

August 11, 2004

Mr. Fred Dacimo
Site Vice President
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Indian Point Energy Center
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SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT No. 2 - NRC INTEGRATED
INSPECTION REPORT 05000247/2004006

Dear Mr. Dacimo:

On June 30, 2004, the US Nuclear Regulatory Commission (NRC) completed an inspection at the Indian Point Nuclear Generating Unit No. 2. The enclosed integrated inspection report documents the inspection results, which were discussed on July 22, 2004, with Mr. C. Schwarz and other members of your staff.

The inspection 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. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the inspectors identified five findings of very low safety significance (Green). Four of the findings were determined to be violations of NRC requirements. However, because of the very low safety significance and because the issues have been entered into your corrective action program (CAP), the NRC is treating the findings as non-cited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you deny these NCVs, you should provide a response with the basis for your denial within 30 days of the date of this letter, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-001; with copies to the Regional Administrator, Region 1; the Director, Office of Enforcement; and the NRC Resident Inspector at Indian Point 2.

Mr. Fred Dacimo

2

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Sincerely,

/RA/

Brian J. McDermott, Chief
Projects Branch 2
Division of Reactor Projects

Docket No.50-247
License No. DPR-26

Enclosure: Inspection Report 05000247/2004006
w/Attachment: Supplemental Information

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4

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 50-247

License No. DPR-26

Report No. 05000247/2004006

Licensee: Entergy Nuclear Northeast

Facility: Indian Point Nuclear Generating Unit No. 2

Location: Buchanan, New York 10511

Dates: April 1, 2004 - June 30, 2004

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Approved by: Brian J. McDermott, Chief
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CONTENTS

<u>Summary of Plant Status</u>	1
REACTOR SAFETY	1
1R04 Equipment Alignments	1
1R05 Fire Protection	2
1R06 Flood Protection Measures	3
1R07 Heat Sink Performance	3
1R11 Licensed Operator Requalification Program	9
1R12 Maintenance Effectiveness	11
1R13 Maintenance Risk Assessment and Emergent Work Activities	12
1R14 Personnel Performance During Non-Routine Plant Evolutions and Events ...	12
1R15 Operability Evaluations	13
1R19 Post Maintenance Testing	15
1R22 Surveillance Testing	15
1R23 Temporary Plant Modifications	17
1EP6 Emergency Plan Drill	18
RADIATION SAFETY	19
2OS3 Radiation Monitoring Instrumentation and Protective Equipment	19
OTHER ACTIVITIES (OA)	20
4OA1 Performance Indicator (PI) Verification	20
4OA2 Identification and Resolution of Problems	21
4OA3 Event Followup	23
4OA5 Other Activities	24
4OA6 Meetings, Including Exit	24
4OA7 Licensee-Identified Violation	25
ATTACHMENT: SUPPLEMENTAL INFORMATION	A-1
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED AND DISCUSSED	A-2
LIST OF BASELINE INSPECTIONS PERFORMED	A-3
LIST OF DOCUMENTS REVIEWED	A-3
LIST OF ACRONYMS	A-8

SUMMARY OF FINDINGS

IR 05000247/2004006; 04/1/04 - 06/30/04; Indian Point Nuclear Generating Unit No. 2; Fire Protection; Personnel Performance During Non-Routine Events; Maintenance Effectiveness; and Problem Identification and Resolution.

The report covers a three month period of inspection by resident and region-based inspectors. Four Green non-cited violations (NCVs) and one Green finding were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. 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.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for Entergy's failure to translate the emergency core cooling system (ECCS) design basis into recirculation sump modification instructions. Specifically, Entergy added penetration cover plates and alignment collars around several small pipes that penetrated the sump deck plating, and the annular gap between the collars and pipes exceeded the sump screen size.

This finding is more than minor because it potentially affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of ECCS. This finding is considered to be of very low safety significance, because ECCS remained operable and there was no loss of safety function. (Section 1R07.1)

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for Entergy's failure to promptly identify and take actions to address conditions adverse to quality associated with the ECCS recirculation sump. Specifically, Entergy did not identify debris in containment and recirculation sump bypass pathways that had the potential to adversely impact ECCS during containment recirculation.

This finding is more than minor because it potentially affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of ECCS. This finding is considered to be of very low safety significance, because ECCS remained operable and there was no loss of safety function. (Section 1R07.2)

Summary of Findings (cont'd)

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for Entergy's failure to promptly identify and take actions to address a condition adverse to quality concerning emergency diesel generator (EDG) heat exchanger (HX) fouling.

This finding was more than minor because it potentially affected the mitigating systems cornerstone objective of ensuring the availability and reliability of the EDG HXs to perform their intended safety function. This finding was associated with the equipment performance attribute of the mitigating systems cornerstone. However, this finding was determined to have very low safety significance because the EDG HXs remained operable and capable of performing their intended safety function. (Section 1R07.3)

- Green. The inspectors identified a finding due to ineffective and untimely corrective actions associated with the 13.8 KV system during reduced voltage conditions.

