GPU Nuclear

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May 14, 1984
5211-84-2119

Dr. Thomas E. Murley
Region I, Regional Administrator
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA. 19406

Dear Dr. Murley:

Three Mile Island Nuclear Station, Unit I (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Operational Readiness Evaluation (Inspection No. 50-289/84-05)

On April 2, 1984, Mr. Robert Keller, Chief Section 1D, DPRP, Region I, conducted an exit brief for an Operational Readiness Evaluation which was conducted at TMI-1 on February 8 & 9, 1984. The result of the evaluation was that licensed personnel at TMI-1 were found to be knowledgeable and well trained. This evaluation consisted of twenty-six (26) individual two hour interviews by NRC staff of Licensed Operators or Senior Operators. During the exit brief, individual operator weaknesses in thirteen (13) topics were addressed. The NRC indicated that these weaknesses were due to inexperience with an operating facility.

In order to upgrade the operational knowledge of the licensed operators at TMI-1 these thirteen (13) topics will be addressed in the requalification training program, a three day simulator program, or during on shift training. Additionally, a restart qualification card (Attachment I) for all crews has been instituted that will be used during Hot Functional Testing (HFT), Zero Physics Testing (ZPT) and the Power Escalation Test (PET) program. The PET program contains time periods at 40% and 75% power levels designed to allow all crews an opportunity to participate in hands on performance of items identified on the restart qualification card.

Attachment 2 specifically addressed training on the thirteen (13) topics and includes information on the simulator training that is presently being conducted at the Babcock and Wilcox Simulator.

Sincerely,
Ky Toole for
H. D. Hukill,
Director, TMI-1

HDH/BPL/MJR/CWS/mle
Attachments (2)
cc: CARIRS_TMI

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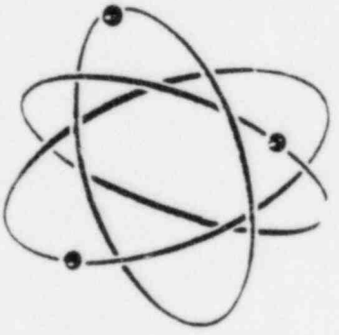
GPU NUCLEAR

THREE MILE ISLAND

NUCLEAR GENERATING STATION



UNIT 1

RESTART

QUALIFICATION CARD

PRIMARY

	SRO/CRO	Date	AO	Date	AO	Date
1. CRD - Transfer rods to aux. power supply. (I)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
CRD - Walk thru dropped rod recovery & location of S2 bypass, safety, rod out bypass, dilution permit bypass. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
CRD - Adjust relative rod position in C.R. (I)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			

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PRIMARY

	SRO/CRO	Date	AO	Date	AO	Date
4. RCPs - Verify prerequisites for pump start (seal flow, IC flow etc.) & set up pump for startup including oil system operation. Discuss starting interlocks. (I)			N/A N/A N/A N/A		N/A N/A N/A N/A	
			Comments:			
. RCPs - Operate RC pumps in parallel with the DH removal system. (C)			N/A N/A N/A N/A		N/A N/A N/A N/A	
			Comments:			
. Int. Closed Cooling - Shift int. closed pump. (C)			N/A N/A N/A N/A		N/A N/A N/A N/A	
			Comments:			

	SRO/CRO	Date	AO	Date	AO	Date
7. Int. Closed Cooling - Verify proper ΔP across CRDM filters: discuss limits. (C)						

Comments:

Int. Closed Cooling - Walk thru or perform CRD filter isolation & draining. (Do this in groups of 2 at a time)	N/A					
	N/A					
	N/A					
	N/A					
	N/A					
	N/A					

Comments:

. Makeup & Purif. - Establish normal makeup & letdown - review limits on number of filters & demins. vs. letdown flow. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	

Comments:

