

FACILITY NAME: Catawba

REPORT NUMBER: 2009-301

POST EXAM COMMENTS

CONTENTS:

- Post Exam Comments**
 - **“As-submitted” post-exam comments from licensee**

Location of Electronic Files:

Not applicable.



Revised 12/30/09

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December 29, 2009

Mr. Frank J. Ehrhardt, Senior Operations Examiner
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Sam Nunn Atlanta Federal Center
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SUBJECT: Duke Energy Carolinas, LLC
Catawba Nuclear Station, Units 1 and 2
Docket Numbers - 50-413 and 50-414
Post Examination Documentation

The post examination materials for the Catawba Nuclear Station initial license examination completed on December 22, 2009 submitted in accordance with NUREG 1021 ES 501 C.1.a, as listed below, are enclosed.

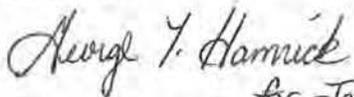
- a. The original examination answer sheets
- b. A clean copy of the original examination answer sheets
- c. The master examination
- e. The answer keys for the RO and SRO examinations
- f. The questions asked by and answers provided to applicants during the written examination
- g. The written examination seating chart
- h. The written exam performance analysis
- i. Post examination comments and supporting documentation for the operating and written examination portions

Form ES-201-3 Examination Security Agreement will be submitted at a later date.

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If you have any questions or need additional information, please contact Steve Tripi, Initial Training Supervisor at (803) 701-3770 or Alan Orton, Operations Training Manager at (803) 701-3977.

Sincerely,


for James R. Morris
James R. Morris

xc: without attachments

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bxc: without attachments

R. D. Hart	CN01RC
ELL	EC050

bxc: cover letter with correspondence review documentation only

Date File	CN01RC
CN-940.00	CN04DM

Time	Q #	Student Posing Question	Question	Answer provided	Provided to:
1117	7	Chad Kidd	<p>Can I get a confirmation there is a correct answer for #7? Given SPP-1 is in ALT ACTION, All 'C' htrs are ON causing pressure [increase]</p> <p>Answers: A. All htrs ON - No, B/U Htrs Blocked on Alt action B. PORV - No, PORVs blocked on Alt Action C. S[pray blocked (auto), no, 'C' htrs + spray are only thing controlled in auto using Press Master in manual. D. Spray + PORV - No, spray not blocked</p>	Yes, there is a correct answer.	Individual
1214	7	Jason Moore	Am I to assume the Alt Action is from the PZR Pressure control?	Enough information is available to answer the question.	Individual
0748	7	Jason Moore	Is that supposed to be a S/G PORV opened momentarily in stem of question?	Question is correct as written.	Individual
0817	7	Thomas Strouse	Is the Alternate action on SPP-1 or SPP-2.	There is enough information available to answer the question.	Individual
0826	12	Keith Anderko	Do all 5 operations have to be because of 1ERPA de-energizing or can they be a separate required manual action?	No additional information provided.	Individual
*	13	Keith Anderko	Does question two ask Allow 1ECS to supply 1EDC with 1ECS aligned from 1EMXJ? OR Allow 1ECS to be powered from 1EMXJ?	<p>Part 2 Question should read as follows:</p> <p>"Does OP/1/A/6350/008 (125VDC/120VAC Vital Instrument and Control Power System) allow alignment of the alternate supply to 1ECS to supply power to 1EDC based on current Unit 1 conditions?"</p>	ALL students still in room

