooling
f. Chilled Water
g. Charging Pump Cooling Water
h. Primary Grade Water
i. Boron Recovery
j. Liquid Waste
k. Gaseous Waste
l. Flash Evaporator
m. Ventilation
n. Sampling
o. Vents and Drains
p. Overpressure Mitigating System
q. Core Cooling Monitor
r. PORV and Safety Monitoring
s. Auxiliary Shutdown Panel
t. Status Lights

40. Electrical Theory

a. Electrical Terms
b. Battery Theory
c. Magnetism

d. Electrical Generation, AC and DC
e. Electrical Instrumentation
f. Electrical Hazards
g. Synchronization

41. Electrical Systems

a. Main Generator and Switchyard

1) Exciter
2) Breakers
3) Operation
4) Switchyard

b. Normal Distribution

1) 4160 V
2) 480 V
3) Screenwell Distribution
4) Lighting

c. Emergency Distribution

1) 4160 V
2) 480 V
3) Vital Bus
4) DC Bus

42. Administrative Procedures

43. Operating Procedures

44. Annunciator Procedures

45. LOCA and LOCA Mitigation

46. Accident Analysis

47. Emergency Procedures

48. Abnormal Procedures

49. Transient Analysis

50. Fuel Handling

51. Emergency Plan and EPIP's

52. SRO Management Course

Enclosure 4

STA

TRAINING COURSE OUTLINE

College Level Fundamental Education

	Contact Hours
Mathematics.	40

A. Algebra

1. Basis Concepts
2. Algebraic operations
3. Linear equations
4. Exponents and radicals
5. Roots

B. Logarithms

1. Definition
2. Rules of logarithms
3. Base 10 and natural logarithms
4. Exponential and logarithmic equations

C. Geometry and Trigonometry

1. Plane geometry
2. Solid geometry
3. Trigonometric functions
4. Vectors and vector operations

Contact Hours

D. Specialized Mathematics

1. Ratios and proportions
2. Graphing techniques
3. Systems of equations

E. Differential Calculus

1. Limits and continuity
2. Derivatives
3. Applications of derivatives

F. Integral Calculus

1. Antiderivatives
2. Definite integrals
3. Applications of integrals

G. Differential Equations

1. First order
2. Applications of first order
3. Linear equations
4. Applications of linear equations

H. Partial Differential Equations

Reactor Theory. 48

A. Basic Nuclear Physics

1. Atomic structure
2. Nuclear terminology
3. Properties and structure of the nucleus
4. Mass defect and binding energy

B. Nuclear Fission

1. Microscopic and macroscopic cross sections
2. Fission process
3. Reaction rates and power production
4. Fission products

C. Neutron Kinetics

1. Neutron sources
2. Reactions and cross sections
3. Neutron flux
4. Neutron moderation
5. Neutron muliplication (including subcritical)
6. Diffusion theory
7. Criticality theory

Contact Hours

D. Reactivity Coefficients and Poisons

1. Fuel temperature coefficient
2. Moderator temperature coefficient
3. Void coefficient
4. Pressure coefficient
5. Redistribution coefficient
6. Xenon
7. Samarium
8. Boron
9. Other poisons (control rods, structural materials, etc.)

Reactor Chemistry. 16

A. Purpose

B. Terminology

C. Sources of Makeup Water

1. Flash Evaporator
2. Polishing Demineralizer
3. Condensate Storage Tanks

D. Secondary Chemistry

1. Type of chemistry control
2. Condensor leakage effects
3. Steam Generator chemistry problems
4. Steam Generator corrosion
5. Secondary chemistry specifications

E. Primary Chemistry

1. Chemical addition
2. Demineralization
3. Primary chemistry specifications
4. Nulcear reactions
5. Corrosion

Nuclear Materials. 16

A. Introduction

1. Characteristics of an "Ideal metal"
2. Failure modes of metals
3. Metalic structure
4. Radiation effects on metals

Contact Hours

B. Fuel Element Design

C. Reactor Vessel Design

D. Steam Generator Design

E. ASME Section III Design Criteria

Thermal Sciences. 40

A. Thermodynamics

1. Laws of Thermodynamics
2. Properities of steam and water

B. Fluid Dynamics

1. Fluid statics
2. Bernoulli's Equation
3. Static and dynamic pressures
4. Laminar and turbulent flow
5. Two phase flow

C. Heat Transfer

1. Fundamentals (conduction, convection, radiation)
2. Pool boiling
3. Forced convection boiling
4. Departure from Nucleate Boiling (DNB)
5. Heat exchangers