PRIMARY

	SRO/CRO	Date	AO	Date	AO	Date
10. Makeup & Purif. - Shift makeup pumps including transfer of B pump breakers to alt. bus. (I - if possible)			N/A N/A N/A N/A		N/A N/A N/A N/A	
			Comments:			
11. Makeup & Purif. - Verify proper seal injection & return filter ΔP. Discuss how to isolate & change supply & return filters. Review limits. (I)	N/A N/A N/A N/A N/A					
			Comments:			
12. Makeup & Purif. - Establish daisy chain letdown & makeup paths thru the bleed tanks to clean the RCS system. (C)						
			Comments:			

PRIMARY

	SRO/CRO	Date	AO	Date	AO	Date
12. Makeup & Purif. - Regulate RCP seal leakoff adjustment at PI-39. (I)	N/A					
	N/A					
	N/A					
	N/A					
	N/A		Comments:			
	N/A					
	N/A					
. Makeup & Purif. - Make an addition to the makeup tank. Include a calculation to deborate by 2 ppm. Use batch controller & discuss interlocks. (I)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
3. Makeup & Purif. - Regulate makeup tank overpressure. Discuss reason for max. makeup tank pressure. (I)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			

PRIMARY

	SRO/CRO	Date	AO	Date	AO	Date
16. Pressurizer - Control pzr. spray & heaters. Discuss input signal source. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
17. Pressurizer - Discuss new T.S. on PORV operability. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
18. Pressurizer/RCS - Control RCS press. in bank to allow simultaneous operation of RCP's & DH removal sys. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			

PRIMARY

	SRO/CRO	Date	AO	Date	AO	Date
19. RCS - Plot 1/m curve during rod withdrawal & deboration. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
). Pressurizer - Discuss how to shift signal inputs to pressurizer controls & ICS inputs. (I)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
1. Pressurizer - Transfer group 8 or 9 heater to P or S 480v bus. (C)						
			Comments:			

PRIMARY

	SRO/CRO	Date	AO	Date	AO	Date
12. Participate in plant heatup & cooldown as specified by operating procedures. (C)						

Comments:

SECONDARY

	SRO/CRO	Date	AO	Date	AO	Date
4. Startup/Shutdown C.W. Sys. (C)						
			Comments:			
Place amertap in service and secure. (C)						
			Comments:			
Place C.W. Cl & Acid Sys. in service & secure. (C)	N/A					
	N/A					
	N/A					
	N/A					
	N/A		Comments:			
	N/A					
	N/A					

SECONDARY

	SRO/CRO	Date	AO	Date	AO	Date
4. Establish condensate sys. on recirc. Shift one condensate pump. (No flow thru heaters unless authorized.) (C)						
			Comments:			
Fire Aux. boilers & perform valve lineup to support vacuum operation (to seals). (C)	N/A					
			Comments:			
. Place condensate chemical feed in service & secure. (C)	N/A					
			Comments:			

SECONDARY

	SRO/CRO	Date	AO	Date	AO	Date
. Place main turbine on turning gear. (C)						
			Comments:			
Place main feed pumps on turning gear. (C)						
			Comments:			
. Demonstrate how to regulate main turbine exhaust hood spray. (I)						
			Comments:			

SECONDARY

	SRO/CRO	Date	AO	Date	AO	Date
15. Shift to standby main & aux. vacuum pumps. (C)						
			Comments:			
. Demonstrate how to makeup to the condensate head tank. (C)	N/A					
	N/A					
	N/A					
	N/A					
	N/A		Comments:			
	N/A					
	N/A					
. Run one feed pump turbine on aux. steam (uncoupled or coupled - as directed). (C)						
			Comments:			

	SRO/CRO	Date	AO	Date	AO	Date
16. Run one powdex vessel thru a regen. cycle (with or without resin - as directed). (C)	N/A					
	N/A					
	N/A					
	N/A					
	N/A					
	N/A					
	N/A					

Comments:

17. Establish F.W. heating & flow thru heaters (if authorized). (C)						

Comments:

18. Run one cond. booster pump or recirc. (if authorized). (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	

Comments:

SECONDARY

	SRO/CRO	Date	AO	Date	AO	Date
9. Operate the powdex system			N/A		N/A	
bypass valve from the control			N/A		N/A	
room. Verify holding pump			N/A		N/A	
operation on a powdex vessel.			N/A		N/A	
(C)						