0954	38	Thomas Strouse	<p>The answers are confusing when analyzing the question. * (of the remaining channels that input P-11) Ch 1, 2, 3 input P-11 Ch 2 failed that leaves Ch 1 & 3 that input P-11</p> <p>How many of these 2 must be <P-11 to block ECCS PZR Press 2 must be <P-11 to meet the 2/3 logic required 2 of the 2 remaining must be below P-11 answers the question 2 of the other 2? OTHER?</p>	In each answer the word "other" is equivalent to "remaining".	ALL students still in room
0828	40	Bobby Smith	Part 2 - is this asking for TS limits based on current mode, or based on all modes of applicability?	Question provides correct information. No additional information is required.	Individual
0855	40	Ray Transou	Current status states 1B LCVU just tripped then OAC indications are as above stated. It shows 1B LCVU still running. Is OAC status reflecting actual plant status or has it not updated due to LCVU tripping?	There is enough information to answer the question.	Individual
1313	42	Thomas Strouse	Is 1NI-184 and/or 1NI-185 open? The 1st bullet says auto and manu swap to CLR failed if 184 and 185 are both closed then NS cannot be in service but @ >10 psig procedurally we try to place NS (1 train) in service. @4.9% FWST (<5%) all pump taking suct from FWST must be secured if NS was still on FWST it would be off.	No further information is necessary.	Individual
1159	51	Kieth Anderko	2. Does the conditions above, require knowing if the fuel racks will continue to stick?	Answer based on available information.	Individual

1133	58	David Shaver	Should answer A be SPL-2 instead of SPL-1? OR Should answer C be SPL-1 instead of SPL-2?	No further information is necessary.	Individual
0748	77	Ben Thombs	Is inservice testing the same as a "retest"?	There is enough information to answer the question.	Individual
0820	83	David Shaver	Is question 2 asking if the procedure requires stopping core alts, or the conditions require halting core alts?	Question is correct as written. No additional information is required.	Individual
1048	87	Will Fowler	Question #2 asks what procedure will be implemented <u>NEXT</u> . When is next? After the Rx trip/trip of NCPs or after NC leak/SI?	There is sufficient information to answer the question.	Individual
1344	89	Ben Thombs	<p>Stem of question states: "12/15/09 1800 IAE <u>completed</u> the 1A D/G battery surveillance..."</p> <p>First part of question asks: "1. What is the latest time that this surveillance <u>can be completed</u> before the LCO not met..."</p> <p>Clarification request: When discovered inoperable at 12/15/09 1800, the LOC is not met. Are you asking if the question based on the first time in the question and not considering the discovered inoperable battery?</p>	<p>Part 1 should read as follows:</p> <p>" Based on the conditions at 1500: What is the latest time that this surveillance could have been completed before the LCO for Technical Specification 3.8.4 would <u>not</u> have been met?"</p>	ALL students still in room
* Time this was given was not documented, however, based on returned sheets, it was after Bobby Smith completed his exam. All other student were still taking their exam.					

EXAM PROCTOR #2	SMITH RO
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TRANSOU USRO	BLANKENSHIP RO	MOORE USRO	STROUSE RO	UNDERWOOD USRO
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FANTA USRO	SHAVER ISRO	TURNER RO	THOMBS ISRO
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KIDD ISRO	ANDERKO RO	FOWLER USRO
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FRONT

EXAM PROCTOR #1

Catawba Nuclear Station 2009 Senior Operator Exam and 2008 Senior Operator Retake Exam
(12/22/09) Post Examination Comments

The following comment is submitted for review regarding question number 84 of the written examination administered at Catawba Nuclear Station on December 22, 2009.

Question # 84:

Unit 1 was at 3% power performing a startup. Given the following:

Initial conditions

- Intermediate Range channel N-35 failed low
- The crew removed N-35 from service per the applicable abnormal procedure

Current conditions

- IAE returned the channel to service and reported that the SUR circuitry for N-35 had to be disabled as part of the channel repair
 - Engineering has evaluated the repair and determined that all other functions will operate as designed with the SUR circuitry disabled.
1. When the crew removed N-35 from service per the abnormal procedure, which fuses (if any) were removed?
 2. For the conditions above, is N-35 operable?

