Facility: Limerick Generating Station Printed: 09/11/2006

Date Of Exam: 10/23/2006

Tier	Group	RO K/A Category Points												SRO-Only Points				
		K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G*	Total	K	A	A2	G*	Total
1. Emergency & Abnormal Plant Evolutions	1	3	3	4	N/A			4	4	N/A		2	20	0	0	0	0	0
	2	1	1	1				1	2			1	7	0	0	0	0	0
	Tier Totals	4	4	5				5	6			3	27	0	0	0	0	0
2. Plant Systems	1	2	2	2	3	2	3	2	3	2	3	2	26	0	0	0	0	0
	2	1	1	1	2	1	1	1	1	1	1	1	12	0	0	0	0	0
	Tier Totals	3	3	3	5	3	4	3	4	3	4	3	38	0	0	0	0	0
3. Generic Knowledge And Abilities Categories		1			2			3			4		10	1	2	3	4	0
		3			3			2			2			0	0	0	0	

Note:

1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO and SRO-only outlines (i.e., except for one category in Tier 3 of the SRO-only outline, the "Tier Totals" in each K/A category shall not be less than two).
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Systems/evolutions within each group are identified on the associated outline; systems or evolutions that do not apply at the facility should be deleted and justified; operationally important, site-specific systems that are not included on the outline should be added. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.
4. Select topics from as many systems and evolutions as possible; sample every system or evolution in the group before selecting a second topic for any system or evolution.
5. Absent a plant-specific priority, only those K/As having an importance rating (IR) of 2.5 or higher shall be selected. Use the RO and SRO ratings for the RO and SRO-only portions, respectively.
6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.
7.* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system.
8. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IRs) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above. Use duplicate pages for RO and SRO-only exams.
9. For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, IRs, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.

Note: This form deviates from the NUREG-1021 Form ES-401-1 by the addition of the K and A column under the SRO Only Points. This allows sampling all Fuel Handling System KAs as required by ES-401.

BWR RO Examination Outline

Printed: 09/11/2006

Facility: Limerick Generating Station

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1 (RO / SRO)** **Form ES-401-1**

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic(s)	IR	#
295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4	X						AK1.01 - Natural circulation	3.5	1
295003 Partial or Complete Loss of AC Pwr / 6					X		AA2.04 - System lineups	3.5	1
295004 Partial or Complete Loss of DC Pwr / 6				X			AA1.02 - Systems necessary to assure safe plant shutdown	3.8	1
295005 Main Turbine Generator Trip / 3			X				AK3.01 - Reactor scram	3.8	1
295006 SCRAM / 1					X		AA2.02 - Control rod position	4.3*	1
295016 Control Room Abandonment / 7						X	2.1.25 - Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.	2.8	1
295018 Partial or Total Loss of CCW / 8				X			AA1.01 - Backup systems	3.3	1
295019 Partial or Total Loss of Instrument Air / 8			X				AK3.01 - Backup air system supply: Plant-Specific	3.3	1
295021 Loss of Shutdown Cooling / 4				X			AA1.04 - Alternate heat removal methods	3.7	1
295023 Refueling Acc / 8						X	2.2.28 - Knowledge of new and spent fuel movement procedures.	2.6	1
295024 High Drywell Pressure / 5				X			EA1.04 - RHR/LPCI	4.1	1
295025 High Reactor Pressure / 3	X						EK1.05 - †Exceeding safety limits	4.4*	1
295026 Suppression Pool High Water Temp. / 5					X		EA2.03 - Reactor pressure	3.9	1
295028 High Drywell Temperature / 5		X					EK2.04 - Drywell ventilation	3.6	1
295030 Low Suppression Pool Wtr Lvl / 5			X				EK3.02 - HPCI operation: Plant-Specific	3.5	1
295031 Reactor Low Water Level / 2	X						EK1.01 - Adequate core cooling.	4.6*	1
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1		X					EK2.09 - Reactor water level	4.0	1
295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown / 1					X		EA2.05 - Control rod position	4.2*	1
295038 High Off-Site Release Rate / 9		X					EK2.03 - Plant ventilation systems	3.6	1
600000 Plant Fire On Site / 8			X				AK3.04 - Actions contained in the abnormal procedure for plant fire on site	2.8	1
K/A Category Totals:	**3**	**3**	**4**	**4**	**4**	**2**	**Group Point Total:**		**20**

