

EDO Principal Correspondence Control

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FINAL REPLY:

Lawrence S. Criscione
Springfield, Illinois

TO:

Borchardt, EDO

FOR SIGNATURE OF :

** GRN **

CRC NO:

Leeds, NRR

DESC:

ROUTING:

2.206 - Callaway Plant (EDATS: OEDO-2010-0775)

Borchardt
Weber
Virgilio
Ash
Mamish
OGC/GC
Collins, RIV
Burns, OGC
Mensah, NRR
Scott, OGC
Kotzalas, OEDO

DATE: 09/20/10

ASSIGNED TO:

CONTACT:

NRR

Leeds

SPECIAL INSTRUCTIONS OR REMARKS:

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General Information

Assigned To: NRR

OEDO Due Date: 10/20/2010 11:00 PM

Other Assignees:

SECY Due Date: NONE

Subject: 2.206 - Callaway Plant

Description:

CC Routing: RegionIV; OGC; Tanya.Mensah@nrc.gov; Catherine.Scott@nrc.gov

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Originator Name: Lawrence S. Criscione

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10CFR2.206 request for information on October 21, 2003 incident at Callaway Plant

September 17, 2010

1412 Dial Court
Springfield, IL 62704

Mr. William Borchardt
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subj: 10CFR2.206 Request for a 10CFR2.204 Demand for Information on the October 21,
2003 Incident at Callaway Plant

Dear Mr. Borchardt:

I am submitting the information contained below as a 10CFR2.206 request. The address above is my home address; however, I work in the Washington, DC area and make it home to Illinois infrequently. Please send all correspondence to me electronically at either my personal email account (LS_Criscione@hotmail.com) or my work email. If you must send me a hard copy, please send it to me at Mail Stop CSB/C2 A7.

Please be assured there are no new allegations present in this request. Although I might not agree with the final resolutions, all allegations have been documented by Region IV as either RIV-2007-A-0028, RIV-2007-A-0096 or RIV-2009-A-0036.

This request is an attempt to ensure the October 21, 2003 Incident at Callaway Plant is properly investigated. Background information on this incident is provided as part of the "Basis for the Request".

Around 10:18 am on October 21, 2003, during a forced plant shutdown, the reactor at Callaway Plant passively shut down due to Xenon-135 accumulation in combination with a rapid 4°F increase in reactor coolant temperature. This passive shutdown of the reactor went unnoticed by the operators for 67 minutes (until an alarm was received for a Source Range Nuclear Instrument energizing). The [REDACTED] was in the control room when this alarm was received. No one in the control room informed plant upper management of the situation. The [REDACTED]

[REDACTED] all were aware that the incident should have been documented in the plant's corrective action program, yet none of them ever took this action. Instead, for the next 40 minutes they continued performing steps in the Reactor Shutdown procedure as if the reactor was still critical, and shortly after noon (the time plant upper management expected the reactor shutdown to occur) they inserted the control banks. No one outside of the control room was aware that when the control banks were inserted at 12:04 pm they were not being used to shut down the reactor but instead were merely being inserted on a reactor that had been shutdown for 106 minutes.

Although there have been many instances in the nuclear industry of operating crews failing to recognize a reactor shutdown, this incident is different. In all the other occurrences that I'm aware of, plant upper management was informed of the incident and took corrective measures to both internally address the problem and to share the lessons learned from the incident with the industry. At Callaway Plant only superficial attempts have been made to address this

incident; there is not even a lesson plan that discusses the fact the reactor passively shut down and the operators took 106 minutes to insert the control banks.

On April 1, 2008 during sworn testimony to the NRC, [REDACTED] on October 21, 2003) intentionally misled the Office of Investigations agent conducting the interview. [REDACTED] claimed that, prior to giving the order to trip the main turbine, he knew the lack of steam demand following the turbine trip would cause the reactor to passively shut down. Yet his crew's actions demonstrated that he was unaware the reactor was shutdown. For example, as reactor power transitioned to the source range with the control banks still at their last critical rod heights, [REDACTED] allowed the reactor operators to: place Cooling Tower blowdown in service, secure an Intake pump, and increase letdown flow from 75 to 120 gpm. Most people at the NRC have never actually operated a reactor – however, you have. So you know that no NRC licensed operator would place those three activities above inserting the control banks had he recognized the reactor was subcritical and transitioning to the source range.

In his sworn testimony [REDACTED] also misled the OI investigator into believing that an off-normal procedure (OTO-NN-00001) substantially contributed to the 106 minute delay. Although this procedure was still administratively open, the control room operators had completed all of their actions by 8:35 am. The NRC investigators conducting the interviews were not familiar enough with the incident to recognize this fact.

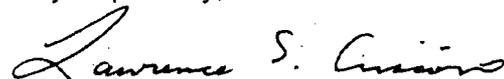
The October 21, 2003 shutdown was not just another passive reactor shutdown. It stands out from similar incidents in that:

- When it was recognized that the reactor was in the source range [REDACTED] failed to ensure that the control banks were immediately inserted
- The passive shutdown was never documented by the operating crew and was only entered into the plant's corrective action program after it was accidentally uncovered over three years later (February 2007) during an unrelated data review
- Despite being aware of the incident for over three years, the utility has yet to officially report it to INPO and has not yet informed its own licensed operators of the significant facts of the incident
- The [REDACTED] intentionally misled NRC investigators during his sworn testimony.

Our regulatory system relies on trust. [REDACTED] trust that the licensees are honest with us. [REDACTED] trust that the licensees aggressively investigate incidents. [REDACTED] trust that the upper managers of the licensees will discipline employees who are dishonest and cover up mistakes. For the October 21, 2003 incident our system has broken down. [REDACTED]

Dishonest people are in key positions at Callaway Plant and have been able to prevent the utility from properly addressing this incident. The purpose of this 10CFR2.206 request is to motivate the NRC to vigilantly investigate this incident. This incident was no mere passive reactor shutdown; it has been a gross violation of the public trust.

Very respectfully,



Lawrence S. Criscione, PE
(573) 230-3959

§1. Actions Requested

§1.1 Background

This 10CFR2.206 request concerns the US NRC regulated nuclear power plant which Ameren Corporation owns and operates in Callaway County, MO. On the morning of October 21, 2003 the Callaway Plant was in a 6 hour shutdown state due to a failed safety-related electrical inverter. When the NRC licensed operators tripped the turbine at 10:13 am as part of the plant shutdown, the reactor went subcritical and passively shut down. The manner in which the reactor shutdown was conducted was highly atypical in that:

- Instead of actively shutting down the reactor using the control banks (the only authorized manner to conduct a normal reactor shutdown at Callaway Plant), the reactor was allowed to passively shut down due to a loss of steam demand near the point of adding heat.
- The NRC licensed operators took no action to actively drive the shutdown by inserting negative reactivity. The reactor was allowed to transition through over 5 decades of power on its way into the source range without any attempt by the operators to either insert control rods or add boron.
- The control banks were not inserted until 12:04 pm. This was more than 110 minutes after the turbine trip (10:13), 106 minutes after the point at which criticality could not be prudently recovered (10:18), 80 minutes after reactor power level stabilized due to subcritical multiplication in the source range (10:39), and 39 minutes after receiving the main control board annunciator upon the automatic energizing of a Source Range Nuclear Instrument (11:25 am).

On February 10, 2007 I was reviewing data from past reactor shutdowns and first noted the atypical manner of this shutdown. My initial impression was that it appeared the reactor had inadvertently shut down without the crew ever noticing it. I documented this event as part of Callaway Action Request 200701278, "Analysis of Past Reactor Shutdowns – RF15 Preparation Concerns".

At the request of the Operations Department, CAR 200701278 was initially screened as needing "Corrective Actions Only". That is, the plant intended to do no investigation of the October 21, 2003 passive reactor shutdown and instead merely close the condition report once the suggested procedural changes had been made. I was at the Screening Committee meeting when this decision was made and unsuccessfully protested it. Throughout the remainder of February 2007, I attempted to get the October 21, 2003 shutdown investigated internally at Callaway Plant. On March 2, 2007 I brought the shutdown to the attention of the Senior Resident Inspector and he captured my concerns as Allegation RIV-2007-A-0028.

Region IV remitted Allegation RIV-2007-A-0028 to the Resident Inspectors at Callaway Plant for investigation and it was closed on August 7, 2007 after a review of some plant data and procedures. None of the personnel involved in the reactor shutdown were interviewed as part of this investigation. The main concern of Allegation RIV-2007-A-0028 was dismissed to:

The inspector's review of operating procedures did not find any timeliness guidance on performing the steps to insert the control rods.

On August 14, 2007 I informed my US Senator of my concerns regarding the October 21, 2003 shutdown and the NRC's initial investigation of it. As a courtesy, I provided a copy of this letter

to the Resident Inspectors at Callaway Plant. Based on this letter, Region IV re-opened the investigation of the October 21, 2003 shutdown as OI Case 4-2007-049.

On April 1, 2008 [REDACTED] for the October 21, 2003 shutdown was interviewed by the US NRC. Based on some statements made by the NRC interrogators, I do not believe this interview was properly conducted. Additionally, the NRC only interviewed individuals whose names appeared in the one of the control room logs. This caused them to fail to interview the [REDACTED] who, although his presence was not noted in the log, was present in the reactor control room when the channel 2 Source Range Nuclear Instrument energized at 11:25 am.

I am formally submitting this request via the 10CFR2.206 process because I believe it is important that the events of the October 21, 2003 reactor shutdown are properly understood. In 2009, via the allegation process I requested that the NRC review certain statements made by the operators during their sworn testimony for OI Case 4-2007-049. Region IV declined to seek additional information through sworn testimony from the operators involved in the October 21, 2003 shutdown and stated in writing to me "*The inspectors' review of the associated transcripts did not identify any other issues requiring additional investigation.*"

Because of a Xenon-135 transient which was occurring when reactor power was in the source range with the control rods still at their last critical rod heights, Region IV has determined that the safety significance of this incident was slight; however, this incident concerns either the integrity or the competence of individuals who hold NRC issued reactor operator licenses and who hold important leadership positions at a NRC regulated commercial power plant. The safety significance of the incident which brought these integrity/competency issues to light should have no bearing (there is absolutely no safety significance to judgment errors made in reactor plant simulators, yet individuals who demonstrate either dishonesty or incompetency in simulator training are liable to have their licenses removed).

In order to fully understand why NRC licensed operators would intentionally allow a large commercial reactor to passively shut down by removing steam demand and then rely on an informal estimation that Xenon-135 levels would be great enough to prevent the reactor from inadvertently restarting, I would like the US NRC to obtain additional information from Ameren Corporation.

§1.2 Specific Requests

I wish the US NRC to submit a Demand for Information (per 10CFR2.204) to Callaway Plant for information pertaining to the October 21, 2003 shutdown.

Per 10CFR2.204.(a).(1) the US NRC must "Allege the violations with which the licensee or other persons is charged". The violations which I believe occurred are that [REDACTED] intentionally mislead NRC OI investigators and that [REDACTED] has not been forthcoming about his knowledge of the October 21, 2003 reactor shutdown.

There are several questions posed throughout this section. Under 10CFR2.206 I am requesting that the US NRC issue a 10CFR2.204 Demand for Information to Ameren Corporation requesting answers to the questions posed in the subsections below.

§1.2.1 Procedural Guidance for Allowing the Reactor to Passively Shut Down

In his April 1, 2008 testimony to Crystal Holland, [REDACTED] made several statements indicating that he intentionally allowed the reactor at Callaway Plant to passively shut down on October 21, 2003 and then intentionally relied on an informal estimation of Xenon-135 levels to ensure the reactor stayed subcritical. For the context in which these statements were made, please see the transcript pages from which these statements were taken that are provided at the end of this document:

1. *And, you know, we're going to go subcritical, but we're not planning on staying online, anyway. So we'll just continue on with the shutdown from this point.* (page 11, lines 12-14)
2. *The shutdown was ongoing the entire time. The control rods remained stationary during that course in time. But Xenon poison was continuing building, so the shutdown was progressing whether those rods were moving or not. As soon as we tripped the turbine offline, we no longer had any steam demand to maintain a set power. And Xenon, which is a poison, was continuing to build in, in the core, which was causing the reactor to shut down. We had a negative startup rate during that entire period of time. So the shutdown was never stopped.* (page 13, lines 1-13)
3. *So when I made that direction to him to have the turbine taken offline, in my mind, that was going to initiate the reactor shutdown, because of the continual buildup of poisons and not having a steam demand on the reactor anymore. So that's really, in my mind, what the reactor shutdown – where we had made the decision to start that. There was no turning back at that point.* (page 17, lines 17-24)
4. *There was a short delay where rods weren't moved, but the reactor was continuing to shut [down] during that entire time frame.* (p. 56 line 25 and p. 57 lines 1-3)

It appears that in statements 1, 2 and 3 [REDACTED] is stating that his crew intentionally shut down the reactor by removing steam demand (i.e. tripping the turbine while average coolant temperature was 5°F below the lift point of the condenser steam dumps) and allowing passive affects to take the reactor subcritical. Did [REDACTED] intentionally shut down the reactor by removing steam demand? As reactor power transitioned from above the Point of Adding Heat to the source range (between 10:18 to 10:39 am) was [REDACTED] aware that the reactor was no longer critical?

It also appears to me from statements 2 and 3 that [REDACTED] is stating he intentionally relied on an informal estimation of Xenon-135 to maintain the reactor subcritical. Did [REDACTED] intentionally rely on an informal estimation of Xenon-135 levels to maintain the reactor subcritical during the 106 minutes (between 10:18 am and 12:04 pm) that the reactor was shutdown with the control banks still at their last critical rod heights?

On the morning of October 21, 2003, was a formal process used to ensure Xenon-135 was adequate to maintain the reactor subcritical? Was a Shutdown Margin calculation performed for the condition the reactor core was in (i.e. in the source range with control rods at their critical rod heights) to formally verify that Xenon-135 levels were sufficient to keep the reactor subcritical? If so, please provide a copy. Did the Xenon-Predict calculation take into account the margins needed to ensure the reactor remained shutdown for credible unexpected reactor cooldowns? If so, please provide a copy of the procedure under which these calculations were performed.

Did the Reactor Shutdown Procedure (OTG-ZZ-00005) at Callaway Plant specifically allow the operators to intentionally conduct a reactor shutdown by removing steam demand and allowing passive affects to take the reactor subcritical? Was there any procedural guidance at Callaway Plant for conducting a reactor shutdown by removing steam demand and waiting for passive affects to take the reactor subcritical? Since the [REDACTED] recognized that passive affects (i.e. an increase in average coolant temperature and an increase in Xenon-135 levels) were going to cause the reactor to shut down, is there a reason the control rods were not manually inserted to actively ensure the shutdown occurred?

