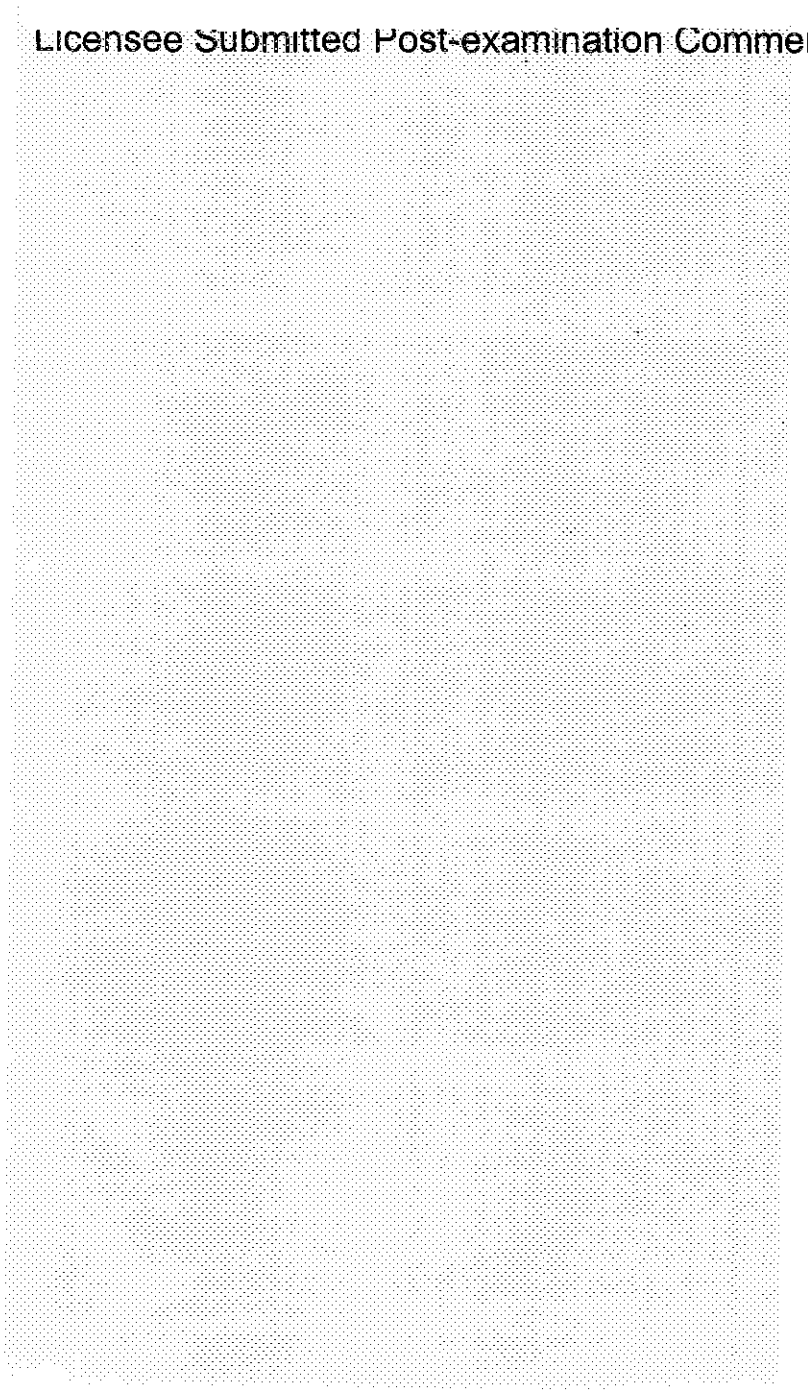
Post-examination Comments

SURRY EXAM
50-280, 50-281/2004-301

FEBRUARY 24 - MARCH 2
& MARCH 4,2004 (WRITTEN)

1. Licensee Submitted Post-examination Comments



VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

March 10,2004

Michael E. Ernstes, Branch Chief
U. S. Nuclear Regulatory Commission
Region II
Atlanta Federal Center
61 Forsyth Street, S. W., Suite 23T85
Atlanta, Georgia 30303-8931

Serial No. 04-149
JSA R0
Docket NOS. 50-280
50-281
License Nos. DPR-32
DPR-37

Dear Mr. Ernstes:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
WRITTEN LICENSE EXAMINATION COMMENTS

In accordance with NUREG-4021, Section ES-402, the following comments are submitted concerning the Reactor Operator and Senior Reactor Operator written initial examinations administered at Surry on March 4, 2004.