BWR RO Examination Outline

Printed: 09/11/2006

Facility: Limerick Generating Station

ES - 401 **Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2 (RO / SRO)** **Form ES-401-1**

E/APE # / Name / Safety Function	K1	K2	K3	A1	A2	G	KA Topic(s)	IR	#
295002 Loss of Main Condenser Vac / 3		X					AK2.11 - Seal steam: Plant-Specific	2.6	1
295007 High Reactor Pressure / 3				X			AA1.05 - Reactor/turbine pressure regulating system	3.7	1
295010 High Drywell Pressure / 5			X				AK3.02 - Increased drywell cooling	3.4	1
295015 Incomplete SCRAM / 1					X		AA2.01 - Reactor power	4.1*	1
295020 Inadvertent Cont. Isolation / 5 & 7	X						AK1.05 - Loss of drywell/containment cooling	3.3	1
295033 High Secondary Containment Area Radiation Levels / 9						X	2.1.23 - Ability to perform specific system and integrated plant procedures during different modes of plant operation.	3.9	1
500000 High CTMT Hydrogen Conc. / 5					X		EA2.03 - Combustible limits for drywell	3.3	1
K/A Category Totals:	**1**	**1**	**1**	**1**	**2**	**1**	**Group Point Total:**		**7**

BWR RO Examination Outline

Printed: 09/11/2006

Facility: Limerick Generating Station

ES - 401 **Plant Systems - Tier 2 / Group 1 (RO / SRO)** **Form ES-401-1**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	IR	#
203000 RHR/LPCI: Injection Mode						X						K6.02 - D.C. electrical power	2.8*	1
205000 Shutdown Cooling						X						K6.04 - Reactor water level	3.6	1
206000 HPCI							X					A1.09 - Turbine speed: BWR-2, 3, 4	3.5	1
209001 LPCS			X									K3.02 - ADS logic	3.8	1
209001 LPCS											X	2.1.30 - Ability to locate and operate components, including local controls.	3.9	1
211000 SLC							X					A1.10 - Lights and alarms	3.7	1
212000 RPS				X								K4.12 - Bypassing of selected SCRAM signals (manually and automatically): Plant-Specific	3.9	1
212000 RPS										X		A4.16 - Manually activate anticipated transient without SCRAM circuitry/RRCS: Plant-Specific	4.4*	1
215003 IRM		X										K2.01 - IRM channels/detectors	2.5*	1
215004 Source Range Monitor					X							K5.03 - Changing detector position	2.8	1
215005 APRM/LPRM	X											K1.03 - RBM: Plant-Specific	3.4	1
217000 RCIC								X				A2.05 - D.C. power loss	3.3	1
217000 RCIC										X		A4.04 - Manually initiated controls	3.6	1
218000 ADS									X			A3.01 - ADS valve operation	4.2*	1
223002 PCIS/Nuclear Steam Supply Shutoff								X				A2.05 - Nuclear boiler instrumentation failures	3.3	1
239002 SRVs				X								K4.05 - Allows for SRV operation from more than one location: Plant-Specific	3.6	1
259002 Reactor Water Level Control					X							K5.01 - GEMAC/Foxboro/Bailey controller operation: Plant-Specific	3.1	1
261000 SGTS						X						K6.08 - Reactor vessel level: Plant-Specific	3.1	1
262001 AC Electrical Distribution								X				A2.02 - Loss of coolant accident	3.6	1
262002 UPS (AC/DC)			X									K3.15 - Main turbine operation: Plant-Specific	2.6	1

