December 5, 2005

EA-04-231
EA-04-232

Mr. Mark B. Bezilla
Vice President-Nuclear, Davis-Besse
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION
WHITE FINDING AND VIOLATION; DISCREPANT ALERT AND NOTIFICATION SYSTEM PERFORMANCE INDICATOR DATA
NRC SUPPLEMENTAL INSPECTION REPORT 05000346/2005018(DRS)

Dear Mr. Bezilla:

On October 21, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection at your Davis-Besse Nuclear Power Station. Subsequent to the July 15, 2005, teleconference between Mssrs. Clark Price and Jim Vetter of your staff, and Mr. Ken Riemer of my staff, you informed the NRC that you would be prepared for this inspection to be conducted during the week of October 17, 2005. The enclosed report documents the inspection results which were discussed on October 21, 2005, with you and members of your staff.

The NRC performed this supplemental inspection to assess your evaluation of a White finding, which was also a violation of 10 CFR 50.47(b)(5), in the Emergency Preparedness area of the Reactor Safety cornerstone. This inspection also assessed your evaluation of the related issue of Alert and Notification System (ANS) Performance Indicator (PI) data submitted for the second and third calendar quarters of 2004 which the NRC subsequently determined to be discrepant as discussed in our Special Inspection Report 05000346/2004018(DRS). We conducted this inspection in accordance with Inspection Procedure 95001, “Inspection For One Or Two White Inputs In A Strategic Performance Area,” and examined activities conducted under your license as they relate to safety and compliance with the Commission’s rules and regulations and with the conditions of your license.

Based on the results of this inspection, we concluded that you adequately understood the root and other causes of the following issues: (1) Ottawa County officials’ lost capability to activate the Emergency Planning Zone’s sirens for 10 days prior to a scheduled test on May 7, 2004, and their degraded capability to activate the sirens for 20 days prior; and (2) submittal of discrepant ANS PI data for the second and third calendar quarters of 2004. No findings of significance were identified concerning your evaluations and corrective actions associated with both issues. We concluded that your corrective actions were sufficient to address the causes and to prevent recurrence of both issues. As a result, the White finding and violation of 10 CFR 50.47(b)(5) is considered closed. Also, the NRC’s confidence has been restored in your capability to correctly assess and report these PI data.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Cynthia D. Pederson, Director
Division of Reactor Safety

Docket No. 50-346
License No. NPF-3

Enclosure: Inspection Report 05000346/2005018
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich
G. Leidich, President - FENOC
J. Hagan, Senior Vice President of
Operations and Chief Operating Officer
Director, Plant Operations
Manager - Regulatory Compliance
D. Jenkins, Senior Attorney, FirstEnergy
Ohio State Liaison Officer
R. Owen, Administrator, Ohio Department of Health
Public Utilities Commission of Ohio
President, Board of County Commissioners
of Lucas County
President, Ottawa County Board of Commissioners
W. King, FEMA, Region V

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of Lucas County
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2005018
Licensee:	FirstEnergy Nuclear Operating Company
Facility:	Davis-Besse Nuclear Power Station
Location:	5501 North State Route 2 Oak Harbor, OH 43449-9760
Dates:	October 17 through October 21, 2005
Inspectors:	T. Ploski, Senior Emergency Preparedness Inspector R. Kahler, Leader, Inspection Team Office of Nuclear Security and Incident Response
Observer:	S. Eischen, Radiological Analyst Ohio Emergency Management Agency
Approved by:	K. Riemer, Chief Plant Support Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000346/2005018; 10/17/2005 - 10/21/2005; Davis-Besse Nuclear Power Station; Supplemental Inspection; IP 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area."

This supplemental inspection was performed by a regional Emergency Preparedness (EP) inspector and a Headquarters EP team leader. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3; dated July 2000.

Cornerstone: Reactor Safety

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess the licensee's evaluation of a White finding in the EP area of the Reactor Safety cornerstone. The issue that resulted in a White finding was also a violation of Title 10, Code of Federal Regulations 10 CFR 50.47(b)(5). This inspection also addressed the licensee's evaluation of a second issue, namely its submittals of Alert and Notification System (ANS) Performance Indicator (PI) data for the second and third calendar quarters of 2004 which the NRC subsequently determined to be discrepant. This supplemental inspection was performed in accordance with Inspection Procedure 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area." The inspectors concluded that the licensee performed adequate evaluations of the root causes and other causes of both issues and had either completed or scheduled appropriate corrective actions. As a result, the violation associated with the White finding is considered closed. Also, NRC's confidence has been restored in the licensee's capability to correctly assess and report its ANS PI data.

The licensee's evaluation of the issue that resulted in a White finding and a violation of 10 CFR 50.47(b)(5) identified four root causes. First, there was less than adequately detailed information in ANS maintenance and test procedures regarding the system's eavesdropping, polling, and time synchronization features to ensure that the time synchronization limit would not be exceeded. Second, there was less than adequate system documentation describing the ANS time synchronization feature, so that licensee and vendor staffs could have a complete understanding of the synchronization feature's limitations and then adequately translate this understanding into procedures. Third, there was less than adequate "man-machine interface" in that the unique design of the touch screen, which was used by Ottawa County Sheriff's Department staff to activate the sirens, was not apparent or emphasized when compared to the configuration of the other siren control stations. Fourth, there was less than adequate self-checking in that an incorrect time clock setting of a portable computer used by a siren maintenance technician was not identified and corrected before the technician performed ANS maintenance work using this computer.

The licensee's evaluations of the issue of submitting discrepant ANS PI data identified two root causes and two probable causes. The first root cause was that licensee staff made an inadequate assessment (bench marking) of industry experience related to ANS reliability, testing, and ANS PI reporting criteria. In addition, the Frequently Asked Question (FAQ) process, which was established in the NRC-endorsed, Nuclear Energy Institute (NEI) 99-02 document and included in licensee procedures, was not used. The second root cause was that licensee staff did not sufficiently review and verify the decision to include the results of the workday "silent tests," which were begun on June 1, 2004, as ANS PI opportunities. Both

probable causes were associated with less than adequate work practices. First, the criteria provided in the NEI 99-02 document were either not followed correctly or were interpreted differently than what was intended. Second, the Federal Emergency Management Agency (FEMA)-approved, ANS Design Report was not updated to reflect changes, which had been made to the licensee's emergency plan and implementing procedures, indicating that only Ottawa County officials would activate all 54 Emergency Planning Zone (EPZ) sirens in an emergency.

Given the licensee's acceptable performance in addressing the condition associated with the White finding, this performance issue will no longer be held open. Given the licensee's performance in addressing the condition that resulted in its submittals of discrepant ANS PI data, NRC's confidence has been restored in the licensee's capability to correctly assess and report these PI data.

REPORT DETAILS

01 INSPECTION SCOPE

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess the licensee's evaluation of a White finding in the Emergency Preparedness (EP) area of the Reactor Safety cornerstone. The White finding, which was also a violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.47(b)(5), was due to Ottawa County officials unknowingly losing their capability to activate the Emergency Planning Zone's (EPZ) sirens for 10 days prior to a scheduled test on May 7, 2004, and their capability to activate the sirens was degraded for 20 days prior to losing this capability. The non-cited violation of 10 CFR 50.9(a) was associated with the submittals of discrepant Alert and Notification System (ANS) Performance Indicator (PI) data for the second and third calendar quarters of 2004.

At noontime on Friday, May 7, 2004, Ottawa County officials conducted a scheduled monthly test (1 minute duration) of the 49 of 54 EPZ sirens that were located within the Ottawa County portion of the Davis-Besse Nuclear Power Station's EPZ. Meanwhile, Lucas County officials tested the remaining five EPZ sirens that were located in Jerusalem Township of Lucas County. None of the 49 sirens within the Ottawa County portion of the EPZ activated as expected. The Ottawa County sirens' test failure was diagnosed and short-term corrective actions were implemented within one hour. The licensee reported the test failure to the NRC in accordance with the requirements of 10 CFR 50.72 (b)(3)(xiii).

One result of the May 7 test failure was a joint decision by Ottawa County officials and the licensee to increase the frequency of siren system testing. Repeats of the 1 minute duration ANS test were successfully conducted by Ottawa County officials on May 14 and May 21, 2004. A joint decision was made to further revise the testing schedule and testing method by having licensee staff perform additional "silent tests" (10 seconds duration) of the sirens, which involved personnel and equipment that would not be used by county officials to activate the EPZ sirens during an actual emergency, on Monday through Friday of the licensee's normal business days beginning on June 1, 2004. The licensee accordingly revised its procedures on the EPZ siren testing program effective on June 1, 2004.

The licensee correctly decided not to count the extra tests on May 14 and May 21 as ANS PI opportunities, since these tests were not normally scheduled tests as described in the revision of the relevant licensee procedure in effect during May 2004. The licensee revised this procedure and began counting its extra Monday through Friday "silent tests" as PI opportunities beginning with the extra test conducted on June 1 and continuing through September 30, 2004.

When NRC staff became aware in June 2004 of the licensee's decision to count its "silent tests" as ANS PI opportunities, the NRC discussed the matter with licensee staff and management and questioned the appropriateness of the licensee's plans. As noted in the NRC's letter, dated October 21, 2004, to senior licensee management, NRC staff discussed the issue of the licensee's decision to revise its ANS PI data reporting with licensee personnel on multiple occasions. The licensee decided to count the extra "silent tests" as ANS PI opportunities and included the results of these "silent tests" along with the results of the monthly tests in its PI data submittals for the second and third quarters of calender year 2004.

In accordance with NRC Manual Chapter 0608, "Performance Indicator Program," NRC staff determined that the licensee's ANS PI data were discrepant due to the inclusion of the "silent

test" results. A decision was made to conduct a special EP inspection using Inspection Procedure (IP) 71150, "Discrepant or Unreported Performance Indicator Data." As a result of the NRC's determination, the color of the ANS PI data available on NRC's Web Page was changed by the NRC staff from Green to Gray to indicate that these PI data were under increased review by NRC.

On the week of October 25, 2004, NRC conducted the special EP inspection of the May 7 test failure to better understand and then determine the risk significance of Ottawa County officials being unable to activate the EPZ sirens, as well as the licensee's decision to include the results of its "silent tests" in its reported ANS PI opportunities beginning on June 1, 2004. As indicated in Special Inspection Report (IR) 05000346/2004018(DRS), the inspectors concluded that Ottawa County officials' capability to activate the EPZ sirens was degraded for about 20 days before they unknowingly lost this capability 10 days prior to their scheduled monthly ANS test at noontime on May 7, 2004. This conclusion resulted in a White finding and associated violation of 10 CFR 50.47(b)(5) as documented in IR 0500346/2005010.

This special IR also documented the inspectors' conclusion that the ANS PI data were discrepant in several respects. First, the weekday "silent tests," which were performed by licensee staff from either of two locations and involved use of activation signal equipment that would not be used by Ottawa County officials in an actual emergency, were ineligible to be counted as ANS PI opportunities in accordance with the criteria in Revision 2 of the NRC-endorsed, Nuclear Energy Institute (NEI) 99-02 document. Second, the monthly tests of the five EPZ sirens located in Jerusalem Township of Lucas County were also ineligible to be counted as ANS PI opportunities per NEI 99-02 whenever these sirens were activated by Lucas County officials, rather than Ottawa County officials, because Lucas County officials no longer had the back up capability to activate the 49 EPZ sirens within Ottawa County in an actual emergency. The conclusion that the ANS PI data were discrepant resulted in a non-cited violation of 10 CFR 50.9(a) as documented in IR 0500346-2005010. In November 2004, the licensee corrected its ANS PI data from the third quarter of 2003 through the third quarter of 2004 to purge the results of the aforementioned types of ineligible opportunities from the PI data. One consequence of this corrective action was that the ANS PI data dropped into the White performance band beginning in the second quarter of 2004 through the end of the second quarter of 2005.

Meanwhile, licensee, Ohio Emergency Management Agency (OEMA), and Ottawa County staffs developed proposed changes to some ANS equipment and to the ANS test program, which OEMA officials submitted for approval to the Federal Emergency Management Agency (FEMA). Coordination among these parties resulted in improving Ottawa County officials' capability to activate the EPZ sirens and increasing the number of ANS tests that were acceptable indicators to FEMA and NRC of the reliability of the ANS.

In September 2004, the licensee completed Root Cause Analysis (RCA) 04-03213 on the May 7 ANS test failure. During the October 2004 special EP inspection, the licensee initiated several Condition Reports (CR) to address NRC's concerns on the discrepant PI data and inconsistencies between the licensee's emergency plan and the FEMA-approved ANS Design Report. These CR resulted in several "investigation summaries" that identified probable causes and additional corrective actions. In 2005, NRC Headquarters and Regional staffs requested that the licensee complete a separate RCA on its submittals of discrepant PI data. As a result, RCA 05-03906 was completed in September 2005. For efficiency and due to the interrelated nature of the White finding and discrepant PI data, the NRC chose to assess the adequacy of

both RCA reports, the "investigation summaries," and the corrective actions resulting from all of these assessment efforts in this October 2005 supplemental inspection.

02 EVALUATION OF INSPECTION REQUIREMENTS

02.01 Problem Identification

a. *Determine that the root cause evaluation identifies who (i.e., licensee, self-revealing, or NRC) identified the issue and under what conditions.*

As indicated in RCA 04-03213, the failure of the 49 EPZ sirens within Ottawa County to sound during the May 2004 siren test performed by Ottawa County officials was self-revealing. When Sheriff's Dispatch Center staff used their touch screen equipment to activate the 49 EPZ sirens within Ottawa County, none of these sirens sounded as expected. Prompt coordination with licensee and vendor staffs resulted in short-term corrective actions such that the Sheriff's Department staff's capability to activate these sirens was restored within 1 hour of the unsuccessful monthly test.

As noted in RCA 05-03906, in June 2004, NRC management and staff expressed concern to licensee management and staff that the ANS PI data would be discrepant if the licensee's submittal of PI data for the second calendar quarter of 2004 included the results of "silent tests" that NRC understood had begun on June 1, 2004. During the October 2004 special ANS inspection, NRC inspectors determined that the results of tests of the five sirens within Jerusalem Township of Lucas County would also be ineligible to be counted as ANS PI opportunities whenever these tests were initiated by Lucas County officials, rather than by Ottawa County officials. In its correspondence dated November 4, 2004, the licensee indicated that Lucas County officials had conducted the monthly tests of the five Jerusalem Township sirens since at least the third calendar quarter of 2003 with the exception of the scheduled, 3-minute duration test of all 54 EPZ sirens that was performed in March 2004 by Ottawa County officials as part of their annual Tornado Awareness Week activities.

b. Determine that the root cause evaluation identifies how long the issue existed and prior opportunities for identification.

In response to the May 7, 2004, siren test failure, the licensee initiated CR 2004-03213, which resulted in RCA Report 04-03213 titled "Emergency Planning Zone Sirens Fail to Activate." This RCA report was focused on the May 7 test failure but did not also address the licensee's methods of assessing siren test results as ANS PI opportunities for periodic reporting to the NRC. This RCA Report contained a conclusion that the 49 Ottawa County sirens failed to activate due to a combination of two factors. The first factor was not updating the time clock of the Radio Interface Device (RID) in the Ottawa County Sheriff's Dispatch Center to Daylight Savings Time in early April 2004. The second factor was the inadvertent setting (on an unknown date and time) of the siren technician's portable Central Computer Unit's (CCU) time clock to be 1 hour ahead of Daylight Savings Time. Neither factor by itself would have resulted in the inability of the Ottawa County Sheriff's staff to activate the EPZ sirens. The RCA report indicated that there were no prior instances of these factors combining to cause a loss of Ottawa County Sheriff's staff's capability to activate the EPZ sirens. The inspectors' review of historic ANS PI data and annual baseline EP inspection reports identified no instances

of the PI data being in the White performance band, as would have occurred if there had been a failure of either 49 or 54 EPZ sirens during a scheduled test, since the PI data were based on the results of only 13 ANS tests per year.

Regarding the discrepant ANS PI data, one of the CRs initiated during the October 2004 special inspection addressed NRC inspectors' concerns as to the EPZ siren tests results which were eligible to be included in the licensee's submittals of ANS PI data for the second and third calendar quarters of 2004. As a result, the licensee submitted corrected ANS PI data in November 2004 that confirmed a conclusion of the October 2004 special inspection that every monthly, 1 minute duration ANS test performed by Ottawa County officials involved only the 49 EPZ sirens within Ottawa County, while the other five EPZ sirens within Jerusalem Township had been tested by Lucas County officials on the same dates and approximate times of day that Ottawa County officials conducted their monthly siren test. This monthly siren testing methodology existed since an uncertain time subsequent to FEMA's 1987 approval of the ANS Design Report when a decision was made that Lucas County would no longer provide a back-up EPZ siren activation capability for Ottawa County. However, the ANS Design Report was not revised accordingly and submitted for FEMA approval. As noted in RCA Report 04-03213, as of September 2004, Lucas County's siren activation system and radio frequency were separate from the Ottawa County's siren activation system and radio frequency. As a result, each of the five sirens within Jerusalem Township was equipped with two Remote Terminal Units (RTU) - one to process radio signals solely for Lucas County and one to process radio signals solely for Ottawa County.

The major reason for the ANS PI data being discrepant for the second and third calendar quarters of 2004 was the licensee's decision to include the results of ANS "silent tests," which were performed by licensee staff on normal business days from either the licensee's Emergency Operations Facility (EOF) or from the Ottawa County Sheriff's Dispatch Center beginning on June 1, 2004. However, the control consoles used by licensee staff at either location were configured differently from the console used by Sheriff's Department staff in an actual emergency or in a scheduled monthly test. Sheriff's Department staff were not trained to use these control consoles used by licensee personnel to perform the "silent tests" from either aforementioned location.

As indicated in IR 05000346/2004018(DRS), in June 2004 NRC staff had several verbal communications with the licensee on whether or not the licensee should include ANS "silent test" results in its submittal of ANS PI data for the second calendar quarter of 2004. The NRC advised the licensee that it should not count "silent test" results as ANS PI opportunities.

The 2004 special IR also documented NRC's conclusion that Revision 2 of the NRC-endorsed, NEI 99-02 document included sufficient criteria that licensee staff should have interpreted to mean that the "silent tests" were ineligible to be counted as ANS PI opportunities for periodic reporting to NRC, whether or not they began to be counted as PI opportunities during a calendar quarter or at the beginning of a calendar quarter. The NEI 99-02 document, titled "Regulatory Assessment Performance Indicator Guideline," contained acceptance criteria on what ANS test results can and cannot be used as PI opportunities. The NEI document also included provisions for a Frequently Asked Questions (FAQ) process that licensee and NRC staff can use, as desired, to seek clarifications on the wording of the current NEI 99-02 revision.

With respect to the licensee's incorrect counting of "silent tests" as ANS PI opportunities, the relevant FAQ was number 232, which was posted on NRC's Web Page on October 31, 2000, and was subsequently incorporated in Revision 2 of the NEI 99-02 document that became effective in January 2002. Relevant excerpts of this FAQ's text are as follows:

> Question: "..... A siren system has two normally attended control stations from which the system may be activated. If a siren test from one station is unsuccessful can a test performed from the second station be considered as a part of the regularly scheduled test?" Response: "Yes, if the use of the redundant control station is in approved procedures and is part of the actual system activation process ..... If the redundant control station is not normally attended, requires set up or initialization, it may not be considered as part of the regularly scheduled test. Specifically, if the station is only made ready for the purpose of siren tests it should not be considered as part of the regularly scheduled test."

Although the licensee's EOF was equipped with a control console that provided the capability to activate the EPZ sirens and there were procedural provisions for Sheriff's Department staff to contact an on-call licensee staffer to activate the EPZ sirens using this EOF equipment, the EOF and its siren activation equipment were not identified in the FEMA-approved ANS Design Report as a back-up location for activating the EPZ sirens. Instead, the Design Report included an outdated statement that Lucas County officials had a back-up capability to activate the EPZ's sirens. Also, the extra siren activation equipment, which the licensee installed in the Sheriff's Dispatch Center in May 2004 so that licensee staff could perform a silent test roughly once a week from this location instead of the EOF, was not identified in the FEMA-approved ANS Design Report as a back-up location for activating the EPZ sirens. Sheriff's Department staff were not trained to use this extra siren activation equipment, which the licensee installed only for "silent test" purposes.

With respect to the licensee's incorrect counting of Lucas County officials' tests of the five EPZ sirens located within Jerusalem Township of Lucas County, these tests were ineligible to be ANS PI opportunities for periodic reporting to NRC because Lucas County officials were not responsible for activating any EPZ sirens in response to an emergency event at the Davis-Besse Station. As indicated in Section 7.7.1 of Revision 23 of the licensee's emergency plan, only Ottawa County officials had this responsibility. As noted in RCA Report 04-03213, Lucas County's siren activation system and radio frequency were separate from the Ottawa County's siren activation system and radio frequency.

c. Determine that the root cause evaluation documents the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue.

The RCA Report 04-03213 documented that the licensee reported the May 7 siren test failure to the NRC in accordance with 10 CFR 50.72(b)(3)(xiii). This RCA Report adequately summarized the actions completed within one hour of this siren test failure to sufficiently restore the Sheriff's Dispatch Center staff's capability to activate the EPZ sirens using their touch screen equipment pending completion of further assessment and longer-term corrective actions.

The RCA Report 05-03906 correctly indicated that the licensee's ANS PI data would have dropped from the Green to the White performance band in the second quarter of 2004 without the addition of the results of the weekday "silent tests" begun on June 1, 2004. This RCA also correctly indicated that a White PI would have resulted in increased NRC inspection in accordance with NRC's Reactor Oversight Program. During the October 2004 special EP inspection, the licensee initiated CR 04-06632 and CR 04-06633 to address NRC's concerns, respectively, about which siren test results were eligible to be counted as ANS PI opportunities and the differences between the licensee emergency plan's commitment, the FEMA-approved ANS Design Report, and the current ANS test program.

02.02 Root Cause and Extent of Condition

a. Determine that the issue was evaluated using systematic method(s) to identify root cause(s) and contributing cause(s).

The RCA associated with the White finding involved the use of the event and causal factor charting technique to identify four root causes of the May 7 siren test failure. First, there was less than adequately detailed information in ANS maintenance and test procedures regarding the system's eavesdropping, polling, and time synchronization features to ensure that the time synchronization limit would not be exceeded. Second, there was less than adequate system documentation describing the ANS time synchronization feature, so that licensee and vendor staffs could have a complete understanding of the synchronization feature's limitations and then adequately translate this understanding into procedures. Third, there was less than adequate "man-machine interface" in that the unique design of the touch screen, which was used by Ottawa County Sheriff's Department staff to activate the sirens, was not apparent or emphasized when compared to the configuration of the other siren control stations. Fourth, there was less than adequate self-checking in that an incorrect time clock setting of a portable computer used by a siren maintenance technician was not identified and corrected before the technician performed ANS maintenance work using this computer.

The RCA associated with the submittals of discrepant ANS PI data involved the fault tree analysis/failure mode analysis methodology to identify two root causes. First, licensee staff made an inadequate assessment (bench marking) of industry experience related to ANS reliability, testing, and ANS PI reporting criteria. Also, the FAQ process, which was established in NRC-endorsed, NEI 99-02 document and included in the licensee's procedures, was not used. Second, licensee staff did not sufficiently review and verify the decision to include the results of the "silent tests" as ANS PI opportunities. The probable causes associated with the investigation summaries, which were also associated with the discrepant PI data and were initiated by CR 04-06632 and CR 04-06633, were identified using document reviews, interviews, and causal factor charting. First, the criteria provided in the NEI 99-02 document were either not followed correctly or were interpreted differently than what was intended. Second, the FEMA-approved, ANS Design Report was not updated to reflect changes, which had been made to the licensee's emergency plan and implementing procedures, indicating that only Ottawa County officials would activate all 54 EPZ sirens in an emergency.

The inspectors reviewed the aforementioned analysis methods used by the licensee and concluded that adequate, structured approaches were utilized to identify the root and other causes associated with the White finding and the discrepant PI data submittals.

b. *Determine that the root cause evaluation was conducted to a level of detail commensurate with the significance of the issue.*

The inspectors concluded that the analysis documented as RCA Report 04-03213 was conducted to a sufficient level of detail on the issue of Ottawa County officials' degraded and then lost capability to activate the sirens for days prior to their unsuccessful monthly siren test conducted on May 7, 2004. The RCA Report included a detailed chronology of events between early April and late May 2004, descriptions of relevant ANS components and their inter-relationships, the root causes and how they were determined, the safety and regulatory significance of the issue, and a summary of the licensee's efforts to identify prior instances of siren activation failures due to time synchronization problems.

Based on discussions with the EP Manager and the contractor who authored RCA Report 05-03906, the inspectors concluded that the investigation summaries, which were associated with CR 04-06632 and CR 04-06633, plus RCA Report 05-03906 needed to be further assessed by the inspectors to determine whether the licensee conducted its evaluation of the issue of submitting discrepant PI data to an adequate level of detail. The EP manager and contractor indicated that this 2005 RCA report was not intended to replace or incorporate the results of the investigations that were initiated by CR 04-06632 and CR 04-06633. These investigations addressed the inspectors' concerns expressed during the October 2004 inspection regarding what siren tests were ineligible to be PI opportunities and concerns on the inconsistent descriptions of the ANS test program in the emergency plan, ANS Design Report, and several procedures. The subsequent RCA Report 05-03906 addressed other aspects of the issue, such as activities that resulted in the recommendation to licensee management that these "silent tests" could be counted as PI opportunities and whether this recommendation was sufficiently reviewed and verified before it was accepted and implemented.

The inspectors concluded that the investigation summaries in combination with RCA Report 05-03906 were conducted to a sufficient level of detail and used acceptable methods to evaluate the issue of making discrepant PI data submittals and to adequately identify the root and other causes of this issue.

c. *Determine that the root cause evaluation included consideration of prior occurrences of the problem and knowledge of prior operating experience.*

The RCA Report 04-03213 included sufficient information to indicate that the licensee adequately searched the Davis-Besse Station's, the Perry Plant's, and the Beaver Valley Plant's databases, but could not identify prior occurrences of similar events involving an ANS time clock synchronization feature at the Davis-Besse Station, or another FirstEnergy Nuclear Operating Company (FENOC) nuclear plant. This RCA Report also included sufficient information to indicate that the licensee adequately searched an industry database but could not identify any similar events involving an ANS time synchronization feature.

With respect to the discrepant PI data issue, RCA Report 05-03906 summarized and analyzed the results of a FENOC database search conducted for a 5-year period using

terms such as the following: siren; PI; white paper; bench marking; and technical rigor. The RCA report indicated that the majority of the items identified by this database search were associated with equipment failures and evaluations of these failures by engineering staff.

With respect to search results using the technical rigor, white paper, and bench marking terms, the licensee's analysis of the identified items resulted in several conclusions. First, corrective actions involving technical rigor concerns had been focused primarily on engineering issues; however, the need was now recognized to also emphasize technical rigor in non-engineering evaluations, self-assessments, and bench marking activities. Second, there were instances of informal white papers being used instead of a more formal process. These instances usually involved a need for an expedient answer, rather than waiting until a more formal process could be used to develop a technical position that could become the basis for a decision or position having technical and/or regulatory significance. The RCA Report clarified that "informal" meant that the white paper evaluation methodology lacked technical rigor and lacked review and verification steps. It was noted in RCA Report 05-03906 that licensee EP staff utilized the white paper methodology, rather than the FAQ process, in developing their position that the ANS "silent tests," which began on June 1, 2004, were acceptable PI opportunities.

With respect to the search of the licensee's database results using the siren and PI terms, the licensee's data analysis resulted in several conclusions. First, not all siren failures were reported in the ANS PI data. This conclusion was consistent with NEI 99-02 criteria because the ANS PI is focused on the results of scheduled ANS tests performed in accordance with a FEMA-approved test program. Second, a siren failure may not be identified until the subsequent siren system test, which could be up to one month if the system test frequency is monthly. Third, the licensee's analysis concluded that increasing the test frequency should result in more timely detection of malfunctions and, therefore, increasing a siren's reliability. The inspectors concluded that the second and third conclusions were consistent with Ottawa County officials' and the licensee's goal of improving ANS reliability by increasing the monthly frequency of ANS testing. However, actions taken to achieve this goal should also have taken into account the acceptance criteria for reporting ANS test results to NRC and FEMA. For example, actions taken to achieve the goal of increased ANS reliability should have only involved the use of siren activation equipment that Ottawa County officials would use in an actual emergency event.

In response to CR 04-06632, which summarized NRC's concerns expressed during the October 2004 special inspection on the addition of "silent test" results to two quarterly PI data submittals, the licensee's Nuclear Oversight (NOS) staff completed CR 04-07069. The investigation resulting from CR 04-07069 documented why NOS staff had not identified that including the "silent test" results in ANS PI data submittals would be incorrect. The investigation summary indicated that NOS staff performed annual reviews of the licensee's ANS PI data assessment and reporting practices. However, NOS staff had performed their review in the first quarter of 2004, which was before the May 2004 ANS test failure and subsequent decisions to increase the ANS testing frequency by initiating "silent tests" and including the "silent test" results in quarterly ANS PI data submittals to NRC. The inspectors agreed with the investigation's conclusions that the NOS staff was in compliance with regulations by annually auditing EP program activities and that NOS staff also have an opportunity to become more involved when potential

concerns arise, such as when there are proposed changes to current practices of reporting PI data.

The RCA Report 05-03906 indicated that industry operating experience databases and NRC databases were searched for the five year period from August 21, 2000 through August 21, 2005. No prior examples of reporting discrepant PI data were identified. However, instances were identified of a licensee reporting a downward trend in a PI and the FAQ process resulting in clarifications to criteria for PI data assessment and reporting. No industry issues associated with a lack of bench marking or "technical rigor" were identified. However, two instances were identified in the history of ANS PI data reporting involving a licensee changing the number of ANS tests that it included in PI data submittals. Both instances occurred in 2003. The RCA Report correctly indicated that there were no NRC concerns associated with a change made at the beginning of a calendar quarter to one nuclear power plant's ANS PI data reporting, which was associated with FEMA's approval of ANS equipment and testing changes. The RCA Report correctly noted that NRC had an ongoing concern with a change identified in a separate nuclear power plant's ANS PI data submittal for the third quarter of 2003.

Based upon the database searches summarized in this Subsection, the inspectors concluded that the licensee had adequately searched for prior occurrences of the issue of a time synchronization problem resulting in an ANS test failure and the issue of submitting discrepant PI data.

d. Determine that the root cause evaluation addresses the extent of condition and the extent of cause of the issue.

The RCA Report 04-03213 team acceptably concluded that Ottawa County Sheriff's Department staff were unable to activate the 49 sirens in the Ottawa County portion of the EPZ using their uniquely configured siren activation equipment during the May 7 monthly test due to a combination of two factors. The first factor was not updating the time clock of the RID component of the activation equipment in the Sheriff's Dispatch Center to Daylight Savings Time in early April 2004. The second factor was the inadvertent setting (on an unknown date and time) of the licensee siren technician's portable CCU time clock to be one hour ahead of Daylight Savings Time. Neither factor by itself would have resulted in the inability of the Ottawa County Sheriff's staff to activate the EPZ sirens. The RCA report indicated that there were no prior instances of these factors combining to cause a loss of Ottawa County Sheriff's staff's capability to activate the EPZ sirens.

This RCA Report also indicated that the time synchronization limitation was applicable to an ANS having RTU components equipped with the "firmware" version 4.2 or 4.4 clock synchronization feature. Versions 4.2 and 4.4 of the firmware had different clock time synchronization features; however, if the relevant time clock synchronization limit was exceeded, the firmware would interpret a received siren activation signal as a false (unauthorized) activation signal and siren activation would not occur. The EPZ sirens were equipped with version 4.4 firmware, which had a 90-minute time clock synchronization limitation. The RCA Report adequately described how and when a time clock synchronization error of 60 minutes was introduced into the siren activation equipment in early April 2004 and how and when the 90-minute time clock

synchronization limit was exceeded on April 27, 2004. Details were summarized in special IR 05000346/2004018(DRS).

The RCA Report 05-03906 indicated that the submittals of discrepant ANS PI data were the results of a faulty bench marking analysis performed by licensee EP staff. The EP Manager clarified statements in this RCA report to indicate that bench marking efforts with non-FENOC licensees were limited to licensees within NRC Region III's territory and included e-mailed requests for feedback. The inspectors understood that not all Region III licensees provided feedback to Davis-Besse EP staff. The inspectors also understood that this bench marking was focused on gathering ANS test frequency information, rather than also gathering details on ANS testing methods.

The RCA report indicated that the EP staff's limited bench marking did not identify the instances in 2003, which were noted in Subsection 02.02.c of this IR, of two other power reactor licensees changing the number of ANS tests that were counted as PI opportunities. The inspectors noted that the RCA report did not indicate whether the EP staff's bench marking efforts included communication with NEI staff other than the admission that the licensee did not make use of the FAQ process described in the NRC-endorsed, NEI 99-02 document. The RCA report included a statement, which was attributed to the Site Vice President, that had he known of this industry experience he would not have supported the decision to include the "silent test" results in the PI submittals without additional communication with NRC staff.

The RCA report indicated that there were multiple verbal contacts between licensee and NRC staffs during June 2004, which were not always documented, regarding the licensee's intent to include "silent test" results in its submittal of ANS PI data for the second calendar quarter of 2004. However, these contacts apparently were limited to the relatively broad topics of whether FEMA pre-approval of a change to the ANS testing program was needed and whether it was acceptable to add the "silent test" results to the PI data during a calendar quarter, rather than also discussions on the details of how the "silent tests" were being conducted.

The 2005 RCA report indicated that a search, which was conducted on 5 years of the Davis-Besse Corrective Action Program (CAP) records, did not identify another instance of a faulty bench marking analysis resulting in a similar series of events, which the inspectors interpreted to mean an event leading to a management decision having regulatory significance. The inspectors agreed with the RCA report's statement that this bench marking effort and subsequent decision making was an example of how a faulty analysis can mislead a management decision and how, once the decision was made, it was difficult to reverse the resulting actions. In this example, the licensee persisted in its decision to include "silent test" results in its PI data submittal for the third calendar quarter of 2004 and did not change this decision until after NRC's special inspection in October 2004.

This RCA report also indicated that the CAP records search identified several instances where an improper use of a "white paper" analysis process was used instead of a more formal and more rigorous analysis. However, the report noted that those instances involved engineering issues and that Corrective Actions (CA) had been taken. The report categorized the "generic issue" as being the need for technical rigor with the "new twist" associated with the submittal of discrepant PI data being that technical rigor must be an expectation in any bench marking activities, rather than only to those

associated with engineering issues. The 2005 RCA report correctly concluded that the "white paper" methodology was used as a substitute for the FAQ process to report the results of a faulty bench marking activity that became the basis for a subsequent management decision having regulatory significance.

The inspectors concluded that the licensee's extent of condition and extent of cause evaluations, which were associated with the 2004 and 2005 RCA reports, were adequate.

02.03 Corrective Actions

a. Determine that appropriate corrective actions are specified for each root cause, or that there is an evaluation that no actions are necessary.

Fourteen CA associated with the four root causes identified in RCA 04-03213 were completed. Completed CA included the following tasks: revising EP procedures on ANS maintenance and testing; revising a procedure used by Ottawa County Sheriff's Dispatch Center staff that included a protocol to follow if they were unable to activate the EPZ sirens; revising a procedure that included instructions on activating the EPZ sirens from the licensee's EOF; providing lessons learned training on the May 7 test failure to select licensee and local vendor staffs; identifying and evaluating options to eliminate the ANS time synchronization feature; submitting an operating experience report to an industry database; and performing an effectiveness review.

Six CA were associated with the two CR that were initiated by licensee EP staff to address the inspectors' concerns expressed during the October 2004 special EP inspection. These completed CA encompassed the following: revising a business practice procedure to indicate that only those EPZ siren tests that were initiated by Ottawa County Sheriff's Dispatch Center staff using siren activation equipment that they were trained to use could be counted as ANS PI opportunities; revising the ANS Design Report; obtaining FEMA's approval of the revised Design Report; responding to FEMA staff's request that the Design Report be updated rather than revised; obtaining FEMA's approval to change the ANS testing frequency; and determining that an operating experience report to an industry database was not needed.

Another result of the October 2004 special EP inspection was that five of the completed CA associated with RCA 04-03213 became obsolete and needed to be redone. These CA involved re-revising relevant procedures to eliminate the counting of ANS tests, which were not performed by Ottawa County officials, as ANS PI opportunities.

Ten CA were initially associated with the root and other causes identified in RCA 05-039096. However, one of these ten was cancelled. The nine completed CA included the following: strengthening procedural controls by requiring more technical rigor when using bench marking to establish the licensee's basis for a technical or regulatory position; adding a review and verification requirements to these procedural controls; developing a lessons learned case study on the concern of inadequate bench marking resulting in an incorrect management decision; addressing the Corrective Action Review Board's comments on the draft case study; presenting training sessions on the case study to about 36 licensee management and NOS personnel; and determining whether an operating experience report should be submitted to an industry database.

The inspectors reviewed and discussed with licensee staff samples of revised procedures and business practices, the lessons learned case study and related training records, and correspondence with FEMA staff that were associated with the aforementioned 34 CA that were listed as being completed in the CAP's records. The inspectors concluded that these CA had been completed as indicated in CAP records.

Also, in November 2004 the licensee submitted revised ANS PI data for the time period beginning in April 2003 through September 2004 to eliminate the results of all EPZ siren tests that were not performed by Ottawa County officials using the equipment that they would use to activate the 54 EPZ sirens in an actual emergency. Specifically, the results of the "silent tests" performed by licensee staff either from the EOF or at the Sheriff's Dispatch Center using other equipment, which was only installed for performing "silent tests," were eliminated. During the aforementioned time period, the licensee determined that the only test of the five EPZ sirens within Jerusalem Township of Lucas County that was performed by Ottawa County officials was an annual three minute duration test conducted as part of Tornado Awareness Week activities. Thus, the results of the monthly tests performed by Lucas County officials of the five EPZ sirens within Jerusalem Township of Lucas County were also eliminated as ANS PI opportunities. As a result of these November 2004 revisions to the ANS PI opportunities, the value of this PI entered the White performance band in the second quarter of 2004 and remained in the White performance band through the end of the second quarter of 2005.

The inspectors reviewed and discussed correspondence between the licensee, OEMA officials, and FEMA officials regarding the process of updating the ANS Design Report. The correspondence indicated that FEMA had approved in June 2005 the initiation of weekly ANS "silent tests," which would be performed by Ottawa County officials using the same equipment that they would use to activate the EPZ sirens in an actual emergency, and the installation of back-up EPZ siren activation equipment that Ottawa County staff would also periodically test. In October 2005, FEMA approved other, relatively editorial updates to the ANS Design Report.

Although FEMA had approved in June 2005 the initiation of weekly ANS "silent tests" by Ottawa County officials, the licensee prudently delayed counting these weekly "silent tests" as ANS PI opportunities until the beginning of the fourth calendar quarter of 2005, which was after an equipment issue had been investigated and resolved. Review and discussion of CAP records indicated that a number of false indications of siren failures were identified in late June 2005 when weekly "silent tests" of about 10 seconds duration were performed. As documented in the cause analysis associated with CR 05-03610, it was determined that these false indications were attributable to certain equipment changes that had been made to some EPZ sirens' components in order to disable the ANS' time clock synchronization feature. These false indications of siren operability problems were eliminated by increasing the duration of a "silent test" from 10 to 20 seconds.

On October 19, 2005, inspectors observed a weekly "silent test" of the 54 EPZ sirens that was performed by Ottawa County Sheriff's Dispatch Center staff. The inspector stationed at the Dispatch Center was also shown the FEMA-approved back-up siren activation equipment. The other inspector was stationed at the EOF, where the licensee maintained equipment to monitor ANS test results. No concerns were identified during this weekly test.

In October 2005, Revision 24 of the Davis-Besse Station's Emergency Plan was issued. This revision included new information that accurately summarized the "silent," 1 minute duration, and 3-minute duration ANS tests that would be performed by Ottawa County officials in accordance with the FEMA-approved, updated ANS Design Report. Recent years' revisions of the Emergency Plan did not include any information on the ANS testing program.

The inspectors concluded that all of the aforementioned corrective actions were appropriate and should be adequate to prevent recurrence of issues of Ottawa County officials losing their capability to activate the 54 EPZ sirens and the licensee submitting discrepant ANS PI data.

b. *Determine that the corrective actions have been prioritized with consideration of the risk significance and regulatory compliance.*

The inspectors determined that CAP records contained accurate information regarding which CA had been initiated and completed. The inspectors concluded that these CA were acceptably prioritized. The licensee's recognition of the risk significance of Ottawa County officials maintaining their capability to activate all EPZ sirens was demonstrated in several manners. For example, the licensee promptly completed short-term actions to restore Ottawa County officials' capability to activate the EPZ sirens following the unsuccessful ANS test on May 7, 2004. The licensee also effectively interacted with Ottawa County and FEMA officials to identify and establish a FEMA-approved alternate location from which Ottawa County officials could activate all EPZ sirens. The licensee's interactions with Ottawa County, OEMA, and FEMA officials to update and obtain FEMA's approval of the ANS Design Report demonstrated the licensee's recognition of the importance of this aspect of maintaining regulatory compliance. As a result of the October 2004 special inspection, the licensee also recognized the regulatory significance of accurately reporting ANS PI data in accordance with NRC-endorsed, industry guidance.

c. *Determine that a schedule has been established for implementing and completing the corrective actions*.

The inspectors determined that the CA had been completed as documented in the CAP records, and as verified by the inspectors' reviews of a sample of revised procedures, training records, and other documents. There were only a few instances were extensions had been requested and granted in order to complete a CA. The requested extensions were reasonable.

d. *Determine that quantitative or qualitative measures of success have been developed for determining the effectiveness of the corrective actions to prevent recurrence.*

An adequate effectiveness review was completed for the CA, which were completed between June 2005 and late July 2005, that were associated with RCA 04-03213. An effectiveness review on the CA associated with RCA 05-03906 was scheduled to be completed at the end of 2005. An effectiveness review on the CA associated with CR 05-03610 was scheduled to be done in late March 2006.

03 MANAGEMENT MEETINGS

Exit Meeting Summary

The inspectors presented the inspection results to Mr. M. Bezilla and other members of licensee management and staff at the conclusion of the inspection on October 21, 2005. The licensee acknowledged the information presented. No proprietary information was discussed.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Bezilla, Site Vice President
C. Ackerman, Evaluator, Performance Improvement
C. Blausey, Emergency Planning Secretary
B. Cope, Senior Emergency Response Specialist
C. DeTray, Assessor, Fleet Oversight
R. Farrell, Director, Maintenance
L. Harder, Manager, Radiation Protection
R. Hruby, Manager, Fleet Oversight
C. Price, Manager, Regulatory Compliance
J. Rinckel, Vice President, Fleet Oversight
P. Smith, Emergency Response Specialist
J. Sturdavant, Senior Regulatory Compliance Specialist
M. Teal, Senior Emergency Response Specialist
M. Trump, Manager, Training
D. Whited, Fleet Emergency Planning Specialist
R. Wilkins, Manager, Communications
G. Wolf, Regulatory Compliance Engineer
J. Vetter, Manager, Emergency Response

Ohio Emergency Management Agency

S. Eischen, Radiological Analyst

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None.

Closed

05000346/2004018-02	VIO	Ottawa County officials unknowingly lost their capability to activate EPZ sirens for 10 days and were vulnerable to lose this capability for 30 days.

Discussed

05000346/2004018-01	NCV	Submittals of discrepant ANS PI data for second and third calendar quarters of 2004.

LIST OF DOCUMENTS REVIEWED

RCA Report 04-03213; Emergency Planning Zone Sirens Fail to Activate; dated September 21, 2004

RCA Report 05-03906; Discrepant Performance Indicator Window Data; dated September 14, 2005

CR 04-04323; Evaluate Question Posed by NRC on Need to Obtain FEMA Approval to Increase Siren Test Frequency

CR 04-06632; NRC Questions Submittal of Siren Performance Indicator Data; dated October 28, 2004

CR 04-06633; Differences Between the Emergency Plan, ANS Design Report, and Siren Test Methodology; dated October 28, 2004

CR 04-07069; NOS Response on NRC Special Inspection of Discrepant Emergency Response Siren Data; dated October 29, 2004

CR 05-03610; Numerous Indications of Siren Performance Problems During Silent Tests on June 23 and 28, 2005

White Paper Review of Condition Report 04-04323; Evaluate the Need to Obtain Approval from FEMA to Increase Siren Test Frequency; Revisions 0 and 1

Investigation Summary Associated with CR 04-06632

Investigation Summary Associated with CR 04-06633

Investigation Summary Associated with CR 04-07069

Cause Analysis 05-03610; on June 23 and 28, 2005, Numerous Sirens Reported a "Pressure Fail" Indication During 10 Second Silent Testing

CA 1 through 14 Associated with RCA 04-03213

CA 1 and 2 Associated with CR 04-06632

CA 1 through 4 Associated with CR 04-06633

CA 1 through 6 Associated with Cause Analysis 05-03610

CA 1 through 6 Associated with CR 05-03610

Nuclear Operating Business Practice LP-2001; FENOC Self-Assessment/Bench Marking; Revisions 2, 7, and 8

Procedure NG-RA-00810; Reactor Oversight NRC Performance Indicator Program; Revisions 00 and 01

Davis-Besse Business Practice EMER-0003; NRC Performance Indicator for ANS Reliability; Revisions 00, 01, and 03

Procedure RA-EP-00400; Prompt Notification System Maintenance; Revisions 02 and 03

Procedure RA-EP-00420; Response to Prompt Notification System Malfunction; Revisions 01 and 03

Procedure RA-EP-04400; Prompt Notification System Test; Revisions 02 through 05

Davis-Besse Nuclear Power Station Emergency Plan; Subsection 7.7.1; Revisions 23 and 24

Ottawa County Standard Operating Procedure 26; Siren Activation; Revision 14

Ottawa County Suggested Operating Guideline 26; Siren Activation; Revision 17

Licensee Letter to NRC; Correction of Performance Indicator Data for the Davis-Besse Nuclear Power Station Alert and Notification System; dated November 4, 2004

Licensee Letter to OEMA; Increase of Test Frequency to the Emergency Planning Zone Sirens; dated July 20, 2004

OEMA Letter to FEMA Region V; Proposal to Increase Siren Test Frequency; dated July 23, 2004

FEMA Region V Letter to OEMA; Approval of Daily Silent Testing; dated August 24, 2004

Licensee Letter to OEMA; Update to the Design Report for the Davis-Besse Nuclear Power Station Prompt Notification System; dated March 4, 2005

FEMA Letter to OEMA; Approval to Change the Frequency of Silent Siren Testing from Daily to Weekly; dated June 10, 2005

FEMA Letter to OEMA: Approval of Updates to the 1987 Design Report for the Davis-Besse Nuclear Power Station Prompt Notification System; dated October 11, 2005

Case Study - Root Cause Analysis Lessons Learned; Submittal of Discrepant ANS NRC Performance Indicator Data

Training Attendance Sheets on Case Study Presentations

LIST OF ACRONYMS USED

ADAMS	Agency wide Documents Access and Management System
ANS	Alert and Notification System
CA	Corrective Action
CAP	Corrective Action Program
CCU	Central Computer Unit
CFR	Code of Federal Regulations
CR	Condition Report
DRS	(NRC Region III) Division of Reactor Safety
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
FENOC	FirstEnergy Nuclear Operating Company
IP	Inspection Procedure
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NOS	Nuclear Oversight
NRC	Nuclear Regulatory Commission
OEMA	Ohio Emergency Management Agency
PARS	Publically Available Records
PI	Performance Indicator
RCA	Root Cause Analysis
RID	Radio Interface Device
RTU	Remote Terminal Unit