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Mr. James Caldwell
Regional Administrator, Region III
United States Nuclear Regulatory Commission
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352

Subject: Written Response to NRC Inspection Report 05000440/2004016
Preliminary White Finding

Dear Mr. Caldwell:

This letter provides the FirstEnergy Nuclear Operating Company (FENOC) response to Mr. Steven A. Reynolds' letter dated December 23, 2004, that informed the Perry Nuclear Power Plant of the preliminary White finding evaluation for the July 20, 2004 Alert declaration.

The attachment to this letter provides the Nuclear Regulatory Commission with the following information:

- A timeline of events describing the Shift Manager (Emergency Coordinator) actions to assess the event and provide continuous assessment for potential escalation, and
- FENOC's position regarding performance deficiencies and the significance of those performance deficiencies.

It is our belief that there are two performance issues: 1) the intent of the Emergency Action Level HA1 Note not being clear and 2) failure of the Shift Manager to direct a Computer Aided Dose Assessment Program (CADAP) run within 15 minutes. Neither of these performance issues resulted in a failure to implement the Emergency Action Levels or the Emergency Plan nor did they have an impact or a potential impact to the health and safety of the general public. Consequently, we do not believe that any performance deficiencies rise to the level of a White finding.

We request you consider the information provided in this letter when determining the final disposition of the finding.

Very truly yours,

Richard Anderson

cc: Document Control Desk
NRC Project Manager
NRC Resident Inspector

FEB 0 1 2005

Supporting Information for Written Response to NRC Inspection Report 0500440/2004016

Timeline

At 0329 on July 20, 2004, the offgas vent pipe radiation monitor alarmed and indicated off-scale high. The Shift Manager knew he needed to consider entering the Emergency Plan because he had reviewed the procedures for the failure of a different radiological monitor a week earlier. This operating experience helped the Shift Manager provide early identification of the need for entry into the Emergency Plan.

The following occurred in the first fifteen minutes after the alarm.

The Shift Engineer was called and responded to the control room. The Shift Engineer was briefed on the indications and was asked to perform an independent evaluation of the event. Additionally, a reactor operator was directed to evaluate the inputs to the off-gas vent pipe radiation monitor to determine potential causes of the indication.

This independent assessment resulted in no other issues being identified and led to a discussion within several minutes of the instrument indication as to whether the radiation monitor had failed. Though discussed, it was not understood how the radiation monitor could be off-scale high without any of the input readings being elevated. The staff continued to work under the belief the indication was valid and took steps to confirm the status of the monitor.

The control room staff called the Instrumentation and Controls (I&C) Technician to the control room to perform a non-intrusive assessment of the radiation monitor channel. The technician's assessment determined that there were no obvious indications of a component failure.

The Chemistry Technician was contacted and directed to take samples of the off-gas vent pipe due to the indicated off-scale reading. The Shift Manager was informed it would take at least thirty minutes to get results from this sample.

The Shift Manager contacted the Operations Superintendent for a peer check on entering the Emergency Plan with a suspected failed radiation monitor. The Operations Superintendent consulted with the Operations Manager. The failure to enter the Emergency Plan during the last refueling outage and the need for making the correct decision was discussed during this conversation. In the Shift Manager's judgement, it was concluded that entry criteria for an Alert was met, in accordance with the Emergency Plan and EPI-A1, Emergency Action Levels (EAL), due to the radiation monitor being off-scale.

Following these off-shift management discussions, the Shift Manager conducted a final peer check with the Shift Engineer and Unit Supervisor. Both individuals agreed it was the correct response to enter the Emergency Plan until it could be positively confirmed the radiation monitor had failed.

The Chemistry Technician collected an off-gas noble gas sample at 0342 and was transferring it to the counting lab when the Shift Manager declared an Alert at 0344. The Shift Manager declared the Alert based upon EAL HA1, Any unplanned release of gaseous radioactivity to the environment that exceeds 200 times the ODCM Control limit for 15 minutes or greater. The Shift Engineer was directed to fill out the forms for the Emergency Plan entry.