This finding was determined to be greater than minor since it impacts the mitigating systems cornerstone objective of ensuring system reliability and capability as associated with the procedure quality attribute of that cornerstone. This finding was of very low safety significance since there was no loss of the normal offsite power supplies and the 13.8 KV system was not providing power to any safety-related loads during the degraded condition. (Section 1R15)

- Green. The inspectors identified a non-cited violation of Technical Specification Surveillance Requirement SR 3.3.1.1. that requires, in part, that a channel check be performed every 12 hours on the feedwater flow instrumentation in the central control room. This requirement had not been met since Entergy implemented the Improved Technical Specifications in December of 2003.

This finding is greater than minor because it represents a condition similar to example 1.c in Appendix E, IMC 0612, in that the Technical Specification surveillance was not performed over an extended period (December 12, 2003 through June 8, 2004). The finding is of very low safety significance because the feedwater flow instruments met the surveillance criteria when subsequently performed, and did not render the mitigating equipment inoperable. (Section 1R22)

B. Licensee-Identified Violation

A violation of very low safety significance, which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's Corrective Action Program. This violation and corrective actions is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The Indian Point Nuclear Generating Unit No. 2 (IP2) reactor was at 100% power at the beginning of the inspection period and remained at that level through the inspection period.

1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity and Emergency Planning

1R04 Equipment Alignments

a. Inspection Scope

Partial System Walkdowns (71111.04 - 3 samples)

The inspectors performed system walkdowns during periods of equipment unavailability in order to verify that the alignment of the available train was proper to support the associated safety functions and to ensure Entergy had identified equipment discrepancies that could potentially impair the functional capability of the available train. The inspectors reviewed applicable system drawings and check-off lists to verify proper alignment and observed the physical condition of the equipment during the verification. The following walkdowns were performed.

- Gas Turbine 3 (GT-3) while GT-1 was out of service for scheduled maintenance.
- Safety Injection Trains 21 & 23; safety injection pump 22 was out of service during preventive maintenance on MOV-851A/B and -887A/B.
- Essential and non-essential service water headers after the quarterly header swap.

Complete System Walkdown (71111.04S - 1 sample)

The inspectors performed an extensive walkdown of the 480 Volt system. The inspectors walked down the entire system, with the exception of those components located in the vapor containment, using revision 22 of procedure 2-COL 27.1.5, "480V AC Distribution." The inspectors verified that components were in the proper position per the checkoff list (COL) and verified that any position discrepancies were properly documented. The inspectors also verified that the field configuration was consistent with the current revision of the COL. The inspectors reviewed condition reports CR-IP2-2004-1870, 1909 and 1911 which were written to address discrepancies between the field configuration and current COL that were identified by the inspectors. The inspectors verified that the associated corrective actions were appropriate. The inspectors also evaluated the physical condition of the equipment during the walkdown.

Enclosure

b. Findings

No findings of significance were identified.

1R05 Fire Protectiona. Inspection Scope (71111.05Q - 7 samples)

The inspector toured areas that were identified as important to plant safety and risk significant. The inspector consulted Section 4.0, "Internal Fires Analysis", and the top risk significant fire zones in Table 4.6-2, "Summary of Core Damage Frequency Contributions from Fire Zones," within the Indian Point 2 Individual Plant Examination for External Events (IPEEE). The objective of this inspection was to determine if Entergy had adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, and had adequately established compensatory measures for degraded fire protection equipment. The inspector evaluated conditions related to: 1) control of transient combustibles and ignition sources; 2) the material condition, operational status, and operational lineup of fire protection systems, equipment and features; and 3) the fire barriers used to prevent fire damage or fire propagation. The areas reviewed were:

- Zone 23, Auxiliary Boiler Feedwater Pump Room
- Zone 21, Main Turbine Hydrogen Seal Oil Unit
- Zones 55A, 56A, 57A, 58A, 21 & 22 Main Transformers, Unit Auxiliary Transformer and Station Auxiliary Transformer
- Zone 140, Ventilation Equipment Room
- Zone 86A, 95 ft. Vapor Containment (VC) Refueling Floor
- Zones 72A, 75A, 76A, and 77A, 46 ft. Vapor Containment, Outer Annulus Areas
- Zones 80A, 81A, 82A, 83A, and 84A, 68 ft. Vapor containment, Containment fan Cooler Areas

Reference material used by the inspector to determine the acceptability of the observed condition of the fire areas included: the Fire Protection Implementation Plan; Pre-Fire Plan; Station Administrative Order (SAO)-700, "Fire Protection and Prevention Policy;" ENN-DC-161, "Transient Combustible Program;" SAO-703, "Fire Protection Impairment Criteria and Surveillance;" and Calculation PGI-00433, "Combustible Loading Calculation."

