

August 16, 2004

NMP#1 OUTLINE COMMENTS

Overall, the outlines received from the licensee on August 13th appeared to meet expectations with one exception there were no low power scenarios proposed ES-301, D.4.b (0-5% proposed). Comments provided on May 16th per telecom to the licensee.

Written Exam

Some general feedback or cautions were provided. Some of these topics may still result in acceptable exam questions depending on exam developers ingenuity.

- A number of proposed K/As appeared to be testing set points which tend to be overly simplistic non-discriminating (295019, 295037, 207000).
- Some topics appeared to be generally simplistic and may not discriminate (295012)
- Several topics involved alarm response which is generally better examined during the dynamic scenarios (295008, 218000, 295002, 201001).
- Several topics appeared to test simple power supplies which may be acceptable in limited numbers (206000).
- Ability to manually operate and/or monitor valves in the CR may be better examined during the dynamic scenarios or JPMs (259001).
- For TS SRO questions make sure not direct look-up - make integrated TS calls which are better for an SRO for ROs okay to ask more direct simple TS (295013).
- Several SRO maybe just testing system knowledge (295004, 295028).

Operating Exam (Draft In-house Comments)

JPMs - Admin, Simulator, and Plant JPM topics appeared to be acceptable. One RO topic on applying yellow and red stickers on equipment in the CR may be acceptable but will it be overly simplistic and tie up too much time in the Simulator?

- Also asked how many of the Admin. JPM topics are new. Dave W. stated all proposed scenarios are new?

Scenarios

- No low power scenarios were proposed.
- Good idea to have extra malfunctions beyond minimum just in case another applicant is aggressive and hogs the show.
- Make sure CTs are well scripted and comply with APP. D guidance.



Constellation Energy®

Nine Mile Point Nuclear Station

P.O. Box 63
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NMP-97990
August 12, 2004

Mr. Hubert J. Miller
Regional Administrator
USNRC Region I
475 Allendale Road
King of Prussia, PA 19406

ATTENTION: Mr. John Caruso, Senior Examiner/Inspector

SUBJECT: NINE MILE POINT UNIT 1 INITIAL OPERATOR EXAMINATION
OUTLINE SUBMITTAL

Mr. Miller:

As requested by NRC letter dated June 17, 2004, the attached package contains the examination outlines for Senior Reactor Operator (SRO) and Reactor Operator (RO) Initial Examinations scheduled for November, 2004. The examinations are being prepared based on the guidelines in Draft Revision 9 of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors." Enclosed are the following examination outline documents:

- ES-201-2, Examination Outline Quality Checklist
- * ES-401-6, Written Examination Quality Checklist
- ES-401-1 and 401-3, BWR Examination Outline - RO
- ES-401-4, Record of Rejected K/As - RO
- ES-401-1 and 401-3, BWR Examination Outline - SRO
- ES-401-4, Record of Rejected K/As - SRO
- ES-301-1, Administrative Topics Outline (RO)
- ES-301-1, Administrative Topics Outline (SRO)
- ES-301-2, Control Room/In-Plant Systems - RO
- ES-301-2, Control Room/In-Plant Systems - SRO
- * ES-301-3, Operating Test Quality Checklist
- * ES-301-6, Competencies Checklist
- ES-301-4, Simulator Scenario Quality Checklist
- ES-301-5, Transient and Event Checklist
- ES-D-1, Scenario Outline (4)
- Preliminary Exam Week Schedule (proposed)

- * Forms ES-401-6, ES-301-3, ES-301-6 are blank. These forms cannot be completed until the examination is finalized. The completed forms will accompany the examination submittal due September 10, 2004.

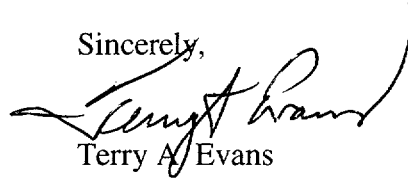
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Please withhold this examination material from public disclosure until after the examinations have been completed.

Nine Mile Point Nuclear Station has used the methodology outlined in ES-401 Attachment 1 "Example Systematic Sampling Methodology." The written examination outlines for the Nine Mile Point Unit 1 RO and SRO examinations and the topics were randomly generated using the method described in ES-401, Attachment 1. These outlines were then saved with password protection on a non-networked computer.

If you have any questions regarding this examination outline submittal, please contact Gregg Pitts (General Supervisor Operations Training) at 315-349-1864 or Michael Jaquin (Initial Training Supervisor) at 315-349-1508.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry A. Evans", with a large, sweeping flourish extending from the end of the signature.

Terry A. Evans
Manager Nuclear Training

TAE/crr

| Facility: NINE MILE POINT 1 | | Date of Examination: 11/1/2004 |
|---|------------|---------------------------------------|
| Examination Level (circle one): RO/SRO | | Operating Test Number: NRC-01 |
| Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U) | | |
| System / JPM Title | Type Code* | Safety Function |
| A by itself at low power. B by itself from LOCA conditions. C then F is directed after pulling fuses to close ERV. D, E, H concurrent with each other from power operation. G performed by itself at power. | | |
| a. ACTIONS FOR AND WITHDRAWAL OF CONTROL RODS WHICH DOUBLE NOTCH. Rod does not withdraw and drive water pressure will be raised as required to withdraw it. When rod withdraws, it continues to withdraw with response per F3-2-6, CONTROL ROD DRIFT, for a rod drift in outward direction. Task: 2000360401, 2010050401 N1-OP-5; H.21.0 | N, A, S, L | 1 REACTIVITY CONTROL |
| b. LINEUP AND INJECT CONTAINMENT SPRAY RAW WATER INTO CORE SPRAY LOOP 11. PRA: Supply Cont Spray raw water to core spray Task: 2269020501 N1-EOP-1, Attachment 5 | D, S | 2 RX WATER INVENTORY CONTROL |
| c. RESPOND TO STUCK OPEN ERV AT POWER. When fuses are pulled in F panel the ERV closes. Task: 2399010401 N1-OP-1; H.8.0 LER 2000-004, Manual Reactor Scram Due To Stuck Open ERV and Failed Vacuum Breaker DER-NM-2004-2268, Manual Scram Due To ERV123 Failure ToO Close During PMT (5/4/2004). | N, S | 3 RX PRESSURE CONTROL |
| d. VENT THE PRIMARY CONTAINMENT VIA DRYWELL THROUGH RBEVS AT POWER (VENT VIA TORUS WHEN DRYWELL VENTING IS INEFFECTIVE). Unable to establish an effective vent path from the drywell the torus will be vented via the RBEVS. Drywell vent path must be closed to ensure containment function is not bypassed should a LOCA occur; directly pressurize torus air space from drywell if both venting lineups are established. PRA: Vent primary containment through RBEVS Task: 2829020101, 2009050501 N1-OP-9; H.1.3, H.1.4 | M, A, S | 5 CONTAINMENT INTEGRITY |

