

DRAFT OUTLINE COMMENTS

Facility: Palo Verde

First Exam Date: Nov. 5, 2010

| Written Exam Outline (7/13/10) | | |
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| | Comment | Resolution |
| 1 | Need revision numbers at the page level for RO/SRO written exam. | Added revision numbers at the page level |
| 2 | SRO – Generic 2.2.23 not allowed in Tier 1 | This has been corrected. |
| 3 | SRO – Generic 2.1.6 not allowed in Tier 1 | This has been corrected. |
| 4 | SRO – Generic 2.3.5 not allowed in Tier 1 | This has been corrected. |
| 5 | SRO – Generic 2.2.21 not allowed in Tier 2 | This has been corrected. |
| 6 | What are the numbers on the bottom of the outlines? They are the same number. Revision number? | These are page numbers assigned by the NKEG program. Added revision numbers. |
| 7 | Were any K/As suppressed? If so, provide a list. | No K/As suppressed. Only used K/A < 2.5 not used. Document stating this was submitted. |

| Administrative JPM Outline (7/13/10) | | |
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| | Comment | Resolution |
| 1 | Need K/A and Importance Rating notated for each JPM. | Added to future revisions. |
| 2 | Designate RO JPMs A1-A4, and the SRO JPMs A5-A9 (or RO1-4, SRO1-5). | This was already done. |
| 3 | For A4(RO4) – Simply title... maybe “Perform RCA Tasks” | Changed title. |
| 4 | SRO Admin for the Emergency Procedures/Plan (A9/SRO5) – Was this used on the 2008 exam? | No, not previously used |
| 5 | SRO Admin (A9/SRO5) shows that it is being done in the Control Room. Is this correct or can it be done in the Classroom? | Can do this in the classroom. Scheduled as a classroom JPM. |
| 6 | Were JPMs that were used on previous NRC exams randomly selected? | Yes |

| Control Room / In-Plant System JPM Outline (7/13/10) | | |
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| | Comment | Resolution |
| 1 | Need K/A and Importance Rating notated for each JPM. | Added to the forms. |
| 2 | What is the RU-4 Alarm? | SG Blowdown Radiation Monitor |
| 3 | What are BDAS checks? | Placing Startup Channels and Boron Dilution Alarm System (activates when power increases by 1/3 Decade) in service |
| 4 | How similar are Appendix E and H for a Control Room Fire? What function do these appendixes perform? | They are not similar. Appendix E addresses class power and ensuring DG is aligned to PBB-S04 and Appendix H aligns EW to NC for primary sampling. |
| 5 | Were the JPMs that were on previous exams randomly selected? | Yes, they were randomly selected |
| 6 | Want to confirm that S1/S2, S3/S4, S5/S6, and S7/S8 are designed to run concurrently. | Yes, however, S8 and S7 will need a staggered start time. |

| Simulator Scenario Outline Comments (7/13/10) | | |
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| | Comment | Resolution |
| 1 | Add Rev number to all D-1's. | Rev # is on title as requested - added to each page. |
| 2 | Add Target Quantitative Attributes table to bottom of D-1's (from bottom of form ES-301-4) | Added attributes table to bottom of D-1's. |
| 3 | What is the difference between Supplemental Turnover and Turnover sheets? | The Supplemental Turnover we give to the trainees. Per conversation - leave as is. |
| 4 | What is significance of having Stator Cooling Pump A OOS in all scenarios? | No significance will remain in scenarios 2-4. Not pertinent to scenario 1 since turbine is not online. |
| 5 | Use SRO/RO/BOP designations for D-1's and D-2's or use site specific names (be consistent) | WE use the terms RO (ATC) / SRO / CO (BOP) terms at Palo Verde. Leave as-is. |
| 6 | Critical Tasks definitions must have objective success criteria. | Will leave as is as long as D-2's have complete Critical Task listed. |
| 7 | Identify AOPs / EOPs in Event Descriptions. | Added to the D-1's. |
| 8 | Scen 1: Critical Tasks - By when must the actions be complete? | Event 9: Leave as is as long as D-2's have complete Critical Task listed. Event 10: Leave as is as long as D-2's have complete Critical Task listed. |
| 9 | Scen 1 – Supplemental Turnover: should Stator Cooling Pump A be listed under | No, it is not relevant for this scenario since Main Turbine is not running. |

