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| Facility: <u>Wolf Creek</u> Date of Examination: <u>05/10/2004</u><br>Examination Level: RO Operating Test Number: <u>1</u>  |  |
| <b>Administrative Topic<br/>(see Note)</b>   | <b>Describe activity to be performed:</b>  |
| <b>Conduct of Operations<br/>2.1.33</b>  | Conduct of Operations: Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.<br><br><b>Perform Surveillance Test for AFD</b>   |
| <b>Conduct of Operations<br/>2.1.7</b>   | Conduct of Operations: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.<br><br><b>Given Data, complete a 1/M plot and determine estimated critical rod position (ASP)</b> |
| <b>Equipment Control<br/>2.2.12</b>  | Equipment Control: Knowledge of surveillance procedures.<br><br><b>Given Data, Complete the Surveillance Test Data sheet identifying and documenting any out of spec readings.</b>   |
| <b>Radiation Control<br/>2.3.1</b>   | Radiation Control: Knowledge of 10 CFR: 20 and related facility radiation control requirements<br><br><b>Given a Clearance Order for venting/draining a contaminated system in the RCA, Determine the RWP, limits and time allowed to complete the job.</b>                        |
| <b>Emergency Plan</b>  | <b>NA</b>  |
| <b>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.</b> |  |

| Facility: <u>Wolf Creek</u> Date of Examination: <u>5/10/2004</u><br>Examination Level: SRO    Operating Test Number: <u>1</u>   |   |
|--|---|
| Administrative Topic<br>(see Note)   | Describe activity to be performed:  |
| <b>Conduct of Operations</b><br><b>2.1.33</b>  | Conduct of Operations: Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.<br><br><b>Perform Surveillance Test for AFD and based on results determine any required actions.</b> |
| <b>Conduct of Operations</b><br><b>2.1.20</b>  | Conduct of Operations: Ability to execute procedure steps.<br><br><b>Given initial plant conditions of a SG tube leak, determine from the OFN the required actions.</b>   |
| <b>Equipment Control</b><br><b>2.2.23</b><br><b>(2001 Exam)</b>  | Equipment Control: Ability to track limiting conditions for operations.<br><br><b>Given a sequence of events, Determine the end time of an LCO including any extensions.</b>  |
| <b>Radiation Control</b><br><b>2.3.5</b>   | Radiation Control: Knowledge of use and function of personnel monitoring equipment.<br><br><b>Perform an RCA Frisk.</b>   |
| <b>Emergency Plan</b><br><b>2.4.41</b>   | Emergency Procedures / Plan: Knowledge of the emergency action level thresholds and classifications.<br><br><b>After observing an event on the simulator, make the E-plan Classification and Protective Action Recommendation.</b>                          |
| <b>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.</b> |   |

| Facility: <u>Wolf Creek</u> Date of Examination: <u>5/10/2004</u>   |            |                 |
|---|------------|-----------------|
| Exam Level: RO / SRO(I) Operating Test No.: <u>1</u>  |            |                 |
| <b>Control Room Systems (8 for RO; 7 for SROI; 2 or 3 for SROU)</b>   |            |                 |
| System / JPM Title  | Type Code* | Safety Function |
| a. (S1) Emergency Borate using EMG FR-S1(ASP)   | DAS        | 1               |
| b. (S2) OFN BB-31 S/D LOCA, Isolate RHR Leak  | NS         | 3               |
| c. (S3) Isolate Source of Containment Flooding FR-Z2  | MS         | 5               |
| d. (S4) Feed S/G's with TDAWP   | DSL        | 4               |
| e. (S5) Swap CCW Trains<br>(2001 Exam)  | DSL        | 8               |
| f. (S6) 10-8 to POAH (ASP)  | NASL       | 7               |
| g. (C1) Manually align one train of CREVS   | NC         | 2               |
| h. (C2) EMG C-0 Align Alternate Power to Safeguards Bus using the OFN (ASP)   | NAC        | 6               |
| <b>In-Plant Systems (3 for RO; 3 for SROI; 3 or 2 for SROU)</b>   |            |                 |
| i. (P1) Locally Unisolate BIT   | MR         | 3               |
| j. (P2) Align 120 vac Vital Bus to SOLA Xfmr (ASP)<br>(2001 Exam)   | DAP        | 6               |
| k. (P3) C-0, Loss of All AC, Isolate RCP Seal Leak Off  | NR         | 2               |
| * 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, (P)lant |            |                 |

NOTE: The following are to be run concurrent:

S1/S2

S3/S4

S5/S6

| Facility: <u>Wolf Creek</u> Date of Examination: <u>5/10/2004</u>   |            |                 |
|---|------------|-----------------|
| Exam Level: SRO(U) Operating Test No.: <u>1</u>   |            |                 |
| <b>Control Room Systems (8 for RO; 7 for SROI; 2 or 3 for SROU)</b>   |            |                 |
| System / JPM Title  | Type Code* | Safety Function |
| a. (S1) Emergency Borate using EMG FR-S1 (ASP)  | DAS        | 1               |
| b. (S2) OFN BB-31 S/D LOCA, Isolate RHR Leak (ESF)  | NS         | 3               |
| <b>In-Plant Systems (3 for RO; 3 for SROI; 3 or 2 for SROU)</b>   |            |                 |
| i. (P1) Locally Unisolate BIT   | MR         | 3               |
| j. (P2) Align 120 vac Vital Bus to SOLA Xfmr (ASP)<br>(2001 Exam)   | DAP        | 6               |
| k. (P3) C-0, Loss of All AC, Isolate RCP Seal Leak Off  | NR         | 2               |
| * 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, (P)lant |            |                 |