In line 1 of page 57 of [REDACTED] testimony, when he says there was a "short" delay where rods weren't moved, is he referring to the 106 minutes between 10:18 am (the time when letdown flow was restored and the off-normal procedure was exited) and 12:04 pm (the time when the operators began inserting the control rods)? Does Ameren Corporation view the 106 minute delay for inserting the control banks as a "short" delay?

§1.2.2 Training at Callaway Plant regarding "conservative action"

In his April 1, 2008 testimony to Crystal Holland, [REDACTED] discussed training he had received on the need to take "conservative action" in responding to reactivity transients. For the context in which this statement was made, please see the transcript page at the end of this document:

And the forefront of our – of all our actions were to do things conservatively, and that's the primary driver that I directed the turbine trip, was to conservatively shut down the turbine in response to a temperature excursion. And I've had years of training that that's the right thing to do in response to an issue like that, take conservative action and address it and don't try to chase it with reactivity. So that's what we elected to do.

Please detail what formal training [REDACTED] has received with regard to reactor operation at Callaway Plant and other nuclear facilities including training received at the Institute of Nuclear Power Operations and [REDACTED]

In [REDACTED] formal training, was it ever taught that it was acceptable to shut down a reactor by allowing passive affects (i.e. Xenon-135 buildup and core temperature increases) to cause the reactor to go subcritical when active means (i.e. control rods and boron) were available to drive the reactor shutdown? During the 106 minutes that the reactor was shutdown with the control rods at their critical rod heights, was it a "conservative action" to rely on an informal estimation that Xenon-135 levels were sufficient to prevent the reactor from becoming critical?

In [REDACTED] years of training, was he ever taught that it is conservative to trip the reactor if the level of activity in the control room inhibits the operators from actively controlling core reactivity?

§1.2.3 Response to Off-Normal procedures

In his April 1, 2008 testimony to Crystal Holland [REDACTED] made several statements indicating that the performance of "off-normal" procedures substantially contributed to the 106 minute delay in inserting the control banks. For the context in which these statements were made, please see the transcript pages from which these statements were taken that are provided at the end of this document:

1. *...from a procedural hierarchy, the off-normal procedures take precedent over the normal operating procedures. So we suspended the normal operating procedures, went to this procedure to take the actions in response to the NN failure. (p 16 line 25 and p. 17 lines 1-4)*
2. *And there's several pages – about four or five pages of actions we have to take to verify. And it also branches to an attachment, that's about another three or four pages, that lists all the instrumentation that was affected by that loss, to verify that that – all that instrumentation is still properly functioning. So that took us quite a while to go through all that guidance to verify all the things that were operating properly. (p. 17 lines 5-14)*
3. *Again, so now we're in two off-normal procedures and responding to those. So that's preventing us from going on with the reactor shutdown procedure. So that was the biggest delay. (p 17 line 25 and p. 18 lines 1-3).*
4. *So, again, we're still in the off-normal procedure for the loss of the NN bus, and that's ongoing. (p. 18, lines 7 & 8).*
5. *And then at 11:37, on line 8 [of the Shift Supervisor Log], was when we exited OTO NN1. So that was the last – that was the first time we had exited all the off-normal procedures we were in; where we go back, and now we are only focused on the plant shutdown procedures. So at 11:37, we exited the last off-normal. (p. 19 lines 16-21)*
6. *So there was really no delay in there. We were responding to two off-normal procedures. (p. 21 lines 3-4)*
7. *As I mentioned before, once we got letdown restored, we focused on the off-normal for the loss of NN bus, or to finish up all the actions from that, until we had all those actions completed. And then once they were completed, we focused on – back on the rest of the plant shutdown activities. (p. 24, lines 8-13)*
8. *But the reason for the delay [in] the continuing on with the control bank insertion was what I previously discussed, about the actions we were still doing in two off-normal procedures, in addition to all the normal plant equipment steps that take place before you get to the reactor shutdown step, as far as taking equipment out of service. So we were following the prescribed procedure guidance to do all that stuff. (p. 26 lines 24 & 25 and p. 27 lines 1-6).*
9. *And when we got to the step to where you commence the reactor shutdown, that's when we – we had finished up all the procedures for the off-normals. (p. 27 lines 7-9)*

At 10:18 am the operating crew established a letdown flow of 75 gpm and exited the "Loss of Letdown" off-normal procedure. 10:18 am also corresponds to the approximate time that core reactivity reached the point where it could not be prudently recovered (i.e. the point at which the reactor could be conservatively prevented from passively shutting down). In what manner did the performance of the off-normal procedure for "Loss of Letdown" (OTO-BG-00001) contribute to the 106 minute delay in inserting the control banks? The 106 minute delay in inserting the control banks is defined as the time frame from when the reactor had passively shut down (approximately 10:18 am) until the operators first took action to actively insert negative reactivity (12:04 pm).

At 08:21 am the crew entered the off-normal procedure for "Loss of Safety Related Instrument Power" (OTO-NN-00001). At the time, the operators were lowering reactor power at a nominal 10%/hour. From 08:21 to 08:33 am, reactor power was lowered from 27.5% to 24.6%. During this same time frame (08:21 to 08:33 am) the 'A' Steam Generator Atmospheric Steam Dump opened for approximately 10 seconds and the control room operators were actively performing OTO-NN-00001. When ██████████ stated that "from a procedural hierarchy, the off-normal procedures take precedent over the normal operating procedures" what did he mean by that? Did he mean by that statement that no steps of a normal operating procedure can be performed

while an off-normal procedure is still in progress? Did he mean that, as long as OTO-NN-00001 had not been exited, the normal operating procedures could not be performed?

In a June 26, 2009 letter to Region IV of the US NRC, it was argued that the control room operators were not actively involved in performing the steps of OTO-NN-00001 beyond 08:35 am. That is, by 08:35 am, the control room operators should have performed all the necessary steps of OTO-NN-00001 with the exception of step 1.7 of Attachment 1A which required that a valve lineup of the auxiliary feedwater system be performed per surveillance procedure OSP-AL-00001. Please evaluate the June 26, 2009 letter and state how you disagree with any of the statements in it. Were the control room operators actively engaged in performing OTO-NN-00001 between 10:18 and 11:33 am? If so, what actions were they performing and how did these actions inhibit them from inserting the control banks?

When [REDACTED] stated that it took the operating crew "quite a while" to go through the control room actions for OTO-NN-00001, what does he mean? Is he referring to the 15 minutes from 08:21 to 08:35 am or is he referring to the 196 minutes from 08:21 to 11:37 am? How long did it take for the operators to get through the control room actions for OTO-NN-00001? With the exception of performing OSP-AL-00001, was there any action of OTO-NN-00001 not yet completed by 10:18 am?

Was there written guidance which prevented normal operating procedures from being performed in parallel with off-normal operating procedures?

OTO-NN-00001 was not exited until 11:37 am. Between 10:18 and 11:37 am, the NRC licensed operators performed the following tasks which were not performed as part of any off-normal, alarm response or emergency procedure:

- 1034 Secured an Intake Pump
- 1034 Placed Cooling Tower Blowdown in service
- 1048 Restored letdown flow to 120 gpm (done in accordance with the normal operating procedure OTN-BG-00001)
- 1101 Stopped the 'C' condensate pump

Given that the "procedural hierarchy" associated with off-normal procedure OTO-NN-00001 did not prevent the four items list above from being performed, did it in any way inhibit the control room operators from inserting the control banks? If so, explain.

Was [REDACTED] intentionally being misleading when he stated "*once we got letdown restored [at 10:18 am], we focused on the off-normal for the loss of NN bus, or to finish up all the actions from that, until we had all those actions completed*"? What exactly in OTO-NN-00001 was being focused on from 10:18 am until 11:34 am? Did the performance of OSP-AL-00001 require the focus of the control room operators to the point that it inhibited the insertion of the control banks?

Was [REDACTED] intentionally being misleading when he stated "*Again, so now we're in two off-normal procedures and responding to those. So that's preventing us from going on with the reactor shutdown procedure. So that was the biggest delay*"? Did OTO-NN-00001 need to be completed prior to performing the steps in the Reactor Shutdown procedure (OTG-ZZ-00005) for inserting the control banks?

Was [REDACTED] intentionally being misleading when he stated "So there was really no delay in there. We were responding to two off-normal procedures"? Did the performance of OTO-BG-00001 and OTO-NN-00001 justify the 106 minute delay in inserting the control banks?

§1.2.4 Activities Required for the Reactor Shutdown

In his April 1, 2008 testimony to Crystal Holland [REDACTED] made several statements indicating that the Reactor Shutdown procedure (OTG-ZZ-00005) required certain actions to be performed prior to inserting the control banks and that the level of activity in the control room justified the 106 minute delay in inserting the control banks. For the context in which these statements were made, please see the transcript pages from which these statements were taken that are provided at the end of this document:

1. *So that was all stuff procedurally-driven that starts – you do all those actions before you start the reactor shutdown. So those – all those actions are ongoing. (p. 19 lines 4-7)*
2. *So those are all ongoing surveillances that are a required part of making mode changes for doing a plant shutdown. (p. 19 lines 13-15)*
3. *So there really was no delay in there. We were responding to two off-normal procedures. And we were doing all the normal equipment manipulations required for a plant shutdown, the normal administrative burdens associated with approving the start of all these surveillances required for mode changes. (p. 21 lines 3-9)*
4. *But the reason for the delay [in] the continuing on with the control bank insertion was what I previously discussed, about the actions we were still doing in two off-normal procedures, in addition to all the normal plant equipment steps that take place before you get to the reactor shutdown step, as far as taking equipment out of service. So we were following the prescribed procedure guidance to do all that stuff. (p. 26 lines 24 & 25 and p. 27 lines 1-6).*
5. *So there – again, a lot of activity going on in that 100 minutes, or whatever it was. So it wasn't like inserting the control banks was the only thing we had to do that – in that 100 minutes. There was a lot of stuff going on. (p. 27 lines 20-24).*

The Reactor Shutdown procedure (OTG-ZZ-00005) was classified by Callaway Plant as a "Reference Use" procedure in 2003, meaning that steps did not need to necessarily be performed in the order written. For example, all the procedure steps which aligned the steam plant for shutdown did not necessarily need to be performed prior to inserting the control rods. Specifically with regard to [REDACTED] testimony, the plant could be shut down with all three condensate pumps running and with a turbine driven feed pump vice the motor driven feed pump running. Also, OTG-ZZ-00005 contains steps that are not required to be performed for every reactor shutdown but are included to be performed when needed; an example of this is starting containment mini-purge.

With regard to statement 1 given above (from p. 19 of [REDACTED] testimony), what "stuff" is [REDACTED] referring to? From the context of his testimony, it appears he is referring to the following log entries:

1101 Secured the "C" Condensate Pump
1142 Mini purge started
1140 Startup Feed Pump started
1151 "B" Main Feed Pump secured

Was [REDACTED] intentionally being misleading when, regarding the four items above, he stated "So that was all stuff procedurally-driven that starts – you do all those actions before you start the reactor shutdown"? Did the need to perform the above four items inhibit the operators from inserting the control banks?

The Reactor Shutdown procedure (OTG-ZZ-00005) directed the operators to ensure the trip point and calibration checks are performed on the Power Range Nuclear Instruments. Although these checks are done by the Instrumentation & Controls technicians, the Control Room Supervisor must give the authorization for this work to begin. The Shift Supervisor Daily Log from October 21, 2003 has the following entries regarding these surveillances:

1038 Authorized to Start ISF-SE-0N42B
1113 Notified Field Complete ISF-SE-0N42B
1114 Authorized to Start ISF-SE-0N43B
1144 Notified Field Complete ISF-SE-0N43B
1145 Authorized to Start ISF-SE-0N44B
1212 Notified Field Complete ISF-SE-0N44B
1213 Authorized to Start ISF-SE-0N41B
1246 Notified Field Complete ISF-SE-0N41B

Note that ISF-SE-0N42B and ISF-SE-0N43B were performed prior to inserting the control banks, ISF-SE-0N44B was being performed while the control banks were being inserted and ISF-SE-0N41B was performed after the control banks were inserted.

Was [REDACTED] intentionally being misleading when, regarding the four surveillances on the PRNIs, he stated "So those are all ongoing surveillances that are a required part of making mode changes for doing a plant shutdown"? Did the need to perform the four PRNI surveillances inhibit the operators from inserting the control banks? Did [REDACTED] crew have a misunderstanding of the fact that the PRNI surveillances did not have to be performed prior to inserting the control banks? If so, why were the control banks inserted prior to completing ISF-SE-0N44B and ISF-SE-0N41B?

Although the PRNI surveillances are performed by the I&C technicians, they do place some burden upon the operators. The Control Room Supervisor must authorize the start of the procedure. The CRS must review the procedure once it is field complete. The reactor operators sometimes must interface with the I&C technicians to acknowledge alarms and manipulate controls. However, this burden did not prevent the operators from inserting the control banks while ISF-SE-0N44B was being performed. Did the burden placed upon the operators by the performance of the PRNI surveillances substantially impact the time it took to insert the control banks? If so, estimate how much of an impact they had (i.e. of the 106 minute delay, what amount of time was due to the performance of the PRNI surveillances)?

In statements 3 & 4 above (taken from pages 21, 26 and 27 of [REDACTED] testimony) [REDACTED] stated that the 106 minute delay in inserting the control banks was due to the "two off-normal procedures", the necessary equipment manipulations to align the steam plant, and the administrative burdens associated with approving the start of the PRNI surveillances. Was [REDACTED] intentionally being misleading when he made statements 3 & 4? Did any of the off-normal procedures, equipment manipulations or surveillances inhibit the control room operators from inserting the control banks in the 106 minutes between 10:18 am and 12:04 pm? If so, how?

In statement 5 above [REDACTED] states that there was "a lot of activity going on in that [106] minutes" and "it wasn't like inserting the control banks was the only thing we had to do." From the context of his testimony, it appears the activity he is referring to is the nine items which were logged in the Shift Supervisor Daily Log between 10:38 am and 12:03 pm and the eight items which were logged in the Reactor Operator Daily Log between 10:34 am and 11:40 am. Other than these 17 items, what other substantial activity was occurring which would have inhibited the control room operators from inserting the control banks between 10:18 am and 12:04 pm? If the level of activity was too great to allow the operators to insert the control banks, why were they able to perform the following tasks:

- Between 10:18 and 10:48 am, raise letdown flow from 75 gpm to 120 gpm
- At 10:34 am, secure an intake pump and place cooling tower blowdown in service

Do any of the tasks above take precedence over actively controlling the fission reaction in the reactor core? If the level of activity in the control room was too great to allow the operators to insert the control banks, does Ameren Corporation believe they should have inserted the rods by tripping the reactor?