D. Reactor Thermal Cycle

Nuclear Radiation Protection and Health Physics. 16

A. Radiation

1. Sources of radiation
2. Types or radiation
3. Effects of radiation on matter

B. Biological Effects

1. Micro (atomic) effects
2. Macro (cell) effects
3. Acute radiation effects
4. Chronic radiation effects

	Contact Hours
C. Radiation Protection	
1. Time, distance, and shielding	
2. Anti-contamination clothing	
3. Respiratory protection	
TOTAL	176

Applied Fundamentals - Plant Specific

Reactor Technology.	32
A. Flux Distribution and Control	
1. Axial flux distribution	
2. Radial flux distribution	
3. $\Delta\phi$ and axial offset	
4. Hot channel factors	
5. Control rods	
6. Boron	
B. Reactor Core	
1. Core materials	
2. Thermal peformance	
3. Core description	
4. Core capability	
C. Core Physics Data	
1. Startup physics data	
2. Core flux mapping	
3. Core thermocouple mapping	
D. Reactivity Procedure	
1. Estimated Critical Position (ECP)	
2. Shutdown Margin Calculation (OP-1F)	
Instrumentation and Control.	32
A. Basic Instrumentation	
1. Flow measuring devices	
2. Pressure measuring devices	

	Contact Hours
3. Temperature measuring devices	
4. Level/volume measuring devices	
5. Miscellaneous measuring devices	
B. Control Theory	
1. Flow control circuits	
2. Pressure control circuits	
3. Temperature control circuits	
4. Level/volume control circuits	
5. Miscellaneous control circuits	
TOTAL	64

Management/Skills

Communications.	8
Problem Solving.	8
Decision Analysis.	8
TOTAL	24

Plant Systems

Primary Systems.

A. Reactor Coolant System

B. Residual Heat Removal System

C. Chemical and Volume Control System

D. Nuclear Instrumentation System

1. Excore
2. Incore

E. T_{ave}/Rod Control

1. $\Delta T/T_{ave}$
2. T_{ave} Control
3. Rod Control
4. Rod Position Indication

Contact Hours

F. Reactor Protection and Control

1. Reactor Protection - General
2. Process Protection Instrumentation
3. Overpower/Overtemperature ΔT Protection
4. Pressurizer Pressure Control and Protection
5. Pressurizer Level Control and Protection
6. Steam Dump Control
7. Steam Generator Level Control and Protection

Secondary Systems.

A. Main Steam System

B. Steam Generators

C. Main Feedwater System

D. Main Condensate System

E. Main Turbine

F. Turbine Control and Protection

G. Steam Generator Blowdown System

H. Steam Dumps

I. Circulating Water System

J. Service Water System

Support System.

A. Component Cooling Water System

B. Chilled Component Cooling Water System

C. Charging Pump Cooling Water System

D. Primary Grade Water System

E. Liquid Waste System

F. Gaseous Waste System

G. Ventilation System

H. Core Cooling Monitor

	Contact Hours
I. PORV and Safety Valve System	
J. Auxiliary Shutdown Panel	
K. Status Lights	
L. Loose Parts Monitoring System (North Anna only)	
M. Radiation Monitoring	
1. General Detector Curve	
2. Radiation Monitoring System	
Safeguard Systems.	
A. Safety Injection System	
B. Containment	
C. Containment Vacuum System	
D. Containment Spray System	
E. Recirculation Spray System	
F. Consequence Limiting Safeguards	
G. Auxiliary Feedwater System	
Electrical Systems.	
A. Normal Distribution	
1. 4160 vac	
2. 480 vac	
3. Screenwell distribution	
4. Lighting	
B. Emergency Distribution	
1. 4160 vac	
2. 480 vac	
3. Vital Busses	
4. DC distribution	
TOTAL	240

	Contact Hours
Administrative Controls	
Responsibilities for Safe Operation and Shutdown.	
Equipment Outages and Clearance Procedures.	
Use of Procedures.	
Plant Modifications.	
Shift Relief Turnover and Manning.	
Containment Access.	
Maintaining Cognizance of Plant Status.	
Administrative Requirements of the STA.	
Radiological Emergency Plan.	
Title 10 Code of Federal Regulations.	
Plant Technical Specifications (including bases).	
TOTAL	40

Transient/Accident Analysis and Emergency Procedures

Accident/Transient Analysis.