NOTE: The following simulator JPMs are to be done concurrent:

S1 and S2

| 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.<br>Emergency &<br>Abnormal Plant<br>Evolutions   | 1           | 2                      | 5   | 3   |     |     |     | 2   | 3   |     |     | 3   | 18              |   |   | 4   | 3   | 7     |
|   | 2           | 1                      | 1   | 2   |     |     |     | 1   | 3   |     |     | 1   | 9               |   |   | 2   | 3   | 5     |
|   | Tier Totals | 3                      | 6   | 5   |     |     |     | 3   | 6   |     |     | 4   | 27              |   |   | 6   | 6   | 12    |
| 2.<br>Plant Systems   | 1           | 2                      | 2   | 4   | 2   | 2   | 2   | 2   | 2   | 4   | 3   | 3   | 28              |   |   | 3   | 1   | 4     |
|   | 2           | 2                      | -   | 1   | -   | 2   | 1   | 2   | -   | -   | 1   | 1   | 10              |   |   | -   | 2   | 2     |
|   | Tier Totals | 4                      | 2   | 5   | 2   | 4   | 3   | 4   | 2   | 4   | 4   | 4   | 38              |   |   | 3   | 3   | 6     |
| 3. Generic Knowledge and Abilities<br>Categories  |             |                        |     | 1   |     | 2   |     | 3   |     | 4   |     | 10  |                 | 1 | 2 | 3   | 4   | 7     |
|   |             |                        |     | 2   |     | 2   |     | 2   |     | 4   |     |     |                 | 2 | 2 | 2   | 1   |       |
| <p>Note:</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>3. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system or evolution unless they are related to plant specific priorities.</li> <li>4. Systems/evolutions within each group are identified on the associated outline.</li> <li>5. The shaded areas are not applicable to the category/tier.</li> <li>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.</li> <li>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.</li> <li>8. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.</li> <li>9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.</li> </ol> |             |                        |     |     |     |     |     |     |     |     |     |     |                 |   |   |     |     |       |

WCNOC NRC License Examination  
 May 7, 2004 PWR Examination outline  
 Emergency and Abnormal Plant evolutions – Tier 1 Group 1 (RO/SRO)

Form ES-401-2

| E/APE #/Name/Safety Function                       | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2 | G | Number         | K/A Topics  | Imp. | RO # | SRO # |
|--|--------|--------|--------|--------|--------|---|----------------|---|------|------|-------|
| 000007 Reactor Trip - Stabilization - Recovery / 1 |        |        | R      |        |        |   | 41007<br>EK301 | Knowledge of the reasons for the following as they apply to a reactor trip:<br>Actions contained in EOP for reactor trip  | 4.0  | XXX  |       |
| 000007 Reactor Trip - Stabilization - Recovery / 1 |        |        |        |        |        | S | 41007<br>2445  | Emergency Procedures / Plan: Ability to prioritize and interpret the significance of each annunciator or alarm.   | 3.6  |      | XXX   |
| 000008 Pressurizer Vapor Space Accident / 3        | R      |        |        |        |        |   | 42008<br>AK101 | Knowledge of the operational implications of the following concepts as they apply to a Pressurizer Vapor Space Accident: Thermodynamics and flow characteristics of open or leaking valves                                      | 3.2  | XXX  |       |
| 000009 Small Break LOCA /3                         |        |        |        |        | R      |   | 41009<br>EA239 | Ability to determine or interpret the following as they apply to a small break LOCA: Adequate core cooling  | 4.3  | XXX  |       |
| 000009 Small Break LOCA /3                         |        |        |        |        | S      |   | 41009<br>EA223 | Ability to determine or interpret the following as they apply to a small break LOCA: RCP operating parameters and limits. 10 CFR 43.5   | 3.3  |      | XXX   |
| 000011 Large Break LOCA /3                         |        | R      |        |        |        |   | 41011<br>EK202 | Knowledge of the interrelations between the and the following Large Break LOCA: Pumps   | 2.6  | XXX  |       |
| 000015/17 RCP Malfunctions /4                      |        | R      |        |        |        |   | 42015<br>AK210 | Knowledge of the interrelations between the Reactor Coolant Pump Malfunctions (Loss of RC Flow) and the following: RCP indicators and controls  | 3.3  | XXX  |       |
| 000022 Loss of Rx Coolant Makeup /2                |        |        |        |        |        | R | 42022<br>2435  | Emergency Procedures / Plan: Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.  | 2.9  | XXX  |       |
| 000025 Loss of RHR System /4                       |        |        |        |        | R      |   | 42025<br>AA204 | Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Location and isolability of leaks   | 3.3  | XXX  |       |
| 000026 Loss of Comp. Cooling Water /8              |        |        |        |        | R      |   | 42026<br>AA203 | Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water: The valve lineups necessary to restart the CCWS while bypassing the portion of the system causing the abnormal condition | 2.6  | XXX  |       |
| 000027 Pzr Press. Ctrl. Sys. Malf. /3              |        | R      |        |        |        |   | 42027<br>AK203 | Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners.   | 2.6  | XXX  |       |
| 000029 ATWS /1                                     |        |        |        |        |        | R | 41029<br>222   | Equipment Control: Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.   | 4.0  | XXX  |       |
| 000029 ATWS /1                                     |        |        |        |        | S      |   | 41029<br>EA209 | Ability to determine or interpret the following as they apply to a ATWS: Occurrence of a main turbine/reactor trip. 10 CFR 43.5   | 4.4  |      | XXX   |
| 000038 SG Tube Rupture/3                           |        |        |        |        | S      |   | 41038<br>EA216 | Ability to determine or interpret the following as they apply to a SGTR: Actions to be taken if S/G goes solid and water enters steam line. 10 CFR 43.5   | 4.6  |      | XXX   |
| 000040 W/E12 Steam Line Rupture /4                 |        |        |        |        |        |   |                |   |      |      |       |
| 000054 Loss of Feedwater /4                        |        |        |        |        |        | R | 42054<br>2125  | Conduct of Operations: Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.   | 2.8  | XXX  |       |