Comments:

POWER EXCALATION/PHYSICS TESTING EVOLUTIONS

	SRO/CRO	Date	AO	Date	AO	Date
Participate in or observe natural circulation. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
Startup & parallel a main feed pump with a running pump. (I if possible)						
			Comments:			
Place a powdex vessel in service. Coat the vessel removed. Operate the backwash recovery system. (I)	N/A					
	N/A					
	N/A					
	N/A					
	N/A		Comments:			
	N/A					
	N/A					

POWER EXCALATION/PHYSICS TESTING EVOLUTIONS

	SRO/CRO	Date	AO	Date	AO	Date
Walk thru or complete a plant precritical checkoff per 1102-2. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
Complete a turbine plant startup. This includes bringing Rx power up, putting turbine & generator on line & increasing power to approximately 40%. (C)						
			Comments:			
Complete main turbine & feed pump valve testing. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			

SURVEILLANCES

	SRO/CRO	Date	AO	Date	AO	Date
1. 1303-4.11 HPI/LPI logic & analog channels. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
1403-4.14 Rx. Bldg. 30 psig analog channels. (C)			N/A		N/A	
			N/A			
			N/A			
			N/A			
			Comments:			
1303-4.19 HPI/LPI analog channels. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			

SURVEILLANCES

	SRO/CRO	Date	AO	Date	AO	Date
1303-5.1			N/A		N/A	
Rx. bldg. cooling & isolation			N/A		N/A	
logic channel & component			N/A		N/A	
test. (C)			N/A		N/A	
			Comments:			
1303-5.2			N/A		N/A	
Loading sequence & component			N/A		N/A	
test. (C)			N/A		N/A	
			N/A		N/A	
			Comments:			
1303-11.8			N/A		N/A	
HPI injection. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			

SURVEILLANCES

	SRO/CRO	Date	AO	Date	AO	Date
1303-11.9			N/A		N/A	
Rx. Bldg. emergency cooling.			N/A		N/A	
(C)			N/A		N/A	
			N/A		N/A	
			Comments:			
1303-11.10			N/A		N/A	
ESAS sequence & power			N/A		N/A	
transfer. (C)			N/A		N/A	
			N/A		N/A	
			Comments:			
1303-11.54			N/A		N/A	
LPI injection. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			

SURVEILLANCES

	SRO/CRO	Date	AO	Date	AO	Date
1. 1302-1.1			N/A		N/A	
Power range calibration			N/A		N/A	
CRO portion only.			N/A		N/A	
(C)			N/A		N/A	
			Comments:			
2. 1303-4.1			N/A		N/A	
Rx protection sys. (C)			N/A		N/A	
			N/A		N/A	
			N/A		N/A	
			Comments:			
3. 1301-1 (Shift & Dailys)			N/A		N/A	
Perform in cold shutdown.			N/A		N/A	
(I)			N/A		N/A	
			N/A		N/A	
			Comments:			

SURVEILLANCES

	SRO/CRO	Date	AO	Date	AO	Date
3. 1301-1 (Shift & Dailys)			N/A		N/A	
Perform in hot shutdown.			N/A		N/A	
(I)			N/A		N/A	
			N/A		N/A	
			Comments:			
4. 1301-1 (Shift & Dailys)			N/A		N/A	
Perform at 40% power.			N/A		N/A	
(I)			N/A		N/A	
			N/A		N/A	
			Comments:			

ATTACHMENT 2

An Operational Readiness Evaluation (Inspection No. 50-289/84-05) was conducted, at TMI-1 on February 8 & 9, 1984. Based on the results of this evaluation, individual operator weaknesses were identified in thirteen (13) topics which were indicative of inexperience with an operating facility. These topics are being addressed during the current requalification training cycle. A summary of the training on these topics is detailed in the following paragraphs.

The following topics have been incorporated into classroom training for the licensed operator requalification program. This classroom training commenced on April 9, 1984, and will be completed the week of May 14, 1984.

