

# WSES-FSAR-UNIT-3

## CHAPTER 1

### INTRODUCTION AND GENERAL DESCRIPTION OF PLANT

#### TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.0	<u>INTRODUCTION AND GENERAL DESCRIPTION OF PLANT</u>	1.1-1
1.1	<u>INTRODUCTION</u>	1.1-1
1.2	<u>GENERAL PLANT DESCRIPTION</u>	1.2-1
1.2.1	PRINCIPAL SITE CHARACTERISTICS	1.2-1
→(DRN 01-758, R11-A)		
1.2.2	CONCISE PLANT DESCRIPTION	1.2-2
←(DRN 01-758, R11-A)		
1.3	<u>COMPARISONS</u>	1.3-1
1.3.1	COMPARISONS WITH SIMILAR FACILITY DESIGNS	1.3-1
1.3.2	COMPARISON OF FINAL AND PRELIMINARY INFORMATION	1.3-1
1.4	<u>IDENTIFICATION OF AGENTS AND CONTRACTORS</u>	1.4-1
1.5	<u>REQUIREMENTS FOR FURTHER TECHNICAL INFORMATION</u>	1.5-1
1.5.1	FRETTING AND VIBRATIONS TESTS OF FUEL ASSEMBLIES	1.5-1
1.5.2	DEPARTURE FROM NUCLEATE BOILING (DNB) TESTING	1.5-1
1.5.3	FUEL ASSEMBLY STRUCTURAL TESTS	1.5-1
1.5.4	FUEL ASSEMBLY FLOW MIXING TESTS	1.5-2
1.5.5	REACTOR FLOW MODEL TESTING AND EVALUATION	1.5-2
1.5.6	FUEL ASSEMBLY FLOW TESTS	1.5-3
1.5.7	CONTROL ELEMENT DRIVE MECHANISM (CEDM) TESTS	1.5-3
1.5.8	DNB IMPROVEMENT	1.5-4
1.5	<u>REFERENCES</u>	1.5-4
1.6	<u>MATERIAL INCORPORATED BY REFERENCE</u>	1.6-1
1.7	<u>ELECTRICAL, INSTRUMENTATION, AND CONTROL DRAWINGS</u>	1.7-1

# WSES-FSAR-UNIT-3

## CHAPTER 1

### TABLE OF CONTENTS (Cont'd)

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.8	<u>COMPARISON OF WATERFORD 3 DESIGN WITH NRC REGULATORY GUIDES</u>	1.8-1
1.8.1	INTRODUCTION	1.8-1
1.9	<u>THREE MILE ISLAND - 2 (TMI-2) ACTION PLAN REQUIREMENTS FOR APPLICANTS FOR AN OPERATING LICENSE</u>	1.9-1
1.9.1	SHIFT TECHNICAL ADVISOR (I.A.1.1)	1.9-1
1.9.2	SHIFT SUPERVISOR ADMINISTRATIVE DUTIES (I.A.1.2)	1.9-1
1.9.3	SHIFT MANNING (I.A.1.3)	1.9-2
1.9.4	IMMEDIATE UPGRADING OF REACTOR OPERATOR AND SENIOR REACTOR OPERATOR TRAINING AND QUALIFICATIONS (I.A.2.1)	1.9-2
1.9.5	ADMINISTRATION OF TRAINING PROGRAMS (I.A.2.3)	1.9-2
1.9.6	REVISE SCOPE AND CRITERIA FOR LICENSING EXAMINATIONS (I.A.3.1)	1.9-3
1.9.7	INDEPENDENT SAFETY ENGINEERING GROUP (I.B.1.2)	1.9-3
1.9.8	SHORT-TERM ACCIDENT ANALYSIS AND PROCEDURE REVISION (I.C.1)	1.9-4
1.9.9	SHIFT RELIEF AND TURNOVER PROCEDURES (I.C.2)	1.9-5
1.9.10	SHIFT SUPERVISOR RESPONSIBILITIES (I.C.3)	1.9-5
1.9.11	CONTROL ROOM ACCESS (I.C.4)	1.9-5
1.9.12	PROCEDURES FOR FEEDBACK OF OPERATING EXPERIENCE TO PLANT STAFF (I.C.5)	1.9-6
1.9.13	GUIDANCE ON PROCEDURES FOR VERIFYING CORRECT PERFORMANCE OF OPERATING ACTIVITIES (I.C.6)	1.9-7
1.9.14	NSSS VENDOR REVIEW OF PROCEDURES (I.C.7)	1.9-7
1.9.15	CONTROL ROOM DESIGN REVIEWS (I.D.1)	1.9-8
1.9.16	PLANT SAFETY PARAMETER DISPLAY SYSTEM (I.D.2)	1.9-8