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| E/APE #/Name/Safety Function                                   | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2      | G           | Number         | K/A Topics  | Imp. | RO # | SRO # |
|--|--------|--------|--------|--------|-------------|-------------|----------------|---|------|------|-------|
| 000055 Station Blackout /6                                     |        |        |        |        |             |             |                |   |      |      |       |
| 000056 /Loss of Off Site Power /6                              | R      |        |        |        |             |             | 42056<br>AK103 | Knowledge of the operational implications of the following concepts as they apply to Loss of Offsite Power: Definition of subcooling; use of steam tables to determine it   | 3.1  | XXX  |       |
| 000056 /Loss of Off Site Power /6                              |        |        |        |        |             | S           | 42056<br>2132  | Conduct of Operations: Ability to explain and apply all system limits and precautions. 10 CFR 43.2  | 3.8  |      | XXX   |
| 000057 Loss of Vital AC Instrument Bus /6                      |        |        |        | R      |             |             | 42057<br>AA102 | Ability to operate and / or monitor the following as they apply to the Loss of Vital AC Instrument Bus: Manual control of PZR level   | 3.8  | XXX  |       |
| 000057 Loss of Vital AC Instrument Bus /6                      |        |        |        |        | S           |             | 42057<br>AA218 | Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: The indicator, valve, breaker, or damper position which will occur on a loss of power. 10 CFR 43.5   | 3.1  |      | XXX   |
| 000058 Loss of DC Power /6                                     |        |        | R      |        |             |             | 42058<br>AK301 | Knowledge of the reasons for the following responses as they apply to the Loss of DC Power: Use of dc control power by D/Gs   | 3.4  | XXX  |       |
| 000062 Loss of Nuclear Service Water /4                        |        |        | R      |        |             |             | 42062<br>AK302 | Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: The automatic actions (alignments) within the nuclear service water resulting from the actuation of the ESFAS  | 3.6  | XXX  |       |
| 000065 Loss of Instrument Air /8                               |        |        |        |        |             |             |                |   |      |      |       |
| W/E04 LOCA Outside Containment /3                              |        |        |        | R      |             |             | 45E04<br>EA12  | Ability to operate and / or monitor the following as they apply to the (LOCA Outside Containment): Operating behavior characteristics of the facility.  | 3.6  | XXX  |       |
| W/E04 LOCA Outside Containment /3                              |        |        |        |        |             | S           | 45E04<br>2410  | Emergency Procedures / Plan: Knowledge of annunciator response procedures. 10 CFR 43.5  | 3.1  |      | XXX   |
| W/E11 Loss of Emergency Coolant Recirc. / 4                    |        |        | R      |        |             |             | 45E11<br>EK22  | Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility. | 3.9  | XXX  |       |
| W/E05 Inadequate Heat Transfer-Loss of Secondary Heat Sink / 4 |        |        | R      |        |             |             | 45E05<br>EK21  | Knowledge of the interrelations between the (Loss of Secondary Heat Sink) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.   | 3.7  | XXX  |       |
|  |        |        |        |        |             |             |                |   |      |      |       |
| K/A Category Totals<br>RO<br>/<br>SRO                          | 2      | 5      | 3      | 2      | 3<br>/<br>4 | 3<br>/<br>3 |                | Group Point Total   |      | 18   | 7     |

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 May 7, 2004 PWR Examination outline  
 Emergency and Abnormal Plant evolutions – Tier 1 Group 2 (RO/SRO)