A. Transient Analysis Methodology

B. Core Reload Design

C. Physics Related Safety Analysis Input

D. Core Thermal Hydraulic Analysis

E. System Transient Analysis

F. Non-LOCA Transient Analysis

1. Rod withdrawal from subcritical
2. Rod withdrawal at power
3. Dropped rod
4. Feedwater System malfunction
5. Excessive load increase
6. CVCS malfunction
7. Startup of inactive reactor coolant loop

	Contact Hours
8. Loss of flow	
9. Single rod withdrawl	
10. Loss of normal feedwater	
11. Loss of offsite power	
12. Feedline break	
13. Steam Generator tube rupture	
14. Inadvertant Safety Injection	
15. Steamline break	
16. Rod ejection	
17. Locked rotor (fuel performance)	
G. Loss of Coolant Accident	
1. Large	
2. Small	
H. Best Estimate Transient Analysis	
1. North Anna cooldown event	
2. Surry pump coastdown	
3. Simulator loss of load comparison	
TOTAL	40

Simulator Training

The plant evolutions, transients and events listed below should be conducted along with any others deemed necessary. The primary objective should be to demonstrate plant and operator response to a given condition or event and not to develop the control manipulation expertise of the trainee. The trainee/instructor ratio should not exceed 4:1 except when the "Team Training" concept is being utilized.

Simulator exercises should be preceded by a period of discussion of the planned exercises addressing expected response of the plant and applicable plant procedures to be used. Approximately 80 contact hours are required with about 40 hours in the classroom and 40 hours on the simulator.

Following each exercise demonstrating a transient of emergency event, an incident critique discussion should be held to enhance the trainees' understanding of that particular exercise. When the simulator is not plant-specific, the training should be tailored to the specific plant as much as practical.

PWR Simulator Exercises

	Contact Hours
Malfunctions.	
A. Single	
1. Steam Generator tube rupture	
2. Loss of rod control	
3. Loss of feedwater	
4. Reactor/turbine/generator trip	
5. Small break LOCA	
6. Large break LOCA	
7. Loss of RCS pressure	
8. Steam Generator level malfunction	
9. Uncontrolled cooldown of RCS	
10. Loss of flow	
11. Loss of electrical bus (4160 vac)	
12. Loss of RHR	
B. Multiple Malfunctions	
-- to be determined based on the class's performance	
Normal Operations.	
A. Reactor startup	
B. Reactor shutdown	
C. Power maneuvers	
TOTAL	80

RO CLASS 81-3 SCHEDULE

OCT 12	Orientation
OCT 13	FOUR WEEKS IN PLANT
↓	
NOV 10	
NOV 11	Holiday
NOV 12	Math
NOV 13	Math
NOV 16	Algebra
NOV 17	Algebra
NOV 18	Algebra
NOV 19	Geometry
NOV 20	Trigonometry
NOV 23	Trigonometry
NOV 24	Logarithms
NOV 25	Logarithms
NOV 26	Holiday
NOV 27	Holiday
NOV 30	Review
DEC 1	Exam I
DEC 2	Mechanics
DEC 3	Mechanics
DEC 4	Properties of Solids
DEC 7	Properties of Solids
DEC 8	Properties of Liquids
DEC 9	Temperature and Expansion
DEC 10	Thermal Properties of Matter
DEC 11	Thermodynamics
DEC 14	Thermodynamics
DEC 15	Thermodynamics
DEC 16	Fluid Flow
DEC 17	Fluid Flow
DEC 18	Heat Transfer
DEC 21	Heat Transfer
DEC 22	Review
DEC 23	Exam II
DEC 24	Holiday
DEC 25	Holiday
DEC 28	Health Physics I
DEC 29	Health Physics I
DEC 30	Chemistry
DEC 31	Chemistry
JAN 1	Holiday

JAN 4	Nuclear Physics
JAN 5	Nuclear Physics
JAN 6	Nuclear Physics
JAN 7	Neutron Physics
JAN 8	Neutron Physics
JAN 11	Reactor Kinetics
JAN 12	Reactor Kinetics
JAN 13	Reactor Kinetics
JAN 14	Reactivity Coefficients & Poison Effects
JAN 15	Reactivity Coefficients & Poison Effects
JAN 18	Subcritical Multiplication & Installed Sources
JAN 19	Reactivity Control
JAN 20	Flux Distribution & Control
JAN 21	Core Thermal Performance
JAN 22	Delta Flux and Axial Offset
JAN 25	ECP & 1/M PLOT's
JAN 26	ECP & 1/M PLOT's
JAN 27	Shutdown Margin Calculation
JAN 28	Review
JAN 29	Exam III
FEB 1	SIX WEEKS IN PLANT
↓	
MARCH 14	
MARCH 15	Reactor Vessel & Core Components
MARCH 16	Containment & Cont. Systems
MARCH 17	Reactor Coolant System
MARCH 18	Reactor Coolant System
MARCH 19	Tech. Spec. Section 1, 2, 3.1 / Simulator
MARCH 22	Residual Heat Removal System
MARCH 23	Chemical & Volume Control System
MARCH 24	Chemical & Volume Control System
MARCH 25	Main Steam & Steam Generators
MARCH 26	Main Feed & Condensate Systems / Simulator
MARCH 29	Main Turbine; Reheat & Extraction Steam Systems
MARCH 30	High Pressure & Low Press. Heater Dr. Systems
MARCH 31	Aux. Feed System
APRIL 1	Review
APRIL 2	Exam IV
APRIL 5	Health Physics II / Simulator
APRIL 6	Health Physics II
APRIL 7	Nuclear Instrumentation
APRIL 8	Nuclear Instrumentation
APRIL 9	Holiday