# WSES-FSAR-UNIT-3

## CHAPTER 1

### TABLE OF CONTENTS (Cont'd)

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.9-17	TRAINING DURING LOW-POWER TESTING (I.G.1)	1.9-9
1.9.18	REACTOR COOLANT SYSTEM VENTS (II.B.1)	1.9-9
1.9.19	DESIGN REVIEW OF PLANT SHIELDING AND ENVIRONMENTAL QUALIFICATION OF EQUIPMENT FOR SPACES/SYSTEMS WHICH MAY BE USED IN POST-ACCIDENT OPERATIONS (II.B.2)	1.9-10
1.9.20	POST-ACCIDENT SAMPLING CAPABILITY (II.B.3)	1.9-11
1.9.21	TRAINING FOR MITIGATING CORE DAMAGE (II.B.4)	1.9-11
1.9.22	PERFORMANCE TESTING OF BOILING-WATER REACTOR AND PRESSURIZED-WATER REACTOR RELIEF AND SAFETY VALVES (II.D.1)	1.9-12
1.9.23	DIRECT INDICATION OF RELIEF-AND-SAFETY-VALVE POSITION (II.D.3)	1.9-12
1.9.24	AUXILIARY FEEDWATER SYSTEM EVALUATION (II.E.1.1)	1.9-13
1.9.25	AUXILIARY FEEDWATER SYSTEM AUTOMATIC INITIATION AND FLOW INDICATION (II.E.1.2)	1.9-14
1.9.26	EMERGENCY POWER SUPPLY FOR PRESSURIZER HEATERS (II.E.3.1)	1.9-15
1.9.27	DEDICATED HYDROGEN PENETRATIONS (II.E.4.1)	1.9-16
1.9.28	CONTAINMENT ISOLATION DEPENDABILITY (II.E.4.2)	1.9-17
1.9.29	ADDITIONAL ACCIDENT-MONITORING INSTRUMENTATION (II.F.1)	1.9-19
1.9.30	INSTRUMENTATION FOR DETECTION OF INADEQUATE CORE COOLING (II.F.2)	1.9-28
1.9.31	EMERGENCY POWER FOR PRESSURIZER EQUIPMENT (II.G.1)	1.9-28
1.9.32	IE BULLETINS ON MEASURES TO MITIGATE SMALL-BREAK LOCAs AND LOSS OF FEEDWATER ACCIDENTS (II.K.1)	1.9-28
→(DRN 01-758, R11-A) 1.9.33	ORDERS ON B&W PLANTS (II.K.2)	1.9-29
←(DRN 01-758, R11-A) 1.9.34	FINAL RECOMMENDATIONS OF B&O TASK FORCE (II.K.3)	1.9-31