Form ES-401-2

| E/APE #/Name/Safety Function              | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2 | G | Number         | K/A Topics  | Imp. | RO# | SRO # |
|---|--------|--------|--------|--------|--------|---|----------------|---|------|-----|-------|
| 000001 Continuous Rod Withdrawal /1       |        |        |        |        |        | R | 42001<br>AA203 | Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Proper actions to be taken if automatic safety functions have not taken place  | 4.5  | XXX |       |
| 000003 Dropped Control Rod /1             |        |        |        |        |        |   |                |   |      |     |       |
| 000005 Inoperable/Stuck Control Rod /1    |        |        |        |        |        |   |                |   |      |     |       |
| 000024 Emergency Boration /1              |        |        |        |        |        | R | 42024<br>2422  | Emergency Procedures / Plan: Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.   | 3.0  | XXX |       |
| 000024 Emergency Boration /1              |        |        |        |        |        | S | 42024<br>AA205 | Ability to determine and interpret the following as they apply to the Emergency Boration: Amount of boron to add to achieve required SDM. 10 CFR 43.5   | 3.9  |     | XXX   |
| 000028 /Pzr Level Malfunction /2          |        |        |        |        |        | S | 42028<br>AA212 | Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions: Cause for PZR level deviation alarm: controller mal- function or other instrumentation malfunction. 10 CFR 43.5 | 3.5  |     | XXX   |
| 000032 Loss of Source Range NI /7         |        |        |        |        |        |   |                |   |      |     |       |
| 000033 Loss of Intermediate Range NI /7   |        |        |        |        |        |   |                |   |      |     |       |
| 000036 /Fuel Handling Accident /8         |        |        |        |        |        | R | 42036<br>AA102 | Ability to operate and / or monitor the following as they apply to the Fuel Handling Incidents: ARM system  | 3.1  | XXX |       |
| 000037 SG Tube Leak /3                    |        |        | R      |        |        |   | 42037<br>AK303 | Knowledge of the reasons for the following responses as they apply to the Steam Generator Tube Leak: Comparison of makeup flow and letdown flow for various modes of operation  | 3.1  | XXX |       |
| 000051 Loss of Condenser vacuum /4        |        |        |        |        |        | R | 42051<br>AA202 | Ability to determine and interpret the following as they apply to the Loss of Condenser Vacuum: Conditions requiring reactor and/or turbine trip  | 3.9  | XXX |       |
| 000051 Loss of Condenser vacuum /4        |        |        |        |        |        | S | 42051<br>2132  | Conduct of Operations: Ability to explain and apply all system limits and precautions.  | 3.8  |     | XXX   |
| 000059 Accidental Liquid RadWaste Rel. /9 |        |        |        |        |        |   |                |   |      |     |       |
| 000060 Accidental Gaseous Radwaste Rel./9 | R      |        |        |        |        |   | 42060<br>AK104 | Knowledge of the operational implications of the following concepts as they apply to Accidental Gaseous Radwaste Release: Calculation of offsite doses due to a release from the power plant                                  | 2.5  | XXX |       |
| 000061 ARM System Alarms /7               |        |        |        |        |        |   |                |   |      |     |       |



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 Emergency and Abnormal Plant evolutions – Tier 1 Group 2 (RO/SRO)

Form ES-401-2

| E/APE #/Name/Safety Function                 | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2 | G           | Number         | K/A Topics   | Imp. | RO # | SRO # |
|--|--------|--------|--------|--------|--------|-------------|----------------|--|------|------|-------|
| 000067 Plant Fire on Site /8                 |        |        |        |        |        | R           | 42067<br>AA213 | Ability to determine and interpret the following as they apply to the Plant Fire on Site: Need for emergency plant shutdown  | 3.3  | XXX  |       |
| 000068 Control Room Evac. /8                 |        |        |        |        |        |             |                |  |      |      |       |
| 000069 W/E14 Loss of CTMT Integrity /5       |        |        |        |        |        |             |                |  |      |      |       |
| 000074 W/E06&E07Inadequate Core Cooling /4   |        |        |        |        |        |             |                |  |      |      |       |
| 000076 High Reactor Coolant Activity /9      |        |        | R      |        |        |             | 42076<br>AK305 | Knowledge of the reasons for the following responses as they apply to the High Reactor Coolant Activity: Corrective actions as a result of high fission-product radioactivity level in the RCS   | 2.9  | XXX  |       |
| 000076 High Reactor Coolant Activity /9      |        |        |        |        |        | S           | 42076<br>249   | Emergency Procedures / Plan: Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies. 10 CFR 43.5  | 3.9  |      | XXX   |
| W/E01 & E02 Rediagnosis & SI Termination / 3 |        |        | R      |        |        |             | 45E02<br>EK22  | Knowledge of the interrelations between the (SI Termination) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility. | 3.5  | XXX  |       |
| W/E13 Steam Generator Over-pressure / 4      |        |        |        |        |        |             |                |  |      |      |       |
| W/E15 Containment Flooding / 5               |        |        |        |        |        | S           | 45W/E15<br>234 | Radiation Control: Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized. 10 CFR 43.4   | 3.1  |      | XXX   |
| W/E16 High Containment Radiation / 9         |        |        |        |        |        |             |                |  |      |      |       |
| K/A Category Totals<br>RO<br>/<br>SRO        | 1      | 1      | 2      | 1      |        | 3<br>/<br>2 | 1<br>/<br>3    | Group Point Total  |      | 9    | 5     |

WCNOC NRC License Examination  
 May 7, 2004 PWR Examination outline  
 Plant Systems – Tier 2 Group 1 (RO/SRO)