RO QUESTION: #38

The following Unit 1 conditions exist:
- Two Main Feedwater Pumps are operating.
- Reactor Power = 65%
- Condensate Pumps 1-CN-P-1A and B are operating.
- Condensate Pump 1-CN-P-1C is Tagged Out of Service.
- Condensate Pump 1-CN-P-1A trips and cannot be restarted.
- Main Feedwater Pump Suction Pressure = 105 psig and slowly lowering.
- Steam Generator Levels are slowly lowering.
- 1H-F8, FW PP SUCT HDR LO PRESS, is in alarm.

Which one of the following is the correct operator action?

A. Enter 1-AP-21.00, Loss of Main Feedwater Flow, and reduce turbine load to match steam flow and feedwater flow.
B. Manually trip the Reactor and enter E-0, Reactor Trip or Safety Injection.
C. Secure one of the operating Main Feedwater Pumps and monitor the operating Main Feedwater Pump Suction Pressure.
D. Enter 1-AP-21.00, Loss of Main Feedwater Flow, and start a second HP Drain Pump.

ANSWER: (A)

Reference: ND-89.3-LP-2, Main Condensate System, Rev. 16
ND-89.3-LP-3, Main Feedwater System, Rev. 12
ND-95.1-LP-4, Loss of Feedwater, Rev. 3
1-AP-21.00, boss of Main Feedwater Flow, Rev. 5
1H-F8, FW PP SUCT HDR LO PRESS, Rev. 0
1H-G8, FW PP DISCH HDR LO PRESS, Rev. 0
1J-G4, CN PPS DISCH HDR LO PRESS, Rev. 0

COMMENTS:

Most trainees applied the Management standard for conservative decision making. If reactor trip is imminent, then manually trip the reactor and perform the immediate actions of E-Q. The definition of IMMINENT is within one to two hours and continuing deteriorating conditions exist.

DNOS-0101, Nuclear Safety and Conservative Decision Making, states "Operators faced with unexpected or uncertain conditions will place the plant in a safe condition and will not hesitate, if necessary, to reduce power or trip the reactor."

The conditions provided in this question, one condensate pump running with feed pump suction pressure at 105 psig and decreasing, can only result if the only running condensate pump is also significantly degraded. This places the plant in a condition not considered in the development of AP-21.00, boss of Main Feedwater Flow.

The Supervisor of Shift Operations said that he would not hesitate to trip the reactor given the conditions provided in the stem of the question.

We ran this scenario on the simulator and were unable to keep the unit online. It resulted in a reactor trip 100% of the time.

6 of 10 trainees chose answer (B).

RECOMMENDATIONS:

Based on the above information, accept (B) as an alternate correct answer.

RO QUESTION: #41

The following Unit 1 conditions exist:
- 1K-A8, UPS SYSTEM TROUBLE, annunciates.
- 1K-A7, BATT SYSTEM 1A TROUBLE, annunciates.
- An operator reports that Battery Charger DC Output for UPS 1A-1 reads 0 amps.

Which one of the following correctly describes the power supply to the associated DC and Vital AC buses?

A. DC Bus 1A will be supplied by only Battery 1A as indicated by DC Bus voltage slowing trending down over time and Vital AC Buses 1 and 1A will be supplied by Bus 1H1-1.

B. DC Bus 1A will be supplied by only Battery 1A as indicated by DC Bus voltage slowing trending down over time and Vital AC Buses 1 and 1A will be supplied by Bus 1H1-2.

C. DC Bus 1A will be supplied by UPS 1A-2 as indicated by DC Bus Voltage remaining stable at 125 VBC and Vital AC Buses 1 and 1A will be supplied by Bus 1H1-1.

D. DC Bus 1A will be supplied by UPS 1A-2 as indicated by DC Bus Voltage remaining stable at 125 VDC and Vital AC Buses 1 and 1A will be supplied by Bus 1H1-2.

ANSWER: (D)

Reference: ND-90.3-LP-5, Vital and Semi-Vital Bus Distribution, Rev. 11
ND-90.3-LP-6, 125 VDC Distribution, Rev. 10
1K-A7, BATT SYSTEM 1A TROUBLE, Rev. 5
1K-A8, UPS SYSTEM TROUBLE, Rev. 1
11448-FE-1G, Sheet 1 of 1, 125V DC One Line Diagram – Surry Power Station Unit 1, Rev. 33

COMMENTS:

Question has no correct answer. If the battery charger DC output is lost, 1H1-1 cannot be the supply to Vital Bus 1/1A. When the battery charger is lost, the inverter via the DC Bus, supplies Vital Bus 1/1A not 1H1-2 as stated in choice (D).