# WSES-FSAR-UNIT-3

## CHAPTER 1

### TABLE OF CONTENTS (Cont'd)

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.9.35	EMERGENCY PREPAREDNESS - SHORT TERM (III.A.1.1)	1.9-35
1.9.36	UPGRADE EMERGENCY SUPPORT FACILITIES (III.A.1.2)	1.9-35
1.9.36a	IMPROVING LICENSEE EMERGENCY PREPAREDNESS - LONG TERM (III.A.2)	1.9-36
1.9.37	INTEGRITY OF SYSTEMS OUTSIDE CONTAINMENT LIKELY TO CONTAIN RADIOACTIVE MATERIAL FOR PRESSURIZED-WATER REACTORS AND BOILING-WATER REACTORS (III.D.1.1)	1.9-36
1.9.38	IMPROVED INPLANT IODINE INSTRUMENTATION UNDER ACCIDENT CONDITIONS (III.D.3.3)	1.9-40
1.9.39	CONTROL-ROOM HABITABILITY REQUIREMENTS (III.D.3.4)	1.9-43
→(DRN 01-758, R11-A) 1.9A	<u>RESPONSE TO SECTION II.F.2 OF NUREG-0737 INADEQUATE CORE COOLING INSTRUMENTATION</u>	1.9A-1
←(DRN 01-758, R11-A) 1.9A.1	INTRODUCTION	1.9A-1
1.9A.2	FUNCTIONAL DESCRIPTION OF ICCI	1.9A-2
1.9A.3	ICCI SENSOR DESIGN DESCRIPTION	1.9A-3
1.9A.4	SIGNAL PROCESSING AND DISPLAY	1.9A-7
1.9A.5	SYSTEM VERIFICATION TESTING	1.9A-12
1.9A.6	ICCI SYSTEM QUALIFICATION	1.9A-13
1.9A.7	OPERATING INSTRUCTIONS	1.9A-13
1.9A.8	COMPARISON OF DOCUMENTATION REQUIREMENTS WITH THIS REPORT	1.9A-14
1.9A.9	SCHEDULE FOR ICCI IMPLEMENTATION	1.9A-14
1.9A	<u>REFERENCES</u>	1.9A-15
1A	<u>FSAR ACRONYMS</u>	1A-1

# WSES-FSAR-UNIT-3

## CHAPTER 1

### INTRODUCTION AND GENERAL DESCRIPTION OF PLANT

#### LIST OF TABLES

<u>Table</u>	<u>Title</u>
→(DRN 01-758, R11-A) 1.3-1	PLANT PARAMETER COMPARISON FOR WATERFORD 3 CYCLE 1
←(DRN 01-758, R11-A) 1.7-1	ELECTRICAL, INSTRUMENTATION AND CONTROL DRAWINGS
1.9-1	TMI-RELATED REQUIREMENTS FOR NEW OPERATING LICENSES
1.9-2	TMI INFORMATION REQUIRED FOR CONTROL-ROOM HABITABILITY EVALUATION (TASK ACTION PLAN ITEM III.D.3.4)
1.9-3	CONTAINMENT ISOLATION VALVES PROVIDED WITH CAPABILITY FOR MANUAL OVERRIDE
1.9-4	ADDITIONAL ACCIDENT MONITORING INSTRUMENTATION
1.9A-1	DEFINITION OF ICC EVENT PROGRESSION INTERVALS
1.9A-2	COMPARISON OF ICCI TO DOCUMENTATION REQUIREMENTS OF ITEM II.F.2 OF NUREG-0737
1.9A-3	COMPARISON OF ICCI TO ATTACHMENT 1 OF II.F.2
1.9A-4	COMPARISON OF ICCI TO APPENDIX B OF NUREG-0737