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| | Equipment out of service? (like it is for Scenarios 2-4) | |
| 10 | Scen 1: Label TS actions as done in the other scenarios (Event Type column) | Added TS to relative events. |
| 11 | Scen 1: Event 2 - What action is required from the operators for a Core Protection Calculator failure? Is this a TS action? | Bypass PPS parameters. This is a TS action. |
| 12 | Scen 1: Event 4 - What is the TC pump? | Turbine Cooling Water Pump. A loss of TC requires a reactor trip. |
| 13 | Scen 1: Event 6 – How fast does this transient occur? Will the applicants have time to recognize/diagnose? Does Trip Initiator mean Manual Reactor Trip? | The event (valve failure) occurs rapidly. The crew has time to notice the event and trip the reactor manually (at least two to three minutes) |
| 14 | Scen 1: Event 8 – is the LOCA a LB or MB? Will the applicants be expected to initiate SI prior to reaching the setpoint? Put LOCA on Lead Evaluator cue, not “after Reactor Trip procedure entered.” | Large break. The applicants will not be expected to initiate SI prior to reaching the setpoint. SI will fail to automatically initial flow due to PPS failing to initiate. LOCA is already on “when directed by lead examiner” cue. |
| 15 | Scen 2: Critical Tasks - By when must the actions be complete? | Event 4: Leave as is as long as D-2’s have complete Critical Task listed. Event 5: Leave as is as long as D-2’s have complete Critical Task listed. |
| 16 | Scen 2: Event 2 – Control Channel #1 fails low. Control channel for what? | Excure control Nuclear Instrumentation. Goes to the Reactor Regulating System and Digital Feedwater Control System |
| 17 | Scen 2: Event 4 – Event description is Power Reduction (slipped CEA) | Will change description to Power reduction |
| 18 | Scen 2: Event 5 – Event description is ATWS (2 nd CEA slips) What RPS trip setpoint is exceeded? Manual trip failed? | DNBR and LPD from CEAC penalty factor. 2 nd CEA is a 12 finger CEA which generates a large penalty factor. Manual trip pushbuttons will not work requiring operation on board B01. |
| 19 | Scen 2: Event 5 – will opening the supply bkrs trip the reactor? Will all full strength CEAs be inserted? | Yes, this will cause all Reactor Trip breakers to open, resulting in a reactor trip with no CEAs stuck out. |
| 20 | Scen 2: Event 6 - What are verifiable operator actions for LOOP? | CO will have to use Atmosphere dump valves to steam the SGs and will have to shift to auxiliary feedwater. The RO will have to restart Charging pumps and isolate seal bleedoff for the Reactor coolant pumps. |
| 21 | Scen 2: Event 7 – will the RO be successful in raising speed of DG A? If not, no credit for event. If so, does it affect End Point? (Power to PBA-S03?) | Changed this event to Spray Pond pump fails to auto start and DG will trip later due to lube oil leak (from validation comments) |
| 22 | Scen 2: Event 8 – What is AFA-P01? Is this a Loss of All Feed? | AFA-P01 is the turbine driven auxiliary feedwater pump. AFB-P01 (motor driven) will trip also. Will add “C” for RO for this event since the RO will energize the bus to allow |