BWR RO Examination Outline

Printed: 09/11/2006

Facility: Limerick Generating Station

ES - 401 **Plant Systems - Tier 2 / Group 1 (RO / SRO)** **Form ES-401-1**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	IR	#
263000 DC Electrical Distribution		X										K2.01 - Major D.C. loads	3.1	1
263000 DC Electrical Distribution											X	2.4.31 - Knowledge of annunciators alarms and indications, and use of the response instructions.	3.3	1
264000 EDGs										X		A4.01 - Adjustment of exciter voltage	3.3	1
264000 EDGs									X			A3.03 - Indicating lights, meters, and recorders	3.4	1
300000 Instrument Air	X											K1.03 - Containment air	2.8	1
400000 Component Cooling Water				X								K4.01 - Automatic start of standby pump	3.4	1
K/A Category Totals:	**2**	**2**	**2**	**3**	**2**	**3**	**2**	**3**	**2**	**3**	**2**	**Group Point Total:**		**26**

BWR RO Examination Outline

Printed: 09/11/2006

Facility: Limerick Generating Station

ES - 401 **Plant Systems - Tier 2 / Group 2 (RO / SRO)** **Form ES-401-1**

Sys/Evol # / Name	K1	K2	K3	K4	K5	K6	A1	A2	A3	A4	G	KA Topic	IR	#
201002 RMCS			X									K3.02 - †Rod block monitor: Plant-Specific	2.9	1
201006 RWM				X								K4.06 - Correction of out of sequence rod positions: P-Spec(Not-BWR6)	3.2	1
202001 Recirculation								X				A2.17 - Loss of seal cooling water	3.1	1
204000 RWCU									X			A3.03 - Response to system isolations	3.6	1
215002 RBM		X										K2.03 - APRM channels: BWR-3, 4, 5	2.8	1
216000 Nuclear Boiler Inst.											X	2.4.50 - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.	3.3	1
223001 Primary CTMT and Aux.					X							K5.01 - Vacuum breaker/relief operation	3.1	1
230000 RHR/LPCI: Torus/Pool Spray Mode										X		A4.02 - Spray valves	3.8	1
245000 Main Turbine Generator/Aux							X					A1.01 - Generator megawatts	2.7	1
256000 Reactor Condensate	X											K1.02 - Reactor feedwater system	3.3	1
259001 Reactor Feedwater						X						K6.07 - Reactor water level control system	3.8	1
290003 Control Room HVAC				X								K4.01 - System initiations/reconfiguration: Plant-Specific	3.1	1
K/A Category Totals:	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**Group Point Total:**		**12**

Generic Knowledge and Abilities Outline (Tier 3)

BWR RO Examination Outline

Printed: 09/11/2006

Facility: Limerick Generating Station

Form ES-401-3

Category	KA #	Topic	IR	#
Conduct of Operations	2.1.3	Knowledge of shift turnover practices.	3.0	1
	2.1.19	Ability to use plant computer to obtain and evaluate parametric information on system or component status.	3.0	1
	2.1.29	Knowledge of how to conduct and verify valve lineups.	3.4	1
		Category Total:		**3**
Equipment Control	2.2.1	Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.	3.7	1
	2.2.11	Knowledge of the process for controlling temporary changes.	2.5	1
	2.2.13	Knowledge of tagging and clearance procedures.	3.6	1
		Category Total:		**3**
Radiation Control	2.3.4	Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.	2.5	1
	2.3.11	Ability to control radiation releases.	2.7	1
		Category Total:		**2**
Emergency Plan	2.4.21	Knowledge of the parameters and logic used to assess the status of safety functions including: 1.Reactivity control 2.Core cooling and heat removal 3.Reactor coolant system integrity 4.Containment conditions 5.Radioactivity release control.	3.7	1
	2.4.46	Ability to verify that the alarms are consistent with the plant conditions.	3.5	1
		Category Total:		**2**
		Generic Total:		**10**