Form ES-401-2

| System #/Name                      | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G | Number        | K/A Topics  | Imp. | RO# | SRO# |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---------------|---|------|-----|------|
| 003 Reactor Coolant Pump           |        | R      |        |        |        |        |        |        |        |        |   | 34003<br>K202 | Knowledge of bus power supplies to the following: CCW pumps   | 2.5  | XXX |      |
| 003 Reactor Coolant Pump           |        |        |        |        |        |        | R      |        |        |        |   | 34003<br>A101 | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCPS controls including: RCP vibration   | 2.9  | XXX |      |
| 003 Reactor Coolant Pump           |        |        |        |        |        |        |        | S      |        |        |   | 34003<br>A203 | Ability to (a) predict the impacts of the following malfunctions or operations on the RCPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Problems associated with RCP motors, including faulty motors and current, and winding and bearing temperature problems. 10 CFR 43.5 | 3.1  |     | XXX  |
| 004 Chemical and Volume Control    |        |        |        |        |        |        |        |        |        |        | R | 31004<br>2128 | Conduct of Operations: Knowledge of the purpose and function of major system components and controls.   | 3.2  | XXX |      |
| 004 Chemical and Volume Control    |        |        |        |        |        |        |        | S      |        |        |   | 32004<br>A209 | Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: High primary and/or secondary activity. 10 CFR 43.5   | 3.9  |     | XXX  |
| 005 Residual Heat Removal          |        |        | R      |        |        |        |        |        |        |        |   | 34005<br>K306 | Knowledge of the effect that a loss or malfunction of the RHRS will have on the following: CSS  | 3.1  | XXX |      |
| 006 Emergency Core Cooling         |        | R      |        |        |        |        |        |        |        |        |   | 33006<br>K201 | Knowledge of bus power supplies to the following: ECCS pumps  | 3.6  | XXX |      |
| 006 Emergency Core Cooling         |        |        |        |        |        |        |        |        |        |        | R | 33006<br>A402 | Ability to manually operate and/or monitor in the control room: Valves  | 4.0  | XXX |      |
| 006 Emergency Core Cooling         |        |        |        |        |        |        |        | S      |        |        |   | 33006<br>A207 | Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of heat tracing. 10 CFR 43.5   | 3.1  |     | XXX  |
| 007 Pressurizer Relief/Quench Tank |        |        |        |        |        |        |        | R      |        |        |   | 35007<br>A203 | Ability to (a) predict the impacts of the following malfunctions or operations on the P S; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Overpressurization of the PZR  | 3.6  | XXX |      |

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 May 7, 2004 PWR Examination outline  
 Plant Systems – Tier 2 Group 1 (RO/SRO)

Form ES-401-2

| System #/Name                    | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G | Number        | K/A Topics  | Imp. | RO# | SRO# |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---------------|---|------|-----|------|
| 008 Component Cooling Water      |        |        |        |        |        |        |        |        | R      |        |   | 38008<br>A303 | Ability to monitor automatic operation of the CCWS, including: All flow rate indications and the ability to evaluate the performance of this closed-cycle cooling system.   | 3.0  | XXX |      |
| 010 Pressurizer Pressure Control |        |        | R      |        |        |        |        |        |        |        |   | 33010<br>K303 | Knowledge of the effect that a loss or malfunction of the PZR PCS will have on the following: ESFAS   | 4.0  | XXX |      |
| 012 Reactor Protection           |        |        |        |        | R      |        |        |        |        |        |   | 37012<br>K501 | Knowledge of the operational implications of the following concepts as they apply to the RPS: DNB   | 3.3  | XXX |      |
| 012 Reactor Protection           |        |        |        |        |        | R      |        |        |        |        |   | 37012<br>K601 | Knowledge of the effect of a loss or malfunction of the following will have on the RPS: Bistables and bistable test equipment   | 2.8  | XXX |      |
| 013 ESFAS                        |        |        |        | R      |        |        |        |        |        |        |   | 32013<br>K406 | Knowledge of ESFAS design feature(s) and/or interlock(s) which provide for the following: Recirculation actuation system reset  | 4.0  | XXX |      |
| 022 Containment Cooling          |        |        |        |        |        |        |        |        | R      |        |   | 35022<br>A301 | Ability to monitor automatic operation of the CCS, including: Initiation of safeguards mode of operation  | 4.1  | XXX |      |
| 022 Containment Cooling          |        |        |        |        |        |        |        |        |        | R      |   | 35022<br>A401 | Ability to manually operate and/or monitor in the control room: CCS fans  | 3.6  | XXX |      |
| 026 Containment Spray            |        |        |        |        |        |        |        | R      |        |        |   | 35026<br>A203 | Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of ESF | 4.1  | XXX |      |
| 039 Main and Reheat Steam        |        |        |        |        |        |        |        |        |        | R      |   | 34039<br>217  | Conduct of Operations: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.  | 3.7  | XXX |      |
| 056 Condensate                   | R      |        |        |        |        |        |        |        |        |        |   | 34056<br>K103 | Knowledge of the physical connections and/or cause-effect relationships between the Condensate System and the following systems: MFW.   | 2.6  | XXX |      |
| 059 Main Feedwater               |        |        |        |        |        |        | R      |        |        |        |   | 34059<br>A107 | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MFW controls including: Feed Pump speed. (ICS is N/A for Wolf Creek.)  | 2.5  | XXX |      |
| 059 Main Feedwater               |        |        |        |        |        |        |        |        | R      |        |   | 34059<br>A306 | Ability to monitor automatic operation of the MFW, including: Feedwater isolation   | 3.2  | XXX |      |