§1.2.5 [REDACTED] Approval of Passive Reactor Shutdown

Was the [REDACTED], in the Control Room on October 21, 2003 at any point between 10:18 am and 12:04 pm? As [REDACTED] did [REDACTED] typically visit the control room to observe the operators during plant shutdowns? Did [REDACTED] document a control room observation in Callaway Plant's observation tracking system for October 21, 2003?

On October 21, 2003, was [REDACTED] aware that the operators had intentionally allowed the reactor to passively shut down and, with reactor power in the source range and the control rods still at their last critical rod heights, were preventing the reactor from inadvertently restarting by relying on an informal estimate that Xenon-135 levels were sufficient to maintain the reactor subcritical?

When the operators began inserting the control banks at 12:04 pm, was [REDACTED] aware that reactor power was in the source range and that, instead of using the control rods to take the reactor subcritical, the reactor operators were inserting the control rods on a reactor that had been shutdown for over an hour?

§1.2.6 Participation in the Significant Event Evaluation and Information Network

In Generic Letter 82-04, the US NRC advises:

The full potential of the SEE-IN program can be realized only if all utilities participate actively, both in furnishing event information to INPO and ...

Does Ameren Corporation consider the atypical nature of the October 21, 2003 shutdown as an event which should be shared with the rest of the industry through the Significant Event Evaluation and Information Network (SEE-IN)?

Note the following aspects of the event:

- The NRC licensed operators allowed the reactor to passively shut down without making any attempts to actively drive the shutdown or trip the reactor
- For nearly two hours the NRC licensed operators relied on an informal estimation that Xenon-135 levels would maintain the reactor subcritical while they performed the steam plant shutdown, the PRNI calibrations, intake and cooling tower evolutions, and other evolutions not directly required for inserting the control rods.
- For 45 minutes (from 10:39 to 11:25 am) reactor power was in the source range with the control rods still at their last critical rod heights and with the Source Range Nuclear Instruments de-energized.
- After being alerted by an annunciator indicating that a Source Range Nuclear Instrument had energized (at 11:25 am) the NRC licensed operators still delayed 39 minutes before actively adding any negative reactivity to the reactor core.

Considering the aspects of the incident which are noted above, why does Ameren Corporation believe the rest of the nuclear industry would not benefit from knowledge of this event? Has Callaway Plant incorporated any of the above noted aspects into its lesson plans for its NRC licensed operators? If so, which lesson plans contain this information and how is it presented? If Callaway Plant has not incorporated any of the above four aspects into its lesson plans, why does it believe its NRC licensed operators would not benefit from this information?

§1.2.7 Evidence that the Passive Shutdown of the Reactor was Intentional

Other than the testimony of the [REDACTED] does Ameren Corporation have any evidence that the operators were aware that the reactor was shutdown prior to the point at which the channel 2 Source Range Nuclear Instrument energized (11:25 am)?

[REDACTED] claim that they were aware that the reactor would passively shut down shortly after tripping the turbine. Is there any evidence that, prior to 11:25 am, they informed anyone outside of the control room that the reactor was shutdown? Is there any evidence that anyone in the Outage Control Center was aware, prior to 11:25 am, that the reactor was shutdown?

At 12:04 pm, the NRC licensed operators began inserting the control rods on a shutdown reactor. Is there any evidence that anyone outside of the control room was aware that, when control rod insertion commenced at 12:04 pm, the reactor was already shutdown?

§2. Facts that Constitute the Basis for the Request

§2.1 Timeline

The numbered items below occurred at Callaway Plant. Unless otherwise specified, the date for all items was October 21, 2003. This chronology is based on log entries made in the Shift Supervisor Daily Log and the Reactor Operator Daily Log and on plant computer data obtained through eDNA (I do not know what words the acronym eDNA is derived from, but it refers to the plant historian network at Callaway Plant):

1. On Monday, October 20, 2003, safety related inverter NN11 failed. At 07:21 am, the crew entered the off-normal procedure for "Loss of Safety Related Instrument Power" (OTO-NN-00001) to respond to the failed inverter. The operating crew on shift for this incident was Crew 5. The failure of NN11 placed Callaway Plant in Technical Specification Action Statement 3.8.7.A which had a completion time of 24 hours; within 24 hours either NN11 must be returned to operable status or Callaway Plant must begin lowering reactor power to support shutting down the reactor.
2. Throughout the day on October 20, 2003 Electrical Maintenance attempted to repair and restore inverter NN11. At 12:37 am on October 21, 2003 the operators attempted to restore instrument bus NN01 to its normal source (inverter NN11) as a retest of the repairs to inverter NN11. The retest failed and instrument bus NN01 was lost. The crew entered the off-normal procedure (OTO-NN-00001) at 12:37 am.
3. At 01:00 am on October 21, 2003, the operators commenced lowering reactor power at 10%/hour. Although TS 3.8.7 did not require the operators to begin lowering reactor power until 7:21 am, the crew was prudently preparing for a possible reactor shutdown. That is, if inverter NN11 could not be repaired by 7:21 am, then the operators would need to shut down the reactor within the next 6 hours (by 1:21 pm). Since down powering the plant from 100% power to 0% power in 6 hours is a difficult evolution, the plant prudently began down powering at 01:00 am to allow for a more easily manageable down power rate.
4. At 01:18 am the operators satisfactorily completed off-normal procedure OTO-NN-00001, which had been entered 41 minutes earlier.
5. Beginning at 05:36 am the night shift crew (Crew 4) turned over the watch to the day shift crew (Crew 5). The down power was still in progress at an approximate rate of 10%/hour. Reactor power was around 59%.
6. At 07:21 am inverter NN11 still had not been repaired, so the Completion Time for TS 3.8.7.A was met which caused the plant to enter TS 3.8.7.B. Reactor power was around 39% and the operators were continuing to down power the reactor at approximately 10%/hour. TS 3.8.7.B requires the plant to be in MODE 3 (i.e. the reactor shutdown) within 6 hours. So at this point the following expectations applied to Callaway Plant:
 - The operators were expected to lower reactor power to support shutting down the reactor by 1:21 pm. From 39% reactor power, a down power rate of 10%/hour easily met this expectation.

- Electrical Maintenance could still attempt repairs on inverter NN11. If inverter NN11 was declared OPERABLE before 1:21 pm (to be OPERABLE the inverter would need to be repaired and successfully retested), then the operators would not need to shut down the reactor.
 - As long as repairs to inverter NN11 were progressing and might reasonably be successful, the operators could delay the reactor shutdown until 1:21 pm, however, the operators were expected to make progress towards shutting down the reactor. For example, while in TS 3.8.7.B, the operators could not maintain reactor power at 100% for 5 hours and 59 minutes and then trip the reactor to meet the 6 hour shutdown action. However, the operators could lower reactor power to a reasonable level (a level from which the reactor could be readily shut down with minimal impact) and, as long as repairs to NN11 were progressing, hold this power level until it was evident the inverter would not be repaired prior to the expiration of TS 3.8.7.B.
7. From 07:21 to 08:21 am, the operators lowered reactor power from 38% to 27% while Electrical Maintenance continued with the repair of inverter N11.
 8. At 08:21 am, the operators attempted to restore instrument bus NN01 to its normal source (inverter NN11) as a retest of the repairs to inverter NN11. The retest failed and instrument bus NN01 was lost. The crew entered the off-normal procedure (OTO-NN-00001) at 8:21 am.
 9. From 08:21 to 08:33 am, the control room operators performed OTO-NN-00001. All the applicable control room steps were performed during this time. At 08:33 am the only remaining action to be performed was a valve line up of the Auxiliary Feedwater system (OSP-AL-00001). Most of this task was outside the control room and it was given to the Field Supervisor so that it could be assigned to an Equipment Operator to perform. Since this was the third time in 25 hours that OTO-NN-00001 was being performed (and therefore the third time that OSP-AL-00001 was being performed) there was no immediate rush to accomplish this valve line up and the Field Supervisor was to assigned it to an Equipment Operator once time permitted.
 10. Although during the time frame of 08:21 to 08:33 am the control room operators were busy performing actions in OTO-NN-00001, they were still able to continue lowering reactor power at 10%/hour. This is because work in the control room is often performed in parallel and the actions required by OTO-NN-00001 did not significantly affect the operators' ability to control the reactor plant.
 11. At approximately 09:35 am the operators stabilized reactor power at 9% rated reactor power. It is not known why the reactor operators discontinued the load reduction at this point, but repairs to the failed inverter were still in progress and the reactor shutdown was three hours ahead of schedule so it is likely the delay occurred to give the electricians some more time to repair the inverter. At this point, the operators had been lowering reactor power at about 10%/hour for over nine hours.
 12. In their attempt to hold reactor power constant, the operators failed to adequately account for transient Xenon-135. Over the next 25 minutes, average reactor coolant temperature lowered 9°F. The crew was experiencing faulty indications on some of the steam line drain valves and believed the excessive cooldown was being caused by

some open steam line drains. While they focused on troubleshooting the steam line drain valves, average reactor coolant temperature lowered below 551°F, the Minimum Temperature for Critical Operations (MTCO). Along with the lowering reactor coolant temperature, Pressurizer water level was also lowering and a Letdown system isolation occurred on low Pressurizer level at 09:59 am. According to the NRC:

...the operating crew did not anticipate the impact of the rapid shutdown from the reactivity management perspective, which then resulted in transients on the plant at the lower power operating levels...operators did not recognize that the reactor was responding to the steady state main turbine demand through the reactor coolant system temperature decrease, which then caused the decrease in pressurizer level and the letdown system isolation.

13. The off-normal procedure for "Loss of Letdown" was entered at 09:59 am.
14. The reactor was operated below the Minimum Temperature for Critical Operation for approximately ten minutes between 10:00 to 10:13 am.
15. In order to assist in recovery of reactor coolant temperature, the [REDACTED] directed the main turbine be tripped at 10:13 am.
16. In 2003, the plant's procedure for tripping the main turbine directed the operators to place the condenser steam dumps in "steam pressure" mode and set the lift point at 1092 psig (corresponding to 557°F which is Callaway Plant's no-load average coolant temperature). Tripping the main turbine with reactor coolant temperature at 551°F resulted in a "no steam demand" condition until reactor coolant temperature heated up 6°F to 557°F.
17. Upon tripping the main turbine, the removal of steam demand near the Point of Adding Heat and the rapid negative insertion of reactivity from the temperature rise (average coolant temperature rose more than 1°F within the first 20 seconds, 2.5°F in the first minute, and 4°F in the first two minutes) caused the reactor plant to shut down. According to the NRC:

After the turbine trip, the reactor coolant system temperature increased to the programmed level adding negative reactivity. This, along with the Xenon accumulation, shut the reactor down...

18. From 10:13 until 10:18 am the operating crew was restoring Letdown flow to 75 gpm as part of the off-normal procedure for "Loss of Letdown". During this time frame, the nuclear fission reaction lowered to the point that it would have been unwise to attempt to recover criticality. ΔT power, which is a measure of the combined "fission heat" and "decay heat" being produced in the reactor core, lowered from 5% at 10:13 to 2.4% at 10:18 am – a decrease of 50%. Meanwhile, Intermediate Range Nuclear Instrument power, which is a measure of just the "fission heat" being produced in the reactor core, lowered from 1.4E-5 ion chamber amps at 10:13 to 2.4E-6 ica at 10:18 am – a decrease of more than 80%. Reactor Start Up Rate (SUR) lowered from the essentially stable value of -0.01 decades per minute at 10:13 to -0.16 dpm at 10:18 am. Between 10:13 and 10:18 am, the operators neither attempted to maintain the reactor critical nor actively aided it in shutting down.

19. The operators restored letdown flow to 75 gpm and exited the off-normal procedure for "Loss of Letdown" at 10:18 am.
20. Despite their claims that they knew the reactor would shut down shortly after the turbine trip, upon exiting the off-normal procedure for "Loss of Letdown" the operators made no efforts to actively insert negative reactivity for the next 106 minutes.
21. Between 10:18 and 10:39 am, reactor power lowered over four decades, passing through the Point of Adding Heat (POAH) around 10:25 am and reaching the source range around 10:39. During these twenty-one minutes, the operating crew had ample time to insert control rods or commence borating. At 10:34 am the NRC licensed reactor operators secured an Intake pump and placed Cooling Tower Blowdown in service. From 10:18 to 10:48 the NRC licensed Reactor Operator, using a normal operating procedure (i.e. a non-emergency procedure), increased letdown flow from 75 gpm to 120 gpm. It is unlikely the operators would have prioritized any of these three tasks over inserting the control banks. The performance of these three tasks is an indication that the operators failed to recognize the reactor had passively shut down.
22. Because of the high subcritical multiplication rate afforded by the control rods being maintained at their last critical rod heights, between 10:39 to 11:25 am reactor power was in the source range without the Source Range Nuclear Instruments (SRNIs) energized. During this forty-six minute time frame the NRC licensed operators stopped a condensate pump and allowed Instrumentation & Controls technicians to conduct calibrations on the Power Range Nuclear Instruments (PRNIs). It is unlikely the operators would have prioritized these two tasks over inserting the control banks. The performance of these two tasks is an indication that the operators failed to recognize the reactor was operating in the source range without the Source Range Nuclear Instruments energized and with the control rods at their last critical rod heights. It appears that during this forty-six minute time frame the operators were under the mistaken impression the reactor was still critical and maintaining power above the Point of Adding Heat. During this time frame pump heat and decay heat were causing the core ΔT power indications to read 1.75% rated reactor power and decay gammas were causing the Power Range Nuclear Instruments (PRNIs) to read 1% rated reactor power. The only indications to the reactor operators that reactor power was in the source range were the two channels of Intermediate Range Nuclear Instruments (IRNIs). Although the operators are expected to utilize all their indications, the IRNIs are "human factored" for reactor startups and are not the primary indication of reactor power during MODE 1 and MODE 2-Descending operations. The IRNIs are scaled logarithmically in units of "ion chamber amps" and are of little value when the operator is attempting to maintain the reactor above the Point of Adding Heat following a major down power.
23. At 11:25 am the channel 2 SRNI energized, causing an alarm to annunciate on the reactor plant's main control board. At 11:38 am the channel 1 SRNI energized, causing a "re-flash" of the earlier annunciator. The energizing of the SRNIs was documented by the NRC licensed operators in the Reactor Operator Daily Log. The log entry was attributed to time 11:34 but was made at some time after 11:42 am. It is safe to say that by 11:25 am the NRC licensed operators were aware that the reactor was no longer critical (they claim they knew it all along, but those who doubt this claim will likely acknowledge that once the main control board annunciator was received the crew would have recognized the reactor had shut down).