INSPEC. ITEM	SUBJECT
No. 2	Transient Analysis for Loss of Main Feedwater and a Deboration (Moderator Dilution) Accident.
No. 4	Calculation of the boron change required for a power change.
No. 5	Calculation of Heat Balance without a Computer.
No. 8	Manipulation of the Makeup and Purification System to reposition Control Rods.
No. 9	Basis of Limit Settings Incorporated into the Integrated Control System.
No. 11	Logic and Control of Control Rod Drive Circuit Breakers.
No. 12	Construction and Operation of an RCP Seal Package.
No. 13	Predicting Indication of NIs during a reactor startup.

In addition to the training being conducted as described above, classroom instruction will be conducted on Reactivity Coefficient effects while at power during Licensed Operator Requalification Training Cycle 84-2, (Insp. Item No. 1). This training will be conducted commencing the week of May 28 thru July 2, 1984. Incorporation of this training into the present requalification schedule could not be accomplished due to higher priority training. All licensed operators have been directed to review the applicable sections of the TMI Training reference material.

(13)

Training on Predicting Indication of NIs during a Reactor Startup, is being conducted on the Basic Principles Simulator at TMI.

Licensed Operator Requalification Training is presently being conducted at the Babcock and Wilcox Simulator inLynchburg, VA. This training is being conducted to emphasize both the use of the AIOG procedures and normal operations. The topics listed below have been incorporated into this training:

INSP. ITEM	SUBJECT
No. 3	Plant Manuevering when placed in a situation not covered by procedures.
No. 6	Methods of Controlling the plant cooldown rate following reactor trips.
No. 7	Methods of Controlling Xenon oscillations.

Training being conducted on the ATOG procedures emphasizes the operator response during abnormal transients. The philosophy of ATOG and the basis of the procedures developed include operator's actions on item nine above.

Due to the constraints of the requalification scheduling, formal classroom training is not being conducted on Control Functions of the Electrohydraulic Control System. (Insp.Item. No. 10). All licensed operators are required to review the EHC section of the TMI-1 Operations Plant Manual. This material is to be included in requalification weekly quizzes during cycle 84-2.

Training Content Record

Lesson Course Title	Number	
Lesson Plan Title	**Number**	**Rev**
CALCULATIONS FOR BORON CHANGES		

Objectives

Following instruction, the student should be able to:

1. Using Procedure 1103-4, perform hand calculations involving additions of fluids to the RCS that;

   a. Dilute the boron concentration (rods move in, in auto).

   b. increase the boron concentration (rods move out in auto).

Responsibility		Signature	Title	Date
Origination		[signature]	Adv Nuc Tech Trg	4/6/84
Review/Concurrence		[signature]	Supv Lic Op Trg	4/6/84
Approval	Objectives	[signature]	Actg OPS Trng Mgr	4/6/84
	Final			

1210 ADM 1210.01-1 (12-82)

Training Conten Record

Lesson Course Title	Number	

Lesson Plan Title	Number	Rev
MANIPULATION OF MAKEUP SYSTEM TO REPOSI CONTROL RODS		

Objectives

Given the necessary procedures for reference, each student would be able to explain the makeup system manipulations required to borate, deborate or dilute the RCS to achieve a predetermined rod position.

Responsibility		Signature	Title	Date
Origination		E R Frederick	Supv Ric Op Trn TMI-1	4/4/84
Review/Concurrence				
Approval	Objectives	E R Frederick	Actng Mgr Op Trng	4/6/84
	Final			

Training Content Record

Lesson Course Title	Number	
Lesson Plan Title	**Number**	**Rev**
HEAT BALANCE CALCULATIONS		

Objectives

Following instruction, the student should be able to:

1. Perform a hand calculation "Heat Balance" for the core thermal power in accordance with procedure 1103-16.

Responsibility		Signature	Title	Date
Origination		M J Zulla	Pdm. Nuc Tech Trg	4/6/84
Review/Concurrence		E M Sedacca	Supv. Nuc Op Trg	4/6/84
Approval	Objectives	E M Sedacca	Mgr. Nuc Op Trg	4/6/84
	Final			