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| System #/Name                               | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G | Number        | K/A Topics   | Imp. | RO# | SRO# |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---------------|--|------|-----|------|
| 061 Auxiliary Feedwater                     |        |        |        |        | R      |        |        |        |        |        |   | 34061<br>K501 | Knowledge of the operational implications of the following concepts as they apply to the AFW: Relationship between AFW flow and RCS heat transfer                  | 3.6  | XXX |      |
| 062 AC Electrical Distribution              |        |        | R      |        |        |        |        |        |        |        |   | 36062<br>K301 | Knowledge of the effect that a loss or malfunction of the ac distribution system will have on the following: Major system loads                                    | 3.5  | XXX |      |
| 063 DC Electrical Distribution              |        |        |        | R      |        |        |        |        |        |        |   | 36063<br>K402 | Knowledge of DC electrical system design feature(s) and/or interlock(s) which provide for the following: Breaker interlocks, permissives, bypasses and cross-ties. | 2.9  | XXX |      |
| 064 Emergency Diesel Generator              | R      |        |        |        |        |        |        |        |        |        |   | 36064<br>K105 | Knowledge of the physical connections and/or cause-effect relationships between the ED/G system and the following systems: Starting air system                     | 3.4  | XXX |      |
| 064 Emergency Diesel Generator              |        |        |        |        |        | R      |        |        |        |        |   | 36064<br>K608 | Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system: Fuel oil storage tanks   | 3.2  | XXX |      |
| 073 Process Radiation Monitoring            |        |        |        |        |        |        |        |        |        |        | R | 37073<br>239  | Radiation Control: Knowledge of the process for performing a containment purge.  | 2.5  | XXX |      |
| 073 Process Radiation Monitoring            |        |        |        |        |        |        |        |        |        |        | S | 37073<br>236  | Radiation Control: Knowledge of the requirements for reviewing and approving release permits. 10 CFR 43.4  | 3.1  |     | XXX  |
| 076 Service Water                           |        |        | R      |        |        |        |        |        |        |        |   | 34076<br>K301 | Knowledge of the effect that a loss or malfunction of the SWS will have on the following: Closed cooling water   | 3.4  | XXX |      |
| 078 Instrument Air                          |        |        |        |        |        |        |        |        |        |        | R | 38078<br>A401 | Ability to manually operate and/or monitor in the control room: Pressure gauges  | 3.1  | XXX |      |
| 103 Containment                             |        |        |        |        |        |        |        |        | R      |        |   | 35103<br>A301 | Ability to monitor automatic operation of the containment system, including: Containment isolation   | 3.9  | XXX |      |
| K/A Category Point totals<br>RO<br>/<br>SRO | 2      | 2      | 4      | 2      | 2      | 2      | 2      | 2      | 4      | 3      | 3 |               | Group Point Total  |      | 28  | 4    |

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 Plant Systems – Tier 2 Group 2 (RO/SRO)

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| System #/Name                         | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | Number        | K/A Topics  | Imp. | RO# | SRO# |
|---------------------------------------|----|----|----|----|----|----|----|----|----|----|---|---------------|---|------|-----|------|
| 001 Control Rod Drive                 |    |    |    |    |    |    | R  |    |    |    |   | 31001<br>A104 | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CRDS controls including: PZR level and pressures | 3.7  | XXX |      |
| 002 Reactor Coolant                   |    |    |    |    |    |    | R  |    |    |    |   | 32002<br>A104 | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCS controls including: Subcooling Margin        | 3.9  | XXX |      |
| 011 Pressurizer Level Control         |    |    | R  |    |    |    |    |    |    |    |   | 32011<br>K301 | Knowledge of the effect that a loss or malfunction of the PZR LCS will have on the following: CVCS  | 3.2  | XXX |      |
| 014 Rod Position Indication           |    |    |    |    |    |    |    |    |    | R  |   | 31014<br>A402 | Ability to manually operate and/or monitor in the control room: Control rod mode-select switch  | 3.4  | XXX |      |
| 015 Nuclear Instrumentation           |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |
| 016 Non-Nuclear Instrumentation       |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |
| 017 In-Core Temperature Monitor       |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |
| 027 Containment Iodine Removal        |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |
| 028 H2 Recombiner and Purge Control   |    |    |    |    | R  |    |    |    |    |    |   | 35028<br>K502 | Knowledge of the operational implications of the following concepts as they apply to the HRPS: Flammable hydrogen concentration   | 3.4  | XXX |      |
| 028 H2 Recombiner and Purge Control   |    |    |    |    |    |    |    |    |    |    | S | 35028<br>239  | Radiation Control: Knowledge of the process for performing a containment purge. 10 CFR 43.4   | 3.5  |     | XXX  |
| 029 Containment Purge                 |    |    |    |    |    |    |    |    |    |    | R | 35029<br>2132 | Conduct of Operations: Ability to explain and apply all system limits and precautions.  | 3.4  | XXX |      |
| 033 Spent Fuel Pool Cooling           |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |
| 034 Fuel Handling Equipment           |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |
| 035 Steam Generator                   |    |    |    |    |    | R  |    |    |    |    |   | 34035<br>K602 | Knowledge of the effect of a loss or malfunction on the following will have on the S/GS: Secondary PORV   | 3.1  | XXX |      |
| 041 Steam Dump/Turbine Bypass Control |    |    |    |    | R  |    |    |    |    |    |   | 34041<br>K505 | Knowledge of the operational implications of the following concepts as the apply to the SDS: Basis for RCS design pressure limits   | 2.6  | XXX |      |
| 045 Main Turbine Generator            |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |
| 055 Condenser Air Removal             |    |    |    |    |    |    |    |    |    |    | S | 34055<br>2225 | Equipment Control: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.   | 2.5  |     | XXX  |
| 068 Liquid Radwaste                   | R  |    |    |    |    |    |    |    |    |    |   | 39068<br>K107 | Knowledge of the physical connections and/or cause effect relationships between the Liquid Radwaste System and the following systems: Sources of liquid wastes for LRS      | 2.7  | XXX |      |
| 071 Waste Gas Disposal                |    |    |    |    |    |    |    |    |    |    |   |               |   |      |     |      |

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 May 7, 2004 PWR Examination outline  
 Plant Systems – Tier 2 Group 2 (RO/SRO)