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope (71111.06 - 1 sample)

The inspectors toured all elevations in the primary auxiliary building (PAB) that contained equipment used to detect and mitigate an internal flood, and components required for safe plant shutdown, with particular emphasis on the component cooling water (CCW) pump and residual heat removal (RHR) pump areas. The areas selected contained risk significant equipment based on the Individual Plant Examination for External Events (IPEEE), Section 5, Internal Flooding. Internal flooding induced from fire protection line breaks inside or just outside the PAB were predicted at mean frequencies of $7.9E-5$ /year in the CCW pump area and $1.3E-4$ /year in the RHR pump area. The inspectors verified the accuracy of the descriptive text in the IPEEE, compared it with the actual conditions in the PAB, and assessed the physical condition of the fire protection piping and components in those areas. Licensee-identified equipment deficiencies awaiting corrective action were discussed with the fire protection system engineer to confirm these conditions had been adequately evaluated.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope (71111.07B - 1 sample)

Based on risk significance, resident inspector input, and the last biennial inspection, the inspectors selected the RHR heat exchangers (HXs), the safety injection (SI) pump oil coolers, and the EDG lube oil and jacket water (JW) HXs for this biennial review. The EDG HXs transfer their heat loads directly to the service water (SW) system. The RHR HXs and the SI pump coolers transfer their heat loads indirectly to the SW system through an intermediate system (the component cooling water system). The SW system was designed to supply cooling water from the Hudson River (the ultimate heat sink) to various heat loads to ensure a continuous flow of cooling water to systems and components necessary for plant safety during normal operation and under abnormal or accident conditions.

The inspectors reviewed Entergy's inspection, cleaning, chemical control, and performance monitoring methods and frequency for the selected components to ensure alignment with Entergy's response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspectors compared surveillance test and inspection data to the established acceptance criteria to verify that the results were acceptable and that operation was consistent with design. The inspectors walked down the selected HXs, the sodium hypochlorite system, and the SW system to assess the material condition of these systems and components. In addition, the inspectors evaluated the containment fan cooler unit cooling coils and the containment sump for

indications of boric acid residue (indicative of potential reactor coolant system leakage) during a containment walkdown to inspect the RHR HXs.

The inspectors also reviewed a sample of condition reports (CRs) related to the selected HXs and the SW system to ensure that Entergy was appropriately identifying, characterizing, and correcting problems related to these essential systems and components. (The attachment to this report for Supplementary Information contains a complete listing of documents reviewed.)

b. Findings

1. Recirculation Sump Deck Plate Design Deficiency

Introduction. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for Entergy's failure to translate the emergency core cooling system (ECCS) design basis into recirculation sump modification instructions. This finding is considered to be of very low safety significance because there was no loss of safety function.

Description. The IP2 recirculation sump is designed with a course grating (1" x 4") and a fine mesh screen (1/8" x 1/8"). A solid deck plate at containment floor level is designed as a barrier to preclude debris from entering the recirculation pump suction without passing through the grating and the mesh screen. Entergy had previously modified the sump to add penetration cover plates and alignment collars to cover existing gaps around several small bore pipes that penetrate the sump deck plating.

During a containment walkdown on April 13, the inspectors noted several issues not previously identified by Entergy. The inspectors identified loose sump deck plate penetration cover plates and missing deck plate anchor bolts (see Section 1R07.2 below). Upon further review, the inspectors questioned the gap between the alignment collars and the pipes penetrating the sump. During a subsequent sump inspection, engineering determined that the annular gap between the alignment collars and the pipes all exceeded 1/8". Entergy initiated condition reports to address these deficiencies (CR-IP2-2004-01781, 2004-01820, 2004-01948, and 2004-01951). On April 22, Entergy installed a temporary alteration (TA-04-2-078) to close the gap between the collar and the piping and to hold the collars and cover plates in place to preclude them from lifting or being dislodged during a LOCA blowdown.

Entergy evaluated the forces acting on the penetration cover plates and the solid deck plate and determined that the plates would not have lifted or been dislodged during a LOCA blowdown. Entergy also performed an operability evaluation for the pre-existing annular gaps between the collars and the penetrating piping. Entergy determined that these screen bypass flowpaths did not adversely affect the operability of the ECCS components or the containment spray (CS) system. Entergy's determination was based primarily on: (1) calculation FMX-00142-00, "Study the Effect of LOCA Generated Debris on ECCS Performance;" (2) the relatively low recirculation flow velocity (< 0.5 fps); (3) recirculation sump area layout (missile shield and other structures block larger

debris); (4) time to switch over to recirculation; (5) ECCS, fuel assembly, and CS system flow path clearances; and (6) the relative size of the bypass paths compared to the recirculation sump floor grating surface area (six square inches total compared to 48 square feet). The inspectors reviewed Entergy's operability determination and the applicable UFSAR sections to ensure that operability was justified and that potentially affected ECCS components and CS remained available and capable of performing their respective design functions.