3210-ADM-1210.01-1 (12-82)

Training Content Record

Lesson Course Title: Heat Bal [illegible] Instructor Manual

Number: [illegible]

Lesson Plan Title: HEAT BALANCE CALCULATIONS

Number:

Rev:

Objectives

Following instruction, the student should be able to:

1. Perform a hand calculation "Heat Balance" for the core thermal power in accordance with procedure 1103-16.

Responsibility		Signature	Title	Date
Origination		[illegible]	[illegible]	[illegible]
Review/Concurrence		[illegible]		
Approval	Objectives	[illegible]	[illegible]	4/6/84
	Final			

6210 ADM 1210.01 1102 82)

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Training Content Record

Lesson Course Title	Number	
Lesson Plan Title CONSTRUCTION AND OPERATION OF RCP SEAL PACKAGE	**Number**	**Rev.**

Objectives

At the conclusion of this lesson, each student should be able to:

A. Given a simplified drawing of the reactor coolant pump seal package, label the components indicated, show seal water flowpaths, and indicate approximate flow rates during normal operation.
B. State the purpose of the No. 1 seal bypass valve, and list or identify the conditions under which the valve may or may not be opened.
C. Identify the correct range of back pressure to be maintained on the No. 1 seal return line and describe how, where, and why it is maintained. (As read on MU-PI39).
D. State the purpose of the standpipe and identify normal, low alarm, and high alarm levels.
E. Describe reactor coolant pump seal flow during a loss of normal seal injection, and explain how given seal package monitored parameters will change during this condition. (i.e., temperatures, flows, D/P's).
F. State the temperatures of the No. 1 seal outlet and radial bearing which require pump shutdown.
G. State at what RCS pressure and temperature seal injection is required to the reactor coolant pumps.

—

Responsibility		Signature	Title	Date
Origination		Daryl L. Wibbe	Admin Proc Tech Trng	4/9/84
Review/Concurrence		[illegible]	[illegible]	4/9/84
Approval	Objectives	[illegible]	[illegible]	4/9/84
	Final	[illegible]	[illegible]	4/10/84

6210 ADM 1210.01-1 (12/82)

TRAINING CONTENT RECORD

Lesson Course Title	Number
Basic Principles Trainer	15.2.04

Lesson Plan Title	Number	Rev
BPT INTRODUCTION/ORIENTATION FOR LICENSED OPERATORS		

OBJECTIVES Following instruction, the student should be able to:

BPT INTRODUCTION/ORIENTATION FOR LICENSED OPERATORS
REFERENCE FILE DJLP#1

1. AFTER INSTRUCTION AND DEMONSTRATION EACH PARTICIPANT SHALL BE ABLE TO IDENTIFY THE BASIC COMPONENTS OF THE BPT AS: MIMIC AND CONTROL PANEL, PLANT CONTROL SYSTEM, TRAINEE GRAPHICS SYSTEM INTERFACE, AND INSTRUCTOR CONSOLE.

1.0 GENERAL DESCRIPTION OF THE DRILL

LICENSED OPERATOR INTRODUCTION: STARTUP TO 15% REACTOR POWER.

A. USING BPT OP-3 INCREASE REACTOR POWER FROM 1E-8 AMPS TO 15% RATED POWER AT 10% PER HOUR WITHOUT CAUSING A REACTOR TRIP.

B. DURING REACTOR STARTUP TO 15% RATED POWER CONTROL PRESSURIZER LEVEL BETWEEN THE LIMITS OF OP-3 FIGURE 1 (ALLOWABLE PRESSURIZER LEVEL LIMITS FOR REACTOR POWER INCREASE FROM 0-15%).

C. DEMONSTRATE AND CORRECTLY (AS DEFINED IN THE OPERATOR TRAINING MANUAL) EXPLAIN FUEL AND TEMPERATURE REACTIVITY EFFECTS ON REACTOR CORE SUR AND KEFF WHEN REACTOR POWER IS RAISED TO THE POINT OF INITIAL SENSIBLE FISSION HEAT PRODUCTION.