RECOMMENDATIONS:

Based on the above information, recommend dropping this question from the exam.

RO QUESTION: #66

The following Unit 1 conditions exist:
- The RCS temperature is 190°F.
- Operators are performing Section 5.2 of 1-OP-VS-001, Containment Ventilation, to place the Containment Purge System in service using 1-VS-F-58A or 1-VS-F-58B, Filter Exhaust Fans.
- The Containment Purge Form requires 10,000 cfm purge flow.

Which one of the following correctly states selection criteria, in accordance with 1-OP-VS-001, for choosing which valve to use for obtaining the correct purge flow rate?

A. 1-VS-MOV-100D (Ctmt Purge Exh) should be throttled instead of 1-VS-MOV-101 (Ctmt Purge B/P) due to the high flow rate required by the Containment Purge Form.
B. 1-VS-MOV-101 (Ctmt Purge B/P) should be throttled instead of 1-VS-MOV-100D (Ctmt Purge Exh). This is due to the need to open the supply breaker to 1-VS-MOV-100B in order to throttle it. Opening the breaker will prevent automatic CTMT Purge isolation.
C. 1-VS-MOV-101 (Ctmt Purge B/P) should be throttled instead of 1-VS-MOV-100D (Ctmt Purge Exh) due to the low flew rate required by the Containment Purge Form.
D. 1-VS-MOV-100D (Ctmt Purge Exh) should be throttled instead of I-VS-MOV-101 (Ctrnt Purge B/P). This is due to the need to open the supply breaker to 1-VS-MOV-161 in order to throttle it. Opening the breaker will prevent automatic CTMT Purge isolation.

ANSWER: **(A)**

Reference: 1-OP-VS-001, Containment Ventilation, Rev. 20

COMMENTS:

NOTE in 1-OP-VS-001 Page *17 of* 51 states "If the Containment Purge Form allows greater than 3000 CFM but less than 20,000 GFM, 1-US-MOV-100D will be used to obtain the desired flow. Fine tuning of purge flow using 1-VS-MOV-101 is allowed."

Step (m) on Page 17 states "Adjust 1-VS-MOV-100D *and/or* 1-VS-MOV-101 until the desired purge flow is indicated."

Since the stern of the question asked which valve is used to obtain the correct purge flow rate, some trainees applied the NOTE above and chose to do the final throttling with 1-VS-MOD-101 to obtain the final flow rate instead of continuing to throttle 1-VS-MOV-100D.

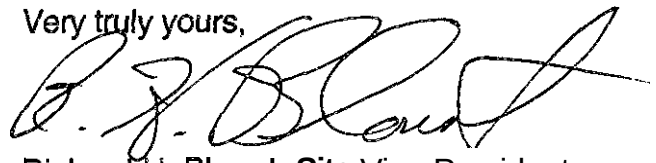
4 of 10 trainees chose answer (C).

RECOMMENDATIONS:

Based on the above information, accept (C) as an alternate correct answer.

Please find attached ***copies*** of reference material **associated** with the above comments. If you have any questions or require additional information, please contact **us.**

Very truly yours,



Richard H. Blount, **Site** Vice President
Surry Power Station

Attachments

Commitments contained in this letter: None

copy:

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Surry Power Station

ATTACHMENT

WRITTEN LICENSE EXAMINATION COMMENTS

REFERENCE MATERIAL TO SUPPORT COMMENTS

RO QUESTION: #38

Surry Bower Station - Units 1 & 2

VIRGINIA ELECTRIC AND POWER COMPANY

DEFINITIONS

1. Complete Loss:
Loss of a system without the capability to restore it using Abnormal Procedures (APs) and Emergency Operating Procedures (EOPs), e.g., Auxiliary Feedwater (AFW), AFW-Cross-connect, Main Feedwater, **Main** Condensate, Charging/Safety Injection (SI). For example, loss of all **high** pressure Reactor Coolant System (RCS) makeup and reactivity control sources, including the affected unit's Charging/High Head Safety Injection (HHSI) systems, with a loss of Charging **Pump** cross-connect capability, and/or a loss of all Charging/HHSI flowpaths constitutes a complete loss, but loss of the Refueling Water Storage Tank (RWST) cross-tie capability, i.e., a loss of one RWST, would not constitute a **complete** Boss.

