

PMNorthAnna3COLPEmails Resource

From: Regina.Borsh@dom.com
Sent: Tuesday, March 03, 2009 10:36 AM
To: Mark Tonacci
Cc: NorthAnna3COL Resource; Ronaldo Jenkins; Thomas Kevern; Michael Eudy; Amar Pal; Jeffrey Cruz; Dennis Galvin; John Disosway; Marc Hotchkiss; Geoff Quinn; Tom Hicks; George Zinke; Tom Williamson; eddie.grant@excelservices.com; pshastings@duke-energy.com
Subject: Re: Electrical GDC Questions and Confirmation of Phone Info for Tomorrow: Phone: 866.740.1260; Code: 2732247#
Attachments: Draft ITAAC to Address GDC 17-rv5.pdf

Per your request, Mark - attached are the ITAAC that we proposed in our October meeting. Please note that the wording will be revised slightly in our RAI response to reflect the NRC's request to address the 'preferred power system.'

Gina Borsh
Dominion
Office: (804) 273-2247
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Tie-Line Phone: 8-730-2247

Thanks for responding to my request, Mark and Ronaldo.

We have two follow-up questions on the information you provided:

RAI 8.2-33: We're still interested in obtaining the basis for the NRC's determination that GDC 2 and 4 do not apply to offsite power. If you don't have time to send it prior to the call, perhaps you can explain it on the call.

RAI 8.2-39: We have reviewed the GL. Unfortunately, the letter only requests data; we'd like to see the data that was submitted to you. We were hoping that you might have it in a consolidated format.

Finally, just to confirm: we'll use the bridge line above for the call.

Please call me if you have any questions.

Gina

From: Mark Tonacci [Mark.Tonacci@nrc.gov]
Sent: 03/02/2009 11:17 AM EST
To: Regina Borsh
Cc: NorthAnna3COL Resource <NorthAnna3COL.Resource@nrc.gov>; Ronaldo Jenkins <Ronaldo.Jenkins@nrc.gov>; Thomas Kevern <Thomas.Kevern@nrc.gov>; Michael Eudy <Michael.Eudy@nrc.gov>; Amar Pal <Amar.Pal@nrc.gov>; Jeffrey Cruz <Jeffrey.Cruz@nrc.gov>; Dennis Galvin <Dennis.Galvin@nrc.gov>
Subject: RE: Electrical GDC Questions

Ginna,

Responding to your questions for North Anna:

RAI 8.2-33: GDC 5 applicability - I am paraphrasing this from our electrical supervisor Ronoldo Jenkins: GDC5 basically is in place to ensure that sharing of systems will not allow degradation of the ability to perform the function. GDC 5 applies because GDC 17 calls out electrical power as important to safety and from that flows GDC 5 where ITS systems are being shared.

RAI 8.2-38: Impact of U3 trip on switchyard's ability to support U3. Staff will discuss details tomorrow - talking degraded voltage; Ronoldo and his staff will need to provide more depth to you on this tomorrow.

RAI 8.2-39 underground cabling in the switchyard: see Generic Letter 2007-01 dated 2/07/07.

RAI 14.3.6-1: Tomorrow our staff will discuss your DCWG presentation.

If time permits, Ronoldo will discuss 8.4 on Station Black Out procedures: 10CFR 50.63(2)(c)(ii)

Will talk with you tomorrow.

Mark

From: Regina.Borsh@dom.com [mailto:Regina.Borsh@dom.com]
Sent: Friday, February 27, 2009 8:43 PM
To: Mark Tonacci
Cc: Thomas Kevern; NorthAnna3COL Resource
Subject: Re: Electrical GDC Questions

Thanks for working on getting us the info, Mark.

We can use my bridge number:
Phone: 866.740.1260
Pass code: 2732247#

Let me know if you have any questions.

Thanks,

Gina

From: Mark Tonacci [Mark.Tonacci@nrc.gov]
Sent: 02/27/2009 10:30 AM EST
To: Regina Borsh
Cc: Thomas Kevern <Thomas.Kevern@nrc.gov>; NorthAnna3COL Resource <NorthAnna3COL.Resource@nrc.gov>
Subject: RE: Electrical GDC Questions

Ginna,

Thanks for the response. I am working on the questions you asked and will get them to you as soon as I can. As far as the call goes, I would like to focus on the GDC issues first - which I believe are the first and second question. If we have time we can discuss the other two. We will plan to use your call in number; let me know if you want me to set up an NRC phone line instead - it is no problem.

I am sure we will have a room full on both sides of the call. I expect our electrical supervisor will do most of the talking and I will facilitate. It is easier if we can keep as few people as possible doing the discussing. Your side is probably more challenging because of the folks calling in, but if you can try to focus on just a couple of speakers it will probably be best. Good Luck!!

Mark

From: Regina.Borsh@dom.com [mailto:Regina.Borsh@dom.com]
Sent: Thursday, February 26, 2009 7:01 PM
To: Mark Tonacci
Cc: NorthAnna3COL Resource; John Disosway; Tom Hicks; Marc Hotchkiss; Spence Semmes; Joe Hegner; Norm Peterson; bugocill@tteenergy.com; Lashawn Green; John Hayden; Thomas Kevern
Subject: Re: Electrical GDC Questions

Thanks for the list, Mark.