| Facility: NINE MILE POINT 1 | | Date of Examination: 11/1/2004 |
|---|--|---------------------------------------|
| Examination Level (circle one): RO/SRO | | Operating Test Number: NRC-01 |
| Control Room Systems (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U) | | |
| System / JPM Title | Type Code* | Safety Function |
| e. N1-ST-M4 FOR EDG102 (DG OPERABILITY) Modify to required DG shutdown once loaded based on annunciator response to degraded/failed component. PRA: Start/Load a diesel generator. Task: 2640030201, 2640020101, 2640030101 N1-ST-M4 | M, A, S | 6 ELECTRICAL |
| f. ACTIONS IN CONTROL ROOM PRIOR TO CONTROL ROOM EVACUATION When reactor mode switch placed to shutdown the reactor does not scram – presses manual scram pushbuttons to scram the reactor. When vessel isolation switches placed to isolate MSIVs do not close – manually closes MSIVs. Task: 2009070403 N1-SOP-9.1 | N, A, S | 7 INSTRUMENTS |
| g. RESPOND TO A LOSS OF SERVICE WATER Service water pump can be started however service water pressure can be improved but cannot be “restored” requiring override actions per N1-SOP-7, Path A. PRA: Respond to a service water pump trip PRA: Respond to a loss of service water Task: 2769020401, 2000350401 N1-SOP-7 | M, S | 8 PLANT SERVICE SYSTEMS |
| h. START CONTROL ROOM VENTILATION SYSTEM Task: 2880040101 N1-OP-49; E.1.0. | D, S RO ONLY SRO DO NOT PERFORM | 9 RADIOACTIVITY RELEASE |

| Facility: NINE MILE POINT 1 | | Date of Examination: 11/1/2004 |
|--|------------|---------------------------------------|
| Examination Level (circle one): RO/SRO | | Operating Test Number: NRC-01 |
| In-Plant Systems (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U) | | |
| System / JPM Title | Type Code* | Safety Function |
| i. MANUALLY VENT SCRAM AIR HEADER PER EOP-3.1. PRA: EOP-3.1 Task: 2009230504 EOP-3.1; Section 2 | D, R | 1 REACTIVITY CONTROL |
| j. PERFORM RPV INJECTION FOR SAFE SHUTDOWN OUTSIDE CONTROL ROOM. Task: 2009070403 SOP-9.1, Attachment 4. | N, E | 2 RX WATER INVENTORY CONTROL |
| k. TRANSFER BATTERY BOARD 11 LOADS TO BATTERY BOARD 12 Task: 2000450501 N1-OP-47A; H.9.0 | D | 6 ELECTRICAL |
| * Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA | | |

| Facility: Nine Mile Point 1 | | Scenario No.: NRC-01 | | Op-Test No.: NRC-01 | |
|---|---|-----------------------------|--|----------------------------|--|
| Examiners: _____ | | | Operators: _____ | | |
| Initial Conditions: 100% power. | | | | | |
| Turnover: Need to transfer PB101 back to normal Lineup with R1014 (line 4) closed and breaker R1011 (Line 1) open. | | | | | |
| 122 Containment Spray Pump removed from service. EPR in control. | | | | | |
| Event No. | Malf. No. | Event Type* | Event Description | | |
| 1 | - | N BOP SRO | The crew will transfer PB101 back to line 4. N1-OP-30; H.11.0 (all steps) | | |
| 2 | TC06, Electrical Pressure Regulator Fails – Oscillates | I RO SRO | EPR oscillations will cause fluctuations in reactor power, reactor pressure, and reactor water level. The crew will place the MPR in service and manually control reactor pressure and raise the EPR out of the way. ARP A2-2-4, N1-OP-31; H.1.0, N1-SOP-2, Tech Specs | | |
| 3 | RR9E, Recirc Pump 15 MG Slot Temperature Increase (35% ramp 3 min.) | C BOP SRO | The crew will respond to a RRP15 MG set high temperature that continues to degrade. The crew will remove RRP15 from service and take appropriate actions including those actions to support 4-loop operation. When reactor power is between 45% and 90% the thermal limit penalty must be applied because no backup pressure regulator is available. ARP F2-2-5, N1-OP-1; F.4; H.2; H.3, | | |
| 4 | | R RO SRO | The crew will be required to lower reactor power to support removal of RRP15 from service. When manual control of RRP15 is established, recirc flow control reduction by the BOP must be coordinated with the RO. N1-SOP-1.1 | | |
| 5 | ED18, AC Power Board Electrical Fault (PB 16 Section A) (TRUE) | C BOP SRO | Loss of PB16A and PB 161. The crew will recognize and respond to a reduction of drywell cooling and a loss of an IAC and RBCLC Pump. A4-3-1, A4-4-2 | | |

NRC EXAM

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| 6 | EC29, Recirculation Loop Rupture (15%, 30 sec ramp, RELATIVE 1.5 min. until active 25% 1 min. ramp) | M ALL | When the actions for the loss of PB16A and reduced drywell cooling are taken, a gradually increasing LOCA will occur. The crew must enter EOP-2, EOP-4, and eventually EOP-8. During and after the blowdown the crew must maintain RPV water level using high pressure and low pressure systems. N1-EOP-1; Att. 4 and 16, N1-EOP-2, N1-EOP-4, |
| 7 | CT01A, Containment Spray Pump Trip 111 (TRUE) | C BOP SRO | After containment sprays are placed into service, containment spray pump 111 trips requiring that the other available containment spray pump be placed into service (Containment Spray Pump 112 is removed from service and not available). With insufficient containment spray available for the size of the break both the drywell design temperature and Pressure Suppression Pressure can be exceeded. When it is determined that the Pressure Suppression Pressure will be exceeded, the crew will perform a blowdown per EOP-8. N1-EOP-4, N1-EOP-8, N1-EOP-1; Att. 17, EAL Matrix |
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* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

| TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d) | ACTUAL ATTRIBUTES | EXAM DEVELOPER | FACILITY REVIEW |
|---|----------------------|-------------------|--------------------|
| 1. Total malfunctions (5-8) | 5 | <i>Don</i> | <i>Don</i> |
| 2. Malfunctions after EOP entry (1-2) | 1 | <i>Don</i> | <i>Don</i> |
| 3. Abnormal events (2-4) | 4 | <i>Don</i> | <i>Don</i> |
| 4. Major transients (1-2) | 1 | <i>Don</i> | <i>Don</i> |
| 5. EOPs entered/requiring substantive actions (1-2) | 2 | <i>Don</i> | <i>Don</i> |
| 6. EOP contingencies requiring substantive actions (0-2) | 1 | <i>Don</i> | <i>Don</i> |
| 7. Critical tasks (2-3) | 2 | <i>Don</i> | <i>Don</i> |