24. For 39 minutes (from 11:25 am until 12:04 pm) from the energizing of the first SRNI, the NRC licensed operators delayed inserting the control banks. In sworn testimony, [REDACTED] claimed that part of the reason for this delay was the fact that an "off-normal" procedure was still being performed and that completion of this procedure took precedence over inserting the control rods. At 08:21 am, while retesting the failed electrical inverter that had required the plant to shut down, the retest failed and the crew entered OTO-NN-00001 (the procedure for "Loss of Safety Related Instrument Power") for the failure of an instrument bus. By 08:33 am, all control room actions for this procedure were complete, however the procedure remained open while awaiting word from an equipment operator that the valves in the Auxiliary Feedwater system were in their required positions. The valve lineup of the Aux Feed system was delivered to the control room at 11:34 am and the Control Room Supervisor exited off-normal procedure OTO-NN-00001 at 11:37 am. Although the off-normal procedure was "technically" being performed until 11:37 am, the NRC has determined that performance of this procedure did not prevent the control room operators from inserting the control rods at any time during the shutdown.
25. In sworn testimony, the [REDACTED] claimed that part of the reason for the 106 minute delay in inserting the control banks was that surveillances on the Power Range Nuclear Instruments needed to be performed. In fact, these surveillances were not required to be performed prior to control bank insertion. Although two of the four PRNIs were surveilled prior to inserting the control banks, one surveillance was being conducted while the control banks were being inserted and one surveillance was conducted after the insertion of the control banks.
26. Although the atypical nature of the October 21, 2003 shutdown was clearly similar to some of the events in WANO SOER 07-1, the utility (Ameren) never provided information on the event to the Institute of Nuclear Power Operations (INPO).
27. [REDACTED]
28. It is the opinion of me and other Senior Reactor Operators from Callaway Plant (names can be provided upon request) that the 39 minute delay in inserting the control banks was effected to cover up the inadvertent reactor shutdown from the upper management of Callaway Plant. That is:
- The shutdown of the reactor shortly after the turbine trip was unintended (i.e. "inadvertent") and went unrecognized by the control room operators.
 - The control room operators failed to insert the control rods before 11:25 am because they were unaware the reactor had shut down. That is, they mistakenly believed the reactor was still critical.
 - The control room operators first became aware that the reactor was shutdown when the channel 2 SRNI energized at 11:25 am.
 - [REDACTED] were in the main control room at 11:25 am when the first SRNI energized.

- The [REDACTED] intentionally “dragged their feet” in inserting the control rods. They knew that Xenon-135 would maintain the reactor shutdown.
- Shortly after noon (12:04 pm) the operators commenced inserting the control banks. Since, by procedure, the reactor is normally shut down by inserting the control banks (at no commercial plant in the US is there a procedural provision for allowing the plant to passively shut down due to the removal of steam demand and the buildup of Xenon-135), when the Outage Control Center (OCC) was made aware at 12:04 pm that the control banks were being inserted, they would naturally assume that the reactor was being shut down. No one outside of the personnel in the main control room (the [REDACTED] and the NRC licensed operators) were aware that at 12:04 pm the crew was actually inserting the control banks on a reactor that had been shutdown for nearly two hours.
- The fact that the reactor had shut down shortly after the turbine trip was not made known to upper management at Callaway Plant until it was discovered during a data review in February 2007.

29. At the end of this document are two graphs displaying some of the critical parameter data from the October 21, 2003 shutdown. The raw data came from Callaway Plant's eDNA computer data base and the NRC can obtain it from Callaway Plant. Copies of the control room logs from Callaway Plant are available as part of OI Case 4-2007-049. The sworn testimonies of the NRC licensed operators is also available from OI Case 4-2007-049 (released as Freedom of Information Act Request 2009-0064). Other FOIAs concerning this incident are FOIA 2009-0095, 2009-0102, 2009-0115, 2009-0222.

§2.2 Inadequate Interrogation of [REDACTED] during OI Case 4-2007-049

On April 1, 2008 [REDACTED] was interrogate under other by Crystal Holland of the US NRC Office of Investigations with Callaway Plant Resident Inspector Jeremy Groom present for technical assistance.

Although Ms. Holland is a competent investigator, she has a “Law Enforcement” background and has no experience in the operation of a reactor plant.

The main allegation which led to OI Case 4-2007-049 was that part of the 106 minute delay in inserting the control banks was effected to give the upper management at Callaway Plant the impression that the reactor was shutting down shortly after noon. That is, by 11:25 am (when the channel 2 SRNI energized and caused an alarm on the reactor plant control board to annunciate), the control room operators were aware that reactor power was in the source range. The operators believed that if the Outage Control Center (OCC) were to become aware that they had allowed the reactor to inadvertently shut down and had not noticed it for over an hour, then it would reflect badly upon their reputations. Therefore, when the operators first became aware that reactor power was in the source range, they did not mention this fact to the Outage Control Center. They instead continued with the procedure steps that the OCC expected them to be performing while preparing to shut down the reactor. So instead of immediately inserting control rods at 11:25 am, they delayed inserting the control rods until 12:04 pm. When the control rods were inserted at 12:04 pm, no one outside of the control room was aware that the reactor was already in the source range and had been shutdown for nearly two hours.

Both Ms. Holland and Mr. Groom misunderstood the allegations, as evidenced by the few statements they make during [REDACTED] sworn testimony. On page 25 of the testimony, Ms. Holland states to [REDACTED]

And can you explain – and this is part of the allegation – the appearance that maybe the delay was – the timing of the delay was manipulated to cover up the fact that maybe if you didn't go back online in a certain amount of time it would be viewed as a adverse action or performance problem?

It is impossible to conduct an adequate investigation when you do not understand the major specifics of the allegation. Ms. Holland's role was to determine if [REDACTED] had an acceptable explanation for the 106 minute delay that stood up to cross examination. However, without a detailed knowledge of reactor plant operations, it was not possible for her to adequately cross examine [REDACTED] and find the "holes" in his explanations.

Mr. Groom was present to provide technical assistance to Ms. Holland; however he did not have an adequate understanding of the allegation. On page 26 of [REDACTED] testimony, Mr. Groom states:

It really stems from when you drop below minimum temps for criticality. Is there a procedural requirement that you insert the rods when you drop below the Tech Spec limit?

Although one of the ancillary issues of the incident was that [REDACTED] had failed to log dropping below the Minimum Temperature for Critical Operation, there was no concern that he should have inserted the control rods at that point. The concern was that, had he recognized the reactor shut down around 10:18 am, he should have inserted the control rods to actively drive the shutdown.

Since neither NRC investigator had an adequate understanding of the allegation and of reactor plant operations, it was impossible for the NRC to detect the grievous flaws in [REDACTED] claim that there was no delay in inserting the control banks.

§2.3 Relevance of October 21, 2003 to current operation of Callaway Plant

Region IV's opinion is that the October 21, 2003 inadvertent shutdown is an incident which occurred nearly seven years in the past and for which Callaway Plant has implemented corrective actions to prevent its recurrence. Based on this opinion, Region IV intends to expend no further effort in investigating the incident.

However, not all aspects of the incident have been corrected. The incident was successfully covered up for over three years. When it was brought to the attention of upper management of Ameren Corporation, they refused to investigate it. The individuals involved in the initial cover up [REDACTED] positions at Callaway Plant today [REDACTED] allowed the control rods to remain withdrawn for 106 minutes. is now [REDACTED] and [REDACTED] [REDACTED] was complicit in the cover up of the incident in 2003, is now the [REDACTED] Callaway Plant. We cannot allow individuals who cover up significant incidents to be in leadership roles at nuclear utilities.

Furthermore, most of the individuals at Ameren Corporation who refused to investigate this incident in 2007 are still in leadership roles. There are only two resident inspectors at Callaway Plant. The resident inspectors cannot observe everything. The US NRC relies on utilities to find and fix their own problems, to be honest in their reporting, to internally investigate issues, to share significant errors with the rest of the industry, and, most importantly, to never cover up incidents. The US NRC cannot ignore a utility where the leadership chain is willing to "stick its head in the sand" when unsavory events are brought to it.

§2.4 Weakness of "Risk Informed Regulation"

"Risk Informed Regulation" is an important philosophy which has greatly benefitted nuclear safety by allowing the limited dollars (both regulatory and commercial) to be utilized where they can have the greatest impact on nuclear safety. However, there are some areas where the Significance Determination Process (SDP) breaks down. Although the SDP is an important tool, it's major flaw is it can cause the NRC to overlook incidents for which the actual risk to the public was low but the lessons learned from the incident are still profound.

The most serious nuclear accidents (e.g. the melt down of the Three Mile Island unit 2 reactor, the prompt critical induced steam explosion and fire at the Chernobyl unit 4 reactor) have been the result of gross operator error. For a nuclear accident to occur, multiple safety "barriers" must be breached. Although all the major nuclear accidents typically involve much more than operator errors, it is errors by the operator which breach the final safety barriers and cause the accident. Operator competency and integrity matter greatly.

If a NRC licensed operator cheats on an exam, he risks losing his qualifications. Every year, dozens of people are fired throughout the industry for integrity violations for which the safety significance is infinitesimal. However, their terminations are necessary because of the importance which integrity holds at a nuclear plant: operators who cheat on exams are likely to cover up incidents in the plant, radwaste technicians who are willing to falsify qualification records are likely to falsify radioactive discharge records.

Imagine a simulator scenario in which a crew is being tested on their ability to handle low power operations following a significant down power. The crew is given a fault to test their ability – when they reach the procedure step for cycling the steam line drains, some stay open and result in a significant temperature transient. Before the crew can stop the transient, average coolant temperature falls below the Minimum Temperature for Critical Operation and the letdown system isolates at about the same time. The Shift Manager advises his Control Room Supervisor to trip the turbine to assist in recovering reactor temperature. The main turbine is tripped and in the confusion of responding to the letdown isolation the reactor operators are unable to maintain the reactor critical. The operators allow the reactor to go subcritical. So far, the crew is passing their scenario. Then, for the next 106 minutes, the operators do nothing to actively shut down the nuclear fission reaction. Instead of inserting the control rods or adding boron, the crew restores cooling tower blowdown and raises letdown flow. The crew would certainly fail the scenario and be suspended from watchstanding.

When operators make mistakes in the plant simulator, there is absolutely no risk to the public: the reactor core in the simulator is merely a computer model and cannot actually release radioactivity. However, we recognize that if gross incompetence was demonstrated, it does not matter whether or not the public was placed at risk.

Around 10:18 am on October 21, 2003 the reactor at Callaway Plant passively shut down. For 106 minutes the operators took no action to actively insert negative reactivity to ensure the reactor stayed shutdown. Even after receiving an alarm indicating that reactor power was in the source range, for 39 minutes the operators still did not insert reactivity. Their actions represent gross misjudgments with regard to nuclear safety. However, for this particular time frame (the 106 minutes) the Reactor Protection System (the electronics which generates signals to trip the reactor) was fully functional and the fission product poison Xenon-135 was increasing in concentration. The US NRC determined (correctly) that Xenon-135 was maintaining the reactor from restarting and that, had an inadvertent reactor restart occurred, the Reactor Protection System would have prevented the reactor from suffering core damage. Therefore the risk to the public from this event was minimal.

Because Region IV has decided the October 21, 2003 incident resulted in minimal risk, they have minimized the amount of resources assigned to it. However, gross incompetence was demonstrated by the reactor operators and the [REDACTED] may have demonstrated dishonesty (assuming he delayed inserting the control rods to cover up the incident). When it comes to demonstrating dishonesty or incompetence, the risk to the public is irrelevant. We want to correct dishonesty or incompetence before it causes harm. If we only address dishonesty and incompetence when a serious incident occurs we are being reactive instead of proactive.

§2.5 Conclusion

I have never claimed and I have never believed that in 2003 there was an orchestrated and coordinated conspiracy to cover up the inadvertent shutdown. Although I do believe it was intentionally covered up, it was not an orchestrated effort. My belief has always been that the Reactor Operator and Balance of Plant operator failed to recognize the reactor shutdown which occurred around 10:18. They failed to recognize this because of the level of activity occurring in the control room (e.g. the loss of letdown, being below the MTCO, etc.). From 10:23 onward, the instrumentation the crew is used to referring to while at power (the secondary calorimetric computer point, the ΔT instruments, the PRNIs) was indicating approximately 2% power and stable. I believe the board operators failed to notice the lowering IRNI signal and did not realize the reactor was in the source range until they received an annunciator at 11:25. I believe that in the minutes after receiving this annunciator, all the personnel in the control room were aware that the reactor had inadvertently passively shut down about an hour earlier and that they had failed to recognize it. At the time, it was not uncommon at Callaway Plant for the operating crews to neglect to document significant occurrences in the Corrective Action Program (this was noted by both INPO and the NRC during their inspections). There was no orchestration of a cover up. There was no coordination. Everyone in the control room knew that the incident should be documented with a condition report. And everyone in the control room privately hoped that neither the [REDACTED] would chose to write a condition report. And no one wrote one. And no one in the Outage Control Center was informed that the reactor was in the Source Range. Instead, the crew – without any orchestration – continued along their previous path of completing the ancillary tasks associated with the reactor shutdown. The Outage Control Center was informed that, since Electrical Maintenance was unlikely to repair NN11, the crew would be shutting down the plant at noon. The crew continued performing the ancillary tasks, conducted a brief of the shutdown, and shortly after noon began inserting the control rods. They knew that everyone outside of the Main Control Room would assume that the reactor was being shut down by the only authorized method – inserting the control rods. It was only by accident that, more than three years later, I uncovered the incident and had the nerve to document it in the Corrective Action Program.