APRIL 12	Nuclear Instrumentation
APRIL 13	Tave/Rod Control
APRIL 14	Tave/Rod Control
APRIL 15	Reactor Protection & Control
APRIL 16	Reactor Protection & Control
APRIL 19	Reactor Protection & Control
APRIL 20	Main Turbine Protection & Control
APRIL 21	Simulator
APRIL 22	Simulator
APRIL 23	Simulator
APRIL 26	Simulator
APRIL 27	Engineering Safeguards Systems
APRIL 28	Engineering Safeguards Systems
APRIL 29	Review
APRIL 30	Exam V
MAY 3	Simulator
MAY 4	Secondary Systems II
MAY 5	Secondary Systems II
MAY 6	Secondary Systems II
MAY 7	Secondary Systems II / Simulator
MAY 10	Simulator
MAY 11	Support Systems
MAY 12	Support Systems
MAY 13	Support Systems
MAY 14	Support Systems / Simulator
MAY 17	Simulator
MAY 18	Electrical Theory
MAY 19	Electrical Systems
MAY 20	Electrical Systems
MAY 21	Electrical Systems / Simulator
MAY 24	Simulator
MAY 25	Oral Exams
MAY 26	Review
MAY 27	Exam VI
MAY 28	Simulator
MAY 31	Holiday
JUNE 1	Transient Analysis
JUNE 2	Transient Analysis
JUNE 3	Transient Analysis
JUNE 4	Transient Analysis
JUNE 7	Transient Analysis
JUNE 8	Administrative Procedures
JUNE 9	Emergency Procedures
JUNE 10	Abnormal Procedures
JUNE 11	Abnormal Procedures / Simulator

JUNE 14	Simulator
JUNE 15	Operating Procedures
JUNE 16	Annunciator Procedures
JUNE 17	Review
JUNE 18	Exam VII
JUNE 21	Start-up Cert.
JUNE 22	Start-up Cert.
JUNE 23	Start-up Cert.
JUNE 24	Start-up Cert.
JUNE 25	Start-up Cert.
JUNE 28	Start-up Cert.
JUNE 29	Start-up Cert.
JUNE 30	Start-up Cert.
JULY 1	Start-up Cert.
JULY 2	Start-up Cert.
JULY 5	Holiday
JULY 6	Management Program
JULY 7	Management Program
JULY 8	Management Program
JULY 9	Management Program
JULY 12	In Plant
JULY 13	In Plant
JULY 14	In Plant
JULY 15	In Plant
JULY 16	In Plant
JULY 19	In Plant
JULY 20	In Plant
JULY 21	In Plant
JULY 22	In Plant
JULY 23	In Plant
JULY 26	Simulator
JULY 27	Fuel Handling
JULY 28	Emergency Plan
JULY 29	LOCA & LOCA Mitigation
JULY 30	Review / Simulator
AUG 2	Exam VIII
AUG 3	LER's & Recent Experiences
AUG 4	LER's & Recent Experiences
AUG 5	Instrument Failure Analysis
AUG 6	Instrument Failure Analysis / Simulator
AUG 9	Simulator Oral Exams
AUG 10	Simulator / Plant Walk Thru's
AUG 11	Simulator / Plant Walk Thru's
AUG 12	Simulator / Plant Walk Thru's
AUG 13	Simulator Walk Thru's

AUG 16	Audit Exam Week (Exam IX)
AUG 17	Audit Exam Week (Exam IX)
AUG 18	Audit Exam Week (Exam IX)
AUG 19	Audit Exam Week (Exam IX)
AUG 20	Audit Exam Week (Exam IX)
AUG 23	Review Heat Transfer & Fluid Flow / Simulator
AUG 24	Review Reactor Theory
AUG 25	Review Chemistry & Health Physics
AUG 26	Review Instrumentation & Control
AUG 27	Simulator
AUG 30	NRC EXAM WEEK
AUG 31	NRC EXAM WEEK
SEPT 1	NRC EXAM WEEK
SEPT 2	NRC EXAM WEEK
SEPT 3	NRC EXAM WEEK