Tier / Group	Randomly Selected K/A	Reason for Rejection
RO EXAM		
2/1	261000 K6.01	Redrawn with the approval of the lead examiner due this K/A is a duplicate from 2005 ILT Exam (Q375215). Substituted another K6 in its place.
2/1	262002 K3.07	Redrawn with the approval of the lead examiner due to this K/A is essentially the same as another already on the exam.(215002 K2.03 RBM, electrical power supplies to APRM channels). Substituted another K3 in its place.
1/1	295016 2.2.25	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator.
1/1	295023 2.1.27	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator.
1/1	295031 EA2.01	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator.
1/1	295038 EK1.03	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator and K/A corresponds to a task that is N/A for RO's.
1/1	600000 2.4.6	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator and generic K/A refers to EOP mitigation strategy, while the category is an AOP.
1/2	295007 AA1.04	Redrawn with the approval of the lead examiner due to K/A overlap with another K/A already included on this portion of the exam.
1/2	295033 2.1.23	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator.
2/1	203000 K6.08	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator. Also a loss of ECS room cooling has no effect on LPCI because LGS is analyzed for loss of room cooling.
2/1	212000 A4.14	Redrawn with the approval of the lead examiner due to K/A overlap with a JPM.
2/2	234000 A3.02	Redrawn with the approval of the lead examiner due to A3 not applicable to SRO exam, deselected due to a known deficiency in the software.

SRO EXAM		
1/1	295030 EA2.02	Redrawn with the approval of the lead examiner due to K/A overlap with questions on the RO portion of the exam.
1/1	295031 2.1.6	Redrawn with the approval of the lead examiner due the lack of concepts that would meet the K/A and still distinguish between a competent and non-competent operator.
1/2	295007 2.2.25	Redrawn with the approval of the lead examiner due to K/A overlap with questions on the RO portion of the exam.
2/1	218000 A2.05	Redrawn with the approval of the lead examiner due to K/A overlap with questions on the RO portion of the exam.
2/1	223002 A2.05	Redrawn with the approval of the lead examiner due to K/A overlap with questions on the RO portion of the exam.
2/2	219000 A2.05	Redrawn with the approval of the lead examiner due to K/A overlap with questions on the RO portion of the exam.

Facility: Limerick Date of Examination: 10/23/06

Examination Level: RO ☒ SRO ☐ Operating Test Number: ILT05-1

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	Administration Actions on a Thermal Limit Violation
Conduct of Operations		
Equipment Control	N, R	Review Main Turbine Bypass Valve Exercising ST
Radiation Control	P, R	Calculate Stay Time
Emergency Plan	N, R	Fire Alarm in Invertor Room (CE 254')

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

* Type Codes & Criteria:
(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Facility: Limerick Date of Examination: 10/23/06

Examination Level: RO ☐ SRO ☒ Operating Test Number: ILT05-1

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, R	Determination of Adequate Shift Staffing
Conduct of Operations	N, R	Administrative Actions on a Thermal Limit Violation
Equipment Control	N, R	Review Main Turbine Bypass Valve Exercising S.T.
Radiation Control	P, R	Calculate Stay Time
Emergency Plan	D, S	ERP Classification and Reporting (Plane Crash)

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

* Type Codes & Criteria:
(C)ontrol room, (S)imulator, or Class(R)oom
(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
(N)ew or (M)odified from bank (≥ 1)
(P)revious 2 exams (≤ 1; randomly selected)

Facility: Limerick Date of Examination: 10/23/06

Exam Level: RO ☒ SRO-I ☐ SRO-U ☐ Operating Test Number: ILT05-1

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. Reactor Recirc/Start MG Set - High Vibration	A, L, P, S	1
b. Remove 1C RFP From Service to Standby	D, S	2
c. Control Room Vent High Radiation Isolation Reset	D, S	9
d. Manually Initiate Core Spray (Initiation Pushbutton Fails)	A, N, S	4
e. Restore RECW, DWCW, PCIG	D, S	5
f. DG Fast Start From Control Room (ESW Fails to Start)	A, N, S	6
g. Scram Reset	A, D, S	7
h. Placing Alternate TECW Pump in Service	N, S	8
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Start "0B" ESW Pump From D12 SG (SE-6)	D, E, R	8
j. Place Alternate CRD Flow Control Valve In Service	D, L, R	1
k. MSIV -129" Bypass (T-221)	D, E, R	4

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: Limerick Date of Examination: 10/23/06