# WSES-FSAR-UNIT-3

## CHAPTER 1

### INTRODUCTION AND GENERAL DESCRIPTION OF PLANT

#### LIST OF FIGURES

<u>Figure</u>	<u>Title</u>
1.2-1	PLOT PLAN
1.2-2	SITE PLAN
1.2-3	GENERAL ARRANGEMENT TURBINE BUILDING GROUND FLOOR - PLAN
1.2-4	GENERAL ARRANGEMENT TURBINE BUILDING MEZZANINE FLOOR - PLAN
1.2-5	GENERAL ARRANGEMENT TURBINE BUILDING OPERATING FLOOR - PLAN
1.2-6	GENERAL ARRANGEMENT TURBINE BUILDING - SECTION
1.2-7	GENERAL ARRANGEMENT TURBINE BUILDING - SECTIONS
1.2-8	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING PLAN EL + 46.00'
1.2-9	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING PLAN EL + 21.00'
1.2-10	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING PLAN EL - 4.00'
1.2-11	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING PLAN EL - 35.00'
1.2-12	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING - SECTION
1.2-13	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING - SECTION
→(DRN 01-758, R11-A)	
1.2-14	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING - (SH. 3)
←(DRN 01-758, R11-A)	
1.2-15	GENERAL ARRANGEMENT FUEL HANDLING BUILDING - PLANS
1.2-16	GENERAL ARRANGEMENT FUEL HANDLING BUILDING - SECTIONS
1.2-17	GENERAL ARRANGEMENT REACTOR BUILDING PLAN - EL + 46.00'
→(DRN 01-758, R11-A)	
1.2-18	GENERAL ARRANGEMENT REACTOR BUILDING - PLAN - EL + 21.00'
←(DRN 01-758, R11-A)	
1.2-19	GENERAL ARRANGEMENT REACTOR BUILDING - PLAN EL - 4.00'
→(DRN 01-758, R11-A)	
1.2-20	GENERAL ARRANGEMENT REACTOR BUILDING - SECTION (SHEET 1)
1.2-21	GENERAL ARRANGEMENT REACTOR BUILDING - SECTION (SH 2)
←(DRN 01-758, R11-A)	
1.2-22	GENERAL ARRANGEMENT REACTOR BUILDING - SECTIONS
→(DRN 01-758, R11-A)	
1.2-23	GENERAL ARRANGEMENT REACTOR AUXILIARY BUILDING - PLANS AND SECTIONS - (SHEET 4)
←(DRN 01-758, R11-A)	

# WSES-FSAR-UNIT-3

## CHAPTER 1

### LIST OF FIGURES (Cont'd)

<u>Figure</u>	<u>Title</u>
1.2-24	GENERAL ARRANGEMENT COOLING TOWERS - PLAN
1.2-25	GENERAL ARRANGEMENT COOLING TOWERS - SECTIONS
1.9-1	DELETED
1.9-2	DELETED
1.9-3	BLOCK DIAGRAM, WIDE-RANGE GAS MONITOR
1.9-4	DETECTOR RANGES, WIDE-RANGE GAS MONITOR
1.9A-1	DEFINITION OF INTERVALS IN EVENT PROGRESSION
1.9A-2	ICC INSTRUMENTATION SYSTEM
1.9A-3	HJTC SENSOR
1.9A-4	HJTC SPLIT PROBE DESIGN CONFIGURATION
1.9A-5	HJTC SENSOR AXIAL LOCATIONS
1.9A-6	INADEQUATE CORE COOLING REACTOR VESSEL LEVEL CABLE ROUTING
1.9A-7	CORE EXIT TEMPERATURE MEASUREMENT SCHEME
1.9A-8	CORE EXIT THERMOCOUPLE CORE LOCATIONS
1.9A-9	INADEQUATE CORE COOLING CORE EXIT THERMOCOUPLES CABLE ROUTING
1.9A-10	HJTC LEVEL LOGIC
1.9A-11	HEATER POWER CONTROL LOGIC