| Facility: Nine Mile Point 1 | | Scenario No.: NRC-02 | | Op-Test No.: NRC-01 | |
|--|--|-----------------------------|--|----------------------------|--|
| Examiners: _____ | | | Operators: _____ | | |
| Initial Conditions: 100% power. | | | | | |
| Turnover: Perform N1-ST-Q4, Reactor Coolant System Isolation Valves Operability Test, Quarterly surveillance on the EC Loop 11 IVs per Section 8.1. | | | | | |
| #112 Containment Spray Pump OOS for repair. TS 3.3.7.b (day1 of 15 day LCO). | | | | | |
| Event No. | Malf. No. | Event Type* | Event Description | | |
| 1 | - | N BOP SRO | <p>The crew will perform N1-ST-Q4, Reactor Coolant System Isolation Valves Operability Test, quarterly surveillance on the EC Loop 11 IVs per Section 8.1. After several valves are tested one valve will fail to indicate full open (dual indication).</p> <p>ST-Q4, Tech Specs DER-NM-2004-2578, Valve Failed To Indicate Open When Stroke Timed</p> | | |
| 2 | EC06A, Emergency Condenser Tube Leak 111 (100%; ramp 5 minutes) | C BOP | <p>The crew will respond to EC11 vent radiation monitor alarms and diagnose that a tube leak exists. The crew will isolate EC11 to stop the release.</p> <p>ARP K1-1-2, EAL MATRIX, Tech Specs, OP-13 H.10.0</p> | | |
| 3 | MS08, Second Stage Reheaters 112 Steam Supply Closes (TRUE) | C BOP SRO | <p>The crew will respond to a failure of the steam supply to the second stage reheater. The unbalanced condition requires isolating second stage reheaters.</p> <p>ARP A2-3-5, SOP-1.3, OP-41 H.1.0</p> | | |
| 4 | TU02, Main Turbine Hi Vibration Bearing #5 and #6 (53%; no ramp) | R RO SRO | <p>The unbalanced condition on the main turbine results in turbine vibration. If power is not lowered in response to the turbine vibration, it will be lowered to 80% to allow isolation of the second stage reheaters.</p> <p>SOP-1.3</p> | | |

NRC EXAM

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|---|--|--------------|--|
| 5 | TU02, Main Turbine Hi Vibration Bearing #5 and #6 (90%; no ramp) MC01, Main Condenser Air In-Leakage (100%; ramp 2 minutes) | - | The main turbine vibration degrades and a vacuum leak develops from the vibration. Because of the lowering main condenser vacuum and the rising turbine vibration, the crew will insert a manual reactor scram and trip the main turbine. SOP-1, SOP-31.3 |
| 6 | RP05A,B RPS A/B failure to scram RP09 ARI/ATWS air header exhaust port blocked RD33A-E Control Rod Bank Blocked Bank 1, 2, 3, 4, 5 Position 48, 24, 48, 24, 48 | M ALL | ATWS. When the crew scrams the reactor control rods fail to insert requiring actions for an ATWS with power about 25%. Crew will be able to manually insert control rods using RMCS. Manual scrams will be successful in inserting control rods but repetitive scrams will be required. N1-SOP-1, N1-EOP-2, N1-EOP-3, N1-EOP-4, N1-EOP-1 PRA: Execute EOP-3.1. |
| 7 | See event 2 | C BOP SRO | ERV111 fuse blown: failed closed and wont open because of a burned out solenoid. |
| 8 | See event 6 MC01 Main Cond Air In leakage | C ALL | Loss of main condenser vacuum. Loss of main condenser as a heat sink. Challenge HCTL. N1-EOP-3 |

NRC EXAM

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| 9 | LP01A/B LP11/12 pump trip | C BOP | <p>The crew will be required to respond to a failure of the liquid poison pump to continue to run once started. Shortly after one LP pump is started (1-2 seconds) it will trip requiring the crew to start the other pump.</p> <p>N1-OP-12; H.1.0</p> <p>PRA: Inject poison solution into the reactor vessel.</p> |
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* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

| TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d) | ACTUAL ATTRIBUTES | EXAM DEVELOPER | FACILITY REVIEW |
|---|----------------------|-------------------|--------------------|
| 1. Total malfunctions (5-8) | 6 | <i>Don</i> | <i>Don</i> |
| 2. Malfunctions after EOP entry (1-2) | 1 | <i>Don</i> | <i>Don</i> |
| 3. Abnormal events (2-4) | 3 | <i>Don</i> | <i>Don</i> |
| 4. Major transients (1-2) | 1 | <i>Don</i> | <i>Don</i> |
| 5. EOPs entered/requiring substantive actions (1-2) | 2 | <i>Don</i> | <i>Don</i> |
| 6. EOP contingencies requiring substantive actions (0-2) | 1 | <i>Don</i> | <i>Don</i> |
| 7. Critical tasks (2-3) | 3 | <i>Don</i> | <i>Don</i> |

| Facility: Nine Mile Point 1 | | Scenario No.: NRC-03 | | Op-Test No.: NRC-01 | |
|---|---|-----------------------------|---|----------------------------|--|
| Examiners: _____ | | | Operators: _____ | | |
| Initial Conditions: 100% power. | | | | | |
| Turnover: N1-ST-M4B, Emergency Diesel Generator 103 AND PB 103 Operability Test, completed satisfactory last shift. Substitute Reactor Building Ventilation Supply and Exhaust Fans from system 12 to system 11. | | | | | |
| Event No. | Malf. No. | Event Type* | Event Description | | |
| 1 | - | N BOP | Substitute Reactor Building Ventilation Supply and Exhaust Fans from system 12 to system 11. OP-10 F.3.2, F.1.0, and F.2.0. | | |
| 2 | HV01A, RB Exhaust Fan Trip 11 (TRUE) R.B. Exhaust Fan 12 & Outlet Damper (POS_1) | C BOP | Reactor Building Exhaust Fan 11 trips and exhaust fan 12 will not start. Start RBEVS in response to a degraded Reactor Building negative pressure (0 psig). ARP L1-3-4, L1-1-5, EOP-5, OP-10 H.1.0, Tech Specs | | |
| 3 | FW37, 13 FCV Oscillation(50%; ramp = 1 minute) | C BOP RO | The crew will respond to FCV 13 oscillations. Later in the scenario the crew will be required to manually adjust 13 FCV to maintain RPV level below the high level trip when reactor power is lowered. SOP-16.1, OP-16; F.6.0 | | |
| 4 | EG 11, 345KV Power Grid Transient (FINAL VALUE: 338; no ramp) | C BOP | The crew will respond to a power grid transient with 115KV voltage and frequency degraded. This includes EDG103 and dead bus transfer to energize PB103. ARP A6-2-6, A6-3-3, SOP-33.A.3, Multiple Tech Specs, OP-45; E.3.0 | | |
| 5 | EG16, Generator Cooling Fan Leads Trip (FINAL VALUE: 50, 1 MINUTE) | R RO SRO | The crew will be required to lower power to maintain isophase bus duct temperatures within limits. When reactor power is lowered the temperatures stabilize then lower. ARP A7-3-5, SOP-1.3, OP-32; H.4.0 | | |