2. Explosion:
A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment, that potentially imparts energy to near-by **structures** and materials. **Report** of visible damage should not be interpreted as mandating a lengthy damage assessment prior to classification. The occurrence **of** tke explosion with reports of evidence of damage (e.g., deformation, scorching) is sufficient for declaration.

3. Faulted Steam Generator:
A **steam** generator with **a** secondary break or leakage.

4. Imminent:
Within 1 to 2 hours, and continuing deteriorating **conditions exist.**

5. Intrusion:
Visual verification that penetration into the **Protected** Area has been achieved and that the threat has not been contained or mitigated. The intrusion may be in the form of a person or persons, or may be a sabotage device that has not been removed or de-activateci, e.g., confirmed, un-neutralized intrusion.

6. Missile:
Missile hazards include compressed gas cylinders, turbine rotating components, or any object which can be thrown or projected and impacts **at** a distance.

7. Most:
Judgement threshold for determining severity of plant conditions. Application would be supported by the specific judgement of the Shift Supervisor. Generally, approximately 75%.

DOMINION NUCLEAR OPERATIONS STANDARD

NUCLEAR SAFETY AND CONSERVATIVE DECISION MAKING

Expectation:

- Nuclear and industrial safety are the overriding station concerns
- The reactor and its supporting systems are maintained within the bounds of analyzed equipment alignments and approved procedures.
- Risks and challenges associated with plant operations are anticipated and a healthy respect is maintained for the stored energy within the reactor core.
- Operators faced with unexpected or uncertain conditions will place the plant in a safe condition and will not hesitate, if necessary, to reduce power or trip the reactor.

Standards:

- Operators shall recognize when degraded conditions exist that could challenge plant safety or reliability.
- Information shall be gathered and analyzed from relevant sources and appropriate personnel in order to clearly define and provide options for resolution of operational concerns.
- Short- and long-term risks, consequences, and the aggregate impact associated with decision options shall be critically and objectively considered.
- Implementation plans to resolve operational concerns shall be developed that include contingencies and compensatory measures to maintain or enhance safety or probabilistic nsk margins.
- Decision-makes and their roles and responsibilities shall be clearly Identified.
- Command and control responsibilities shall be carried out in accordance with site-specific procedures.
- The bases for decisions shall be communicated throughout the organization.
- The effectiveness of decisions shall be periodically evaluated.
- Human performance tools and group input shall be utilized to avoid inappropriate actions and unexpected responses when reaching operating decisions.
- When faced with time-critical decisions, operators:
  - Do not allow production or cost to override safety.
  - Do not challenge the safe operatii envelope.
  - Question and validate available information.
  - Utilize available alternate indications to validate information.
  - Assume the available indications are valid until proven otherwise.
  - Use all available resources, including people offsite, if necessary.
  - Develop contingency actions, if time allows.
  - Do not proceed in the face of uncertainty.