We'd like to discuss all four RAIs that you consider open:

GDC 5 applicability (RAIs 8.2-33): In order to discuss GDC 5, we would like to know the basis for the NRC's decision that GDC 2 and 4 are not applicable. If possible, could you please provide this information to us before the call, so that we can review it?

Impact of U3 trip on switchyard (RAI 8.2-38): We'd like to know what level of detail is being requested.

Underground cable and testing (RAI 8.2-39): We do not have any operating experience that indicates that this is an issue for high voltage cable. We'd like to review the data that supports your statement.

Offsite power ITAAC (RAI 14.3.6-1): Our RAI response will provide essentially the same ITAAC that we presented in the NRC - DCWG meeting on this topic, with some modifications of the terms onsite and offsite power (vs. PPS). In our call, we'd like to know if you have any comments on the proposal we presented in the meeting.

Please let me know if you have any questions on the above.

Thanks,

Gina

From: Mark Tonacci [Mark.Tonacci@nrc.gov]
Sent: 02/26/2009 12:52 PM EST
To: Regina Borsh
Cc: NorthAnna3COL Resource <NorthAnna3COL.Resource@nrc.gov>
Subject: Electrical GDC Questions

Ginna,

Attached is a list of 4 RAIs on offsite power (8.2) that are currently open for North Anna. I think only the first two are related to the GDC issues we have been working on.

Please take a look at the list and let me know which ones you think are related to the escalated GDC issues we are working on and where we may not be in agreement. I do not mind discussing others but want to focus first on the tough issues we have been discussing for months. I am optimistic that you will say we only have 1 or 2 RAIs to discuss.

Please let me know as soon as you can so we can both prepare for Tuesday's 11:15 call.

Mark

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Hearing Identifier: NorthAnna3_Public_EX
Email Number: 656

Mail Envelope Properties (OFA06AFE23.A76AFC4F-ON8525756E.005556C2-8525756E.0055A8C1)

Subject: Re: Electrical GDC Questions and Confirmation of Phone Info for Tomorrow:
Phone: 866.740.1260; Code: 2732247#
Sent Date: 3/3/2009 10:35:36 AM
Received Date: 3/3/2009 10:35:52 AM
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Files	Size	Date & Time
MESSAGE	7918	3/3/2009 10:35:52 AM
Draft ITAAC to Address GDC 17-rv5.pdf		20020

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Priority: Standard
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Draft Interface Requirements and ITAAC to Address GDC 17

New DCD Tier 1 ITAAC

**Table 2.13.1-2
ITAAC for the Onsite AC Power System**

Design Commitment	Inspections, Tests, and Analysis	Acceptance Criteria
9. The onsite AC electrical distribution system from the Generator Step Up Transformer (GSUT), unit auxiliary transformers (UATs) and reserve auxiliary transformers (RATs) to the safety-related loads is rated to supply necessary load requirements, including power, voltage, and frequency, during design basis operating modes.	Analysis of the as-built safety-related and non-safety related load groups will be performed to determine their load requirements during design basis operating modes. This analysis will, in part, specify required power, voltage, and frequency at the input to the UATs and RATs in order to provide adequate power, voltage, and frequency to the safety-related IPC buses to support safety-related load operation. Analyses will be performed to determine the as-built ratings of applicable onsite AC electrical distribution equipment to supply their loads during design basis operating modes.	A report exists and concludes that the as-built onsite AC electrical distribution system from the GSUT, UATs and RATs to the safety-related loads is rated to supply the load requirements, including power, voltage, and frequency, during design basis operating modes.
10. The onsite AC electrical distribution system is rated to interrupt analyzed fault currents, including the fault current contribution from the offsite power system.	Analysis of the as-built onsite AC electrical distribution system will be performed to determine the fault current interrupting requirements during design basis operating modes including the fault current contribution from the offsite power system.	A report exists and concludes that the as-built onsite AC electrical distribution system is rated to interrupt analyzed fault currents, including the fault current contribution from the offsite power system.
11. The isolation breakers located on the high voltage side of the GSUT, UATs and RATs are supplied with redundant protection circuits, trip coils, and separate and independent DC control power sources.	Inspections and tests of the breaker protection circuits, trip coils, and DC control power for the as-built isolation breakers located on the high voltage side of the GSUT, UATs and RATs will be performed.	A report exists and concludes that the as-built isolation breakers located on the high voltage side of the GSUT, UATs and RATs are supplied with redundant protection circuits, trip coils, and separate and independent DC control power sources.

Draft Interface Requirements and ITAAC to Address GDC 17

DCD Interface Requirements for Offsite Power

4.2 OFFSITE POWER

Design Description

The offsite power system supplies power to the plant from the switchyard connected to the transmission grid offsite power sources and is the preferred source of AC power when the plant is operating and during plant shutdown when offsite power is available. The ESBWR standard design provides for two independent circuits: the normal preferred power source and the alternate preferred power source. The alternate preferred power source serves as backup to the normal preferred power source.