The Shift Manager performed a walkdown of associated radiation monitors in the Control Room that could have caused the event. Upon completion of this walkdown, no other radiation monitor problems were identified and he then completed the paperwork started by the Shift Engineer. Once completed, the Emergency Plan forms were checked and agreed with by the Shift Engineer.

The Secondary Alarm Station operator was provided a pager message by the Shift Manager to contact the on-call Emergency Plan Team. Additionally, the Shift Manager directed the I&C Technician to begin making the initial notifications.

The Shift Manager performed an additional walkdown of control room indications (including strip charts) to look for problems and trends associated with this event. During this walkdown, it was identified that the other indicated radiation levels had remained steady for the time period prior to and through the event, with the exception of the off-gas vent pipe gas channel that showed an immediate step change to off-scale high.

Following this walkdown, the control room staff discussed the possibility that the radiation monitor had failed and that component operability should be based upon the results of the chemistry sample results.

During this conversation it was recognized that the note of EAL HA1 discussed the performance of a Computer Aided Dose Assessment Program (CADAP) run. An action statement contained within a note was questioned since, according to PNPP procedure development guidance, actions are not to be contained within notes.

For background, prior to CADAP being implemented at PNPP, control room Shift Engineers were trained to perform dose projections. This Shift Manager was a Shift Engineer at that time, and was involved in the development and implementation of CADAP. He assisted the emergency planning group by developing the step-by-step procedure for using the program. As part of developing this procedure, it was necessary to run numerous cases for potential scenarios to ensure the procedure and program worked properly. During this testing, he gained an extensive insight into what would be necessary to have an off-site release indicated by the program. The Shift Manager's individual experience with dose assessment was also a significant factor in his decision-making process during the event.

At some time before 0356 (12 minutes after the Alert declaration), while the Chemistry Technician was performing the aforementioned off-gas grab sample, the Shift Manager, using his prior experience with CADAP, performed a cognitive, qualitative assessment based on normal readings on radiation monitors on other ventilation, off-gas pre-treat, off-gas post-treat, main steam radiation monitors, and no indications of fuel damage.

Based on these observations, the Shift Manager knew that the inputs to CADAP would result in a normal off-site reading. From this information there was further evidence, as previously suspected, that no off-site release was occurring and it was very likely the radiation monitor had failed.

At 0359, the Emergency Plan initial off-site notifications were completed.

This concluded the main activities in the first 15 minutes following receipt of the off-gas monitor alarm.

At 0400, the on-shift Radiation Protection Technician reported that general area dose levels at the radiation monitors in the turbine laydown area (which is the plant location for the detector that was indicating off-scale high) were indicating normal background levels, providing yet further evidence there was no off-site radiological release. Had an event occurred that produced a valid off-scale reading on the radiation monitor, elevated indications would have been observed during the radiological survey. This provided important information in assessing the inoperability of the radiation monitor.

At 0403, the Chemistry Technician reported the activity level in the off-gas vent pipe sample was normal. This confirmed that the radiation monitor had failed. As a normal practice, and at the Shift Manager's direction, the Chemistry Technician conducted a back up sample to confirm the results of the first sample.

The Shift Manager again qualitatively assessed the off-site dose based on the radiation monitor readings in the control room and continued to conclude that the radiation levels were normal. These on-going assessments are specified in EPI-A1, which directs that the emergency class and applicable initiating conditions be periodically reevaluated.

The second off-gas sample was collected at 0415, and at 0430 the results also indicated a normal value. This was the final confirmation that the radiation monitor was inoperable for the off-gas vent pipe.

After determining the radiation monitor was inoperable at about 0430 (recorded as inoperable as of 0329 in the unit log, the time corresponding to the receipt of the alarm), the need to remain in the Emergency Plan was evaluated. It was determined that the Alert could be exited based on the knowledge of the status of the radiation monitor. The Shift Manager discussed exiting the Emergency Plan with the on-call Emergency Plan Representative who recommended staying in the Alert and allowing the Technical Support Center (TSC) to perform the exit from the Alert. The event was ultimately terminated at 0901 on July 20, 2004, following additional confirmatory troubleshooting of the monitor, along with chemistry samples and radiation survey results that confirmed that the off-scale high reading on the off-gas vent pipe radiation monitor was not due to a radiological release.