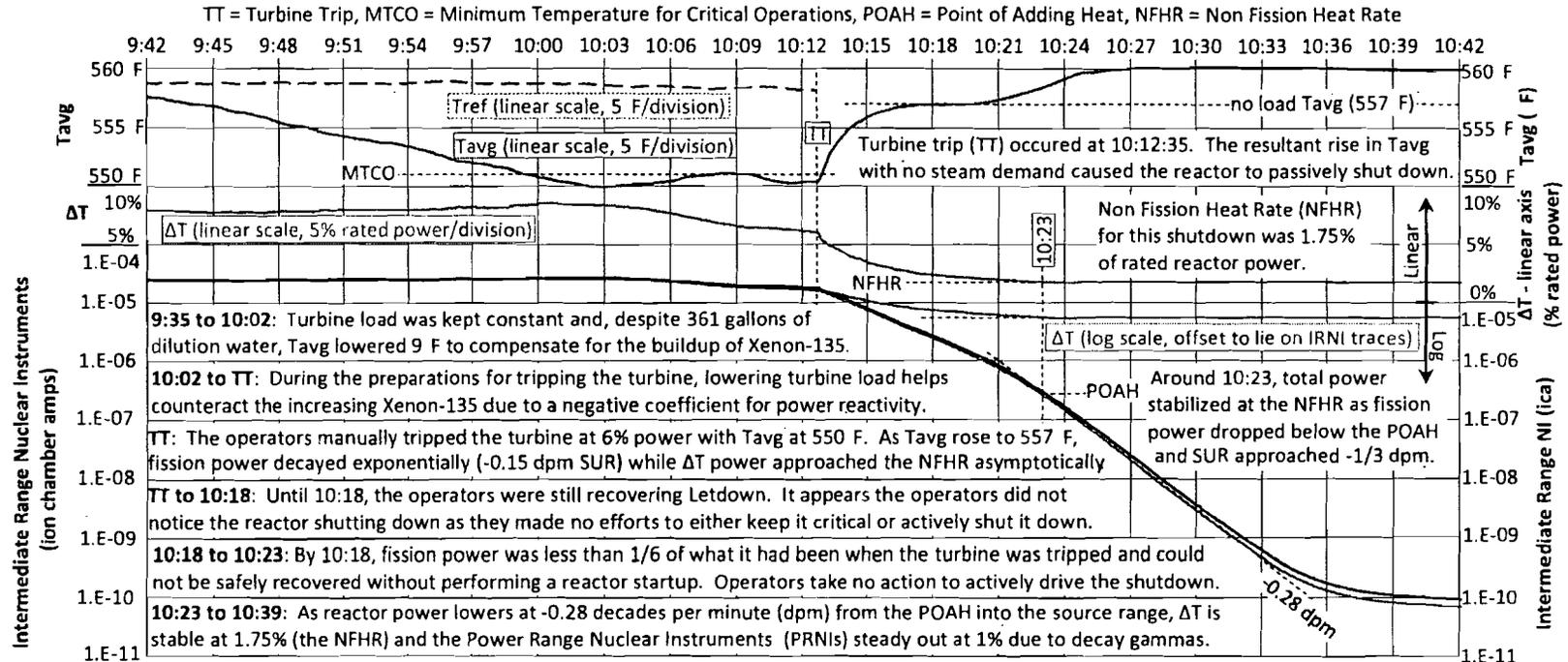
I have claimed and I still believe that, after I documented the incident in Callaway Action Request 200701278 in February 2007, there was an orchestrated and coordinated effort to cover up the incident. This allegation was part of RIV-2007-A-0093 which was never investigated.

Error is not sin. People make mistakes. Large commercial reactors are not "human factored" to operate at low power levels with the turbine off-line. It is completely understandable that NRC licensed operators might not notice that a reactor had shut down for 67 minutes (until the SRNI energized at 11:25 am). What is not understandable is why an experienced [REDACTED] would allow the control rods to remain withdrawn for 39 minutes after receiving an alarm indicating reactor power was in the source range. And what is not understandable is [REDACTED] claim that he was aware the reactor was shutdown for the whole 106 minutes but took no action because his crew had higher priority items to accomplish. And it is not understandable that Region IV of the US NRC would not question those higher priority items:

- Raising letdown flow
- Starting cooling tower blowdown
- Securing a pump at the intake
- Realigning pumps in the steam plant
- Ventilating containment
- Calibrations checks

There are holes in the [REDACTED] story which indicate his version of events is dishonest. There are questions which still need to be answered by the utility and, depending on those answers, additional investigation by the Office of Investigation may be warranted.

Tavg, ΔT and IRNI signals during the October 21, 2003 Passive Reactor Shutdown at Callaway Plant

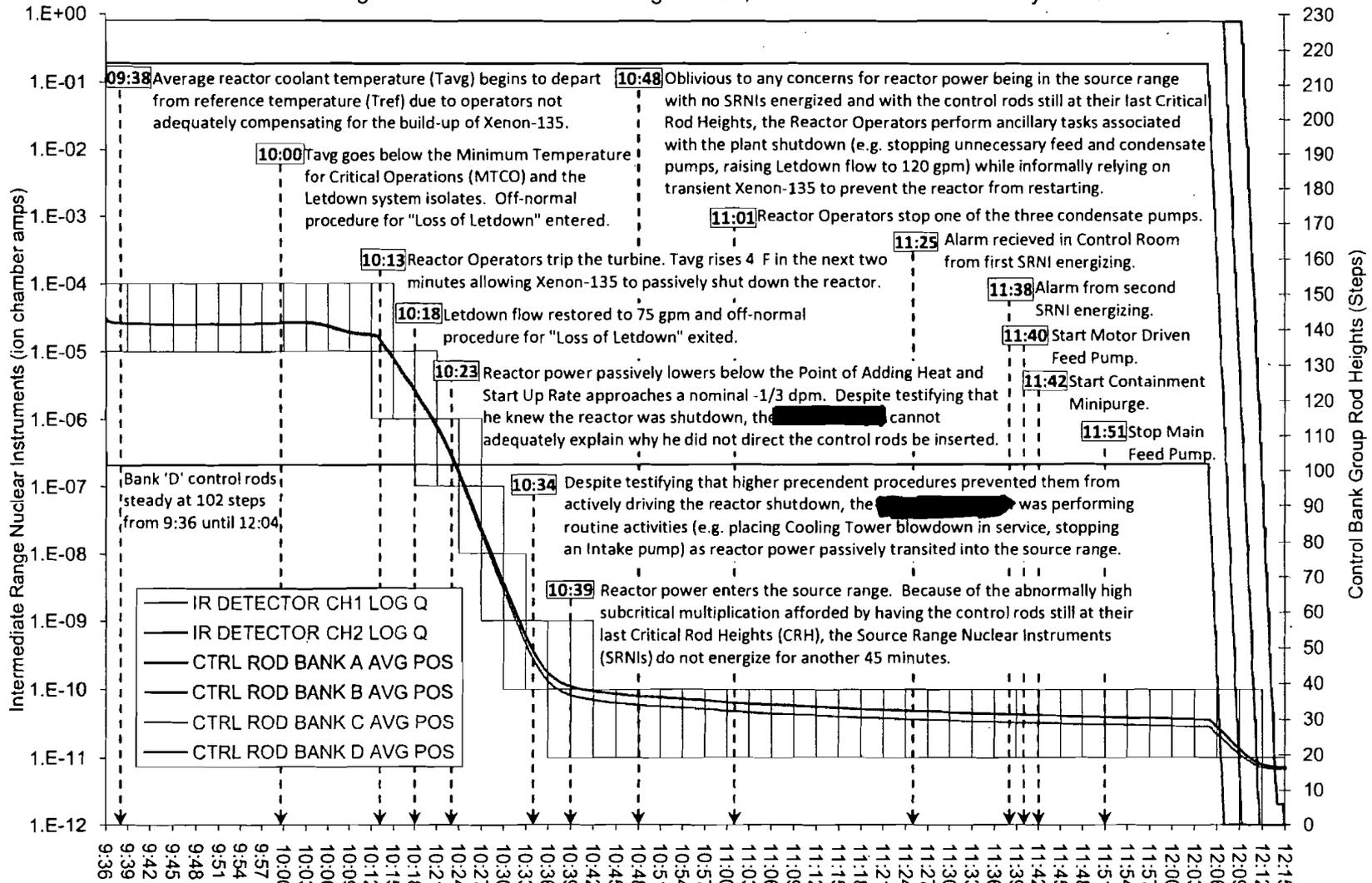


Background: With the reactor operating at 100% power, a safety related electrical inverter failed at 07:21 on October 20, 2003 placing the plant in a 24-hr action statement (the plant had 24 hours to either repair the inverter or begin shutting down). In anticipation of having to shut down the plant, at 01:00 on October 21, 2003 the operators began lowering power at nominally 10%/hour. By 07:21 the reactor was already below 39% rated power; the inverter was still not yet repaired and the plant now entered a new action statement to have the reactor fully shutdown within six hours (13:21). If the inverter were to be repaired during this new 6-hr action statement, the reactor shutdown could still be aborted.

The reactor was at 9% power when the operators quit lowering reactor power at 09:35. It is not known why the reactor operators discontinued the load reduction at this point, but repairs to the failed inverter were still in progress and the reactor shutdown was three hours ahead of schedule so it is likely the delay occurred to give the electricians some more time to repair the inverter. At this point, the operators had been lowering reactor power at about 10%/hour for over nine hours.

In their attempt to hold reactor power constant, the operators failed to adequately account for transient Xenon-135. Over the next 25 minutes, average reactor coolant temperature (Tavg) lowered 9 F. The crew was experiencing faulty indications on some of the steam line drain valves and believed the excessive cooldown was being caused by some open steam line drains. While they focused on troubleshooting the steam line drain valves, Tavg lowered to below 551 F, the Minimum Temperature for Critical Operations (MTCO). Along with the lowering reactor coolant temperature, Pressurizer water level (LpZR) was also lowering and a Letdown system isolation occurred on low LpZR at 09:59 causing the crew to enter the off-normal procedure for "Loss of Letdown". The operators tripped the turbine to assist in recovering Tavg. The rapid rise in Tavg following the turbine trip caused the reactor to passively shut down. In the confusion resulting from the loss of Letdown, the problems with the steam line drain valves and being below the MTCO, the operators apparently failed to notice the reactor shutdown and took no measures to actively insert negative reactivity until 12:04 (111 minutes after the manual turbine trip).

Rod Heights and IRNI Currents during Oct. 21, 2003 Shutdown at Callaway Plant



The reactor passively shut down shortly after the main turbine was tripped at 10:13. No negative reactivity was actively inserted until 12:04. Upper management did not expect the reactor to shut down at 10:13 and the control rods may have been left withdrawn to give management the impression the reactor was being actively shut down at noon. Until February 2007, no one outside of the control room was aware that when the control rods were inserted at 12:04 the reactor had already been shutdown for over 106 minutes.

The final fourteen pages of this document are excerpts from [REDACTED] April 1, 2008 sworn testimony to Special Agent Crystal Holland and Resident Inspector Jeremy Groom. The entire testimony is 58 pages long; it is Exhibit 22 of OI Case 4-2007-049 and can be obtained as FOIA request 2009-0064.

Page 26 of this document is page 11 of [REDACTED] testimony.
Page 27 of this document is page 13 of [REDACTED] testimony.
Page 28 of this document is page 16 of [REDACTED] testimony.
Page 29 of this document is page 17 of [REDACTED] testimony.
Page 30 of this document is page 18 of [REDACTED] testimony.
Page 31 of this document is page 19 of [REDACTED] testimony.
Page 32 of this document is page 21 of [REDACTED] testimony.
Page 33 of this document is page 23 of [REDACTED] testimony.
Page 34 of this document is page 24 of [REDACTED] testimony.
Page 35 of this document is page 25 of [REDACTED] testimony.
Page 36 of this document is page 26 of [REDACTED] testimony.
Page 37 of this document is page 27 of [REDACTED] testimony.
Page 38 of this document is page 56 of [REDACTED] testimony.
Page 39 of this document is page 57 of [REDACTED] testimony.

Included with this document is a 15 page letter sent to Region IV on June 26, 2009. It details the relationship of off-normal procedure OTO-NN-00001 to the 106 minute delay in inserting the control rods. It is being included with this document for reference.

1

[REDACTED]: [REDACTED].

2

MS. HOLLAND: Okay.

3

[REDACTED]: I said, We've taken the

4

immediate actions that we can take from the control

5

room. They have not been effective in turning

6

temperature. I go, We're only about 40 or 50

7

megawatts. Why don't we go ahead and take the turbine

8

offline.

9

The conservative thing to do was just to

10

go ahead and let's take the turbine offline. That way,

11

it will address the temperature transient, will stop

12

it. And, you know, we're going to go subcritical, but

13

we're not planning on staying online, anyway. So we'll

14

just continue on with the shutdown from this point.

15

So I gave him a chance to absorb that,

16

and he agreed that was the prudent thing to do. So we

17

told the crew that we're going to conservatively just

18

go ahead and take the turbine offline to address this

19

issue and not try to chase it.

20

Because there was plenty of industry OE

21

that said that -- you know, we've gotten our training

22

that says you don't want to be chasing temperature

23

transients when you -- especially when you have no

24

intention of staying online; that it's not the

25

conservative thing to do. So we directed the operators

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1 did not delay the shutdown. The shutdown was ongoing
2 the entire time. The control rods remained stationary
3 during that course in time.

4 But Xenon poison was continuing
5 building, so the shutdown was progressing whether those
6 rods were moving or not.

7 As soon as we tripped the turbine
8 offline, we no longer had any steam demand to maintain
9 a set power. And Xenon, which is a poison. Was
10 continuing to build in, in the core, which was causing
11 the reactor to shut down. We had a negative startup
12 rate during that entire period of time. So the
13 shutdown was never stopped.

14 MS. HOLLAND: Okay. And what about -- I
15 guess part of the allegation that I'm looking into is
16 that there was a delay in the insertion of the control
17 banks. Can you address that --

18 [REDACTED]: Yeah.

19 MS. HOLLAND: -- and why there would be
20 a perception that there was a delay?

21 [REDACTED]: Where are the logs here?

22 [REDACTED]: Hang on. He's going to be
23 looking at both the Reactor Operator --

24 MS. HOLLAND: The --

25 [REDACTED]: -- Reactor Operator

1 problem with the NN11 inverter, which was the cause of
2 our shutdown.

3 They thought it was repaired, and they
4 wanted to do some post-maintenance testing to see if
5 they had actually fixed the problem. So we had a short
6 brief to -- with the crew members to place that
7 inverter in service to verify whether it was working
8 properly or not.

9 When we made -- put that in service and
10 made that transfer to that inverter, at 8:21, we had a
11 momentary failure of it.

12 MS. HOLLAND: Line 25?

13 █. █: Yeah.

14 MS. HOLLAND: Okay. On the Shift --

15 █. █: Line 25 --

16 MS. HOLLAND: -- Supervisor Daily Log?

17 █. █: -- on the Shift Supervisor
18 Log.

19 MS. HOLLAND: Okay.

20 █. █: So we had a momentary loss
21 of NN11 that swapped to the backup power supply
22 automatically. We entered OTO NN1, which was the
23 procedure for a loss of NN01.

24 So we were -- at that point, that's --
25 from a procedural hierarchy, the off-normal procedures

1 take precedent over the normal operating procedures.
2 So we suspended the normal operating procedures, went
3 to this procedure to take the actions in response to
4 the NN failure.

5 And there's several pages -- about four
6 or five pages of actions we have to take to verify.
7 And it also branches to an attachment, that's about
8 another three or four pages, that lists all the
9 instrumentation that was affected by that loss, to
10 verify that that -- all that instrumentation is still
11 properly functioning.

12 So that took us  quite a while to go
13 through all that guidance to verify all the things that
14 were operating properly.

15 And then in response to the temperature
16 transient that we previously discussed, that cooldown
17 caused the pressurizer level to lower from the
18 shrinking of that. It caused a loss of letdown.

19 Again, that's another off-normal
20 procedure we had to enter to respond to the loss of
21 letdown. And that's logged on the Shift Supervisor
22 Log, Line 28 at 9:59.