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|---|---|---------------------|--|
| 6 | EG 11, 345KV Power Grid Transient (FINAL VALUE: 328; 1 minute ramp) | - | When the power reduction has been made, the grid conditions degrade requiring removal of the main generator from service because of the low frequency. SOP-33.A.3 (continued), SOP-33.1, SOP-1 |
| 7 | ED01B Loss of Offsite 115KV Power South Oswego – Line 1 ED01A Loss of Offsite 115KV Power JAF-Line 4 DG01A, Diesel Generator 102 Failure to Start (TRUE) | C ALL | Loss of offsite power with EDG102 fail to start and cannot be started. EDG102 and PB102 loss impact SOP-5 execution and RPV level and containment control actions. SOER 99-1; Loss of Grid SOER 03-1; Emergency Power Reliability NMP LER: Loss of grid (Summer 2003) N1-SOP-5, EOP-2, EAL Matrix, |
| 8 | RR29, Recirculation Loop Rupture (12%; ramp time = 10 minutes) | M ALL | Reactor coolant leak. EOP-2, EOP-4, EAL Matrix, EOP-1, EOP-8 |
| 9 | CS03D, Core Spray Inboard Injection Vlv Fail To Open 40- 10 (TRUE) CS03D, Core Spray Inboard Injection Vlv Fail To Open 40- 09 (TRUE) | C BOP SRO | Core Spray injection valves fail to automatically open and must be manually opened to restore and maintain RPV level above TAF following the RPV blowdown. EOP-1 |

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

NRC EXAM

| TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d) | ACTUAL ATTRIBUTES | EXAM DEVELOPER | FACILITY REVIEW |
|---|----------------------|-------------------|--------------------|
| 1. Total malfunctions (5-8) | 7 | <i>Don</i> | <i>Don</i> |
| 2. Malfunctions after EOP entry (1-2) | 3 | <i>Don</i> | <i>Don</i> |
| 3. Abnormal events (2-4) | 3 | <i>Don</i> | <i>Don</i> |
| 4. Major transients (1-2) | 1 | <i>Don</i> | <i>Don</i> |
| 5. EOPs entered/requiring substantive actions (1-2) | 2 | <i>Don</i> | <i>Don</i> |
| 6. EOP contingencies requiring substantive actions (0-2) | 1 | <i>Don</i> | <i>Don</i> |
| 7. Critical tasks (2-3) | 2 | <i>Don</i> | <i>Don</i> |

| Facility: Nine Mile Point 1 Scenario No.: NRC-04 (ALT) Op-Test No.: NRC-01 Examiners: _____ Operators: _____ Initial Conditions: 100% power. Turnover: Need to perform Monthly performance of N1-ST-M8, RBEVS Operability Test. 122 Containment Spray Pump removed from service. EPR in control. | | | |
|--|--|-----------------------|--|
| Event No. | Malf. No. | Event Type* | Event Description |
| 1 | 11M40, 11 RBEVS Train flow meter downscale 11-M040-AO-053, Set at 0.0. | N BOP SRO | N1-ST-M8, RBEVS Operability Test is scheduled for its monthly performance. During the test, when the RBEVS fan is started, the fan flow indicator will fail downscale and the train must be declared inoperable. The SRO must make a T.S. determination. N1-ST-M8, Tech Specs |
| 2 | RP01B, Reactor Trip Bus MG Set Trips (141) (TRUE) RD06, Rod 22-19 Failure – Scrammed (10 Sec. TD) (TRUE) Override for control rod 22-19 position 02. | C RO BOP SRO | Loss of Reactor Trip Bus 141 and a coincident single control rod scram. When control rod 22-19 scrams its CRD Mechanism becomes stuck at position 02. The crew will enter N1-SOP-40.1 Loss of RPS and restore power to the bus, then the scram may be reset. The crew must lower power, asses recovering the control rod and the SRO must make a T.S. determination. N1-SOP-40.1, Tech Specs |
| 3 | RX01, Fuel Cladding Failure - 10% Ramp - 5 minutes, TUA – 1 Min. | R RO SRO | A small fuel leak will develop from the abnormal rod pattern. Rising reactor coolant activity levels will require entry into the Emergency Plan and Emergency Power Reduction. EAL Matrix, EPIP-EPP-18, N1-SOP-1.1, N1-SOP-25.2 |

NRC EXAM

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| 4 | ED04, AC Power Board Electrical Fault (PB11), clears in 3 secs | C RO BOP SRO | <p>During the emergency power reduction the crew will transfer normal house service to the reserve transformers. When the transfer is made both PB 11 supply breakers will trip. The crew can recover PB 11. The trip of PB 11 will cause a trip of RRP's 11 and 12, this will result in entry into the restricted area of the Power to Flow map and the reactor should be manually scrammed.</p> <p><i>N1-SOP-30.1, N1-SOP-30, N1-SOP-1.3, Tech Specs, N1-SOP-1</i></p> |
| 5 | <p>EC06A, Emergency Condenser Tube Leak 111</p> <p>EC08A, EC STM IV 111 Fail to Close = 80%</p> <p>EC08B, EC STM IV 112 Fail to Close = 80%</p> | C BOP SRO | <p>When the reactor is scrammed (If the crew does NOT scram the reactor this malfunction will require a reactor scram) a piping rupture will occur in EC Loop 11. The steam isolation valves fail to fully close.</p> <p><i>N1-SOP-1.3, N1-SOP-1,</i></p> |
| 6 | <p>RD33E, Control Rod Bank 5, Insert Fail position (48)</p> <p>ED26, Failure of PB 11 to Auto Transfer (TRUE)</p> | C RO SRO | <p>A bank of control rods will fail to fully insert requiring the crew to perform actions to manually insert control rods. (if PB11 was not transferred previously it will fail to automatically transfer and must be manually transferred.)</p> <p><i>N1-EOP-2, N1-EOP-3, N1-EOP-4; Att. 2 and 4, N1-OP-12, H.1.0 and G.0</i></p> |
| 7 | RX01, Fuel Cladding Failure - 100% Ramp - 15 minutes | M ALL | <p>Rising reactor coolant activity and radiation levels will require a blowdown. When EOP-8 is entered the crew must enter the path for all control rods not inserted. This will require the crew to terminate and prevent injection prior to emergency depressurization.</p> <p><i>N1-EOP-8, EAL Matrix</i></p> |