- A. 1. The control power fuses
2. No
- B. 1. The control power fuses
2. Yes
- C. 1. No fuses were removed
2. No
- D. 1. No fuses were removed
2. Yes

Original Answer Key: D

References: 1) AP/16 (Malfunction of Nuclear Instrumentation), 2) T. S. 3.3.1 and bases
3) ENB (Excore Nuclear Instrumentation) lesson plan

Comment:

Question 84 did not provide all the necessary information to enable the Senior Reactor Operator applicant to make a proper determination of operability in accordance with approved guidelines contained in Nuclear Station Directive (NSD) 203, "Operability/Functionality."

Per the "initial conditions" contained in Question 84, when the Intermediate Range channel was removed from service per the abnormal operating procedure, the channel was declared inoperable. Subsequent information provided in the "current conditions" statement (second bullet) is not consistent with the station's expectations to use the Operability Determination Process contained in NSD 203 to determine operability. Specifically, the fact that an Operability Determination was/was not conducted is not included in the stem of the question. Without this information, the applicant could conservatively assume that the Operability Determination was not conducted, and the Structure, System or Component would remain inoperable.

Recommendation:

Based upon the above information, the Senior Reactor Operator applicant cannot make a definitive determination of operability within the expectations contained in the NSD. Therefore, Catawba Nuclear Station recommends that Question 84 be deleted from the SRO-only portion of the written examination.

References:

The applicable portions of NSD 203, "Operability/Functionality" are included.

203. OPERABILITY / FUNCTIONALITY

203.1 PURPOSE

The purpose of this directive is to provide the departmental policy for performing operability determinations and functionality assessments consistent with Regulatory Issue Summary (RIS) 2005-20 and its associated Nuclear Regulatory Commission (NRC) Inspection Manual Part 9900 Technical Guidance. In addition, this directive complements the guidance in NSD 208, "Problem Investigation Process (PIP)" for the resolution of degraded and/or nonconforming conditions.

203.2 SCOPE AND APPLICABILITY

This procedure applies to degraded/nonconforming conditions and unanalyzed conditions associated with structures, systems, and components (SSCs) that perform specified functions as set forth in the Current Licensing Basis (CLB) for the facility. A conceptual illustration showing the scope and applicability of this directive is provided as Appendix A.1, "Scope and Applicability."

203.2.1 OPERABILITY DETERMINATIONS

The Operability Determination Process (ODP) is used to assess the operability of SSCs explicitly required to be operable in a Technical Specification (TS) Limiting Condition for Operation (LCO). The scope of SSCs considered within the ODP is as follows:

- a. SSCs explicitly required to be operable in a TS LCO.¹ These SSCs (also referred to as "SSCs described in TSs") may perform required support functions for other SSCs required to be operable by TSs (e.g., emergency diesel generator and service water).
- b. SSCs that are not explicitly required to be operable in a TS LCO, but that perform necessary and required support functions (as specified by the TS definition of operability) for SSCs that are required to be operable by TSs (i.e., Support SSCs).²

203.2.2 FUNCTIONALITY ASSESSMENTS

Functionality is an attribute of SSCs that are not required to be operable by TSs. Such SSCs warrant programmatic controls to ensure that SSC availability and reliability are maintained. SSCs within the scope of functionality are divided into three subsets:

- a. Support SSCs. SSCs within this subset are considered within the scope of the ODP (Refer to 203.2.1.b)
- b. SSCs that are described in the Selected Licensee Commitments (SLC) Manual but do not fall within the scope of the ODP. SSCs within this subset are subject to Formal Functionality Assessments in accordance with Section 203.8.

¹ This includes the TSs based on NUREG-1430 (Babcock and Wilcox) and NUREG-1431 (Westinghouse) and the TSs associated with the Independent Spent Fuel Storage Installation (ISFSI).

² If the ODP is entered due to a condition affecting a Support SSC not described in TSs, then the operability determination should be performed on the Supported SSC described in TSs.