Analysis. This issue was a performance deficiency because Entergy failed to incorporate the recirculation design basis information in a modification which added penetration cover plates and alignment collars around several small bore pipes that penetrated the sump deck plating. Given the NRC correspondence and industry OE relative to containment sump issues, the deficiency was reasonably within Entergy's ability to foresee and correct prior to April 2004.

The inspectors determined that this finding was more than minor because it potentially affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of ECCS sump recirculation to provide long-term heat removal. This finding was associated with the design control and human performance attributes. The inspectors determined that the finding was of very low safety significance (Green) by the SDP Phase 1 screening worksheet for Mitigating Systems because the containment sump screen qualification deficiency was evaluated in accordance with NRC Generic Letter 91-18 (CR-IP2-2004-1948) and was confirmed not to result in a loss of the long-term heat removal function.

Enforcement. 10 CFR 50, Appendix B, Criterion III, Design Control, requires that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to this requirement, Entergy failed to correctly translate the ECCS design basis (sump screen dimensions) into the recirculation sump modification instructions, thus potentially impacting long-term heat removal function. However, because of the very low safety significance and because the issue was entered into Entergy's Corrective Action Program (CAP) (CRs 2004-01781, 2004-01820, 2004-01948, and 2004-01951), this finding is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy, issued May 1, 2000 (65FR25368).

(NCV 50-247/04-06-01; Failure to implement appropriate design controls during modifications to the recirculation sump)

2. Recirculation Sump Bypass Path and Debris

Introduction. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for Entergy's failure to promptly identify and take actions to address a condition adverse to quality concerning debris in containment and a recirculation sump bypass path. This finding is considered to be of very low safety significance because there was no loss of safety function.

Description. During a containment walkdown on April 13, the inspectors noted several recirculation sump related issues not previously identified by Entergy. Debris inside containment consisted of: a solid metal piece (2.5" in length, 3/8" diameter tapered to 1/8") located atop the sump deck plate cover (46' elevation); a putty knife (5" in length with a wooden handle) located beneath RHR piping (68' elevation) directly above the recirculation sump; and, an AA battery in the RHR HX room (68' elevation). Entergy personnel also found a 5" pencil located on the floor outside the crane wall (46' elevation) and a small plastic bag (6" square) located on the floor (68' elevation). The inspectors also identified a gap (approximately 1" x 3") between adjacent penetration cover plates. During the walkdown, Entergy personnel removed the debris and repositioned the loose penetration cover plate to close the gap. Entergy initiated CR-IP2-2004-01781 to address these deficiencies.

Entergy performed an operability evaluation for the bypass path and the debris. Entergy determined that this screen bypass flowpath and debris did not adversely affect the operability of the ECCS components or the CS system. The inspectors reviewed Entergy's operability determination and the applicable UFSAR sections to ensure that operability was justified and that potentially affected ECCS components and CS remained available and capable of performing their respective design functions.

Entergy procedure SAO-213, "Containment Entry, Egress and Inspection," Revision 4, Attachment V, requires personnel to "verify recirculation sump grating and floor in place and pipe collars in place" and to "verify ALL debris removed." Entergy last implemented Attachment V during their containment closeout in August 2003. The inspectors considered this a missed opportunity as Entergy should have identified these deficiencies prior to reactor startup in August 2003. Failure to do so represents a weakness in Entergy's attention-to-detail and problem identification during containment closeout inspections. The August 2003 IP2 startup was also a missed opportunity to apply IP3 operating experience related to containment sump deficiencies identified by the NRC in April 2003. Although the inspectors could not determine with complete certainty that the IP2 bypass path and containment debris existed at the time of Entergy's containment closeout inspection in August 2003, Entergy was not able to identify any work activity performed in the recirculation sump area since that time. Moreover, Entergy personnel offered that the misaligned deck cover plate and debris may have existed since their Fall 2002 refueling outage due to the limited work in containment during their August 2003 outage. In addition, the inspectors noted that Entergy's monthly containment building inspections were missed opportunities to identify these deficiencies.

Analysis. Entergy's failure to identify degraded conditions with the potential to impact operability of the recirculation sump is a performance deficiency. Given the NRC correspondence and industry OE relative to containment sump issues, these deficiencies were reasonably within Entergy's ability to identify and correct prior to April 2004.

The inspectors determined that this finding was more than minor because it potentially affected the mitigating systems cornerstone objective of ensuring the availability,

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reliability, and capability of ECCS to respond to initiating events (LOCAs) to prevent undesirable conditions. This finding was associated with the procedure quality and human performance attributes as well as the cross-cutting issue of problem identification and resolution. The inspectors determined that the finding was of very low safety significance (Green) by the SDP Phase 1 screening worksheet for mitigating systems because ECCS and CS remained operable and there was no loss of safety function.