Form ES-401-2

| System #/Name                               | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G           | Number        | K/A Topics  | Imp. | RO# | SRO# |  |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------|---------------|---|------|-----|------|--|
| 072 Area Radiation Monitoring               |        |        |        |        |        |        |        |        |        |        |             |               |   |      |     |      |  |
| 075 Circulating Water                       | R      |        |        |        |        |        |        |        |        |        |             | 38075<br>K102 | Knowledge of the physical connections and/or cause-effect relationships between the circulating water system and the following systems: Liquid radwaste discharge | 2.9  | XXX |      |  |
| 079 Station Air                             |        |        |        |        |        |        |        |        |        |        |             |               |   |      |     |      |  |
| 086 Fire Protection                         |        |        |        |        |        |        |        |        |        |        |             |               |   |      |     |      |  |
| K/A Category Point totals<br>RO<br>/<br>SRO | 2      | -      | 1      | -      | 2      | 1      | 2      | -      | -      | 1      | 1<br>/<br>2 |               | Group Point Total   |      | 10  | 2    |  |

WCNOC NRC License Examination  
 May 7, 2004 PWR Examination outline  
 Generic Knowledge and Abilities Outline (Tier 3)

Form ES-401-3

| Category  | K/A #    | Topic   | RO   |     | SRO-Only |     |
|---|----------|---|------|-----|----------|-----|
|   |          |   | Imp. | #   | Imp.     | #   |
| <b>1.<br/>Conduct of<br/>Operations</b>           | 2.1.2    | Knowledge of operator responsibilities during all modes of plant operation.   | 3.0  | XXX |          |     |
|   | 2.1.12   | Ability to apply technical specifications for a system. 10 CFR 43.5   |      |     | 4.0      | XXX |
|   | 2.1.14   | Knowledge of system status criteria which require the notification of plant personnel. 10 CFR 43.5  |      |     | 3.3      | XXX |
|   | 2.1.20   | Ability to execute procedure steps.   | 4.3  | XXX |          |     |
|   | Subtotal |   |      | 2   |          | 2   |
| <b>2.<br/>Equipment<br/>Control</b>               | 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  | XXX |          |     |
|   | 2.2.18   | Knowledge of the process for managing maintenance activities during shutdown operations. 10 CFR 43.5  |      |     | 3.6      | XXX |
|   | 2.2.25   | Knowledge of bases in technical specifications for limiting conditions for operations and safety limits   | 2.5  | XXX |          |     |
|   | 2.2.33   | Knowledge of control rod programming. 10 CFR 43.6   |      |     | 2.9      | XXX |
|   | Subtotal |   |      | 2   |          | 2   |
| <b>3.<br/>Radiation<br/>Control</b>               | 2.3.1    | Knowledge of 10 CFR: 20 and related facility radiation control requirements. 10 CFR 43.4  |      |     | 3.0      | XXX |
|   | 2.3.2    | Knowledge of facility ALARA program.  | 2.5  | XXX |          |     |
|   | 2.3.8    | Knowledge of the process for performing a planned gaseous radioactive release. 10 CFR 43.4  |      |     | 3.2      | XXX |
|   | 2.3.11   | Ability to control radiation releases.  | 2.7  | XXX |          |     |
|   | Subtotal |   |      | 2   |          | 2   |
| <b>4.<br/>Emergency<br/>Procedures<br/>/ Plan</b> | 2.4.5    | Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions.   | 2.9  | XXX |          |     |
|   | 2.4.6    | Knowledge of symptom based EOP mitigation strategies.   | 3.1  | XXX |          |     |
|   | 2.4.9    | Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.  | 3.3  | XXX |          |     |
|   | 2.4.30   | Knowledge of which events related to system operations/status should be reported to outside agencies. 10 CFR 43.5   |      |     | 3.6      | XXX |
|   | 2.4.34   | Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications.               | 3.8  | XXX |          |     |
|   | Subtotal |   |      | 4   |          | 1   |
| <b>Tier 3 Point Total</b>                         |          |   |      | 10  |          | 7   |

WCNOC License Examination  
Record of Rejected K/As Revision 02

Form ES-401-4

| Tier / Group | Randomly Selected K/A | Reason for Rejection  |
|--------------|-----------------------|---|
| 1/1          | 41009<br>EA230        | Ability to determine or interpret the following as they apply to a small break LOCA: Tech Specs limits for plant operation with less than four loops.<br><b>WCNOC cannot isolate individual loops.</b>  |
| 1/1          | 41029<br>2116         | Conduct of Operations: Ability to operate plant phone, paging system, and two-way radio.<br><b>Unable to develop a discriminating question to tie this K/A to the ATWS.</b>   |
| 2/1          | 34076<br>K303         | Knowledge of the effect that a loss or malfunction of the SWS will have on the following: Reactor building closed cooling water.<br><b>N/A, WCNOC does not have a Rx Bldg Closed Cooling Water system</b>   |
| 2/1          | 35026<br>A202         | Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of automatic recirculation transfer<br><b>N/A, WCNOC does not have automatic transfer for CSS.</b>               |
| 2/1          | 37012<br>K607         | Knowledge of the effect of a loss or malfunction of the following will have on the RPS: Core protection calculator<br><b>N/A, WCNOC does not have a core protection calculator.</b>   |
| 2/1          | 33006<br>K202         | Knowledge of bus power supplies to the following: Valve operators for accumulators<br><b>Determined that a question on this would be minutia and better tested as a JPM. Changed to K201 for the ECCS pumps.</b>  |
| 2/1          | 34003<br>K202         | Knowledge of bus power supplies to the following: CCW pumps.<br><b>Three K/A's were selected for RCP system 003. Changed to Service Water system 076.</b>   |
| 2/1          | 33006<br>A207         | Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of heat tracing. 10 CFR 43.5<br><b>Three K/A's were selected for ECCS system 006. Changed to ESFAS system 013.</b> |