D. DEMONSTRATE AND CORRECTLY EXPLAIN WHY CRITICAL ROD POSITION CHANGES AS REACTOR POWER IS INCREASED IN THE POWER RANGE.

E. TREND VALUES OF RCS TAVE, THOT, TCOLD AND MAIN STEAM TEMPERATURE, AND CORRECTLY EXPLAIN THE EFFECTS DUE TO OTSG LEVEL CONTROL ON REACTOR STARTUP TO 15% RATED POWER.

F. ROLL, SYNCHRONIZE, AND INITIALLY LOAD THE MAIN TURBINE GENERATOR UNTIL ALL TURBINE BYPASS VALVES ARE CLOSED (IN AUTOMATIC) WHILE MAINTAINING TURBINE HEADER PRESSURE AT 885 PLUS/MINUS 50 PSIG.

RESPONSIBILITY		SIGNATURE	TITLE	DATE
ORIGINATION		Dennis J Botts	Supervisor, Simulator Training	4/6/84
REVIEW/ CONCURRENCE		Dennis J Botts	Supervisor, Simulator Training	4/6/84
	approved	[illegible]	Supervisor, Simulator Training	4-18-84
APPROVAL	OBJECTIVES	[illegible]	Simulator Training Manager	4/12/84
	FINAL			

6210-TNA-1210.01-1 (12/82)

Training Content Record

Lesson Course Title	Number	
Lesson Plan Title LOGIC AND CONTROL OF CRD BREAKERS	**Number**	**Rev.**

Objectives

Following instruction, the student should be able to:

1. Given a combination of breaker and/or electronic trips, state whether;
   a. The reactor is fully tripped
   b. (If not fully tripped), what the control rods's configuration in the core is (i.e., which groups inserted)
2. State the configuration of the rods and UV coil circuits on a loss of:
   a. one vital busses
   b. all vital busses
3. State that any two out of four RPS channel trips result in full reactor trip (assuming only single failure on CRD breaker/elect. trip systems).
4. How the following operate to open the breakers that use them;
   a. Undervoltage coils
   b. Shunt trip coils
5. How the "E" ("F") relays operate to trip the reg groups.
6. Why APSR's do not drop on reactor trip.

Responsibility		Signature	Title	Date
Origination		Richard J Trudeau	Adm Nuc Tech Trg	4/12/84
Review/Concurrence		E R Fredericks	Supv Lic Op Trng	4-12-84
Approval	Objectives	E R Fredericks	Actg Op Train Mgr	4-12-84
	Final			

6210 ADM 1210.01-1 (12/82)

TRAINING CONTENT RECORD

Lesson Course Title	Number	
Lesson Plan Title	**Number**	**Rev.**
BASIS OF LIMIT SETTING INCORPORATED INTO I.C.S.	11.2.01.055	0

OBJECTIVES Following instruction, the student should be able to:

1. EXPLAIN THE BASIS FOR THE FOLLOWING LIMITS ASSOCIATED WITH THE INTEGRATED CONTROL SYSTEM:
   a. HIGH LOAD LIMIT
   b. LOW LOAD LIMIT
   c. LOAD RATE OF CHANGE
   d. BTU LIMIT
   e. LOW LEVEL LIMIT
   f. HIGH LEVEL LIMIT
   g. CROSS LIMITS
   h. REACTOR DEMAND HIGH/LOW LIMITS

RESPONSIBILITY		SIGNATURE	TITLE	DATE
ORIGINATION		E L Frederick	Supv Lic Op Train TMI-1	4-6-84
REVIEW/ CONCURRENCE				
APPROVAL	OBJECTIVES	E L Frederick	Actng GPU Trng Mgr	4/6/84
	FINAL			

6210-TMI-1210.01-1 (12/82)

Training Content Record

Lesson Course Title	Number
Safety Analysis - FSAR Chapter 14	15.2.04

Lesson Plan Title	Number	Rev.
MODERATOR DILUTION AND LOSS OF FEEDWATER		

Objectives

A. At the completion of the training, the trainees should be able to:

1. Identify the correct present plant response to a LOFW or a Moderator Dilution.
2. Identify the correct final plant conditions for the LOFW and Moderator Dilution accident.
3. State why the FSAR cannot be used to describe transients based on present plant descriptions.
4. Indicate the effect of changing an assumed value of a parameter on the severity of the accident (Dilution or LOFW).