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, requires, in part, that conditions adverse to quality are promptly identified and corrected. Contrary to this requirement, Entergy failed to promptly identify and correct deficiencies associated with the recirculation sump. Specifically, debris inside containment and a sump screen bypass pathway existed from August 2003 until April 2004. However, because of the very low safety significance and because the issue was entered into Entergy's CAP (CR-IP2-2004-01781), this finding is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy, issued May 1, 2000 (65FR25368). **(NCV 50-247/04-06-02; Failure to identify and correct deficiencies associated with the recirculation sump)**

3. Emergency Diesel Generator Heat Exchanger Fouling Evaluation

Introduction. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for Entergy's failure to promptly identify and take actions to address a condition adverse to quality concerning emergency diesel generator (EDG) heat exchanger (HX) fouling. This finding was considered to be of very low safety significance because there was no loss of safety function.

Description. Based on a review of digital pictures from a February 2003 inspection, the inspectors noted an excessive buildup of silt, grass, and other small river debris on the No. 21 EDG lube oil and jacket water (JW) HXs (service water side, tube inlet, upper return). System engineers had not identified the condition as a negative trend even though the as-found grass/silt loading was significantly greater than previously found during EDG HX inspections. The inspectors made this assessment based on the EDG HX inspection reports available for review.

In addition, the inspectors noted that the following shortcomings contributed to Entergy's ineffective EDG HX trending and weak problem identification:

- Lack of detail in the documentation of the as-found condition relative to the length, width, height, and depth of fouling buildup (SE-330, Attachment III, Visual Inspection).
- No documentation of the in-service time between inspections (SE-330, Attachment III, Trending).
- Previously completed inspection reports did not always contain as-found data (usually in the form of digital pictures) for both EDG HXs (SE-330, Attachment III, Visual Inspection).

Enclosure

- The Heat Exchanger Inspection Report, SE-330, did not provide guidance for the use of a flashlight to evaluate the acceptability of tube fouling (Entergy personnel used “skill of the craft” in using a flashlight to determine if tube blockage existed).
- The Heat Exchanger Inspection Report, SE-330, did not provide well-defined acceptance criteria with respect to fouling buildup.

Engineering determined that the No. 21 EDG had remained operable based on satisfactory EDG surveillance testing, EDG HX inspection results since February 2003, and an ultrasonic flow measurement on the No. 23 EDG JW HX service water outlet on April 21, 2004.

Analysis. The performance deficiency involved inadequate problem identification and evaluation of a condition adverse to quality associated with increased fouling in the No. 21 EDG HXs. The inspectors determined the finding was more than minor because it potentially affected the mitigating systems cornerstone objective of ensuring availability, reliability, and capability of the EDGs to perform their safety function to provide emergency power to mitigating systems. This finding was associated with the equipment performance attribute of the mitigating systems cornerstone as well as the cross-cutting issue of problem identification and resolution. However, this finding was determined to have very low safety significance (Green) using the SDP Phase 1 screening worksheet because the EDG HXs remained operable and capable of performing their intended safety function.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, requires, in part, that conditions adverse to quality be promptly identified and corrected. Contrary to this requirement, Entergy did not identify a condition adverse to quality associated with EDG HX fouling and take appropriate actions to ensure that the cause was determined and corrected. However, because the violation is of very low significance (Green) and Entergy entered this deficiency into their corrective action system (CR IP2-2004-02241), this finding is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy, issued May 1, 2000 (65FR25368). **(NCV 50-247/04-06-03; Failure to identify a condition adverse to quality which could impact EDG reliability)**

1R11 Licensed Operator Requalification Program1. Resident Quarterly Review (71111.11Q - 1 sample)a. Inspection Scope

The inspector observed the performance of Operating Team "2Z" during licensed operator annual simulator exam training. Specifically, the inspector observed one simulator session which involved multiple anomalies and entry into the EOP's for casualty response. The inspection was conducted to assess the adequacy of the training, licensed operator performance, implementation of the emergency plan and the adequacy of Entergy's critique. The inspector evaluated the scenario to ensure that all critical tasks were appropriately performed by the operating crew. The inspector also verified that the training was conducted in accordance with procedures IP-SMM TQ-114, "Continuing Training and Requalification Examinations for Licensed Personnel," and Training Administrative Directive #202, "Conduct of Simulator Training."

b. Findings

No findings of significance were identified.

2. Operator Requalification Biennial Program Inspection (71111.11B - 1 sample)a. Inspection Scope

An Operator Requalification Program inspection was conducted by two NRC region-based inspectors from May 24 - 28, 2004. In addition, on July 7, 2004, an in-office assessment of the 2004 annual operating exam results was performed using the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)."

The inspection activities were performed using NUREG-1021, Rev. 8, "Operator Licensing Examination Standards for Power Reactors," Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program," and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)," as acceptance criteria, and 10 CFR 55.46 Simulator Rule (sampling basis). The inspections were performed predominantly for IP2, although some reviews did cover IP3 training activities.