NRC EXAM

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

| TARGET QUANTITATIVE ATTRIBUTES (PER SCENARIO; SEE SECTION D.5.d) | ACTUAL ATTRIBUTES | EXAM DEVELOPER | FACILITY REVIEW |
|---|----------------------|-------------------|--------------------|
| 1. Total malfunctions (5-8) | 8 | <i>Normal</i> | <i>Normal</i> |
| 2. Malfunctions after EOP entry (1-2) | 1 | <i>Normal</i> | <i>Normal</i> |
| 3. Abnormal events (2-4) | 4 | <i>Normal</i> | <i>Normal</i> |
| 4. Major transients (1-2) | 1 | <i>Normal</i> | <i>Normal</i> |
| 5. EOPs entered/requiring substantive actions (1-2) | 2 | <i>Normal</i> | <i>Normal</i> |
| 6. EOP contingencies requiring substantive actions (0-2) | 1 | <i>Normal</i> | <i>Normal</i> |
| 7. Critical tasks (2-3) | 3 | <i>Normal</i> | <i>Normal</i> |

ES-401

BWR Examination Outline

Form ES-401-1

| Facility: Nine Mile Point Unit 1 | | | | | | | | | | | | | Date of Exam: November 18, 2004 (tentative) | | | | | |
|---|-------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----------------|---|-----|-----|-------|
| Tier | Group | RO K/A Category Points | | | | | | | | | | | | SRO-Only Points | | | | |
| | | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G * | Total | K | A | A 2 | G * | Total |
| 1. Emergency & Abnormal Plant Evolutions | 1 | 3 | 2 | 4 | | | | 2 | 4 | | | 5 | 20 | | | | | 8 |
| | 2 | 0 | 0 | 1 | | | | 2 | 2 | | | 2 | 7 | | | | | 4 |
| | Tier Totals | 3 | 2 | 5 | | | | 4 | 6 | | | 7 | 27 | | | | | 12 |
| 2. Plant Systems | 1 | 3 | 2 | 2 | 2 | 2 | 1 | 4 | 4 | 1 | 2 | 3 | 26 | | | | | 4 |
| | 2 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | 12 | | | | | 2 |
| | Tier Totals | 3 | 2 | 3 | 3 | 3 | 2 | 5 | 6 | 3 | 3 | 5 | 38 | | | | | 6 |
| 3. Generic Knowledge and Abilities Categories | | | | | 1 | 2 | | 3 | | 4 | | 10 | 1 | 2 | 3 | 4 | 7 | |
| | | | | | 3 | 3 | | 2 | | 2 | | | | | | | | |

- Note: 1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO outline (i.e., the "Tier Totals" in each K/A category shall not be less than two). Refer to Section D.1.c for additional guidance regarding SRO sampling.
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. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system or evolution unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category/tier.
- 6.* 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. The SRO K/As must also be linked to 10 CFR 55.43 or an SRO-level learning objective.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) 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; summarize all the SRO-only knowledge and non-A2 ability categories in the columns labeled "K" and "A." Use duplicate pages for RO and SRO-only exams.
8. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.
9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.

| ES-401 | | BWR Examination Outline Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO) | | | | | | Form ES-401-1 | |
|---|--------|--|--------|--------|--------|---|--|---------------|---|
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # |
| 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 | | | 0 5 | | | | AK3.05 Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Reduced loop operating requirements. | 3.2 | 1 |
| 295003 Partial or Complete Loss of AC / 6 | | | | | 0 4 | | AA2.04 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER: System lineups. | 3.5 | 1 |
| 295003 Partial or Complete Loss of AC / 6 | | | | | | X | 2.1.32 Ability to explain and apply system limits and precautions. | 3.4 | 1 |
| 295004 Partial or Total Loss of DC Pwr / 6 | | | 0 1 | | | | AK3.01 Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: Load shedding. | 2.6 | 1 |
| 295005 Main Turbine Generator Trip / 3 | | 0 9 | | | | | AK2.09 Knowledge of the interrelations between MAIN TURBINE GENERATOR TRIP and the following: Feedwater - HPCI: BWR-2. | 4.0 | 1 |
| 295006 SCRAM / 1 | | | 0 2 | | | | AA1.02 Ability to operate and/or monitor the following as they apply to SCRAM: Reactor water level control system. | 3.9 | 1 |
| 295016 Control Room Abandonment / 7 | | | 0 7 | | | | AA1.07 Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: Control room/local control transfer mechanisms. | 4.2 | 1 |
| 295018 Partial or Total Loss of CCW / 8 | 0 1 | | | | | | AK1.01 Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Effects on component/system operations. | 3.5 | 1 |
| 295019 Partial or Total Loss of Inst. Air / 8 | | | | | 0 1 | | AA2.01 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR: Instrument air system pressure. | 3.5 | 1 |
| 295021 Loss of Shutdown Cooling / 4 | | | | | | X | 2.1.2 Knowledge of operator responsibilities during all modes of plant operation. | 3.0 | 1 |
| 295023 Refueling Acc Cooling Mode / 8 | 0 1 | | | | | | AK1.01 Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS: Radiation exposure hazards. | 3.6 | 1 |
| 295024 High Drywell Pressure / 5 | | | 0 4 | | | | EK3.04 Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Emergency depressurization. | 3.7 | 1 |
| 295025 High Reactor Pressure / 3 | | 0 8 | | | | | EK2.08 Knowledge of the interrelations between HIGH REACTOR PRESSURE and the following: Reactor/turbine pressure regulating system. | 3.7 | 1 |
| 295026 Suppression Pool High Water Temp. / 5 | | | 0 5 | | | | EK3.05 Knowledge of the reasons for the following responses as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Reactor SCRAM. | 3.9 | 1 |
| 295028 High Drywell Temperature / 5 | | | | | | X | 2.4.6 Knowledge symptom based EOP mitigation strategies. | 3.1 | 1 |

| | | | | | | | | | |
|--|--------|---|---|---|--------|---|---|-----|---|
| 295030 Low Suppression Pool Wtr Lvl / 5 | | | | | | X | 2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation. | 3.9 | 1 |
| 295031 Reactor Low Water Level / 2 | 0 1 | | | | | | EK1.01 Knowledge of the operational implications of the following concepts as they apply to REACTOR LOW WATER LEVEL: Adequate core cooling. | 4.6 | 1 |
| 295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 | | | | | 0 3 | | EA2.03 Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: SBLC tank level. | 4.3 | 1 |
| 295038 High Off-site Release Rate / 9 | | | | | 0 4 | | EA2.04 Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: Source of off-site release. | 4.1 | 1 |
| 600000 Plant Fire On Site / 8 | | | | | | X | 2.4.31 Knowledge of annunciators alarms and indications / and use of the response instructions. | 3.3 | 1 |
| K/A Category Totals: | 3 | 2 | 4 | 2 | 4 | 5 | Group Point Total: | 20 | |