Approved By: Signature on File Date: On File

ATTACHMENT

WRITTEN LICENSE EXAMINATION COMMENTS

REFERENCE MATERIAL TO SUPPORT COMMENTS

RO QUESTION: #41

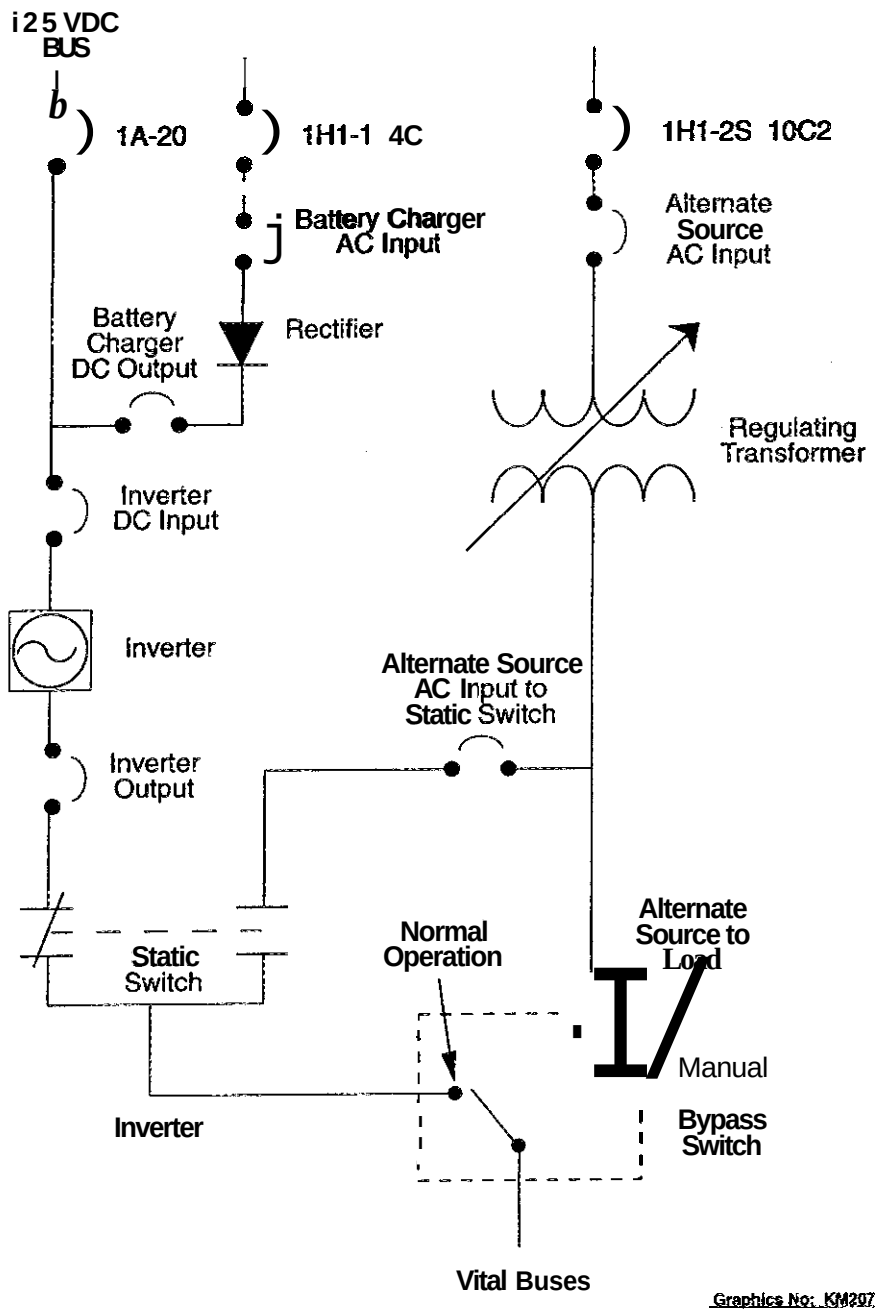
Surry Power Station - Units 1 & 2

VIRGINIA ELECTRIC AND POWER COMPANY

(Page 4 of 1)

Attachment 1

UNINTERRUPTIBLE POWER SUPPLY 1A-1



UNINTERRUPTIBLE POWER SUPPLY (UPS)

UPS 1A-1

ATTACHMENT

WRITTEN LICENSE EXAMINATION COMMENTS

REFERENCE MATERIAL TO SUPPORT COMMENTS

RO QUESTION: #66

Surry Power Station - Units 1 & 2

VIRGINIA ELECTRIC AND BOWER COMPANY

* *

CAUTION: Throttling of 1-VS-MOV-100D, Ctmt Purge Exh, which is performed by opening 1-EP-BKR-1B1-2W1B, will prevent automatic CTMT Purge isolation.

* *

NOTE: If the Containment Purge Form allows greater than 3000 CFM but less than 20,000 CFM, 1-VS-MOV-100D will be used to obtain the desired flow. Fine tuning of purge flow using 1-VS-MOV-101 is allowed.

NOTE: Throttling of 1-VS-MOV-100D is performed by opening the valve using the MCR control switch, then having the operator open 1-EP-BKR-1B1-2W1B to stop the valve's movement when desired air flow is achieved, and then reclose 1-EP-BKR-1B1-2W1B. **(Reference 2.4.5)**

m. Adjust 1-VS-MOV-100D and/or 1-VS-MOV-101 until the desired purge flow is indicated on FI-VS-118/218, LO RNG <u>or</u> FI-VS-118-1/218-1, HI RNG. Enter N/A for any valve <u>not</u> adjusted.

______ 1. 1-VS-MOV-100D

______ 2. 1-VS-MOV-101

______ n. Verify Purge flow rate is less than 39,600 cfm <u>OR</u> amount specified on the Containment Purge Form.