The inspectors reviewed documentation of Unit 2 operating history since the last requalification program inspection. The inspectors also discussed facility operating events with the resident staff. Documents reviewed included NRC inspection reports and licensee Condition Reports that involved human performance and Technical Specification compliance issues.

The inspectors reviewed four comprehensive written exams from this biennial cycle that were administered in 2004. The inspectors reviewed three sets of simulator scenarios

and 30 job performance measures (JPMs) also administered during this current exam cycle to ensure the quality of these exams met or exceeded the criteria established in the Examination Standards and 10 CFR 55.59.

The inspectors observed the administration of operating examinations to one crew (i.e., Operating Crew 2C). The inspectors observed three simulator scenarios for the operating crew and one set of four in-plant and 13 control room JPMs administered to individual crew members. As part of the examination observation, the inspectors assessed the adequacy of licensee examination security measures.

The inspectors interviewed four evaluators, two training supervisors, three ROs, and five SROs for feedback regarding the implementation of the licensed operator requalification program. The inspectors also reviewed Training Review Group meeting minutes and action items, QA audits, IPEC Focused Self-Assessment Reports on training, and recent plant and industry events to ensure that the training staff modified the operator training program, when appropriate, and responded to recommended changes.

Remedial training was assessed through the review of evaluation records for the past two years, to ensure remediation plans were unique to the individual failures and both timely and effective.

Conformance with operator license conditions was verified by reviewing the following records:

- Attendance records for the last two year training cycle,
- Seven medical records to confirm all records were complete, that restrictions noted by the doctor were reflected on the individuals' license and that the exams were given within 24 months,
- Proficiency watch-standing and reactivation records. Documentation of licensed operator crew watch-standing was reviewed for the current and prior quarter to verify currency and conformance with the requirements of 10 CFR 55.

The inspectors observed simulator performance during the conduct of the examinations but did not conduct any further inspection of the IP2 simulator. The IP2 simulator fidelity had been questioned as a result of operator performance following the August 3, 2003 loss of off-site power event (see NRC Inspection Report 50-247/2003-013), and Entergy was still in the process of implementing corrective actions from that discovery. The inspectors reviewed condition report CR-IP3-2004-01582, and interviewed the IP3 simulator staff, to ensure the issues identified with the IP2 simulator were being appropriately addressed for the IP3 simulator.

On July 7, 2004, the inspectors conducted an in-office review of licensee requalification exam results. These results included the annual operating test and the comprehensive written exam for both IP2 and IP3. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)". The inspectors verified that:

Enclosure

- Crew failure rate on the dynamic simulator was less than 20%. (Failure rate was 0% for both units.)
- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Failure rate was 0% for both units.)
- Individual failure rate on the walk-through test (JPMs) was less than or equal to 20%. (Failure rate was 0% for both units.)
- Individual failure rate on the comprehensive written exam was less than or equal to 20%. (Failure rate was 4.3% for IP2 and 0% for IP3.)
- More than 75% of the individuals passed all portions of the exam. (96% of the individuals passed all portions of the exam for IP2 and 100% for IP3.)

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope (71111.12Q - 2 samples)

138 KV System

The inspector performed a review of maintenance issues associated with the 138KV system dating back to 2002 by evaluating past condition reports and work orders associated with the system. The inspector focused on work order IP2-02-63749 completed on May 25, 2004, which calibrated and replaced a synchronous check relay for 138KV bus section 4-5 to evaluate work practices associated with the system. The inspector reviewed the maintenance rule basis document to determine system boundaries and verified that the system was being properly tracked in accordance with the requirements of 10 CFR 50.65, "Requirements of Monitoring the Effectiveness of Maintenance." The inspector also reviewed the quarterly system health report for the 1st quarter of 2004 and evaluated the system performance monitoring criteria for scope and accuracy.

EQ Limit Switch ZC-PCV-1190-1 replacement

The inspector performed a review of maintenance issues associated with the containment isolation valve (CIV) system dating back to 2002 by evaluating past CRs and work orders associated with this system, and on valve performance test data. The inspector focused on WO IP2-02-65939 completed on May 28, 2004, which replaced the open limit switch ZC-PCV-1190-1 on relief valve PCV-1190, and WO IP2-04-18766, which performed the post-maintenance stroke test of the valve. The inspector reviewed the maintenance rule basis document to determine system boundaries and verified the system was being properly tracked in accordance with the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance."

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Activitiesa. Inspection Scope (71111.13 - 4 samples)

The inspector observed selected portions of emergent maintenance work activities to assess Entergy's risk management in accordance with 10 CFR 50.65(a)(4). The inspector verified that Entergy took the necessary steps to plan and control emergent work activities, to minimize the probability of initiating events, and to maintain the functional capability of mitigating systems. The inspector observed and/or discussed risk management with maintenance and operations personnel for the following activities.