As can be seen in the previous discussion, there were multiple off-site dose and release assessments being made to ascertain both the status of the radiation monitor and the Emergency Plan. The FENOC position and discussion of expectations for the use of Emergency Action Levels are explained below.

FENOC Position

Program Compliance

The Emergency Action Levels (EALs) are included in the Emergency Plan such that the Emergency Plan complies with 10 CFR 50.47(b)(4). The EALs in use at PNPP are based on NUMARC/NESP-007, Methodology for Development of Emergency Action Levels (Revision 2), and were reviewed and approved by the NRC by letter dated January 27, 1997. Implementation and compliance with the Emergency Plan are accomplished through the use of Emergency Plan Implementing Instructions (EPIs). The instructions on how to use the EALs are included in EPI-A1, Emergency Action Levels. This was described in the Emergency Action Levels Bases Document, submitted to the NRC as part of a response to a Request for Additional Information on Emergency Action levels, dated September 27, 1996. In addition, Section 4.1 of the Emergency Plan states that the format and wording of Emergency Plan Table 4-1, which contains the EALs, are taken directly from EPI-A1.

An Emergency Action Level, as defined by the NUMARC guidance, is a measurable threshold or a discrete event. At PNPP, the EALs are formatted in logic boxes. The entry conditions in the logic boxes alone are adequate for emergency classification. This is consistent with the guidance in NUMARC/NESP-007 and the PNPP Emergency Plan.

Additional information related to Initiating Conditions is included in the form of notes in Table 4-1 of the Emergency Plan. The additional information is not intended to change or impact the EAL entry criteria contained in the EAL logic boxes. EAL HA1 entry criteria are executable and adequate without relying on the information contained in the note. During the 1996 NRC review of the PNPP EALs, a note was added to EAL HA1 to clarify potential overlap between the Alert and Site Area Emergency entry criteria (see Response to Request for Additional Information on Emergency Action Levels (TAC No. M94800), dated September 27, 1996). The intent of the note in HA1 was to provide additional information as to how the EAL entry criteria were determined and to highlight the difference in methodologies used to arrive at the Alert and Site Area Emergency EAL entry criteria. Based on the logical structure of the EALs, the note in EAL HA1 did not establish criteria for entry into an EAL.

During the July 20, 2004 Alert Emergency Plan event, the Shift Manager implemented the criteria for an Alert in accordance with EAL HA1, and monitored the entry criteria for a Site Area Emergency in accordance with EAL HS1, until the emergency dose calculation was completed. As noted above, the intent of the note discussing the CADAP run was to clarify potential overlap between EALs HA1 and HS1. The CADAP run was not completed because the Shift Manager understood the inputs to the program and knew the calculation would not indicate a radiological release based on the readings of the other radiation monitors. The Shift Manager continued to monitor the radiation effluent monitors providing indication for entry into EAL HS1 to ensure criteria for a Site Area Emergency classification were not reached.

The radiation monitors used to determine a Site Area Emergency remained at normal levels, indicating that site boundary dose did not meet the Site Area Emergency EAL

entry criteria. A CADAP run using data input of effluent monitor normal levels would not have indicated a value close to the EAL HS1 criteria.

Monitoring the radiation monitors specified in EAL HS1 provided the most immediate information of changing plant conditions that could have resulted in escalating the event to a Site Area Emergency.

It is FENOC's position that the program is in compliance with regulatory requirements.

Performance Compliance

The Shift Manager directed the control room operators to perform independent assessments of the off-scale radiation monitor, and directed a reactor operator and the Shift Engineer to independently evaluate inputs to the off-gas vent pipe to determine causes of the upscale indication.

The Shift Manager directed the Chemistry Technician to take samples of the off-gas vent pipe, acknowledging that samples would take approximately 30 minutes to definitively determine whether there was a radiological release.

The Shift Manager exercised conservative decision making responding to the radiation monitor indication until he had additional information to confirm the radiation monitor had failed.