23 So we also had a loss of letdown and
24 entered OTO BG1, the loss of letdown procedure.

25 Again, so now we're in two off-normal

1 procedures and responding to those. So that's
2 preventing us from going on with the reactor shutdown
3 procedure. So that was the biggest delay.

4 At 10:18 we -- on Line 31 -- we
5 completed the actions of OTO BG1 and exited that
6 procedure. That was five minutes after we entered Mode

7 2. So, again, we're still in the off-normal procedure
8 for the loss of the NN bus, and that's ongoing.

9 Additionally, you can see --

10 MS. HOLLAND: Okay. Now, we're in the
11 Reactor Operator --

12 [REDACTED]: The Reactor Operator Log.

13 MS. HOLLAND: -- Log? Okay.

14 [REDACTED]: There's a lot of plant
15 manipulations going on at this time, too. For example,
16 you know, on Line -- starting on Line 7, we restored
17 letdown to 75 gallons per minute.

18 Line 8, we had to take a superior intake
19 pump -- and these are still some normal steps in the
20 procedures for going on a plant shutdown. Placed the
21 cooling tower blowdown in service. Restored -- Line
22 10, at 10:48, restored letdown to 120 GPM.

23 MS. HOLLAND: Okay.

24 [REDACTED]: Line 11, 11:01, secured the
25 Charlie condensate pump. Line 12, place contaminant

1 mini-purge in service. That was on Line 12. Line 14,
2 we secured a Bravo main feed pump.

3 And Line 15, at 11:40, we started up a
4 start-up feed pump. So that was all stuff
5 procedurally-driven that starts -- you do all those
6 actions before you start the reactor shutdown. So
7 those -- all those actions are ongoing.

8 Back to the Shift Supervisor Log, on
9 Page 11978, additionally, at Lines 4 through 7, we
10 started several I&C surveillances for NI; checks --
11 nuclear instrument checks; and a operations
12 surveillance procedure for aux feed system.

13 So those are all ongoing surveillances
14 that are a required part of making mode changes for
15 doing a plant shutdown.

16 And then at 11:37, on Line 8, was when
17 we exited OTO NN1. So that was the last -- that was
18 the first time we had exited all the off-normal
19 procedures we were in; where we go back, and now we are
20 only focused on the plant shutdown procedures. So at
21 11:37, we exited the last off-normal.

22 At that point, I wanted to get the whole
23 crew together to discuss what had happened, to make
24 sure everybody was aligned on what had occurred, what
25 we all saw; to make sure everybody was up to speed and

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1 Mode 3. And then ten minutes later, at Line 17, 12:15;
2 all the control banks were fully inserted.

3 So there was really no delay in there.

4 We were responding to two off-normal procedures. And

5 we were doing all the normal equipment manipulations
6 required for a plant shutdown, the normal
7 administrative burdens associated with approving the
8 start of all these surveillances required for mode
9 changes.

10 And the -- so there was a period of time
11 where the control banks were not moving, but the
12 shutdown was still in progress whether those rods are
13 moving or not.

14 We -- as I mentioned, the fission
15 product point, which we're building it, which was
16 causing the reactor to continue to shut down. So as
17 soon as we tripped the turbine offline, essentially
18 within a few minutes, the reactor had started shutting
19 down, just due to the poison buildup.

20 We did observe we had a slight negative
21 startup rate, which was indicating the reactor was
22 shutting down. So there was never any intent to not
23 shut down.

24 From the time we started, at 1:00 in the
25 morning, until we entered Mode 3, at 12:55 that

1 31, at 1758.

2 MS. HOLLAND: Okay. Now, during this
3 time, you were working with the [REDACTED]
4 [REDACTED] that would be [REDACTED]. [REDACTED]?

5 [REDACTED]. [REDACTED]: Correct.

6 MS. HOLLAND: Okay. When you first
7 realized that you were going to have to actually shut
8 the reactor down, did he actually notify you? Or how
9 did that transpire?

10 [REDACTED]. [REDACTED]: Well, the discussion I had
11 with [REDACTED] was at the point where it was --
12 became obvious to me that, you know, it was not
13 conservative to just keep trying to restore this
14 temperature. I said, We need to go ahead and trip the
15 turbine, take it offline; that will address the
16 temperature excursion.

17 [REDACTED] So when I made that direction to him to
18 have the turbine taken offline, in my mind, that was
19 going to initiate the reactor shutdown, because of the
20 continual buildup of poisons and not having a steam
21 demand on the reactor anymore.

22 So that's really, in my mind, what the
23 reactor shutdown -- where we had made the decision to
24 start that. There was no turning back at that point.

25 So the discussion was merely to direct

1 him to have the turbine taken offline. And the reason
2 behind that -- and he agreed with it; he directed the
3 balance of plant operator to trip the turbine.

4 And at that point, we finished up. We
5 made the log entries for going into Mode 2. And we
6 went back to finish the off-normal for the loss of
7 letdown, getting the letdown restored to service.

8 As I mentioned before, once we got
9 letdown restored, we focused on the off-normal for the
10 loss of NN bus, or to finish up all the actions from
11 that, until we had all those actions completed. And
12 then once they were completed, we focused on -- back on
13 the rest of the plant shutdown activities.

14 MS. HOLLAND: Okay. So when -- you
15 directed the shutdown or trip; is that correct?

16 [REDACTED]: The turbine trip.

17 MS. HOLLAND: Turbine trip?

18 [REDACTED]: Yes.

19 MS. HOLLAND: Was that -- were you
20 anticipating on doing that, or was that something that
21 came up --

22 [REDACTED]: Well, it was --

23 MS. HOLLAND: -- during the course of
24 the day that was unanticipated or unplanned?

25 [REDACTED]: Well, we were about 40

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1 megawatts from where we would normally trip the turbine
2 offline. I mean, I think we were at about 100
3 megawatts when this temperature excursion happened.

4 At 60 megawatts would've been the normal
5 point where we would take the turbine offline. So we
6 were only, you know, 20 minutes away from doing it
7 anyway.

8 And it became obvious to me that once we
9 had taken all the immediate actions we could take in
10 the control room to address this temperature transient,
11 and they weren't effective, there was no longer any
12 valid reason to keep the turbine online.

13 It wasn't prudent to chase the
14 temperature. So, conservatively, I directed the
15 turbine to be taken offline to address the temperature
16 transient.

17 MS. HOLLAND: And can you explain -- and
18 this is part of the allegation -- the appearance that
19 maybe the delay was -- the timing of the delay was
20 manipulated to cover up the fact that maybe if you
21 didn't go back online in a certain amount of time it
22 would be viewed as a adverse action or performance
23 problem?

24 [REDACTED]: I'm not -- I don't think I
25 understand. What's the delay you're talking about?

1 MR. GROOM: Probably the delay in
2 inserting the rods.

3 MS. HOLLAND: Right.

4 MR. GROOM: I think is what --

5 MS. HOLLAND: Inserting the rods.

6 MR. GROOM: -- you're getting at.

7 MS. HOLLAND: Because there is a
8 question, what's highlighted -- the reason I'm here is,
9 there's a concern about the amount of time before you
10 re-inserted the rods. Is that what you were saying?

11 [REDACTED]: Yes.

12 MR. GROOM: It really stems from when
13 you drop below minimum temps for criticality. Is there
14 a procedural requirement that you insert the rods when
15 you drop below the Tech Spec limit?

16 [REDACTED]: No. There's a 30-minute
17 time frame to restore the temperature.

18 MR. GROOM: Okay.

19 [REDACTED]: And that's what the Tech
20 Spec says: You have 30 minutes to restore that
21 temperature. And we restored it in about half that
22 time. And we took conservative measures to do that by
23 tripping the turbine offline.

24 But the reason for the delay and the
25 continuing on with the control bank insertion was what

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1 I previously discussed, about the actions we were still
2 doing in two off-normal procedures, in addition to all
3 the normal plant equipment steps that take place before
4 you get to the reactor shutdown step, as far as taking
5 equipment out of service. So we were following the
6 prescribed procedure guidance to do all that stuff.

7 And when we got to the step to where you
8 commence the reactor shutdown, that's when we -- we had
9 finished up all the procedures for the off-normals. We
10 had the crew briefed to make sure that everybody had a
11 clear picture of what had occurred.

12 Because we didn't want to go along that
13 anybody that may have been -- missed something or was
14 confused about something, to get the crew all back
15 together to discuss the events.

16 And then it was -- I think the timeline
17 shows, it was a very short time from the completion of
18 the last off-normal before those control banks were
19 started to be inserted again.

20 So there -- again, a lot of activity
21 going on in that 100 minutes, or whatever it was. So it
22 wasn't like inserting the control banks was the only
23 thing we had to do that -- in that 100 minutes. There
24 was a lot of stuff going on.

25 And although there was a delay in

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1 there anything else that you can maybe add to your
2 interview that may help give the NRC an overview of
3 what went on that day and why certain appearances may
4 have occurred or --

5 [REDACTED]: I mean, my perception of
6 this is that we had a -- we had an extremely busy
7 shift. We were presented with some equipment failures
8 and two off-normal procedures. And I think the crew
9 worked through all those issues in a fairly timely
10 manner.

11 [REDACTED] And the forefront of our -- of all our
12 actions were to do things conservatively, and that's
13 the primary driver that I directed the turbine trip,
14 was to conservatively shut down the turbine in response
15 to a temperature excursion.

16 And I've had years of training that
17 that's the right thing to do in response to an issue
18 like that, take conservative action and address it and
19 don't try to chase it with reactivity. So that's what
20 we elected to do.

21 MS. HOLLAND: All right. And what you
22 stated earlier is there was no intentional delay --

23 [REDACTED]: No. There was never a delay
24 in the shutdown. The shutdown had started at one
25 o'clock and it continued until we got to Mode 3. There

1 was a short delay where rods weren't moved, but the
2 reactor was continuing to shut during that entire time
3 frame.

4 MS. HOLLAND: All right. Do you have
5 any questions, [REDACTED].

6 [REDACTED]: I do not.

7 MS. HOLLAND: Okay. All right. Well, I
8 just have a few more questions to ask of you, unless
9 there's anything else you wanted to comment on?

10 [REDACTED]: No.

11 MS. HOLLAND: No? Okay. Have I or any
12 other NRC representative threatened you in any manner?

13 [REDACTED]: No.

14 MS. HOLLAND: Okay. Have I offered you
15 a reward for your interview today?

16 [REDACTED]: No.

17 MS. HOLLAND: Okay. Since there's no
18 additional information, this interview is concluded.

19 The time is 9:42 a.m. Thank you [REDACTED].

20 (Witness excused.)

21 (WHEREIN; the interview was concluded at
22 9:42 a.m.)

23

24

25

June 26, 2009

1412 Dial Court
Springfield, IL 62704

William Jones
United States Nuclear Regulatory Commission
Region IV
612 East Lamar Blvd, Suite 400
Arlington, Texas 76011-4125

Dear Mr. Jones,

On March 1, 2009 I wrote you a letter concerning the contribution of off-normal procedure OTO-NN-00001 to the October 21, 2003 Incident at the Callaway nuclear plant. In that letter I alleged that OTO-NN-00001 did not substantially contribute to the 106 minute delay between the shutdown of the reactor and the insertion of the control banks. From reading the sworn testimonies provided by [REDACTED] [REDACTED] for the investigation of OI Case 4-2007-049, it appeared to me the US NRC believes that the need to complete OTO-NN-00001 justified a substantial part of the 106 minute time frame.

Yesterday I received a complete copy of Callaway's off-normal procedure OTO-NN-00001 through the FOIA process. At the time I wrote my March 1, 2009 letter, I did not have a copy of OTO-NN-00001 available and was having to make assumptions from memory. The purpose of this letter is to provide you my assessment from a review of OTO-NN-00001.

Items 29 and 30 contain my allegation.

Under FOIA/PA 2009-0102 I requested copies of the control room logs from Callaway Plant for October 21, 2003. After waiting 63 days, I received a copy of the logs which had all the narrative entries redacted. Although I appealed these redactions nearly one month ago, I have not been told any status regarding my appeal other than it has been assigned a number, FOIA/PA 2009-0016A. Through painstakingly referencing the testimonies from OI Case 4-2007-049 (which were obtained through FOIA/PA request 2009-00064) I have been able to reconstruct the control room logs for the time period of interest to me, with the exception of the entries noted in item (a) below.

To my knowledge, only four control room log entries, pertaining to the 8:21 am loss of inverter NN11 on October 21, 2003, were made between 8:21 am and 12:04 pm:

8:21 Started procedure OTO-NN-00001, Loss of Safety Related Instrument Power
8:33 ATS [authorize to start] ST-13024 OSP-AL-00001 AFW Valve Alignment
11:34 NFC [notified field complete] ST-13024 OSP-AL-00001 AFW Valve Alignment
11:37 Completed OTO-NN-00001 Satisfactorily

Note the following:

- (a) The following log entries could not be reconstructed and may contain entries pertaining to the performance of OTO-NN-00001, Rev 006A:
 - (i) Lines 1, 2, 3 of page 11978 of the Callaway Plant Shift Supervisor Daily Log (OI Case 4-2007-049, Exhibit 38, Page 2 of 3) which correspond to entries at 10:18 a.m. on October 21, 2003
 - (ii) Line 12 of page 11978 of the Callaway Plant Shift Supervisor Daily Log, which corresponds to an entry at 12:04 p.m. on October 21, 2003
 - (iii) Lines 31 and 32 of page 013648 of the Callaway Plant Reactor Operator Daily Log (OI Case 4-2007-049, Exhibit 37, Page 1 of 3) which corresponds to entries at 8:55 and 8:56 a.m. on October 21, 2003.
 - (iv) Lines 1 and 2 of page 013649 of the Callaway Plant Reactor Operator Daily Log (OI Case 4-2007-049, Exhibit 37, Page 2 of 3) which corresponds to entries at 8:56 and 9:08 a.m.
- (b) None of the log entries mentioned in item (a) occurred between 10:19 and 11:37 am on October 21, 2003.
- (c) At 7:21 am on October 20, 2003, inverter NN11 failed unexpectedly. The operating crew entered off-normal procedure OTO-NN-00001 in response to that failure and therefore many of the steps in the procedure were already completed (i.e. they merely had to be verified vice performed) when OTO-NN-00001 was performed on October 21, 2003.
- (d) Since October 20 and 21, 2003 were a Monday and Tuesday, the control room staff should have been the same for both days.
- (e) Because of the failure of NN11 on the previous day (7:21 am on 10/20/2003), at 8:21 am on October 21, 2003 there should have been no controllers or instruments aligned to bus NN01.
- (f) Since most off-normal procedures contain recovery steps, it was common practice to hold open an off-normal procedure in case the recovery steps could be performed. That is, just because an off-normal procedure has not yet been logged as completed, it does not mean that it was actively requiring effort and attention from the operators. It is merely remaining open until plant conditions permit the operators to resume its performance (i.e. to perform the recovery actions once maintenance has repaired the problem).
- (g) During the morning of October 21, 2003, Electrical Maintenance was actively attempting to repair Inverter NN11 so the operators would have intentionally held open OTO-NN-00001 as long as they thought Inverter NN11 might return to service.
- (h) Inverter NN11 was NOT operable when it failed at 8:21 on 10/21/2003.