- CR-IP2-2004-01894, Generex Regulator Trouble Alarm.
- Work Order (WO) IP2-04-19548, Replace GT-1 black start diesel jacket water temperature switch.
- WO IP2-04-09050, 22 SG level indicator, current repeater card replacement.
- WO IP2-03-07175, 24 Battery Charger Ground Troubleshooting.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions and Eventsa. Inspection Scope (71111.14 - 1 sample)

The inspectors reviewed operator response during a 13.8KV distribution system automatic voltage reduction annual test on April 27, 2004. The inspectors reviewed operator logs, system operating procedure (SOP) 27.1.3, "Operation of 13.8KV System," and discussed interactions between the on-shift crew and the grid operator to determine if appropriate actions were taken based on the system conditions.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope (71111.15 - 5 samples)

The inspectors reviewed the condition reports listed below and associated operability evaluations to ensure operability was properly justified and that the component or system remained available, without a significant degradation in performance or unrecognized operability issue. As appropriate, the inspectors used Technical Specifications (TS), Updated Final Safety Analysis Report (UFSAR), and design basis documents. The inspector also conducted a physical walk down of the affected equipment (when practicable), reviewed applicable drawings and operating procedures, and discussed the operability evaluation with the responsible systems engineer. Operability evaluations associated with these condition reports were also reviewed.

- CR-IP2-2004-01384, Charging pump relief's back pressure compensation.
- CR-IP2-2004-01353, 13.8 KV breaker B2-2 after control power fuse replacement.
- CR-IP2-2004-01716, SW pump/system operability post-LOCA during transition to cold leg recirculation.
- CR-IP2-2004-02017, 13.8KV system during voltage reduction test.
- CR-IP2-2004-02648, GT-1 trip on compressor journal bearing high temperature following monthly surveillance test.

b. Findings

Introduction. The inspectors identified a Green finding involving ineffective and untimely corrective actions associated with the 13.8 KV system during reduced voltage conditions. The 13.8 KV system is one of two off-site electrical circuits required by Technical Specifications (TS).

Description. In May 2003, the NRC identified that Entergy had not adequately evaluated the potential impact of a reduced voltage test on the operability of the 13.8 KV system (CR IP2-2003-3470). The annual test, conducted by the transmission operator, reduces the voltage of the TS required alternate power supply by eight percent. The inspectors determined that Entergy's operability determination, completed after the test, was inadequate based on the absence of an evaluation of in-plant accident electrical loads to determine a minimum acceptable voltage required to be supplied by the 13.8 KV system and the absence of communication protocols between Entergy and the transmission operator for the control of degraded voltage testing. The NRC issued a Green Finding (FIN 50-247/2003-007-01) based on the inadequate operability evaluation.

On April 27, 2004, the transmission operator again performed the annual voltage reduction test on the 13.8 KV system. After discussion with the inspectors, the control

room operators made a late entry into TS LCO 3.8.1, condition A, for the 13.8 KV system being out-of-service. The operators declared the 13.8 KV system inoperable based upon the absence of procedural guidance on whether the system was operable at the reduced voltage. TS LCO 3.8.1, condition A, was in effect for eight minutes and the total duration of the test was 30 minutes. After further discussions with Entergy personnel and a review of circumstances and documentation associated with the May 2003 finding, the inspectors determined that Entergy had not taken appropriate corrective actions following the May 2003 event to provide the control room operators with criteria for making an operability determination while the 13.8 KV system was under test.

Analysis. The inspectors determined that the performance deficiency associated with this event was Entergy's failure to implement appropriate corrective actions, including an evaluation of the minimum acceptable voltage requirement for the 13.8 KV off site power source, to prevent a recurrence of the May 2003 event. Entergy had not corrected their May 2003 operability evaluation and had not provided appropriate guidance to plant operators in the event the 13.8 KV electrical power feed became similarly degraded. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements or Entergy's procedures. This finding was determined to be greater than minor because it impacted the mitigating systems cornerstone objective, and was associated with the cornerstone's procedure quality attribute.

TS bases state that the 13.8 kV system is a "delayed access" power source since operator action is required to align the 13.8 KV system to supply the plant. The UFSAR, Chapter 8, "Electrical Systems," states that the 13.8 KV system should be available in sufficient time following a loss of onsite power, and the other offsite power circuits (138 KV), to ensure that fuel design limits and design conditions for the reactor coolant system are not exceeded. After the 13.8 KV system operability questions were raised by the inspector on April 27, 2004, Entergy determined that the minimum required voltage to ensure reliable ECCS operation was 13.4 kV (<3 percent reduction). Based upon this criteria, the inspectors determined that the licensee failed to ensure the reliability and capability of mitigating systems supplied by the 13.8 KV system. This finding relates to the cross-cutting issue of problem identification and resolution. The inspectors conducted a Phase 1 SDP screening and determined that the failure to implement appropriate and timely corrective actions was of a very low safety significance since there was no loss of the normal offsite power supplies and the 13.8 KV system was not providing power to any safety-related loads during the degraded condition. This issue has been placed in Entergy's CAP as CR-IP2-2004-2766.