# WSES-FSAR-UNIT-3

## UPDATE REFERENCE LIST

### Chapter 1

#### Section

#### Cross References

#### Revision 12-B

None

#### Revision 12-C

Page 1A-7

Page 1.9-4

ER-W3-2003-0249-000/DRN 03-657

#### Revision 13

Page 1.9A-6

ER-W3-2003-0681/DRN 03-1872

#### Revision 13-A

Section 1.1

ER-W3-2000-1018-009/DRN 04-1302

#### Revision 13-B

Figure 1.2-3

ER-W3-2004-0500/DRN 04-1514

Section 1.7

Table 1.7-1

ER-W3-2004-0502/DRN 04-1444

#### Revision 14

Section 1.1

ER-W3-2001-1149-000/DRN 03-2054

Section 1.2.1.3

Section 1.2.2.1.1

Section 1.2.2.1.2

Section 1.2.2.9

Section 1.6

Section 1.8.1.46

Section 1.8.1.145

Section 1.9.28

Section 1.9A.1.1

Section 1.9A.2.3

Section 1.9A.3.1

Section 1.9A.3.3

Section 1.9A.4.1.1

Section 1.9A.4.1.2

Section 1.9A.4.1.3

Section 1.9A.6

Figure 1.2-4

ER-W3-2002-0602-001/DRN 03-1184

Figure 1.9A-5

ER-W3-2004-0137-000/DRN 04-1958



## WSES-FSAR-UNIT-3

### UPDATE REFERENCE LIST

#### Chapter 1

<u>Section</u>	<u>Cross References</u>
<u>Revision 14 Cont'd</u>	
Section 1.2.2.2	ER-W3-2004-0276-000/DRN 04-1619
Section 1.8.1.4	
Section 1.8.1.24	
Section 1.8.1.25	
Section 1.8.1.77	
Section 1.8.1.183	
Section 1.9.28	
Section 1.9.37	
Section 1.9.39	
<u>Revision 14-A</u>	
Section 1.9.37	ER-W3-2005-0378-000/DRN 05-1265
<u>Revision 14-B</u>	
Figure 1.2-7	ER-W3-2005-0442-000/DRN 06-278
<u>Revision 15</u>	
Appendix 1A	ER-W3-2006-0210-000/DRN 06-623
Section 1.8.1.46	ER-W3-2006-0258-000/DRN 06-802
Section 1.2.2.1.1	ER-W3-2005-0447-004/DRN 06-1058
<u>Revision 301</u>	
Figure 1.2-18	EC-1396
Section 1.8.1.23	EC-1837
Section 1.8.1.45	EC-5000082437
Table 1.9-2 Sh. 1	EC-5000082445
<u>Revision 302</u>	
Figure 1.9A-5	EC-6607
<u>Revision 303</u>	
Figure 1.2-17	EC-8039
<u>Revision 304</u>	
Figure 1.9A-5	EC-10453
Section 1.5.2	EC-13881
Section 1.6	
Section 1.2.2.3.1	EC-15702

# WSES-FSAR-UNIT-3

## UPDATE REFERENCE LIST

### Chapter 1

<u>Section</u>	<u>Cross References</u>
----------------	-------------------------

<u>Revision 304 Cont'd</u>	
----------------------------	--

Section 1.2.2.6	EC-16212
-----------------	----------

Section 1.9A.3.3	EC-18688
------------------	----------

Section 1.9A.4	
----------------	--

Section 1.9A.4.1.3	
--------------------	--

Figure 1.9A-8	
---------------	--

<u>Revision 305</u>	
---------------------	--

Figure 1.2-4	EC-8038
--------------	---------

Section 1.6	EC-19087
-------------	----------

Section 1.8.45	
----------------	--

Section 1.8.1.133	EC-26965
-------------------	----------

<u>Revision 306</u>	
---------------------	--

Section 1.9.29	EC-12329
----------------	----------

Section 1.9A.4	
----------------	--

Section 1.9A.4.2	
------------------	--

Table 1.9A-3	
--------------	--

Table 1.9A-4 (Sheet 1)	
------------------------	--

Appendix 1A	EC-14275
-------------	----------

Section 1.2.2.6	
-----------------	--

Figure 1.2-18	EC-17580
---------------	----------

<u>Revision 307</u>	
---------------------	--

Section 1.2.2.1.2	EC-1020
-------------------	---------

Table 1.7-1	EC-2800
-------------	---------

Section 1.8.1.31	
------------------	--

Section 1.8.1.83	EC-8458
------------------	---------

Figure 1.2-17	EC-27161
---------------	----------

Figure 1.2-20	
---------------	--

Section 1.2.2.1.1	EC-30663
-------------------	----------

Section 1.9.24	EC-33720
----------------	----------

Section 1.8.1.40	EC-40281
------------------	----------

<u>Revision 308</u>	
---------------------	--

Section 1.8.1.9	LBDRC 14-010
-----------------	--------------

Section 1.8.1.143	EC 47424
-------------------	----------

## WSES-FSAR-UNIT-3

Section 1.9.2  
Section 1.9.7  
Section 1.9.10

LBDCR 13-015