| ES-401 | | BWR Examination Outline | | | | | | | Form ES-401-1 | |
|---|--------|-------------------------|--------|--------|--------|---|---|-----|---------------|--|
| Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO) | | | | | | | | | | |
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # | |
| 295008 High Reactor Water Level / 2 | | | | | | X | 2.4.31 Knowledge of annunciators alarms and indications / and use of the response instructions. | 3.3 | 1 | |
| 295009 Low Reactor Water Level / 2 | | | | | | X | 2.1.32 Ability to explain and apply system limits and precautions. | 3.4 | 1 | |
| 295012 High Drywell Temperature / 5 | | | | | 0 3 | | AA2.03 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL TEMPERATURE: Drywell humidity. | 2.8 | 1 | |
| 295015 Incomplete SCRAM / 1 | | | | 0 3 | | | AA1.03 Ability to operate and/or monitor the following as they apply to INCOMPLETE SCRAM: RMCS. | 3.6 | 1 | |
| 295022 Loss of CRD Pumps / 1 | | | | 0 2 | | | AA1.02 Ability to operate and/or monitor the following as they apply to LOSS OF CRD PUMPS: RPS. | 3.6 | 1 | |
| 295032 High Secondary Containment Area Temperature / 5 | | | 0 2 | | | | EK3.02 Knowledge of the reasons for the following responses as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE: Reactor SCRAM. | 3.6 | 1 | |
| 295036 Secondary Containment High Sump/Area Water Level / 5 | | | | | 0 2 | | EA2.02 Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL: Water level in the affected area. | 3.1 | 1 | |
| K/A Category Point Totals: | 0 | 0 | 1 | 2 | 2 | 2 | Group Point Total: | | 7 | |

| BWR Examination Outline | | | | | | | | | | | | Form ES-401-1 | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|--|-----|---|
| Emergency and Abnormal Plant Evolutions - Tier 2/Group 1 (RO) | | | | | | | | | | | | | | |
| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topic(s) | IR | # |
| 205000 Shutdown Cooling | | | | | 0 2 | | | | | | | K5.02 Knowledge of the operational implications of the following concepts as they apply to SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE): Valve operation. | 2.8 | 1 |
| 206000 HPCI | | 0 1 | | | | | | | | | | K2.01 Knowledge of electrical power supplies to the following: system valves. | 3.2 | 1 |
| 207000 Isolation (Emergency) Condenser | | | | | 0 9 | | | | | | | K5.09 Knowledge of the operational implications of the following concepts as they apply to ISOLATION (EMERGENCY) CONDENSER: Cooldown rate: BWR-2,3. | 3.7 | 1 |
| 207000 Isolation (Emergency) Condenser | | | | | | | 0 3 | | | | | A1.03 Ability to predict and/or monitor changes in parameters associated with operating the ISOLATION (EMERGENCY) CONDENSER controls including: Steam flow: BWR-2,3. | 3.3 | 1 |
| 209001 LPCS | | | | 1 0 | | | | | | | | K4.10 Knowledge of LOW PRESSURE CORE SPRAY SYSTEM design feature(s) and/or interlocks which provide for the following: Testability of all operable components. | 2.8 | 1 |
| 209001 LPCS | | | | | | | 0 8 | | | | | A1.08 Ability to predict and/or monitor changes in parameters associated with operating the LOW PRESSURE CORE SPRAY SYSTEM controls including: System lineup. | 3.3 | 1 |
| 211000 SLC | | | | | | | | 0 3 | | | | A2.03 Ability to (a) predict the impacts of the following on the STANDBY LIQUIDCONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A.C. power failures. | 3.2 | 1 |
| 211000 SLC | | | | | | | | | | 0 8 | | A4.08 Ability to manually operate and/or monitor in the control room: System initiation. | 4.2 | 1 |
| 212000 RPS | 0 1 | | | | | | | | | | | K1.01 Knowledge of the physical connections and/or cause-effect relationships between REACTOR PROTECTION SYSTEM and the following: Nuclear instrumentation. | 3.7 | 1 |
| 215003 IRM | | | | 0 5 | | | | | | | | K4.05 Knowledge of INTERMEDIATE RANGE MONITOR (IRM) SYSTEM design feature(s) and/or interlocks which provide for the following: Changing detector position. | 2.9 | 1 |
| 215004 Source Range Monitor | | | | | | | 0 5 | | | | | A1.05 Ability to predict and/or monitor changes in parameters associated with operating the SOURCE RANGE MONITOR (SRM) SYSTEM controls including: SCRAM, rod block, period alarm trip setpoints. | 3.6 | 1 |

| | | | | | | | | | | | | | | | | | | |
|--|--------|--------|--------|--|--|--|--------|--|--------|--|--|--|--|--|---|--|-----|---|
| 215005 APRM / LPRM | | | | | | | | | 0 5 | | | | | | | A3.05 Ability to monitor automatic operations of the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM including: Flow converter/comparator alarms. | 3.3 | 1 |
| 215005 APRM / LPRM | | | | | | | | | | | | | | | X | 2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. | 3.4 | 1 |
| 218000 ADS | | | | | | | | | | | | | | | X | 2.4.31 Knowledge of annunciators alarms and indications / and use of the response instructions. | 3.3 | 1 |
| 223002 PCIS/Nuclear Steam Supply Shutoff | | | | | | | | | 0 2 | | | | | | | A1.02 Ability to predict and/or monitor changes in parameters associated with operating the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF controls including: Valve closures. | 3.7 | 1 |
| 239002 SRVs | 0 8 | | | | | | | | | | | | | | | K1.08 Knowledge of the physical connections and/or cause-effect relationships between RELIEF/SAFETY VALVES and the following: Automatic depressurization system. | 4.0 | 1 |
| 239002 SRVs | | | 0 2 | | | | | | | | | | | | | K3.02 Knowledge of the effect that a loss or malfunction of the RELIEF/SAFETY VALVES will have on following: Reactor Over-pressurization | 4.2 | 1 |
| 259002 Reactor Water Level Control | | | | | | | 0 3 | | | | | | | | | K6.03 Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR WATER LEVEL CONTROL SYSTEM: Main steam flow input. | 3.1 | 1 |
| 259002 Reactor Water Level Control | | | | | | | | | | | | | | | X | 2.4.50 Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. | 3.3 | 1 |
| 261000 SGTS | | | | | | | | | 0 5 | | | | | | | A2.05 Ability to (a) predict the impacts of the following on the STANDBY GAS TREATMENT SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Fan trips. | 3.0 | 1 |
| 262001 AC Electrical Distribution | 0 1 | | | | | | | | | | | | | | | K1.01 Knowledge of the physical connections and/or cause-effect relationships between A.C. ELECTRICAL DISTRIBUTION and the following: Emergency generators (diesel/jet) LER: TIE TO LINE#4 and MOD OPEN | 3.8 | 1 |
| 262002 UPS (AC/DC) | | | | | | | | | 0 1 | | | | | | | A2.01 Ability to (a) predict the impacts of the following on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Under voltage. | 2.6 | 1 |
| 263000 DC Electrical Distribution | | 0 1 | | | | | | | | | | | | | | K2.01 Knowledge of electrical power supplies to the following: Major D.C. loads | 3.1 | 1 |