203.3 DEFINITIONS

- c. **Functional/Functionality** – Functionality is an attribute of SSCs not required to be operable by TSs. In general, an SSC is functional or has functionality when it is capable of performing its specified function(s) as set forth in the CLB for the facility. Functionality does not apply to specified safety functions, but does apply to the ability of non-TS SSCs to perform other specified functions. SSCs described in the SLC Manual (but not described in TSs) are functional or have functionality when they are capable of performing those functions considered necessary to meet their associated COMMITMENT(s).

- d. **Loss of Functional Capability** – A physical deterioration of an SSC, such that previous assumptions are no longer valid regarding the SSCs function(s) in support of operability or functionality. Examples of conditions that can reduce the capability of a system are failures, malfunctions, deficiencies, deviations, defective material, aging, erosion, corrosion, improper operation, and maintenance. When the capability of an SSC described in TS is degraded to a point where it cannot perform with reasonable assurance or reliability, the SSC should be declared inoperable even if, at the time of the declaration, the SSC could perform its specified safety function.

Explanation of Critical task: Closure of 1NV-252A and 1NV-253B during transfer to Cold Leg Recirc during Scenario 3, Event 7

This task is NOT critical per the Westinghouse Owners Group (WOG) Emergency Response Guideline (ERG) Critical Task Documentation if the actions already taken will prevent cavitation of the NV pumps. Per the critical task documentation, from the ERG based critical tasks notebook, the critical task associated with EP/1/A/5000/ES-1.3, Transfer to Cold Leg Recirculation, is:

Transfer to cold leg recirculation and establish ECCS recirculation flow.

Closure of these valves isolates the FWST from the NV pump suction preventing further depletion of the FWST. The NV pumps, at this point, have already had their suction aligned to the ND pump discharge, which will produce a higher suction head than the FWST. The flow from the ND pumps is prevented from flowing into the FWST by a check valve in the line, with 1NV252A and 1NV253B being closed as a backup to the check valve, which is tested per PT/1/A/4200/013H NI/NV Check Valve Test according to the Catawba OM-10 Testing Program. EP/1/A/5000/ES-1.3 continues on regardless of the position of 1NV252A and 1NV253B, and the final check that is made for successful transfer to Cold Leg Recirc is flow from each of the ECCS pumps, which will be present with 1NV252A and 1NV253B open or closed.

The Critical Task Review Group (CTRG) anticipated that the performance standard, for the critical task of swapping to cold leg recirc, would hinge on the following:

- Establishing ECCS recirc flow at least consistent with minimum safeguards
- Preventing loss of suction to the ECCS pumps

The by/when aspect of the performance standard would be, "before the crew is forced to stop all safety injection when the FWST empties." This would be before the FWST decreases to the setpoint (i.e. 5%) at which the crew is required to stop all ECCS pumps.

As long as actions are taken to align the NI and NV pump suctions to the ND pumps' discharge, and action is taken to align the NS pumps to the FWST at 11% FWST level, no ECCS pumps will be taking suction on the FWST at 5% level.

Therefore closing 1NV-252A and 1NV-253B during transfer to Cold Leg Recirc is NOT critical.

1NI100B is also NOT critical to be closed, because it also has a check valve in series that will prevent backflow to FWST and because the NI pumps will also be receiving adequate suction from the ND pumps. This check valve is also tested per PT/1/A/4200/013H NI/NV Check Valve Test according to the Catawba OM-10 Testing Program.

The Design Bases Document (DBD) originally referenced and the DBD for 1NV253B and 1NV252A are attached with the text highlighted that was originally used to justify closure of these valves as critical. The DBD uses words like "possibility ofloss of suction" and "...may become inoperable" to describe the effect of not closing valves 1NV252A, 1NV253B, and 1NI100B, implying that it is desired to close these valves, but NOT required to ensure cold leg recirc capability. The critical task document was not originally referenced. After referencing the critical task document, it was seen that closure of these valves is NOT critical.