At 8:21 am on October 21, 2003, inverter NN11 was placed in service as part of a retest. The inverter failed, causing the crew to enter OTO-NN-00001. Here is my analysis of the crew's response to OTO-NN-00001, Rev. 006A:

1. Because of item (e), none of the Automatic Actions listed on page 3 of the procedure occurred and none of the Immediate Operator Actions required any response. Because of item (d), it should not have taken very long to verify that none of the Automatic Actions occurred and that the Immediate Operator Actions were met. Although completing page 3 of OTO-NN-00001, Rev 006A may have taken a dozen minutes on October 20, 2003, I estimate that, because of items (d) and (e), completing page 3 took less than one minute on October 21, 2003.
2. The second note on page 4 of OTO-NN-00001, Rev 006A states that the Subsequent Actions may be performed in any order that the Shift Supervisor deems necessary. Because of items (e) and (h) most of the subsequent actions required no action and because of item (d) it should have not taken very long for the operators to verify whether or not subsequent actions 6.5 through 6.10 were met. If any of the subsequent actions 6.5 through 6.10 required performance by the operators, then, because of item (b), that performance was accomplished prior to 10:19 am and therefore did not contribute to the 106 minute delay (from 10:18 am to 12:04 pm) in inserting the control banks.
3. Subsequent actions 6.2 through 6.4 were not applicable.
4. Subsequent action 6.11 did not contribute to the delay in inserting the control banks. However, in accordance with items (f) and (g), waiting to perform this recovery action may have been one of the reasons it took so long to log the completion of OTO-NN-00001.
5. Subsequent action 6.1 merely references the crew to Attachment 1. This action took only seconds to perform.
6. Although it is possible some of the Subsequent Actions were performed between 8:55 and 10:18 am, because of items 2 through 5 and item (d), the Subsequent Actions should not have appreciably delayed the crew into entering Attachment 1. I estimate that the operators commenced Attachment 1 of OTO-NN-00001, Rev. 006A by 8:25 am.

7. Because of item (e), none of the actions on Attachment 1, page 1 (OI Case 4-2007-049, Exhibit 28, Page 9 of 53) required any performance by the operators. Because of item (d), it should not have taken very long to verify that all of the actions on Attachment 1, page 1 were met. Although completing page 1 of Attachment 1 of OTO-NN-00001, Rev 006A may have taken dozens of minutes on October 20, 2003, I estimate that, because of items (d) and (e), completing this page took less than one minute on October 21, 2003.
 - a. Step 1: because of item (e) all controllers should have been “selected away” from bus NN01.
 - b. Step 2: This step is done to minimize the amount of boron added to the reactor coolant system in the event that the suctions of the charging pumps swap to the RWST. Since OTO-BG-00004 was performed on 10/20/2003, the suction of the charging pumps did not swap to the RWST.
 - c. Step 3: same reasoning as Step 2
 - d. Step 4: This step is in the procedure to ensure the operators account for the boron increase if the charging pump suctions had swapped to the RWST. Since the charging pump suctions did not swap, this step is, in a sense, not applicable. However, the operators were performing this step for another reason – it is necessary to do this when actively performing a downpower. So, although this step was being performed, its performance had nothing to do with OTO-NN-00001 and did not delay the operators in stepping through this page of the procedure.
8. Step 5 of Attachment 1 of OTO-NN-00001, Rev 006A required no performance by the operators. Steps 2, 3 and 5 are done to minimize the amount of boron added to the reactor coolant system in the event that the suctions of the charging pumps swap to the RWST. Since OTO-BG-00004 was performed on 10/20/2003, the suction of the charging pumps did not swap to the RWST. By the rules of usage of the procedures, none of the substeps of Step 5 (that is, Steps 5.1, 5.2, 5.3, 5.4 and 5.4.1) needed to be performed. If the operators had decided to verify that step 5 and all its substeps were met, this should not have taken much more than one minute.
9. Steps 6 through 9 of Attachment 1 should have all been performed on 10/20/2003 and therefore required only verification by the control room. Although completing Steps 6 through 9 of Attachment 1 of OTO-NN-00001, Rev 006A may have taken dozens of minutes on October 20, 2003, I estimate that, because of items (d) and (e), completing this page took less than one minute on October 21, 2003.
10. Step 10 of Attachment 1 probably was already in affect; it is likely an equipment operator performed the 8:21 re-energization of NN11 (or was at least standing by) and therefore did not need to be dispatched. Regardless, performing this step on 10/21/2003 required minimal effort from the control room staff since it merely involved paging an equipment operator and sending him to the inverter.

11. Step 11 of Attachment 1 required minimal effort on 10/21/2003 as all it did was direct the Control Room Supervisor to GO TO Attachment 1A. I estimate that the operating crew commenced Attachment 1A of OTO-NN-00001, Rev 006A by 8:29 am.
12. Steps 12 through 30 of Attachment 1 are recovery actions which were not performed on the morning of October 21, 2003 and therefore did not contribute to the delay in inserting the control banks. However, in accordance with items (f) and (g), waiting to perform these recovery actions may have been one of the reasons it took so long to log the completion of OTO-NN-00001.
13. Because of item (d) and the fact that the plant was already in some of these Tech Specs, Step 1.1 of Attachment 1A of OTO-NN-00001, Rev 006A should have taken a minimal amount of time to perform.
14. Because of items (e) and (h), Step 1.2 of Attachment 1A might not have been necessary. If Step 1.2 was performed, then, because of item (b), that performance was accomplished prior to 10:19 am and therefore did not contribute to the 106 minute delay (from 10:18 am to 12:04 pm) in inserting the control banks.
15. Because of item (e), Steps 1.2.1, 1.2.2 and 1.2.3 of Attachment 1A required no performance by the operators and, because of item (d), the verification of these steps as already complete should have taken less than one minute.
16. Steps 1.3, 1.3.1, 1.3.2 and 1.3.3 of Attachment 1A had been completed on October 20, 2003 and therefore required no performance by the operators. Because of item (d), the verification of these steps as already complete should have taken less than one minute.
17. Step 1.4 of Attachment 1A was not applicable on 10/21/2003 since normal charging and letdown were not isolated during the performance of Attachment 1 (i.e. Steps 3 and 5 of Attachment 1 were not performed).
18. Steps 1.5, 1.5.1, 1.5.2, 1.5.3, 1.5.4 and 1.5.5 of Attachment 1A had been completed on October 20, 2003 and therefore required no performance by the operators. Because of item (d), the verification of these steps as already complete should have taken less than one minute.
19. Because of items (e) and (h), Step 1.6 of Attachment 1A might not have been necessary. If Step 1.6 was performed, then, because of item (b), that performance was accomplished prior to 10:19 am and therefore did not contribute to the 106 minute delay (from 10:18 am to 12:04 pm) in inserting the control banks.

20. I estimate that, because of items (d), (e) and (h), by 8:33 am the operating crew was able to accomplish OTO-NN-00001, Rev 006A through Step 1.6 of Attachment 1A.
21. Step 1.7 of Attachment 1A was commenced at 8:33 am. This step directs the Control Room Supervisor to ensure OSP-AL-00001 is performed. OSP-AL-00001 verifies that the valves in the Auxiliary Feedwater flow path are in their required position. It would typically have been performed by the "extras" (that is, the extra reactor operators and equipment operators brought in to assist with the plant shutdown). This surveillance procedure should have placed a minimal burden on the control room staff. The involvement of the control room staff would typically have been:
- a. Obtain a working copy of the procedure (probably done by the Control Room clerk)
 - b. Generate an "On demand" surveillance task sheet (takes less than one minute and probably done by the Shift Technical Advisor)
 - c. Log the surveillance as Authorize to Start (ATS) once the operators have been briefed (briefing probably done by the Field Supervisor)
 - d. Log the surveillance as Notified Field Complete (NFC) once the operators have completed all the paperwork and handed it into the Control Room Supervisor
 - e. Control Room Supervisor and Shift Supervisor review and sign the paperwork.
22. Step 1.7 of Attachment 1A was completed at 11:34 am. From 8:33 (the time the [REDACTED] authorized OSP-AL-00001 to start) until 11:34 am (the time the [REDACTED] was notified that OSP-AL-00001 was field complete) Step 1.7 should have placed practically no burden on the control room staff and should not have contributed to the 106 minute delay for inserting the control banks.
23. From 11:34 to 11:37 am, with reactor power in the source range and the control rods at their last critical rod heights, the [REDACTED] reviewed the paperwork for OSP-AL-00001 and the paperwork for OTO-NN-00001. This review should not have taken priority over inserting the control banks.

24. Steps 1.8 through 1.12 of Attachment 1A should have been performed within a few minutes of 8:33 am:
- Step 1.8 should have already been performed on 10/20/2003
 - Step 1.9 should have already been performed on 10/20/2003
 - Step 1.10 should have already been performed on 10/20/2003. Since NN11 had NOT yet been declared OPERABLE, the Tech Spec entries should not have changed
 - Step 1.11 was already being performed. The plant was already shutting down per OTG-ZZ-00004.
 - Step 1.12 should have already been performed on 10/20/2003. Since NN11 had NOT yet been declared OPERABLE, nothing new was reportable.
25. From approximately 8:35 through 11:34 am, the performance of OTO-NN-00001 placed no burden on the operating crew. All the steps which the crew was able to either perform (or verify) had been completed by 8:35 with the exception of OSP-AL-00001, which was being performed by operators other than the control room staff.
26. From approximately 8:35 through 11:34 am, OTO-NN-00001 was being held open awaiting the completion of Step 1.7 of Attachment 1A (perform OSP-AL-00001) and the possible restoration of Inverter NN11.
27. By 11:37 am, OSP-AL-00001 had been completed and the [REDACTED] had determined that, following its eventual repair, Inverter NN11 was going to be restored by a procedure other than OTO-NN-00001. Since there was no longer any reason to hold open OTO-NN-00001, the Control Room Supervisor logged it as complete.
28. There was no requirement on October 21, 2003 for OTO-NN-00001 to be formally completed prior to the control rods being inserted. In fact, concurrent with the performance of OTO-NN-00001, the operating crew was actively stepping through OTG-ZZ-00004 and OTG-ZZ-00005 to perform the plant shutdown. It is disingenuous to suggest that OTO-NN-00001 prevented the operators from performing the steps in OTG-ZZ-00005 to insert the reactor control banks yet did not prevent the operators from doing all the other steps in OTG-ZZ-00004 and OTG-ZZ-00005 which were completed between the 8:21 to 11:37 am time frame.

29. During their sworn testimonies for OI Case 4-2007-049, [REDACTED] intentionally misled the US NRC investigators into believing that the need to complete performance of OTO-NN-00001 contributed to the 106 minute delay for inserting the control banks (excerpts from [REDACTED] sworn testimonies are provided at the end of this letter):
- a. On page 19 of his sworn testimony (lines 16 through 21) [REDACTED] misleads the NRC investigators into believing that, because of OTO-NN-00001 being open until 11:37 am, the crew was unable to adequately focus on the plant shutdown procedures.
 - b. On page 21 of his sworn testimony (line 4) [REDACTED] misleads the NRC investigators into believing that, because his crew was responding to OTO-NN-00001 (one of the “two off-normal procedures”), they did not have time prior to 11:37 am to insert the control banks.
 - c. On page 24 of his sworn testimony (lines 9 through 13) [REDACTED] misleads the NRC investigators into believing that, after OTO-BG-00001 was completed at 10:18 am, his crew was focusing on OTO-NN-00001. In actuality, there were no actions being taken in OTO-NN-00001 between 10:18 and 11:33 which directly involved the control room staff. From 11:34 to 11:37 the only burden on the control room staff was for the [REDACTED] to review OSP-AL-00001 and OTO-NN-00001 for completion. The review of these two procedures should not have prevented the crew from focusing on the “rest of the plant shutdown activities.”
 - d. On page 27 of his sworn testimony (lines 7 through 24) [REDACTED] misleads the NRC investigators into believing that the crew had to finish up “all the procedures for the off-normals” (of which OTO-NN-00001 was the last one) prior to being able to continue with the reactor shut down and insert the control rods.
 - e. On pages 39 and 40 of his sworn testimony (line 22 of page 39 through line 22 of page 40) [REDACTED] misleads the NRC investigators into believing the operators could not insert the control rods because they were busy doing higher priority activities in OTO-NN-00001. As a licensed Senior Reactor Operator, [REDACTED] knew that waiting for surveillance OSP-AL-00001 to be completed (so that OTO-NN-00001 could be closed) was not a higher priority than inserting the control banks on a reactor whose power level was in the source range with the control rods at their last critical rod heights.

30. In his response to Action 6 of Callaway Action Request 200702606 (a Quality Assurance record) [REDACTED] intentionally made misleading statements in that he claimed the control room staff having to respond to OTO-NN-00001 contributed to the 106 minute delay for inserting the control banks and he implied insertion of the control rods had to wait until OTO-NN-00001 was exited. In response to the question:

What activities were in progress which prevented insertion of the control banks for 100 minutes?

[REDACTED] included in his response:

...In addition, the staff was responding to a loss of letdown per OTO-BG-00001 and a loss of NN01 per OTO-NN-00001. The loss of NN01 was a second loss of NN01 which occurred during the troubleshooting and repair attempts for NN11. The second loss of NN01 was not completely exited until 11:37 a.m. To the best of my recollection, once the final OTO was exited at 11:37 a.m., we had a Control Room brief to update the staff on all of the actions taken for the Loss of Letdown and the Loss of NN01 ...

To re-iterate, items 29 and 30 contain my allegation.

If you cannot substantiate my allegation, then I would like each of the 30 items detailed above to be treated and answered as a separate complaint so that I might understand how my assessment diverges from the US NRC's.