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| | | use of AFN-P01 (Non-essential Motor Driving Aux Feed pump). Although all feed is lost during SPTAs, due to loss of MVAC safety function, the CRS should proceed to the Functional Recovery Procedure since the LOAF EOP will not restore a class bus. |
| 23 | Scen 2: End Point – What is AFN-P01? Revise description to what the event is, do not include operator actions. Why FRP with LOAF and LOOP? | Due to the loss of PBA-S03 (Class 4 kV bus - DG A doesn't come up to speed and Loss of Offsite power) there is no power available to AFN-P01 (Which is our Non-essential auxiliary Feedpump). This results in a loss of the MVAC safety function which is only addressed by the FRP. Will revise description. |
| 24 | Scen 3: Critical Tasks - By when must the actions be complete? | Event 7: Leave as is as long as D-2's have complete Critical Task listed. Event 9: Leave as is as long as D-2's have complete Critical Task listed. Event 10: Leave as is as long as D-2's have complete Critical Task listed. |
| 25 | Scen 3: Event 2 – What is RCBPDT125B? Revise description. | SG Differential pressure transmitter for RCS flow (SG DP). Revised description. |
| 26 | Scen 3: Event 3 – Revise description. Does the RO manipulate the DGs? | The RO has to manually close the DG output breaker to energize PBB-S04 (Class 4 kV bus). Removed operator action from description. |
| 27 | Scen 3: Event 4 – Revise description. | Revised description to Main Generator AC regulator failure |
| 28 | Scen 3: Event 5 – Event Description is Downpower (loss of vacuum). Normally give RO a reactivity event credit, and CRS and BOP get a Normal event credit. | BOP affects reactivity by lowering turbine load. These are done with an Abnormal Operating procedure. Revised D-1s to reflect normal standard. |
| 29 | Scen 3: Event 9 – What is BOP/ESFAS sequencer? Will SI setpoint be reached if MSIS is manually actuated? Do Events 8 and 9 need to be reversed? | This is a sequencer that starts all the big motors (> 50 HP) when safety signals, such as a Safety Injection signal, is received. Event 8 has been deleted. SI setpoint will be exceeded. Break is upstream of the Main Steam Isolation Valves. |
| 30 | Scen 3: Event 10 – Critical Task states SG isolated but description states stop feeding SG – which is correct? | The critical task refers to isolating Feed to the SG when the Differential pressure exceeds the setpoint when it should stop automatically. |
| 31 | Scen 3: End Point – what is RCS rebound and does faulted SG need to be isolated? | RCS rebound is defined as when the faulted SG is dried out as evidenced by RCS temperatures starting to rise. The SG should be isolated by the MSIS with the exception of auxiliary feedwater which should be manually isolated due to failure of the AFAS DP lockout as described in comment 30). The operators will take action to reduce the good steam |

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| | | generator pressure to the saturation pressure for the lowest RCS temperature to stabilize RCS temperature (prevents PTS) |
| 32 | Scen 4: Critical Tasks - By when must the actions be complete? | Event 8: Leave as is as long as D-2's have complete Critical Task listed. Event 10: Leave as is as long as D-2's have complete Critical Task listed. |
| 33 | Scen 4: Event 2 – What is RU-29 and CREFAS? Revise description. | RU-29 is the control room intake radiation monitor. CREFAS is Control Room Essential Filtration Actuation Signal. Revised description. |
| 34 | Scen 4: Event 4 – What is DFWCS? Revise description. | Digital Feedwater Control System. Revised description |
| 35 | Scen 4: Event 6 – Event is Downpower (Control Oil leak). RO gets Reactivity event, BOP/CRS get Normal. | Removed this event. Replaced with a Circ Water condenser tube leak that will require a power reduction |
| 36 | Scen 4: Event 7 – What is NNN-D15? Event is Loss of Main Feedwater (loss of NNN-D15) Combine with Event 8 as loss of main feedwater is initiator to event 8. | NNN-D15 is a non-class 120 VAC power source that will cause a loss of the 'A' MFP. Revised description |
| 37 | Scen 4: Event 8 – change to Four Full Strength CEAs Not Inserted. | This is actually 3 full strength CEAs and 1 part strength CEA. Changed description |
| 38 | Scen 4: Event 10 – Does Aux Feed initiate on reactor trip (event 7)? Is this a Loss of All Feedwater event with LOOP? | No, but it will not automatically actuate due to other failures (pumps fail to auto start). The LOOP is in to stop the charging pumps which are required for the boration. No, the feedwater issues should be addressed in the SPTAs. The CRS should go to the LOOP/LOFC EOP. |

| General Outline Comments (7/13/10) | | |
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| | Comment | Resolution |
| 1 | Schedule needs updated to reflect current applicant mix. | Schedule is revised correctly as dated 10/29/10. |
| 2 | ES-301-5, enter event numbers in columns NOT total of events. (see Instruction #1) | Revised ES-301-5. |
| 3 | Schedule should have been marked Rev. 0 in the body, not just the title of the file. Next schedule needs to be Rev 1. | Revision numbers added to schedule. |
| 4 | Suggested improvement – cross reference of written exam KA's to 55.41/43 and op test KA's to 55.45. This would provide objective evidence for 4.b | Will check mix of cross references to ensure a good mix on next exam. |

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| | on Exam Outline Quality Checklist (ES-201-2). | |
| 5 | Suggested improvement – provide simulator scenario and JPM narratives. | Will provide scenarios and JPM narratives with the next first exam submittal |
| 6 | Suggested improvement – provide summary of safety analysis and industry OE used in op test development (Required by ES-301 D.1.f.) | May add OE summary on next exam. |