| | | | | | | | | | | | | | | | |
|--------------------------------|---|---|--------|---|---|---|---|--------|---|--------|---|--------------------|---|-----|----|
| 264000 EDGs | | | 0 3 | | | | | | | | | | K3.03 Knowledge of the effect that a loss or malfunction of the EMERGENCY GENERATORS (DIESEL/JET) will have on following: Major loads powered from electrical buses fed by the emergency generator(s). | 4.1 | 1 |
| 300000 Instrument Air | | | | | | | | 0 1 | | | | | A2.01 Ability to (a) predict the impacts of the following on the INSTRUMENT AIR SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: Air dryer and filter malfunctions. | 2.9 | 1 |
| 400000 Component Cooling Water | | | | | | | | | | 0 1 | | | A4.01 Ability to manually operate and / or monitor in the control room: CCW indications and control. | 3.1 | 1 |
| K/A Category Point Totals: | 3 | 2 | 2 | 2 | 2 | 1 | 4 | 4 | 1 | 2 | 3 | Group Point Total: | | | 26 |

| ES-401 | | BWR Examination Outline | | | | | | | | | | | Form ES-401-1 | |
|---|--------|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|---|--|---------------|---|
| Emergency and Abnormal Plant Evolutions - Tier 2/Group 2 (RO) | | | | | | | | | | | | | | |
| System # / Name | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topic(s) | IR | # |
| 201001 CRD Hydraulic | | | 0 3 | | | | | | | | | K3.03 Knowledge of the effect that a loss or malfunction of the CONTROL ROD DRIVE HYDRAULIC SYSTEM will have on following: control rod drive mechanisms. | 3.1 | 1 |
| 201006 RWM | | | | | | | | | 0 3 | | | A3.03 Ability to monitor automatic operations of the ROD WORTH MINIMIZER SYSTEM (RWM) including: Annunciator and alarm signals. | 3.1 | 1 |
| 202002 Recirculation Flow Control | | | | | | | | | | | X | 2.4.6 Knowledge symptom based EOP mitigation strategies. | 3.1 | 1 |
| 214000 RPIS | | | | | | | | 0 1 | | | | A2.01 Ability to (a) predict the impacts of the following on the ROD POSITION INFORMATION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Failed reed switches. | 3.1 | 1 |
| 216000 Nuclear Boiler Inst. | | | | 0 5 | | | | | | | | K4.05 Knowledge of NUCLEAR BOILER INSTRUMENTATION design feature(s) and/or interlocks which provide for the following: Initiation of the emergency core cooling systems. | 3.9 | 1 |
| 226001 CTMT Spray Mode | | | | | | | | | | | X | 2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation. | 3.9 | 1 |
| 239001 Main and Reheat Steam | | | | | | | | 0 5 | | | | A2.05 Ability to (a) predict the impacts of the following on the MAIN AND REHEAT STEAM SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Main steam line high radiation. | 3.9 | 1 |
| 241000 Reactor/Turbine Pressure Regulator | | | | | | | 1 5 | | | | | A1.15 Ability to predict and/or monitor changes in parameters associated with operating the REACTOR/TURBINE PRESSURE REGULATING SYSTEM controls including: Maximum combined flow limit. | 3.1 | 1 |
| 259001 Reactor Feedwater | | | | | | | | | | 0 4 | | A4.04 Ability to manually operate and/or monitor in the control room: System valves. | 3.1 | 1 |
| 272000 Radiation Monitoring | | | | | | 0 1 | | | | | | K6.01 Knowledge of the effect that a loss or malfunction of the following will have on the RADIATION MONITORING SYSTEM: Reactor Protection System. | 3.0 | 1 |
| 288000 Plant Ventilation | | | | | 0 2 | | | | | | | K5.02 Knowledge of the operational implications of the following concepts as they apply to PLANT VENTILATION SYSTEMS: Differential pressure control. | 3.2 | 1 |

| | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|--------|---|---|---|-----|----|
| 290003 Control Room HVAC | | | | | | | | | 0 1 | | | A3.01 Ability to monitor automatic operations of the CONTROL ROOM HVAC including: Initiation/reconfiguration. | 3.3 | 1 |
| K/A Category Point Totals: | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 2 | Group Point Total: | | 12 |

| ES-401 | | Generic Knowledge and Abilities Outline (Tier 3) (RO) | | | Form ES-401-3 | |
|---|----------|---|--|----|---------------|---|
| Facility: Nine Mile Point Unit 1 | | | Date of Exam: November 18, 2004 (tentative) | | | |
| Category | K/A # | Topic | RO | | SRO-Only | |
| | | | IR | # | IR | # |
| 1. Conduct of Operations | 2.1.10 | Knowledge of conditions and limitations in the facility license. | 2.7 | 1 | | |
| | 2.1.24 | Ability to obtain and interpret station electrical and mechanical drawings. | 2.8 | 1 | | |
| | 2.1.29 | Knowledge of how to conduct and verify valve lineups. | 3.4 | 1 | | |
| | Subtotal | | | 3 | | |
| 2. Equipment Control | 2.2.12 | Knowledge of surveillance procedures. | 3.0 | 1 | | |
| | 2.2.13 | Knowledge of tagging and clearance procedures. | 3.6 | 1 | | |
| | 2.2.26 | Knowledge of refueling administrative requirements. | 2.5 | 1 | | |
| | Subtotal | | | 3 | | |
| 3. Radiation Control | 2.3.9 | Knowledge of the process for performing a containment purge. | 2.5 | 1 | | |
| | 2.3.10 | Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. | 2.9 | 1 | | |
| | Subtotal | | | 2 | | |
| 4. Emergency Procedures / Plan | 2.4.7 | Knowledge of event based EOP mitigation strategies. | 3.1 | 1 | | |
| | 2.4.24 | Knowledge of loss of cooling water procedures. PRA: LOSS OF ESW | 3.3 | 1 | | |
| | Subtotal | | | 2 | | |
| Tier 3 Point Total | | | | 10 | | |

Facility: **Nine Mile Point Unit 1**Date of Exam: **November 18, 2004 (tentative)**

ES-401

Record of Rejected K/As (RO)

Form ES-401-4

| Tier / Group | Randomly Selected K/A | Reason for Rejection |
|--|-----------------------|---|
| Per ES-401, Attachment 1, #1: Review each group and delete those items [Emergency/Abnormal Plant Evolutions (E/APEs) for Tier 1 and systems for Tier 2] that clearly do not apply to the facility for which the examination is being written. They are: | | |
| T1G1 | NA | 295027 High Containment Temperature (Mark III Containment Only). Not applicable to facility. (Mark I containment). |
| T1G2 | NA | 295011 High Containment Temperature (Mark III Containment Only). Not applicable to facility. (Mark I containment). |
| T2G1 | NA | 203000 RHR/LPCI: Injection Mode (Plant Specific). Not applicable to facility design. |
| T2G1 | NA | 209002 High Pressure Core Spray System (HPCS). Not applicable to facility design. |
| T2G1 | NA | 217000 Reactor Core Isolation Cooling System (RCIC). Not applicable to facility design. |
| T2G2 | NA | 210004 Rod Sequence Control System (Plant Specific). Not applicable to facility design. |
| T2G2 | NA | 201005 Rod Control and Information System (RCIS). Not applicable to facility design. |
| T2G2 | NA | 215002 Rod Block Monitor System. Not applicable to facility design. |
| T2G2 | NA | 230000 RHR/LPCI: Torus/Suppression Pool Spray Mode. Not applicable to facility design. |
| T2G2 | NA | 239003 MSIV Leakage Control System. Not applicable to facility design. |
| Per ES-401, Attachment 2 #5: Except as noted in Es-401, Attachment 2, Item 1, all KA statements that are eliminated after they have been randomly selected to fill an examination outline shall be documented on Form ES-401-4, "Record of Rejected KAs," or equivalent. They are: | | |
| T1G1 | 295024 EK3.03 | Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Containment venting: Mark-III. Mark I Containment, not Mark III. |
| T1G1 | 295026 EK3.03 | Knowledge of the reasons for the following responses as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: Suppression pool spray. Have containment spray, not suppression pool spray. |
| T1G1 | 295028 2.4.30 | Knowledge of which events related to system operations/status should be reported to outside agencies. IMPORTANCE RO 2.2 SRO 3.6. Offsite notifications are SRO Only. Importance rating is <2.5. |
| T1G1 | 295030 2.2.25 | Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. TS bases are SRO Only |
| T1G1 | 600000 2.4.30 | Knowledge of which events related to system operations/status should be reported to outside agencies. IMPORTANCE RO 2.2 SRO 3.6 Offsite notifications are SRO Only. Importance rating is <2.5. |
| T1G2 | NA | 295034 Secondary Containment Ventilation High Radiation After randomly and systematically selecting 295032, High Secondary Containment Area Temperature, and 295036, Secondary Containment High Sump/Area Water Level, then selected 295034, Secondary Containment Ventilation High Radiation. Rejected 295034 to avoid over sampling of secondary containment control. |
| T1G2 | 295009 2.4.30 | Knowledge of which events related to system operations/status should be reported to outside agencies. IMPORTANCE RO 2.2 SRO 3.6 Offsite notifications are SRO Only. Importance rating is <2.5. |
| T2G1 | 206000 A2.15 | Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of control oil pressure. No control oil system associated with HPCI per facility design. |
| T2G1 | 206000 A2.16 | Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: High drywell pressure. No specific relation between HPCI and high drywell pressure per facility design. |
| T2G1 | 207000 K5.01 | Knowledge of the operational implications of the following concepts as they apply to ISOLATION (EMERGENCY) CONDENSER: Flow measurement across an elbow using differential pressure: BWR-2,3. Generic Fundamentals Concept. |
| T2G1 | 239002 K3.03 | Knowledge of the effect that a loss or malfunction of the SAFETY/RELIEF VALVES will have on the following. Ability to rapidly depressurize the reactor. Double jeopardy with 239002 A1.08. |
| T2G1 | 261000 K5.01, K5.02 | Knowledge of the operational implications of the following concepts as they apply to STANDBY GAS TREATMENT SYSTEM: K5.01 Heat removal mechanisms 2.3* 2.6* K5.02 Air operated valves: Plant-Specific 2.3* 2.5* Selected 261000 K5. Rejected K5.01 and K5.02 because importance rating is < 2.5. |

Facility: **Nine Mile Point Unit 1**Date of Exam: **November 18, 2004 (tentative)**

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|--|---------------------|--|
| T2G1 | 300000 A3.01, A3.02 | Ability to monitor automatic operations of the INSTRUMENT AIR SYSTEM including: A3.01 Air pressure2.3 2.1 A3.02 Air temperature2.9 2.7 Rejected A3.02 because of inability to evaluate instrument air system air temperature. Rejected A3.01 because importance rating is < 2.5. Randomly and systematically selected another KA: 300000 A.1. Rejected because KA listed under A.1 is NONE. Randomly and systematically selected another KA: 300000 A.2. A2.01 selected because only KA available under A.2. |
| T3 | 2.1.17 | Ability to make accurate / clear and concise verbal reports. Better evaluated during the operating test (simulator scenarios). |
| T3 | 2.1.21 | Ability to obtain and verify controlled procedure copy. Better evaluated during the walkthrough examination (JPMs). |
| T3 | 2.2.6 | Knowledge of the process for making changes in procedures as described in the safety analysis report. (CFR: 43.3 / 45.13) IMPORTANCE RO 2.3 SRO 3.3 SRO Only. Importance rating <2.5. |
| T3 | 2.2.23 | Ability to track limiting conditions for operations. (CFR: 43.2 / 45.13) SRO Only. |
| T3 | 2.4.34 | Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications. Better evaluated during the walkthrough examination (In Plant JPMs). One in-plant JPM is required to be local actions in response to an abnormal/emergency condition. |
| Per ES-401 D.1.d: After completing the outline, check the selected K/As for balance of coverage within and across the three tiers. Ensure that every applicable K/A category is sampled at least twice within each of the three tiers. | | |
| T2G1 | 206000 A2.02 | A2.02 Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Valve closures. K2 under-sampled (only 1 K/A). Randomly selected 206000 HPCI from the 26 T2G1 and 12 T2G2 items, deselected 206000 A2.02, and randomly selected K2.01 from the available K2 K/As for 206000 HPCI. |
| T2G2 | 272000 A1.02 | A1.02 Ability to predict and/or monitor changes in parameters associated with operating the RADIATION MONITORING SYSTEM controls including: Lights, alarms, and indications associated with surveillance testing. K6 under-sampled (only 1 K/A). Randomly selected 272000 Radiation Monitoring from the 26 T2G1 and 12 T2G2 items, deselected 272000 A1.02 and randomly selected K6.01 from the available K6 K/As for 272000 Radiation Monitoring. |
| Operations/Facility Outline Review | | |
| T2G2 | 201001 K3.01 | K3.01 Knowledge of the effect that a loss or malfunction of the CONTROL ROD DRIVE HYDRAULIC SYSTEM will have on following: Recirculation pumps. No interrelation between CRDH and recirc pumps. Randomly selected new K3 from those available and selected K3.03. |