Exam Level: RO ☐ SRO-I ☒ SRO-U ☐ Operating Test Number: ILT05-1

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Reactor Recirc/Start MG Set - High Vibration	A, L, P, S	1
b. Remove 1C RFP From Service to Standby	D, S	2
c. Control Room Vent High Radiation Isolation Reset	D, S	9
d. Manually Initiate Core Spray (Initiation Pushbutton Fails)	A, N, S	4
e. DG Fast Start From Control Room (ESW Fails to Start)	A, N, S	6
f. Scram Reset	A, D, S	7
g. Placing Alternate TECW Pump in Service	N, S	8
h.		
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Start "0B" ESW Pump From D12 SG (SE-6)	D, E, R	8
j. Place Alternate CRD Flow Control Valve In Service	D, L, R	1
k. MSIV -129" Bypass (T-221)	D, E, R	4

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: Limerick Date of Examination: 10/23/06

Exam Level: RO ☐ SRO-I ☐ SRO-U ☒ Operating Test Number: ILT05-1

Control Room Systems@ (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Reactor Recirc/Start MG Set - High Vibration	A, L, P, S	1
b. DG Fast Start From Control Room (ESW fails to start)	A, N, S	6
c. Control Room Vent High Radiation Isolation Reset (ESF)	D, S	9
d.		
e.		
f.		
g.		
h.		
In-Plant Systems@ (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Start "0B" ESW Pump From D12 SG (SE-6)	D, E, L, R	8
j. MSIV -129" Bypass (T-221)	D, E, R	4
k.		

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: Limerick Scenario No.: 1 Op-Test No.: ILT05-1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: 100% power. RCIC is out of service for bearing replacement. Regulatory actions log entry has been made. Estimated time of repair is 24 hours.

Turnover: Maintain 100% power. Continue repairs on RCIC.

Event No.	Malf. No.	Event Type*	Event Description
1	MVI238B	I (RO/ CRS)	"1B" Narrow Range Level Transmitter fails downscale (TS)
2	MED263D	I (PRO/ CRS)	D14 Bus Overcurrent/Loss of D14 Bus (TS)
3	MAD147E	C (RO/CRS)	SRV "L" fails open mechanically
4	MRR441	C (ALL)	Coolant leakage in drywell
5	MFW252B	M (ALL)	"B" Feedwater line rupture inside Primary Containment
6	MHP449	C (PRO/ CRS)	HPCI Turbine Trip
7	MCR412A	C (RO/CRS)	"1A" CRD Pump Trip
8	MSL559	C (RO/ CRS)	SLC pipe rupture

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Limerick Scenario No.: 2 Op-Test No.: ILT05-1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: 95% power recovering from a planned down power to perform a rod pattern adjustment.

Turnover: 95% power. Rod pattern adjustment is complete. Raise power to 100%.

Event No.	Malf. No.	Event Type*	Event Description
1	MVI234A	I (RO/CRS)	"A" RPV Pressure Transmitter (RPS) Fails High (TS)
2	MCN078C	C (ALL)	"1C" Condensate Pump trips
3	MRR435B	C (PRO/ CRS)	"1B" Recirc Pump trips (TS)
4	N/A	R (RO)	Insert control rods to exit Restricted Region
5	MRR435A	C (PRO/CRS)	"1A" Recirc Pump trips
6	MRP029D MRP407C	M (ALL)	ATWS – "B" RPS fails to trip, both RRCS channels fail to initiate ARI
7	MSL197	C (RO/CRS)	SLC Squib Valve Failure to Fire

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Facility: Limerick Scenario No.: 3 Op-Test No.: ILT05-1

Examiners: _____ Operators: _____

Initial Conditions: 5% power with startup in progress. "1A" SRM is inoperable and bypassed.

Turnover: 5% power – continue with startup IAW GP-2

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R (RO/CRS)	Continue to Withdraw Control Rods
2	MSR214F	I (RO/CRS)	IRM channel "F" fails upscale (TS)
3	MED282A	I (ALL)	Loss of Division 1 DC (TS)
4	VIC114A	C (RO/CRS)	"1A" CRD Pump high vibration
5	MRR441	C (ALL)	Coolant leakage in drywell
6	MMS067	M (ALL)	Steam leak in drywell
7	MCS183D	C (PRO/CRS)	"1D" Core Spray fails to auto start
8	MRP029C	C (RO/CRS)	"A" RPS failure to scram

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor