

UNITED STATES OF AMERICA  
 NUCLEAR REGULATORY COMMISSION  
 OFFICE OF NUCLEAR REACTOR REGULATION

Eric J. Leeds, Director

In the Matter of	)	Docket Nos. 50-247 and 50-286
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	License Nos. DPR-26 and DPR-64
	)	
Indian Point Nuclear Generating Unit Nos. 2 and 3	)	

PROPOSED DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. INTRODUCTION

By electronic transmission dated September 28, 2007, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072760602), and amended on January 24, 2008 (ADAMS Accession No. ML080380593), Mr. Sherwood Martinelli, representing Friends United for Sustainable Energy (FUSE, the Petitioner) filed a petition pursuant to Title 10, Section 2.206, "Requests for action under this subpart," of the *Code of Federal Regulations* (10 CFR 2.206) to Chairman Dale E. Klein of the U.S. Nuclear Regulatory Commission (NRC) regarding Indian Point Nuclear Generating Unit Nos. 2 and 3 (Indian Point). The Petitioner also filed a separate petition pursuant to 10 CFR 2.206 on March 30, 2008 (ADAMS Accession No. ML080950265), which the NRC has combined with the original petition and amendment. The Petitioner requested that the NRC take enforcement actions.

Actions Requested

In the original petition, the Petitioner states that Entergy Nuclear Operations, Inc. (Entergy), the licensed operator for the Indian Point facilities, has not taken adequate action to

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ensure that the Indian Point sirens of the Alert and Notification System (ANS)<sup>1</sup> are fully operational. The Petitioner requests that the NRC take the following two actions:

- (1) Issue Orders, effective immediately, to suspend the Indian Point licenses until both the Federal Emergency Management Agency (FEMA) and the NRC fully approve the new siren system.
- (2) Fine Entergy \$130,000 per day from the date of the petition (i.e., September 28, 2007) until Entergy complies with the NRC's Confirmatory Order dated January 31, 2006 (EA-05-190, ADAMS Accession No. ML060090441), which requires the licensee to install backup power for the Indian Point siren system.

In addition, by electronic transmission dated January 24, 2008, the Petitioner amended the original petition by citing the recent discovery of corrosion on sirens for the new ANS. In the amended petition, the Petitioner requested that the NRC take the following three actions:

- (1) Issue an Order to immediately place both Indian Point Unit Nos. 2 and 3 in Cold Shutdown.
- (2) Suspend Entergy's license to operate Indian Point Unit Nos. 2 and 3 until they are in full compliance with their design basis threat, current licensing basis, and all NRC rules and regulations.
- (3) Fine Entergy on a daily basis for no less than \$500,000 until all levels of government have fully approved the new siren system.

Finally, by electronic transmission dated March 30, 2008, the Petitioner filed a separate petition citing numerous discharges of radiological and chemical carcinogens, both legal and

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<sup>1</sup> Entergy refers to the emergency siren system as the Alert and Notification System (ANS) whereas the Energy Policy Act of 2005 refers to the same system as the Emergency Notification System (ENS) and the Public Alerting System (PAS). This Director's Decision uses each of these acronyms interchangeably.

illegal, over an extended period of time that continue to expose the Petitioner, his family, and pets to contaminants. The Petitioner requested the suspension of the operating licenses for the Indian Point facilities until a number of conditions are satisfactorily resolved including final approval and implementation of the new siren system.

The NRC's acknowledgement letter to the Petitioner, dated February 12, 2008 (ADAMS Accession No. ML080150040), addressed the original petition dated September 28, 2007, and its amendment dated January 24, 2008. In this letter, the NRC accepted, for review pursuant to 10 CFR 2.206, FUSE concerns regarding the following two issues:

- (1) Entergy's failure to install the new ANS at the Indian Point facility in a timely fashion.
- (2) Corrosion found in sirens for the new ANS.

Furthermore, in the NRC's acknowledgement letter cited above, the NRC also consolidated the concern regarding the failure to implement the siren system in a timely manner with a similar issue raised in a separate FUSE petition dated June 25, 2007 (ADAMS Accession No. ML072140693). The agency took this step for the following three reasons:

- (1) The issues are similar.
- (2) FUSE submitted both petitions at approximately the same time.
- (3) FUSE was the principal external stakeholder for both petitions.

The NRC's acknowledgement letter to the Petitioner dated September 15, 2008 (ADAMS Accession No. ML082350288), addressed the petition dated March 30, 2008. In this letter, the NRC accepted, for review pursuant to 10 CFR 2.206, FUSE concerns regarding Entergy's failure to install the new ANS at the Indian Point facility in a timely manner and combined it with the previously discussed petitions for the reasons cited above.

Petitioner's Basis for the Requested Actions

The Petitioner described the sirens as the early warning system and the best chance for members of the public living near the Indian Point facility to protect themselves and their families in the event of a terrorist attack or a radiological emergency. The Petitioner noted that Entergy is required to comply with the Energy Policy Act of 2005 and provide a backup power supply for the sirens and voiced concerns over the continuing delay in its implementation. The Petitioner believes that the impasse in obtaining final approval between Entergy and FEMA was unacceptable and that the only appropriate solution was the immediate shutdown of the Indian Point facilities. The Petitioner noted the following chronology of events:

- (1) The NRC issued a Confirmatory Order on January 31, 2006, requiring Entergy to supply backup power to the ANS. The Confirmatory Order required that the new ANS be fully operational and in-service by January 30, 2007.
- (2) By letter dated January 23, 2007 (ADAMS Accession No. ML070190527), the NRC relaxed the implementation date to April 15, 2007, following a request by Entergy.
- (3) Testing prior to April 15, 2007, revealed that the ANS was not ready to be placed into service. By letter dated April 13, 2007 (ADAMS Accession No. ML071030179), the NRC denied a request by Entergy to relax the implementation date of the ANS to August 31, 2007.
- (4) On April 23, 2007 (EA-07-092, ADAMS Accession No. ML071140022), the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty (NOV/CP) for \$130,000 to Entergy for failing to comply with the Confirmatory Order. In its response to the NOV/CP, Entergy committed to have the system in service by August 24, 2007.
- (5) On July 30, 2007 (EA-07-189, ADAMS Accession No. ML072070596), the NRC issued an Order, effective immediately, which required Entergy to declare the ANS with backup power operable by August 24, 2007.

- (6) Entergy also failed to meet its commitment of August 24, 2007. As a result, on August 30, 2007 (EA-07-212, ADAMS Accession No. ML072410542), the NRC issued a Notice of Violation (NOV) to Entergy for its failure to obtain the necessary approvals that would allow it to place the new ANS in service as the primary notification system.
- (7) By letter dated September 12, 2007 (ADAMS Accession No. ML072600127), FEMA issued a letter to the New York State Emergency Management Office concluding that the new ANS installed at the Indian Point facility was not adequate and did not meet applicable FEMA guidance.

NRC Petition Review Board's Meeting with the Petitioner

On December 21, 2007, the NRC Office of Nuclear Reactor Regulation's Petition Review Board and the Petitioner held a conference call to clarify the basis for the petition.

The NRC's acknowledgment letter to the Petitioner, dated February 12, 2008, included the transcript of this meeting. This transcript (ADAMS Accession No. ML080140267) was treated as a supplement to the petition and is available for public inspection at the Commission's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records are accessible from the ADAMS public Electronic Reading Room on the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC PDR reference staff by telephone at (800) 397-4209, or at (301) 415-4737, or by e-mail at [pdr@nrc.gov](mailto:pdr@nrc.gov).

## II. DISCUSSION

### CONFIRMATORY ORDER OF JANUARY 31, 2006 (EA-05-190)

The Energy Policy Act of 2005 (Act) (see 42 U.S.C. § 2210 et seq.) was enacted on August 8, 2005. Section 651(b) of the Act states the following (see Public Law PL 109-58, 119 Stat 594):

For any licensed nuclear power plants located where there is a permanent population, as determined by the 2000 decennial census, in excess of 15,000,000 within a 50-mile radius of the power plant, not later than 18 months after enactment of this Act, the Commission shall require that backup power to be available for the emergency notification system of the power plant, including the emergency siren warning system, if the alternating current supply within the 10-mile emergency planning zone of the power plant is lost.

Indian Point Nuclear Generating Unit Nos. 2 and 3 meet the criteria of the Act.

The following requirements must be met to ensure that adequate backup power for the emergency notification system (ENS), as required by Section 651(b) of the Act:

- The backup power supply for the Public Alerting System (PAS) must meet commonly-applicable standards, such as National Fire Protection Association (NFPA) Standard 1221, "Standard for the Installation, Maintenance, and Use of Emergency Communications Systems," and Underwriters Laboratory (UL) 2017, "General-Purpose Signaling Devices and Systems," Section 58.2.
- Each PAS and PAS Alerting Appliance (PASAA) must receive adequate power to perform their intended functions so that the backup power is sufficient to allow them to operate in standby mode for a minimum of 24 hours and in alert mode for a minimum of 15 minutes.
- The batteries that are used for backup power must recharge to at least 80 percent of their capacity in no less than 24 hours.
- The licensee and appropriate government agencies must have an immediate automatic indication of a loss of power except for those components that are in facilities staffed on

a continuous basis (24 hours per day, 7 days per week) or that are otherwise monitored on a continuous basis.

- The licensee must receive an automatic notification of an unplanned loss of power in sufficient time so that it can take compensatory action before the backup power supply fails to meet the requirements of Section IV, Part II. A. 2 of the Confirmatory Order, except for those components that are in facilities staffed on a continuous basis (24 hours per day, 7 days per week) or that are otherwise monitored on a continuous basis.

The Commission determined that the operating licenses for Indian Point Nuclear Generating Unit Nos. 2 and 3 must be modified to carry out the statutory mandate discussed above. On January 31, 2006 (ADAMS Accession No. ML060410151), the licensee consented to the license modifications set forth below.

Accordingly, by Confirmatory Order issued on January 31, 2006, the NRC modified License Nos. DPR-26 and DPR-64 as follows:

- I. The Licensee shall provide and maintain a backup power supply for the ENS for the Indian Point Nuclear Generating Unit Nos. 2 and 3, facilities. The ENS is the primary prompt notification system used to alert the public of an event at a nuclear power plant.
- II. The Licensee shall implement II.A, II.B, and II.C.1-3 by January 30, 2007. The backup power system for the ENS shall be declared operable by January 30, 2007. The backup power supply for the ENS shall include, as a minimum:

- A. 1. A backup power supply for the PAS and each PASAA which shall provide adequate power for each component to perform their design function. These functions include the following as examples: sound output, rotation, speech intelligibility, or brightness as applicable. This criterion includes the associated activation, control, monitoring, and testing components for the backup power supply to the ENS including, but not limited to: radio transceivers, testing circuits, sensors to monitor critical operating parameters of the PAS and PASAA.

The Licensee is required to meet all applicable standards, such as NFPA Standard 1221, Standard for the Installation, Maintenance, and Use of Emergency Communications Systems (2002) and UL 2017, Section 58.2;

2. The backup power supply for each PAS and PASAA shall be designed for operation in standby mode, including, but not limited to: radio

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transceivers, testing circuits, sensors fully operational and providing polling data to the activation, control, monitoring, and test system for at least 24 hours without AC supply power from the local electric distribution grid. The backup power supply then shall be capable of performing its intended function, without recharge, by operating the PAS and PASAA in its alerting mode at its full design capability for a period of at least 15 minutes. This sequence shall be assumed to occur at the most unfavorable environmental conditions including, but not limited to, temperature, wind, and precipitation specified for PAS and PASAA operation and assume that the batteries are approaching the end of their design life (i.e., the ensuing recharge cycle will bring the batteries back to the minimum state that defines their design life).

3. In defining battery design life, automatic charging shall be sized such that batteries in the backup power are fully recharged to at least 80 percent of their maximum rated capacity from the fully discharged state in a period of not more than 24 hours.
  4. Battery design life and replacement frequency shall comply with vendor(s) recommendations.
  5. Except for those components that are in facilities staffed on a continuous basis (24 hours per day, 7 days per week) or otherwise monitored on a continuous basis, there shall be a feedback system(s) that provides immediate automatic indication of a loss of power to the Licensee and the appropriate government agencies, and an automatic notification of an unplanned loss of power must be made to the Licensee in sufficient time to take compensatory action before the backup power supply can not meet the requirements of Section IV, part II. A. 2.
  6. The Licensee shall implement a preventative maintenance and testing program of the ENS including, but not limited to: the equipment that activates and monitors the system, equipment that provides backup power, and the alerting device to ensure the ENS system performs to its design specifications.
- B.
1. The Licensee shall implement any new Department of Homeland Security (DHS) guidance pertaining to backup power for ENS that may affect the system requirements outlined in this Order that is issued prior to obtaining DHS approval of the alerting system design. The Licensee shall not implement any DHS guidance that reduces the effectiveness of the ENS as provided for in this Order without prior NRC approval.
  2. The Licensee shall document the evaluation of lessons learned from any evaluation of the current alert and notification system (ANS) and address resolution of identified concerns when designing the backup power system and such consideration shall be included in the design report.
  3. The final PAS design must be submitted to DHS for approval prior to May 1, 2006.



- C.
  - 1. Within 60 days of the issuance of this Order, the Licensee shall submit a response to this Order to the NRC Document Control Desk providing a schedule of planned activities associated with the implementation of the Order including interactions with the Putnam, Rockland, Westchester, and Orange Counties, the State of New York, and DHS. In addition, the Licensee shall provide a progress report on or shortly before June 30, 2006.
  - 2. The Licensee shall submit a proposed revision to its emergency response plan to incorporate the implementation of items A.1–A.6, B.1–B.3, and C.4–C.5. This plan shall be submitted to the NRC for review and approval within 120 days from the issuance of the Order.
  - 3. Prior to declaring the ENS operable, the Licensee shall, in accordance with a test plan submitted to and approved by the NRC in conjunction with the design submittal, demonstrate satisfactory performance of all (100%) of the ENS components including the ability of the backup power supply to meet its design requirements.
  - 4. After declaring the ENS operable, the Licensee shall conduct periodic testing to demonstrate reliable ENS system performance.
  - 5. The results from testing as discussed in paragraph C.4 shall be reported, in writing, to the NRC Document Control Desk, with a copy to the Director of Nuclear Reactor Regulation, documenting the results of each test, until there are 3 consecutive tests testing the operability of all ENS components used during an actual activation, conducted no sooner than 25 days and no more than 45 days from the previous test with a 97% overall entire emergency planning zone success rate with no individual county failure rate greater than 10%. A false negative report from a feedback system will constitute a siren failure for the purposes of this test.
- III. The Licensee shall submit a written report to the NRC Document Control Desk, with a copy to the Director of Nuclear Reactor Regulation, when the ENS is declared operable.
- IV. The Licensee shall submit a written report to the NRC Document Control Desk and provide a copy to the Director of Nuclear Reactor Regulation when it has achieved full compliance with the requirements contained in this Order.
- V. The Licensee may use the criteria contained in 10 CFR 50.54(q) to make changes to the requirements contained in this Order without prior NRC approval provided that they do not reduce the effectiveness of the Order requirements or the approved emergency plan. The Licensee shall notify, in writing, the NRC Document Control Desk, with a copy to the Director, Division of Preparedness and Response, Office of Nuclear Security and Incident Response, 30 days in advance of implementing such a change. For other changes, the Licensee may submit a request, in writing, to the NRC Document Control Desk, with a copy to the Director, Office of Nuclear Reactor Regulation, to relax or rescind any of the above requirements upon a showing of good cause by the Licensee.

RELAXATION OF THE CONFIRMATORY ORDER – JANUARY 23, 2007

Section IV.V of the Confirmatory Order permits Entergy to request a relaxation of the requirements. By letter dated January 11, 2007 (ADAMS Accession No. ML070170122), Entergy requested that the NRC relax Section IV.II of the Confirmatory Order to change the required implementation date for the back-up power system to the ENS from January 30, 2007, to April 15, 2007. In its extension request letter, Entergy identified the following three factors that contributed to the delay:

- Permits and approval
- Equipment installation issues
- Other follow-up activities such as system testing and emergency personnel training.

In the extension request, Entergy summarized the progress it made in complying with the Confirmatory Order. Entergy indicated that it had completed the research, design, and fabrication of the two redundant, physically separated communication systems that will comprise the communication links for the new ENS. In addition, Entergy nearly completed installation of all of the equipment. Entergy indicated that the system will consist of 150 new sirens and metal poles, 12 computer-based control stations, and new communications links between the redundant technologies. Entergy also stated that it expects installation of the few remaining components by January 30, 2007, with the exception of equipment that will be installed on the Grasslands Tower.

The NRC staff evaluated the factors presented in the extension request and Entergy's ability to have reasonably foreseen difficulties that could impact the required completion date of January 30, 2007. Additionally, the NRC staff evaluated Entergy's level of control to rectify each problem. In particular, the NRC staff noted that the structural modification of the Grasslands Tower was the critical path element impacting the schedule. The NRC staff determined that Entergy provided sufficient evidence that the necessary structural modifications for the Grasslands Tower to support the equipment installation of antennas and microwave dishes

could not have been reasonably foreseen any earlier. The NRC staff review included an evaluation of when Entergy discovered the need to modify the tower and whether Entergy could control the necessary modifications. After Entergy received a preliminary analysis that identified structural deficiencies, it initiated additional analysis and structural repairs to expedite the completion of the tower improvement project.

Pursuant to Section IV.V of the Confirmatory Order, the NRC staff concluded that Entergy made a good faith effort to comply with the Confirmatory Order and demonstrated good cause to relax the Confirmatory Order. Therefore, by letter dated January 23, 2007, the NRC granted Entergy's request to relax the implementation date of the Confirmatory Order from January 30, 2007, to April 15, 2007.

EXTENSION REQUEST DENIED – APRIL 13, 2007

By letter dated April 13, 2007 (ADAMS Accession No. ML071140092), Entergy stated that the new ENS would not be operable by April 15, 2007, and requested a relaxation of the requirements of the Confirmatory Order with a new completion date of August 31, 2007. The letter also stated that Entergy would provide a detailed plan to the NRC by May 14, 2007, as to how and when Entergy plans to meet the conditions of the Order.

As part of the request, Entergy discussed the difficulties encountered in achieving reliable operation in the radio-only activation mode. The NRC staff evaluated the factors presented in the request and Entergy's ability to have reasonably foreseen difficulties that impacted the completion date of April 15, 2007. Additionally, the NRC staff evaluated the extent to which the factors that Entergy described were within its control. The NRC concluded that these factors were known or should have been known by Entergy at the time it requested the first extension. Therefore, inasmuch as Entergy had not demonstrated good cause, by letter dated April 13, 2007, the NRC denied Entergy's request for a relaxation of the Confirmatory Order.

NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY OF  
\$130,000 ON APRIL 23, 2007 (EA-07-092)

In accordance with the NRC Enforcement Policy, on April 23, 2007, the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty, pursuant to Section 234 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2282, and 10 CFR 2.205, "Civil penalties." The NOV described the violation as follows:

The Energy Policy Act (Act) of 2005, requires in part that "For any licensed nuclear power plants located where there is a permanent population, as determined by the 2000 decennial census, in excess of 15,000,000 within a 50-mile radius of the power plant, not later than 18 months after enactment of the Act, the Commission shall require that backup power to be available for the emergency notification system of the power plant, including the emergency siren warning system, if the alternating current supply within the 10-mile emergency planning zone of the power plant is lost."

NRC Confirmatory Order (Order) (EA-05-190) - Emergency Notification System (ENS) Backup Power for Indian Point Nuclear Generating Units 2 and 3, Sections IV. I and IV. II, as modified pursuant to Section IV. V of the Order by letter from J. Dyer to M. Kansler, dated January 23, 2007, required that the Licensee shall implement II.A, II.B, and II.C.1-3 by April 15, 2007, including requiring the backup power system for the ENS shall be declared operable by April 15, 2007.

Contrary to the above, the Licensee for the Indian Point Generating Station, Units 2 and 3, failed to meet the Order requirements to implement an ENS with backup power capability by April 15, 2007. Specifically, the "radio only activation" feature, the portion of the ENS for which the backup power capability was provided, did not meet its test acceptance criteria, resulting in the ENS not being fully operable by April 15, 2007.

The NRC imposed a civil penalty of \$130,000 on the licensee.

ORDER OF JULY 30, 2007 (EA-07-189)

By letter dated May 23, 2007 (ADAMS Accession No. ML071430427), Entergy responded to the April 23, 2007, NOV/CP and committed to implement the new ENS by August 24, 2007. In its response, Entergy admitted to the violation of the Confirmatory Order, identified the apparent causes of the violation, and described corrective actions that were taken or planned to correct the violation.

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The NRC held a public meeting with Entergy officials on July 9, 2007, to clarify Entergy's actions to comply with the Confirmatory Order, particularly with respect to ensuring that the new ENS met applicable FEMA regulations and that any specific county needs were identified and addressed before Entergy declared the new ENS operable.

The NRC evaluated Entergy's response to the April 23, 2007, NOV/CP and the additional information gathered during the public meeting of July 9, 2007. The NRC determined that additional actions would be needed to ensure that the new ENS with backup power supply capability is operable by August 24, 2007, as Entergy committed to in its letter of May 23, 2007. These actions include: completing the outstanding requirements delineated in the aforementioned Confirmatory Order dated January 31, 2006, as modified herein; implementing those measures necessary for FEMA to accept the new ENS as the primary ENS for alerting the public by August 24, 2007; and completing the necessary software and procedure upgrades and training of county personnel who will be responsible for the actuation of the system.

Accordingly, by Order issued on July 30, 2007, the NRC modified License Nos. DPR-26 and DPR-64 as follows:

- I. The Licensee shall meet all the provisions contained in the January 31, 2006, Confirmatory Order (see Appendix A of this Order), except as specifically modified or supplemented herein. With respect to the requirement to provide and maintain an ENS with backup power supply capability for the Indian Point Nuclear Generating Unit Nos. 2 and 3 facilities, the new ENS intended to comply with that requirement shall meet applicable requirements of state and federal authorities such that it is declared operable and placed into service as the primary system by August 24, 2007.
- II. The Licensee shall provide to NRC within 7 days of this order a report describing the steps and the expected schedule for completing each of the steps that the Licensee understands are necessary to meet applicable requirements of state and federal authorities to place the new ENS system into service as the Primary Notification system. The report should identify any uncertainties in identification of requirements or in schedules associated with requirements.
- III. Prior to declaring the new ENS operable and using it as the primary system, the Licensee shall: (a) obtain FEMA approval that the system, as installed, meets the design criterion of the approved ENS Design Report and is in compliance with all applicable FEMA regulations and guidance; and, (b) complete all necessary software and procedure upgrades and training of all the four county response

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organizations, accounting for the specific training needs identified by the counties, in the proper use of the new ENS and response to associated alarming conditions.

- IV. The Licensee shall maintain the existing ENS fully available (including conducting routine maintenance and testing activities) and establish the necessary procedures and actions to enable its use as a backup to the new ENS when the new ENS is declared in use as the primary system, until such time that FEMA grants approval to remove the existing ENS from service.

NOTICE OF VIOLATION – AUGUST 30, 2007 (EA-07-212)

By letter dated August 17, 2007 (ADAMS Accession No. ML072400313), Entergy informed the NRC that the outstanding requirements of the January 31, 2006, Confirmatory Order and the necessary software and procedure use upgrades and training of county personnel were either completed or would be completed by August 24, 2007. However, Entergy indicated that it was uncertain about the date by which it would obtain FEMA acceptance of the new ENS as the primary system for alerting the public. In addition, during an August 20, 2007, technical meeting in which Entergy provided FEMA with the status of its outstanding siren issues, FEMA indicated that because Entergy planned to provide information as late as August 22, 2007, its review would take at least 45 days.

By letter dated August 23, 2007 (ADAMS Accession No. ML072390181), Entergy requested that the NRC consider modifying the terms and conditions of the July 30, 2007, Order to accommodate the FEMA review. The NRC concluded that Entergy had not demonstrated good cause and, by letter dated August 30, 2007, the NRC denied Entergy's request to modify the Order and issued an NOV.

DISCOVERY OF CORROSION ON SIREN COMPONENTS  
JANUARY 2008

In late 2007, Entergy conducted visual inspections of a sample of the new sirens in accordance with Indian Point approved procedures. Entergy removed the back covers of each individual siren speaker to inspect the drivers and wiring. The siren drivers are the speaker portions of the digital siren located at the top of the siren pole. Each siren location typically has

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32 drivers (eight siren heads in each of four orthogonal directions). Seven of the nine sirens that were inspected exhibited significant corrosion on the siren drivers and wiring. The licensee's inspections revealed numerous corroded driver terminals, broken driver terminals, corroded and failed wire connectors, and corroded terminal strips. The type of corrosion observed was galvanic corrosion which requires dissimilar metals in contact with the presence of an electric current. The design of the siren system requires a power source that continuously applies 24-volt direct current between the siren circuitry and the ground while in the idle mode. The licensee concluded that the location of the drivers along with the presence of moisture and environmental contaminants with a continuously applied voltage created the environment necessary to support the type of corrosion that it observed.

Entergy subsequently conducted a complete inspection of the siren system connections. The licensee confirmed with the vendor that a protective gel coating should have been applied during installation and that the absence of this protective coating along with a continuously applied voltage significantly contributed to the accelerated corrosion of the driver terminals. Corrective actions included the repair and/or replacement of degraded components, removal of existing corrosion, modification of the siren housing to permit moisture drainage, and the application of a protective gel at all the vulnerable junction points of the siren circuitry. Licensee procedures include periodic inspections of the siren system components to monitor potential corrosion. The NRC staff has monitored the licensee's actions and reached the following two conclusions:

- (1) The licensee's corrective actions were reasonable and have been completed.
- (2) The licensee took adequate corrosion preventive measures before it placed the new system in service.

Since corrosion preventive measures were taken before Entergy placed the new siren system into service, corrosion of siren components posed no threat to public health and safety. In addition, there were no violations of NRC requirements.

NOTICE OF VIOLATION AND IMPOSITION OF CIVIL PENALTY OF \$650,000  
JANUARY 24, 2008 (EA-08-006)

On January 24, 2008 (ADAMS Accession No. ML080240005), the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty to Entergy because of its continued failure to implement Orders issued by the NRC on January 31, 2006 (EA-05-190), and July 30, 2007 (EA-07-189). The two Orders, in part, required that Entergy have a PAS in place (i.e., the ENS with a backup power system capability). The NOV imposed a civil penalty of \$650,000 for Entergy's continued failure to implement the ENS between April 16, 2007, and January 24, 2008.

ENTERGY'S SIREN PROJECT MILESTONE SCHEDULE  
FEBRUARY 8, 2008

By letter dated February 8, 2008 (ADAMS Accession No. ML080430045), Entergy submitted its siren project milestone schedule for the ENS. The licensee's schedule included obtaining FEMA approval for placing the system in service by August 6, 2008, and placing the system in service by August 14, 2008.

CONFIRMATORY ACTION LETTER (1-08-005)

During a meeting held on July 22, 2008, between Entergy and FEMA, with the NRC present, to discuss the installation of the new ANS, Entergy made commitments to supplement the population coverage of the primary siren alerting system by installing tone alert radios (TARs) as a system enhancement. Entergy stated that although the new siren system reaches "essentially 100%" of the fixed population living within the emergency planning zone (EPZ), TARs would be deployed to alert the remaining population that may not receive a siren alerting sound volume level consistent with FEMA guidance. Entergy later documented its commitments regarding TARs made during the meeting in a letter to the NRC dated July 31, 2008 (ADAMS Accession No. ML082240304).

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Confirmatory Action Letter No. 1-08-005, dated on August 22, 2008 (ADAMS Accession No. ML082350676), documented that Entergy will complete the following actions:

- (1) Entergy will implement a TAR Control Program which will contain the following provisions, prior to placing the new siren system in service:
  - Utilizing a prescribed analytical methodology for identifying the residential and special facility locations that will be offered TARs based on the acoustic coverage maps for the new siren system and data from the 2000 decennial census.
  - Documenting the best effort attempts to place the TARs at the locations identified using the prescribed analytical methodology.
  - Maintaining a record system of the addresses where the TARs are placed and notation of locations, if any, where TARs were declined.
  - Maintaining a program for updating TAR locations as a result of new addresses or occupant changes at the existing addresses.
  - Providing annual replacement batteries, including a spare set, which can be installed by the user, if needed.
  - Providing instructions to users regarding the purpose and operation of the TAR, including instructions for manual testing of the batteries.
  - Having a means of periodic operational verification and reliability testing of the TARs.
  - Maintaining a feedback mechanism for TAR users to ask questions about their TARs and to provide information to the counties and/or Entergy.
- (2) Entergy will distribute TARs to required locations in the 0-5 mile region in the EPZ prior to placing the new siren system in service.
- (3) Entergy will distribute TARs to required locations in the region of the EPZ beyond 5 miles on or before November 1, 2008.

#### FEMA GRANTS PROVISIONAL ACCEPTANCE

By letter dated August 22, 2008, FEMA concluded that the ANS at Indian Point met FEMA regulations and guidance and was therefore acceptable on a provisional basis, pending the following:

- The new system will be undergoing acoustic and reliability tests throughout the next year, during which the old system will remain in place as a backup in case of a failure of the new system.

**PROPOSED**

- The results of the testing must be submitted to the State and to FEMA in a Final Design Report. Upon approval of those findings, FEMA will provide acceptance of the system as the primary ANS for Indian Point, at which time the old system may be dismantled.
- There are several areas at the edges of the extended EPZ where siren sound levels are not quite as high as they would ideally be, as shown in the July 30, 2008, version of the Design Report. Entergy has committed to offering each household within those areas TARs no later than November 1, 2008. This delay is based on the supply of TARs in stock; new ones have been ordered and are being manufactured.
- Therefore, it is recommended that each of the Counties program their R-911-type systems to alert those households until they have received the TARs. We understand that the Counties are prepared to do this and that it will not be a time consuming or particularly difficult measure to implement since each of the households within the areas has been identified.
- It is noted that Entergy currently has a TAR Program in place for institutions such as hospitals. The TARs that will be in households are to be added to the program, which requires maintenance of the devices and updating the records of recipients (making sure that people who have moved into the area are provided with a radio), and annual provision of information and backup batteries to those who have radios. This program will, per Entergy's commitment to the NRC, become part of Entergy's licensing basis as delineated in Confirmatory Action Letter No. 1-08-005.

#### ENTERGY PLACES NEW ANS INTO SERVICE

On August 27, 2008, Entergy placed the new ANS into service. The new notification system is a state-of-the-art system that has many improvements over the old system including the following:

- Battery back-up power for each siren
- An additional 60 square miles of coverage in the EPZ.
- Steel poles versus the old wood poles.
- Full self-diagnostic capabilities for each siren.
- No rotating or moving parts.

As discussed in the FEMA approval letter, the new sirens will undergo a 1-year review and test period. Entergy states that the old siren system will remain available during this time, if needed, and can be brought back online within 60 minutes.

After declaring the ANS operable, Entergy conducted periodic testing in accordance with Confirmatory Order Section II.C.4 and .5. The Confirmatory Order required three consecutive tests successfully demonstrating the operability of all ENS components used during an actual activation, conducted no sooner than 25 days and no more than 45 days from the previous test with a 97% overall entire emergency planning zone success rate with no individual county failure rate greater than 10%. These tests, which were conducted on September 24, October 22, and November 20, 2008, successfully demonstrated operability as required by the Confirmatory Order.

#### NRC CLOSEOUT INSPECTION

NRC Inspection Report Nos. 05000247/2008503 and 05000286/2008503 dated January 27, 2009 (ADAMS Accession No. ML090280267), provided the NRC's closeout inspection of the Indian Point ANS. The inspection report concluded that Entergy had complied with all the requirements of the NRC's Confirmatory Order of January 31, 2006, and the Order of July 30, 2007, regarding the design, installation, and testing of the new ANS. Further, the inspection report concluded that all the commitments documented in the NRC Confirmatory Action Letter of August 22, 2008, regarding deployment of TARs to supplement the siren system had been satisfied.

#### CLOSEOUT OF ENFORCEMENT ACTIVITIES

By letter dated March 3, 2009 (ADAMS Accession No. ML090620457), NRC Region 1 closed out the NRC Orders, Confirmatory Action Letter, and enforcement actions taken with respect to the ANS. Furthermore, the NRC concluded that no additional enforcement action is planned. The letter cited civil penalties totaling \$780,000 issued against Entergy over the last two years in connection with delays in making the new siren system at Indian Point operational. The letter also cited the most recent NRC inspection report wherein the staff concluded that Entergy had addressed the relevant issues, successfully implemented the ANS, and met all NRC requirements.

**PROPOSED**

### III. CONCLUSION

The Petitioner raised issues related to the untimely implementation of the new ANS described in the Energy Policy Act of 2005 and the subsequent discovery of corrosion on the new sirens at the Indian Point site.

The NRC has reviewed Entergy's efforts to design and implement a siren system with a backup power supply as required by the Energy Policy Act of 2005. The existing siren system remained operational while Entergy proceeded to place the new siren system into service. The existing system will remain available to be restored to service, if required, until FEMA determines it can be dismantled. The NRC concludes that public health and safety have not been measurably affected by the untimely implementation of the new siren system. Furthermore, the NRC has found Entergy's response to the corrosion issue to be reasonable and technically sound.

Based on the above, the Office of Nuclear Reactor Regulation has decided to deny the Petitioner's request to suspend the operating licenses of the Indian Point Nuclear Generating Unit Nos. 2 and 3 and the Petitioner's request to impose daily civil penalties for the untimely implementation of the new siren system. The \$780,000 in civil penalties already imposed, and Entergy's subsequent actions to implement the siren system and comply with the NRC's Orders make further enforcement actions unnecessary.

In addition, the Petitioner's request to place Indian Point Unit Nos. 2 and 3 in cold shutdown, and to suspend the licenses of Indian Point Unit Nos. 2 and 3 until the licensee comes into full compliance with the design basis threat, the current licensing basis and all NRC rules, because of corrosion in siren components, is denied. As explained above, there were no violations and no threat to public health and safety associated with the identified corrosion of some siren components. Entergy's corrective actions have adequately resolved the matter, and no further action is needed.

**PROPOSED**

As provided in 10 CFR 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. As provided by this regulation, the decision will constitute the final action of the Commission 25 days after the date of the decision unless the Commission, on its own motion, institutes a review of the decision within that time.

Dated at Rockville, Maryland, this      day of              2009.

FOR THE NUCLEAR REGULATORY COMMISSION

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

**PROPOSED**