Facility: Wolf Creek Scenario No.: One (NEW) Op-Test No.: One

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 100% Power, MOL  
"A" MDAFWP is OOS for bearing replacement.  
 \_\_\_\_\_  
 \_\_\_\_\_

Turnover: Maintain current plant conditions.  
 \_\_\_\_\_  
 \_\_\_\_\_

| Event No. | Malf. No. | Event Type* | Event Description   |
|-----------|-----------|-------------|---|
| 1         | mRCS 01B  | I           | Loop Two Thot average channel fails high.                     |
| 2         | mMSS 13   | I           | Steam Header Pressure Channel fails low. (Affects both MFP's) |
| 3         | mPRS 03A  | C           | Pzr Spray Valve fails full open in Automatic.                 |
| 4         | mEPS0 6A  | C           | Vital 4160volt NB02 bus lockout                               |
| 5         | N/A       | N/R         | Tech Spec Required Shutdown due to loss of two AFW pumps.     |
| 6         | mFWM 20   | M           | Main Feed Line break in Turbine Building                      |
| 7         | mAFW 02B  | C           | TDAFW pump fails. Entry to FR-H1.                             |
| 8         | mNIS0 4A  | I           | Nuclear Intermediate Range Channel compensation failure.      |
|           |           |             |   |
|           |           |             |   |
|           |           |             |   |
|           |           |             |   |

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

Facility: Wolf Creek Scenario No.: Two (NEW) Op-Test No.: One

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 30% increasing power, Ready to Enter Gen 00-004  
 \_\_\_\_\_  
 \_\_\_\_\_

Turnover: Prepare to continue power increase to 100%  
 \_\_\_\_\_  
 \_\_\_\_\_

| Event No. | Malf. No.           | Event Type* | Event Description  |
|-----------|---------------------|-------------|--|
| 1         | mFWM 02C4           | I           | "C" S/G Controlling Level Channel fails high.              |
| 2         | mCVC 13C            | C           | Normal Charging Pump Trips                                 |
| 3         | N/A                 | N           | Re-establish Charging and Letdown.                         |
| 4         | MCVC 06A            | C           | Excessive Seal Leak Off "A" RCP.                           |
| 5         | mRCS 02A            | M           | S/G Tube Rupture develops on "A" S/G requiring Rx Trip/Sl. |
| 6         | mTUR 08C            | C           | Main Turbine fails to automatic trip.                      |
| 7         | P1901 9B & P1902 8B | C           | Both ESW pumps fail to auto start on Safety Injection.     |
|           |                     |             |  |
|           |                     |             |  |
|           |                     |             |  |
|           |                     |             |  |
|           |                     |             |  |

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

Facility: Wolf Creek Scenario No.: Three (NEW) Op-Test No.: One

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 60% power, steady state, "A" MFP was out of service for hydraulic leak.  
 \_\_\_\_\_  
 \_\_\_\_\_

Turnover: Start Up "A" MFP, make preps to increase power back to 100%  
 \_\_\_\_\_  
 \_\_\_\_\_

| Event No. | Malf. No.  | Event Type* | Event Description  |
|-----------|------------|-------------|--|
| 1         | mPCS 02A   | I           | AC PT-505, Turbine Impulse Pressure, fails low             |
| 2         | N/A        | N           | Start up "A" MFP   |
| 3         | mCVC 09    | I           | VCT Level channel BG LT-149 fails high.                    |
| 4         | mFWM 05C   | C           | Master Feed pump speed controller fails in Auto            |
| 5         | mMSS 04A   | M           | Main Steam Line Break outside containment leads to Rx Trip |
| 6         | mMSS 02E-H | C           | Automatic Main Steam Line Isolation Fails.                 |
| 7         | mCCW 06B   | C           | "B" CCW pump trips, "D" CCW pump fails to auto start.      |
|           |            |             |  |
|           |            |             |  |
|           |            |             |  |
|           |            |             |  |
|           |            |             |  |

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

Facility: Wolf Creek Scenario No.: Back-Up (MODIFIED) Op-Test No.: One

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 100% Power, MOL  
NCP is OOS for bearing replacement.

Turnover: Maintain current plant conditions.

| Event No. | Malf. No.  | Event Type* | Event Description  |
|-----------|------------|-------------|--|
| 1         | mPRS 01C   | I           | PZR Pressure Channel Fails High                                  |
| 2         | mMSS 07C   | C           | "C" S/G ARV fails open in auto, manual available.                |
| 3         | mFWM 03B   | C           | "B" S/G MFRV fails closed in auto, manual available.             |
| 4         | mRCS 07A   | C           | SSE/OBE Earthquake causes SBLOCA.                                |
| 5         | mRCS 06A   | M           | SSE/OBE escalates to Loss of Offsite Power, LBLOCA.              |
| 6         | mDGS 02A/B | C           | Both EDG's fail to Auto Start.                                   |
| 7         | None       | M           | Lo-Lo RWST level reached, EMG ES-12 Transfer to Cold Leg Recirc. |
|           |            |             |  |
|           |            |             |  |
|           |            |             |  |
|           |            |             |  |
|           |            |             |  |

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