The Shift Manager declared an Alert based upon the EAL HA1 entry criteria, and continued to assess plant conditions for potential event escalation by observing radiation monitor indications available in the control room, as well as other information outside the control room as it was developed.

The Shift Manager confirmed the radiation monitor parameters for a Site Area Emergency had not been exceeded (reference EAL HS1) and continued to monitor those indications throughout the event, up to and beyond when the CADAP runs were completed.

Three of four radiation monitors used as entry criteria for HS1 are post-accident radiation monitors. The fourth is the turbine building ventilation radiation monitor to detect an unfiltered release. The three EAL HS1 post-accident radiation monitors are different radiation monitors and independent from the radiation monitors used for the entry criteria for EAL HA1. Further, they are electrically supplied from different power sources than the radiation monitors used for EAL HA1 and; therefore, their indications are independent and not influenced by the indication or failure of the off-gas vent pipe radiation monitor (gas channel) that alarmed at 0329. The post-accident radiation monitors provide separate and independent indication of radiological conditions.

The associated post-accident radiation monitor for the off-gas vent pipe started as designed when the off-gas vent pipe radiation monitor for HA1 alarmed. The Shift Manager verified that the off-gas vent pipe post-accident radiation monitor indicated normal levels throughout the event.

The fourth radiation monitor in EAL HS1, the turbine building ventilation radiation monitor, is the same monitor used for EAL HA1 and is for monitoring an unfiltered release. At 0400, the radiological surveys in the vicinity of the turbine laydown area had indicated normal levels confirming a radiological release was not occurring from the turbine building.

The Shift Manager continued to confirm that radiation monitors for EAL HS1 did not exceed Site Area Emergency entry criteria though several CADAP runs were completed indicating normal conditions during the course of the event.

The Shift Manager did not assume the HA1 off-gas radiation monitor had failed and continued to direct additional radiation surveys and off-gas vent samples until confirmation could be made that the monitor had failed.

The note in EAL HA1 states the following:

> "These Alert thresholds may exceed the Site Area Emergency thresholds (since Site Area thresholds were established using a clad damage source term versus the ODCM [coolant activity] methodology used to determine the Alert classification thresholds). Therefore, an emergency dose (CADAP) run using the appropriate source term, determined at the time of the event, must be performed within 15 minutes concurrently with ODCM calculations to determine if a Site Area Emergency entry criteria has been met."

As previously indicated, this note was included to clarify potential overlap between the Alert and Site Area Emergency entry criteria, and pertains to an action (i.e., a CADAP run) that must be performed to evaluate EAL HS1. Emergency Action Level HS1 provides criteria for declaration of a Site Area Emergency.

EAL HS1 requires information from a dose assessment calculation in the first and second of three logic paths described as entry criteria. The first logic tree in EAL HS1 requires confirmation that site boundary doses are less than certain values within 15 minutes by emergency dose assessment. If that emergency dose assessment (i.e., the CADAP run discussed above) cannot be completed within 15 minutes, the classification is made in accordance with the EAL thresholds for the radiation monitor parameters.

The first logic path uses pre-set values from post-accident radiation monitors or the turbine building/heater bay effluent radiation monitor and a dose assessment calculation. If the dose calculation cannot confirm within 15 minutes that site boundary dose is less than 100 mRem TEDE and/or 500 mRem CDE Child Thyroid, the Site Area declaration is made.

The second logic path states if the dose assessment calculation determines that the site boundary dose is greater than 100 mRem TEDE and/or 500 mRem CDE Child Thyroid, the Site Area declaration is made.

The Shift Manager recognized that with normal radiation monitor indications, the CADAP dose assessment calculation would not indicate an elevated dose at the site boundary.

The CADAP program takes input from the radiation monitors and calculates the dose exposure at various distances from the plant including the site boundary.

His decision making process included the following information:

The input for the off-gas vent pipe radiation monitor could not be used because it was off-scale high and would have been recognized as invalid information.

The other effluent or post-accident monitors were reading normal levels prior to, during, and after the Alert declaration, and therefore the CADAP program would not have identified any unusual radiation levels using these inputs.

Actual results of the gas sample in the off-gas vent pipe was a critical piece of information to determine whether there was any radioactive release or if the radiation monitor had failed.

The Shift Manager continued to monitor the effluent and post-accident monitors as well as survey results in his assessment of actual plant conditions and to determine if escalation of the event was required. EAL HS1 criteria were available and could have been used by the Shift Manager to escalate the classification of the emergency, if appropriate.

Based on the above, the Shift Manager made appropriate assessments of plant conditions and evaluated the plant conditions against the discrete, measurable entry criteria of the Emergency Action Levels. Using this information and applying his judgment (as directed by section 5.0 of EPI-A1), the Shift Manager complied with EPI-A1 during this event.

Safety Significance of Finding

FENOC acknowledges that the wording in the note for HA1 conveyed the expectation to perform a CADAP run within 15 minutes of the Alert declaration. The poorly worded note and Shift Manager judgment to not use CADAP to perform a dose projection run within 15 minutes are performance issues. However, in comparing Emergency Preparedness (EP) Significance Determination Process risk significant planning standard White finding examples and EP White findings issued within the Industry, the PNPP staff cannot correlate this as an issue of significance rising to the level to a White finding.

Our considerations when reviewing this issue included the following:

- The issue did not impact the health or safety of the general public, nor did it potentially impact the health or safety of the general public.

- The issue did not prevent appropriate actions from being taken in response to the Alert or affect the decision-making capability to escalate the event, if it became necessary.

- The provisions of the "Note" in EAL HA1 are integrated in the entry criteria of EAL HS1 in that effluent radiation monitor parameters based upon clad damage are provided as entry criteria, if an emergency dose assessment (CADAP) run cannot be completed within 15 minutes.

- There was continuous assessment of parameters and conditions ongoing throughout the event that directly applied to EAL entry criteria.

- As currently indicated by the NRC Inspection Report, the assignment of a White finding to this issue would bear the same significance as missing an Alert declaration or failure to notify off-site organizations of an Alert, which seems inconsistent since the issue did not have an effect or a potential effect on public health and safety.

- Comparison of this issue to EP SDP White finding examples for the four risk significant planning standards also appears to be inconsistent regarding the level of significance.

Safety Significance Discussion

According to Inspection Manual Chapter 0609, Appendix B, Emergency Preparedness Significance Determination Process, "...The EP Significance Determination Process is designed such that the significance of a finding reflects the impact on public health and safety, the potential impact on public health and safety should an accident occur, or the impact on the efficacy of the licensee's PI response band."

- The July 20, 2004, event did not have an impact on public health and safety nor did it have a potential impact on public health and safety should an accident occur. Other criteria and an Emergency Action Level existed providing criteria for a Site Area Emergency with or without a CADAP run

- The Emergency Action Levels provide adequate criteria for evaluating plant conditions and determining whether escalation is appropriate. The Emergency Action Levels were used to make the determination of an Alert during this event, actions were in progress to assess plant conditions, and additional actions were underway for quantitative information to disposition the validity of the off-gas vent pipe radiation monitor indications.

- Failure to rigorously implement the note in EAL HA1 did not and would not have had an impact on public health or safety since the criteria for a Site Area Emergency would still be implemented based upon different radiation monitor indications. The Shift Manager is responsible for reviewing plant conditions against the EALs on an ongoing basis and to escalate the emergency classification if required. Therefore, the EAL scheme provides for other methods to determine whether the classification should have been changed from an Alert to Site Area Emergency classification.

- Classification of a Site Area Emergency would not have been appropriate based upon the entry criteria for EAL HS1.

It appears that this specific issue does not align with the significance of other White finding examples under planning standard 10 CFR 50.47 (b)(4), which include situations that would have prevented an emergency to be properly classified.

In this case, the Alert declaration was made using the approved EAL scheme, and other radiological monitor readings were being frequently confirmed to ensure that escalation to a Site Area Emergency would be made if appropriate.

A White finding for this issue would carry the same level of significance as failing to declare the Alert at all, or for failing to provide notification of an Alert to off-site organizations. The significance level of these cases is inconsistent since in the PNPP issue there was no effect or potential effect on the general public where in the other cases, there is a clear impact to the health and safety of the general public.

The Risk Significant Planning Standard (RSPS) function for 10 CFR 50.47 (b)(4) is described in the Significance Determination Process as follows:

"A standard scheme of emergency classification and action levels is in use."

The following factors apply to the RSPS function discussion as it relates to the PNPP issue:

- A standard scheme of emergency classifications and action levels are in affect.
- The EALs are as approved by NRC as previously identified.
- The Shift Manager used the EALs to make the Alert classification.
- The Shift Manager had knowledge that a CADAP run would not result in escalation of the event, because the inputs to the program were normal.
- There was no effect or consequence on the outcome of the event classification because the CADAP run was not performed.
- Criteria for escalation to a Site Area Emergency were available and plant conditions were being monitored by radiological surveys and chemistry samples to confirm criteria for escalation had not been reached.
- CADAP runs ultimately were performed that provided additional confirmation that existing conditions were normal and that escalation of the event was not required.

Therefore, the EALs were implemented.

Examples of White findings found in Inspection Manual Chapter 0609, Appendix B (EP) from the four risk significant planning standards (10 CFR 50.47 (b)(4), (b)(5), (b)(9) and (b)(10)) are more significant from an impact to public heath and safety when compared to the PNPP issue. Examples from the EP SDP are as follows:

10 CFR 50.47 (b)(4)

- The EAL classification process would not declare more than one Alert, or any Site Area Emergency that should be declared.

- Changes to facility procedures, systems, or equipment creates a condition such than an existing EAL would not be declared for more than one Alert, or any Site Area Emergency.

10 CFR 50.47 (b)(5)

- Public alert notification system (e.g. sirens, other supporting primary notification methods) has design flaws or deficiencies in the test program, maintenance program, or procedures that degrade a portion of the system for a significant period of time from the point of discovery (e.g. 100% for 25 days, greater than 48% over 45 days, greater than 24% over 90 days, greater than 12% over six months.

- Loss of capability to notify 100 percent of the EPZ population in the plume exposure pathway Emergency Planning Zone (EPZ) through the primary alert notification system and/or sirens, and compensatory measures (e.g. back-up route alerting) take longer than 45 minutes.

- Loss of capability to determine whether primary alert notification system activated (e.g., siren feedback system failure), and compensatory measures (e.g. back-up route alerting) take longer than 45 minutes.

10 CFR 50.47 (b)(9)

- Field monitoring function (at least dose rate measurement and iodine presence determination) is unavailable for more than 72 hours from the time of discovery without compensatory measures. In event of major disruptive events (e.g. hurricane, fire, explosion, loss of power, etc.) or planned outage, compensatory measures are acceptable while repair activities proceed with high priority.

- Equipment or systems necessary for dose projection are not functional for longer than 24 hours from the time of discovery, to the extent that the licensee had no capability for immediate dose projection in facility emergency response centers as committed in the plan.

10 CFR 50.47 (b)(10)

- The process does not provide PARs [Protective Action Recommendations] that are IAW [in accordance with] Plan commitments or Federal guidance, to the extent that in a general emergency, appropriate PARs would not be issued to cover affected populated area within 5 to 10 miles of the site.

- The process does not adequately address the owner controlled area (refer to NRC Information Notice 2002-14), to the extent that procedures, equipment, and/or

personnel would not consistently provide assurance of timely evacuation and processing of members of the public who might be present.

Summary Conclusion

The actions to confirm radiation monitor status and assess potential EAL escalation criteria, in parallel with the implementation of the Emergency Action Level for an Alert, were prudent, well thought out, and in line with the training given to Emergency Coordinators. These actions were taken in accordance with the appropriate PNPP instructions as described in the various regulatory correspondence that submitted the EALs to the NRC for review and approval. The note contained in EAL HA1 will be clarified. Finally, the identified performance issues do not rise to the significance level of a White finding.