Although it is not my place to dictate to you how to perform your investigation, based on the ease with which [REDACTED] misled the NRC investigators during the investigation of OI Case 4-2007-049, I feel compelled to make the following suggestions to you:

- [REDACTED] be interrogated under oath
- The US NRC investigators questioning [REDACTED] be previously licensed Senior Reactor Operators at Westinghouse pressurized water reactors
- The US NRC investigators review and obtain an understanding of Callaway Plant off-normal procedure OTO-NN-00001, Rev 006A prior to questioning [REDACTED]
- The US NRC investigators review and obtain an understanding of Callaway Plant off-normal procedure OTO-BG-00001, Rev 004 prior to questioning [REDACTED]
- The US NRC investigators review and obtain an understanding of the appropriate revisions (the revisions which were in effect on October 21, 2003) of Callaway Plant general operating procedures OTG-ZZ-00004 and OTG-ZZ-00005 prior to questioning [REDACTED]

- The US NRC investigators review and obtain an understanding of the Callaway Plant Shift Manager and Reactor Operator logs from October 21, 2003 prior to questioning [REDACTED]
- Prior to questioning [REDACTED], the US NRC investigators review and obtain an understanding of the graphs of the plant critical parameters which are attached to Callaway Action Request 200701278.
- The US NRC investigators review and obtain an understanding of my February 28, 2009 and March 1, 2009 letters prior to questioning [REDACTED]
- Prior to questioning [REDACTED] the US NRC investigators meet with me to ensure they have an understanding of OTO-BG-00001, OTO-NN-00001, OTG-ZZ-00004, OTG-ZZ-00005, CAR 200701278, the control room logs, the critical parameter data, and my letters to the US NRC concerning the October 21, 2003 Incident.
- During the questioning of [REDACTED], the US NRC investigators request [REDACTED] to comment on each of the 56 items contained in my February 28, 2009 letter.
- During the questioning of [REDACTED], the US NRC investigators request [REDACTED] to comment on each of the 30 numbered items detailed above in this letter.
- During the questioning of [REDACTED], the US NRC investigators seek to understand why NRC licensed Senior Reactor Operators would, as claimed by [REDACTED] during his April 1, 2009 sworn testimony, hold an update brief during the time period when reactor power was in the source range with the control rods still at their last critical rod heights.
- During the questioning of [REDACTED], the US NRC investigators seek to understand why NRC licensed Senior Reactor Operators would intentionally remove steam demand to shut down the reactor but then would take 110 minutes before inserting the control banks.

I believe items 29 and 30 are serious allegation and I expect them to be treated appropriately. An individual's past actions are an indication of his character. The actions taken by [REDACTED] (intentionally delaying the insertion of the control banks for 106 minutes in order to cover up an inadvertent reactor shutdown) indicate that they do not have the character required to work in the commercial nuclear industry. You cannot merely bureaucratically state that my claims are "Unsubstantiated"; you need to make an effort to refute my claims and to form you own understanding of why NRC licensed Senior Reactor Operators would neglect to actively manage core reactivity.

Per our earlier agreement, please continue to copy me via email at LSCriscione@hotmail.com on all correspondence regarding my allegations.

Very respectfully,



Lawrence S. Criscione, PE
(573) 230-3959

██████████ Sworn Testimony from April 1, 2008
Exhibit 28 of OI Case 4-2007-049
FOIA/PA Request 2009-0065

From Page 19

16 | And then at 11:37, on Line 8, was when
17 | we exited OTO NN1. So that was the last -- that was
18 | the first time we had exited all the off-normal
19 | procedures we were in; where we go back, and now we are
20 | only focused on the plant shutdown procedures. So at
21 | 11:37, we exited the last off-normal.

From Page 21

3 | So there was really no delay in there.
4 | We were responding to two off-normal procedures. And
5 | we were doing all the normal equipment manipulations
6 | required for a plant shutdown, the normal
7 | administrative burdens associated with approving the
8 | start of all these surveillances required for mode
9 | changes.

██████████ Sworn Testimony from April 1, 2008
Exhibit 28 of OI Case 4-2007-049
FOIA/PA Request 2009-0065

From Page 24

8 As I mentioned before, once we got
9 | letdown restored, we focused on the off-normal for the
10 | loss of NN bus, or to finish up all the actions from
11 | that, until we had all those actions completed. And
12 | then once they were completed, we focused on -- back on
13 | the rest of the plant shutdown activities.

██████████ Sworn Testimony from April 1, 2008
Exhibit 28 of OI Case 4-2007-049
FOIA/PA Request 2009-0065

From Page 27

7 And when we got to the step to where you
8 commence the reactor shutdown, that's when we -- we had
9 finished up all the procedures for the off-normals. We
10 had the crew briefed to make sure that everybody had a
11 clear picture of what had occurred.

12 Because we didn't want to go along that
13 anybody that may have been -- missed something or was
14 confused about something, to get the crew all back
15 together to discuss the events.

16 And then it was -- I think the timeline
17 shows, it was a very short time from the completion of
18 the last off-normal before those control banks were
19 started to be inserted again.

20 So there -- again, a lot of activity
21 going on in that 100 minutes, or whatever it was. So it
22 wasn't like inserting the control banks was the only
23 thing we had to do that -- in that 100 minutes. There
24 was a lot of stuff going on.

[REDACTED] Sworn Testimony from March 31, 2008
Exhibit 14 of OI Case 4-2007-049
FOIA/PA Request 2009-0065

From Page 39

22 | I was dealing with other things.
23 | Obviously, my off-normal is higher procedure than my
24 | OTG. Right. I need to take care of my off-normals
25 | first.

Line 25 was the last line on page 39. The testimony continues with line 1 of page 40 which is provided in this letter on the next page. I did not have room to place a header on the succeeding page, but it begins where line 25 ends.

1 MS. HOLLAND: So what I'm trying to
2 understand is, is there an intentional delay for a
3 valid reason or --

4 [REDACTED]: There was no intentional
5 delay.

6 MS. HOLLAND: Okay.

7 MR. DUMBACHER: What you're saying is
8 you were busy with a higher priority procedure?

9 [REDACTED]: Correct.

10 MS. HOLLAND: Okay. So to my
11 understanding, you were just responding to the various
12 things going on around you, and you're just responding
13 to whatever comes up --

14 [REDACTED]: Right.

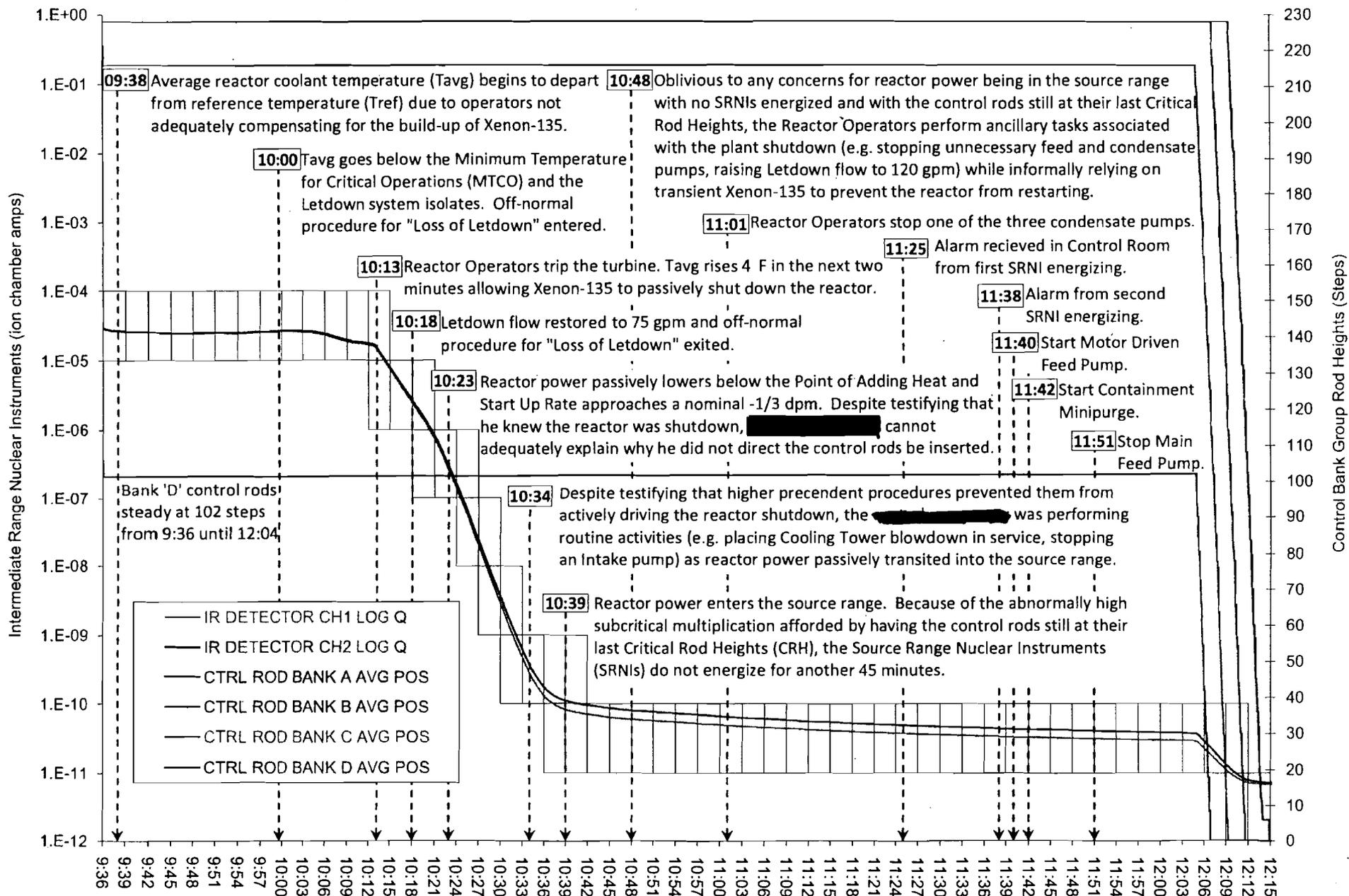
15 MS. HOLLAND: -- whatever had priority?

16 [REDACTED]: Right. At this point, I'm
17 not driving the reactor. I'm reacting to problems I
18 have, so --

19 MS. HOLLAND: Okay. All right.

20 [REDACTED]: Those are higher priority,
21 to restore those first, and then get back to driving
22 the plant.

Rod Heights and IRNI Currents during Oct. 21, 2003 Shutdown at Callaway Plant



The reactor passively shut down shortly after the main turbine was tripped at 10:13. No negative reactivity was actively inserted until 12:04. Upper management did not expect the reactor to shut down at 10:13 and the control rods may have been left withdrawn to give management the impression the reactor was being actively shut down at noon. Until February 2007, no one outside of the control room was aware that when the control rods were inserted at 12:04 the reactor had already been shutdown for over 106 minutes.



Jaegers, Cathy

From: Lawrence Criscione [lsciscione@hotmail.com]
Sent: Saturday, September 18, 2010 9:48 AM
To: MSHD Resource
Cc: Tennille, Eric; Repetto, John; Nguyen, Kenny; Khamphoui, Orada; Neely, Mary; Rieta, Melissa; Collins, Michael; King, Mike; Buan, Angelina; RidsNrrPMCallaway Resource; Thadani, Mohan
Subject: RE: EIE E100917t130004 form LSCriscione@hotmail.com
Attachments: Request_for_10CFR2-204_Demand_for_information[1].pdf

Good morning,

I am submitting the attached document as a 10CFR2.206 request. I attempted to submit this document as an EIE submittal but it was rejected (see email below). Since it was rejected as an EIE submittal, this may be a "re-submittal".

Please note that pages 1 - 25, 55 & 56 in the attached pdf and in the pdf submitted through EIE submittals should be "searchable". These are the pages that constitute the 10CFR2.206 request. Pages 26-39 are markups from an OI interview. I do not know what I can do to make these "searchable" but, although these pages are necessary for understanding the 10CFR2.206 request, they are being provided merely for reference. Pages 40-54 can also not be made "searchable" by me, but again these pages were provided merely as reference.

Please call me at (573) 230-3959 if you have any questions.

Thank you,

Larry

Lawrence S. Criscione
(573) 230-3959

From: Angelina.Buan@nrc.gov
To: LSCriscione@hotmail.com; RidsNrrPMCallaway.Resource@nrc.gov; Mohan.Thadani@nrc.gov
CC: Eric.Tennille@nrc.gov; John.Repetto@nrc.gov; Kenny.Nguyen@nrc.gov; Orada.Khamphoui@nrc.gov; Mary.Neely@nrc.gov; Melissa.Rieta@nrc.gov; Michael.Collins@nrc.gov; Mike.King@nrc.gov
Date: Fri, 17 Sep 2010 16:30:51 -0400
Subject: EIE E100917t130004 form LSCriscione@hotmail.com

Good afternoon,

The att'd EIE submittals were not submitted in accordance with specifications contained in NRC's electronic submission rulemaking (and it's associated guidance document; effective January 1, 2004) which can be accessed at the following webpage:

<http://www.nrc.gov/site-help/e-submittals/guide-electronic-sub-r6.pdf>

Specifically the PDF file is **Missing Hidden Texts on images 25 through image 56 (text are non-searchable)**

Please **correct the file** and re-submit in accordance with NRC Submission Guidance. Please include in the comment field that this is a re-submittal.

If you have any questions, please contact me at 301-415-6785 or e-mail Angelina Buan @nrc.gov .

We appreciate your participation in the NRC EIE program.

PS. If you're using Adobe 7.0 Pro, you might want to download and install the latest revision. As we found out, if you're using 7.0.0-7.0.3, you will get a wrong result, such as Fast Web View is enabled while in fact it is NOT enabled.

Thanks,

Angelina Puan

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X-MID: 25470307
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d="pdf?scan'208,217";a="25470307"
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Message-ID: <BLU145-W62EB851ED0DF0EF15E984B57C0@phx.gbl>
Return-Path: lsciscione@hotmail.com
Content-Type: multipart/mixed;
boundary="_1f912d68-ace1-4a6f-b032-e7e978f5a2ac_"
X-Originating-IP: [98.222.33.188]
From: Lawrence Criscione <lsciscione@hotmail.com>
To: <mshd.resource@nrc.gov>
CC: <eric.tennille@nrc.gov>, <john.repetto@nrc.gov>, <kenny.nguyen@nrc.gov>,
<orada.khamphoui@nrc.gov>, <mary.neely@nrc.gov>, <melissa.rieta@nrc.gov>,
<michael.collins@nrc.gov>, <mike.king@nrc.gov>, <angelina.buan@nrc.gov>,
<ridsnrrpmcallaway.resource@nrc.gov>, Mohan Thadani <mohan.thadani@nrc.gov>
Subject: RE: EIE E100917t130004 form LSCriscione@hotmail.com
Date: Sat, 18 Sep 2010 09:47:31 -0400
Importance: Normal
In-Reply-To:
<44CD2E65B0FF0E499CB32BC30CF781F0124B71A8BF@HQCLSTR01.nrc.gov>
References:
<44CD2E65B0FF0E499CB32BC30CF781F0124B71A8BF@HQCLSTR01.nrc.gov>
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X-OriginalArrivalTime: 18 Sep 2010 13:47:34.0782 (UTC) FILETIME=[0C6371E0:01CB5738]