Responsibility		Signature	Title	Date
Origination		Frank J Perry	TECHNICAL PROG. SPEC.	4/17/84
Review/Concur		E R Fedors	Supv Lic Op Training TMI-1	4-17-84
Approval	Objectives	E R Fedors	Actg Op Trn Mgr	4-17-84
	Final	1.0		

8210 ADM 1210.01-1 (12/82)

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Training Content Record

Lesson Course Title	Number

Lesson Plan Title	Number	Rev.
Reactivity Coefficients	11.2.01.124	0

Objectives

At the conclusion of this lesson the student will be able to:

A. Describe each of the major reactivity coefficients, their mechanisms for reactivity feedback, approximate values, and the varying effects of temperature changes and Core Age.

B. List the factors most affected by changes in the moderator-to-fuel ratio, describing the direction and magnitude of these effects during a plant heatup or cooldown.

C. Define the terms:
Over Moderated, Under Moderated and Power Defect.

D. Explain in detail how the presence of boron in the moderator makes the reactor core appear to be over moderated.

E. Explain how and why the Power Defect changes over the life of the core.

F. Explain how and why fuel temperature varies with fuel burnup - even with a constant thermal power level.

G. Define point of Initial Sensible Heat Production, list its contributing factors, and explain why its value can change.

H. Describe the response of the Excore Nuclear Detectors to core void formation during accident or transient conditions.

I. Describe how a Reactor Coolant pH change can induce a reactivity change.

Responsibility		Signature	Title	Date
Origination		Daryl L. Wilt	Admin. Nuc. Tech. Trng	5/7/84
Review/Concurrence		E. L. Radecsky	Supv. Nuc. Op. Trng. I	5/8/84
Approval	Objectives	Bruce Leonard	Operator Training Manager	5-8-84
	Final			

6210-ADM-1210.01-1 (12/82)

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Training Content Record

Lesson Course Title	Number

Lesson Plan Title	Number	Rev.
Methods of Controlling Xenon Oscillations	•	

Objectives

At the completion of this lecture, each student should be able to explain how the operator can recognize and control axial or radial xenon oscillations.

Responsibility		Signature	Title	Date
Origination		E R Fedacek	Supv Lic Op Trng TMI-1	4-2-84
Review/Concurrence				
Approval	Objectives	Bruce Leonard	Operator Training Manager	4-2-84
	Final			

Training Content Record

Lesson Course Title	Number	
Lesson Plan Title	**Number**	**Rev.**
Methods of Controlling Plant Cooldown following a Reactor Trip		

Objectives

At the completion of this simulator session each student should be able to list the methods of plant cooldown following a reactor trip in order of prioritization (preference).

Responsibility		Signature	Title	Date
Origination		Ed Frederick	Supv. Fac. Op. Trng MP-1	4-2-84
Review/Concurrence				
Approval	Objectives	Bruce Leonard	Operator Training Manager	4-2-84
	Final			

8210 ADM 12101-1 (12/82)

Training Content Record

Lesson Course Title		Number	
Lesson Plan Title	PLANT STARTUP OPERATING PROCEDURE	Number	Rev

Objectives

After reviewing Procedures 1102-2 and 1550-02, each student should be able to:

1. Explain the basis for each limitation and precaution listed in each Procedure.
2. Given a step in either Procedure, identify approximate power level step is performed; and for verification steps, identify how and where the verificaion is made.