The offsite power system provides power to the safety-related system via the Isolation Power Centers under conditions when offsite power is available. The offsite power system is not required for the first 72-hours following an abnormal event or accident to protect fuel parameters. There are no Technical Specifications, required surveillances, or associated Limiting Conditions for Operation for the off-site power supplies.

Interface Requirement

A combined license applicant referencing the ESBWR certified design shall develop an ITAAC to verify that the as-built offsite power circuits from the transmission network to the input terminals of the UATs and RATs satisfy the applicable provisions of GDC 17. Specifically, the ITAAC shall verify:

1. Electric power from the transmission network to the onsite electric distribution system is supplied by two physically independent circuits.
2. Each offsite circuit is adequately rated to supply the load requirements during design basis operating modes (refer to ITAAC 2.13.1-2, Item 9).
3. During steady state operation, the offsite power system is capable of supplying voltage at the input terminals of the UATs and RATs that will support operation of safety related loads during design basis operating modes.
4. During steady state operation, the offsite power system is capable of supplying required frequency at the input terminals of the UATs and RATs that will support operation of safety related loads during design basis operating modes.
5. The fault current contribution of the offsite power circuits is compatible with the interrupting capability of the onsite fault current interrupting devices.

Draft Interface Requirements and ITAAC to Address GDC 17

COLA ITAAC for Offsite Power to Address DCD Interface Requirements

Design Commitment	Inspections, Tests, and Analysis	Acceptance Criteria
1. Independent offsite power sources supply electric power from the transmission network to the onsite electric distribution system.		
a. A minimum of two offsite power circuits are provided and are physically separate.	a. Inspections of the as-built offsite power supply transmission system will be performed.	a. A report exists and concludes the following inspection results: i) At least two offsite transmission circuits exist. ii) The two offsite power circuits are physically separated by distance or physical barriers so as to minimize to the extent practical the likelihood of their simultaneous failure under design basis conditions. iii) The two offsite power circuits do not have a common takeoff structure or use a common structure for support.
b. A minimum of two offsite power circuits are provided and are electrically independent.	b. Test of the as-built offsite power system will be conducted by providing a test signal in only one offsite power circuit at a time.	b. A report exists and concludes that a test signal exists in only the circuit under test.
c. The offsite transmission power, instrumentation, and control circuits are electrically independent.	c. Tests of the as-built offsite transmission power, instrumentation, and control system will be conducted by providing a test signal in only one offsite power circuit at a time.	c. A report exists and concludes that a test signal exists in only the circuit under test.

Draft Interface Requirements and ITAAC to Address GDC 17

Design Commitment	Inspections, Tests, and Analysis	Acceptance Criteria
2. At least two offsite power circuits are each adequately rated to supply necessary load requirements during design basis operating modes.	Analyses of the offsite power system will be performed to evaluate the as-built ratings of each offsite power circuit against the load requirements determined in DCD ITAAC 2.13.1-2, Item 9.	A report exists and concludes that at least two offsite power circuits from the transmission network up to the input terminals of the unit auxiliary transformers (UATs) and reserve auxiliary transformers (RATs) are each rated to supply the load requirements, during design basis operating modes, of their respective safety related and nonsafety-related load groups.
3. During steady state operation, the offsite power system is capable of supplying required voltage to the input terminals of the UATs and RATs that will support operation of safety related loads during design basis operating modes.	Analyses of the as-built offsite power system will be performed to evaluate the capability of each offsite power circuit to supply the voltage requirements at the inputs to the UATs and RATs determined in DCD ITAAC 2.13.1-2, Item 9.	A report exists and concludes that during steady state operation the as-built offsite power system is capable of supplying voltage at the input terminals of the UATs and RATs that will support operation of safety related loads during design basis operating modes.
4. During steady state operation, the offsite power system is capable of supplying required frequency to the input terminals of the UATs and RATs that will support operation of safety related loads during design basis operating modes.	Analyses of the as-built offsite power system will be performed to evaluate the capability of each offsite power circuit to supply the frequency requirements at the inputs to the UATs and RATs determined in DCD ITAAC 2.13.1-2, Item 9.	A report exists and concludes that as-built offsite power system during steady state operation is capable of supplying required frequency at the input terminals of the UATs and RATs that will support operation of safety related loads during design basis operating modes.
5. The fault current contribution of the offsite power circuits is compatible with the interrupting capability of the onsite short circuit interrupting devices.	Analyses of the as-built offsite power system will be performed to evaluate the fault current contribution of each offsite power circuit at the inputs to the GSUT, UATs and RATs.	A report exists and concludes the short circuit contribution of the as-built offsite power circuits at the inputs to the GSUT, UATs and RATs is compatible with the interrupting capability of the onsite fault current interrupting devices as determined in DCD ITAAC 2.13.1-2, Item 10.

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ESBWR DCWG-NRC MEETING 10/23/08**

Rev 5