Responsibility		Signature	Title	Date
Origination		Fred Rinaldi	O.S.T.T.	3/15/84
Review/Concurrence		E.R. Frederick	Supervisor Op Tng TMI-1	3-15-84
Approval	Objectives	Bruce Leonard	Operator Training Manager	3/16/84
	Final	Bruce Leonard	Operator Training Manager	3/16/84

6210-ADM-1210.01-1102-B2)

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Training Content Record

Lesson Course Title	Number	
Lesson Plan Title OPERATING CURVES	**Number**	**Rev**

Objectives

At the completion of this training, each student should be able to:

1. Explain the basis for and identify areas of permissible, restricted and/or prohibited operation on each of the following operating curves:

   Rod Position Limits (Reg & APSR)
   Power Imbalance Envelope
   LOCA Limited Maximum Allowable LHR
   1210-10 Figure 1
   1102-1 Figure 1 and 1A

2. For the operating curves listed above, state the action(s) required when operation occurs outside the permissible area.

3. Identify specific operating circumstances which allow intentional operation outside permissible areas on the curves listed in Objective #1.

Responsibility		Signature	Title	Date
Origination		E.R. Frederick	Supv Rec Op Trng TMI-1	3-14-84
Review/Concurrence		E.J. Kosek	R N I T	3-14-84
Approval	Objectives	Bruce Leonard	Operator Training Manager	3-16-84
	Final	Bruce Leonard	Operator Training Manager	3-16-84

6210-ADM-1210.01-1 (12/82)

Training Content Record

Lesson Course Title	Number	
Lesson Plan Title	**Number**	**Rev.**
REVIEW OF JANUARY/FEBRUARY 1984 SIMULATOR ATOG EXPERIENCE		

Objectives

At the end of this lesson, the student should be able to state the following:

A. Major training issues that were addressed during previous ATOG training session(s).

B. Philosophy of ATOG in emphasizing priorities and operator interface with the procedures.

C. Emphasis of ATOG on the crew concept and command authority.

Responsibility		Signature	Title	Date
Origination		[signature]	Supervisor Op Trng TMI-1	3-14-84
Review/Concurrence				
Approval	Objectives	Bruce Leonard	Operator Training Manager	3-14-84
	Final	Bruce Leonard	Operator Training Manager	3-14-84

6210-ADM-1210.01-1 (12/82)

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INSTRUCTORS NUCLEAR TRAINING CENTER

HARVEY DAUGHERTY
HARRY HEILMEIER
FRANK OBER
TERRY MCKELLIPS
KEN FYFFE

GPU NUCLEAR
3 DAY REQUALIFICATION
WEEK 1 OF 1

CHARGE #AT40/R74

MIKE ROSS
FRANK KACINKO
HENRY SHIPMAN
DENNY BOLTZ
DARRYL WILT
ED FREDERICK
BRUCE LEONARD

Class Room Schedule

Control Room Schedule

Day No.	Day/Date	Time	Subject	Reference Instructor	Time	Operation	Reference Instructor
1	MONDAY 3/26/84	1600 TO 1930	ATOG PROCEDURE REVIEW	HD	2000 TO 2400	PLANT STARTUP 3 RCP's SAFETIES OUT TO 4% PLANT STARTUP 3 RCP's 15% TO 40% ATOG DRILLS CRD OPERATIONS AT FULL POWER	TM
2	TUESDAY 3/27/84	1600 TO 1930	ROD INDEX CURVES (2 HRS.) P-T CURVES (HEATUP & COOLDOWN LIMITS) FUEL PIN IN COMPRESSION PTS CURVES ATOG WINDOW (1.5 HRS.)	BRIAN DELANO HH	2000 TO 2400	PLANT S/D FROM FULL POWER SECURE RCP AT 75% ATOG DRILLS MANUAL ICS OPERATIONS (30 MIN.)	KF
3	WEDNESDAY 3/28/84	1600 TO 1930	PROCEDURE REVIEW (2.5 HRS.) STARTUP SHUTDOWN QUIZ (1 HR.)	FO	2000 TO 2400	PLANT OPERATIONS (2 HRS.) OPERATIONAL EVALUATION (2 HRS.)	HH

GPUN

Customer

Babcock & Wilcox
Nuclear Training Center
Lynchburg, Virginia