Enforcement. No violation of regulatory requirements occurred. The inspector determined that the failure to perform timely corrective actions occurred on a non-safety related system and therefore did not fall under the requirements of 10 CFR 50, Appendix B. **(FIN 50-247/04-06-04; Failure to implement adequate corrective actions for low voltage conditions on the 13.8 KV system)**

Enclosure

1R19 Post Maintenance Testinga. Inspection Scope (71111.19 - 5 samples)

The inspector reviewed post-work test (PWT) procedures and associated testing activities to assess whether: 1) the effect of testing in the plant had been adequately addressed by control room personnel; 2) testing was adequate for the maintenance work order (WO) performed; 3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing documents; 4) test instrumentation had current calibrations, range, and accuracy for the application; and 5) test equipment was removed following testing.

The selected testing activities involved components that were risk significant as identified in the IP2 Individual Plant Examination. The regulatory references for the inspection included Technical Specification 6.8.1.a. and 10 CFR 50, Appendix B, Criterion XIV, "Inspection, Test, and Operating Status." The following testing activities were evaluated:

- WO IP2-03-24066, PWT for pressure control valve PCV-1139 (22 ABFP Steam Supply) following diagnostic testing.
- WO IP2-04-19810, PWT for 22 CCW Pump after motor replacement.
- WO IP2-04-19539, PWT for 21 SG Atmospheric Steam Dump (PCV-1134) following actuator maintenance.
- WO IP2-03-28334 & 22618, PWT for 22 Charging Pump after internal valve replacement.
- WO IP2-04-09383, PWT for GT-1 after flame detector failure.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testinga. Inspection Scope (71111.22 - 7 samples)

The inspector reviewed surveillance test procedures and observed testing activities to assess whether: 1) the test preconditioned the component tested; 2) the effect of the testing was adequately addressed in the control room; 3) the acceptance criteria demonstrated operational readiness consistent with design calculations and licensing documents; 4) the test equipment range and accuracy was adequate and the equipment was properly calibrated; 5) the test was performed per the procedure; 6) test equipment was removed following testing; and 7) test discrepancies were appropriately evaluated. The surveillance tests observed were based upon risk significant components as identified in the IP2 Individual Plant Examination. The regulatory requirements that provided the acceptance criteria for this review were 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," Criterion XIV, "Inspection, Test, and

Operating Status,” Criterion XI, “Test Control,” and Technical Specifications 6.8.1.a. The following test activities were reviewed:

- PT-Q27A 21; Auxiliary Boiler Feedwater Pump Functional Test
- PT-Q51; Nuclear Power Range Analog Test
- PT-SA13, Cable Spreading Room Halon Functional Test
- PT-D001, Control Room Operations Surveillance Requirements
- PT-M48, 480 Volt Undervoltage Alarm Test
- PI-M-2, Containment Building Inspection
- PT-Q62, High Steam Flow / 1st Stage Pressure Bistable Setpoint Test

b. Findings

Introduction. A Green NCV was identified for Entergy’s failure to properly implement a surveillance required by the Technical Specifications (TS). Entergy had not performed channel checks on the feedwater flow instrumentation since implementing the Improved Standard Technical Specifications (ITS) on December 12, 2003. This was determined to be a violation of Technical Specification Surveillance Requirement SR 3.3.1.1, which requires that a channel check be performed on the feedwater flow instrument every 12 hours.

Description. On June 4, 2004, Entergy noted that one channel of feedwater flow to the 21 steam generator was reading 0.3 million pounds mass per hour less than the other channel. The inspector discussed this condition with a licensed operator to determine if this was less than the maximum deviation allowed for the instrument channel check. The operator informed the inspector that no channel check was performed on the feed flow instrumentation and that none was required. Upon further review, the inspector found that SR 3.3.1.1 required that a channel check for feedwater flow was required to be performed every 12 hours. This requirement had not been met since Entergy implemented ITS in December of 2003. Entergy documented this deficiency in CR-IP2-2004-2656 and implemented actions to perform the appropriate surveillance on the required periodicity.

Analysis. The inspectors determined that this was a performance deficiency since Entergy failed to perform the required surveillance. Control room operators perform surveillance procedure 2-PT-D001, “Control Room Operations Surveillance Requirements,” every 12 hours, which captures the channel checks required by ITS in the control room; however, the feedwater flow instruments were omitted from this procedure. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC’s regulatory function, and the finding was not the result of any willful violation of NRC requirements or Entergy procedures. This finding was determined to be greater than minor because it represents the conditions similar to those described by example 1.c in Appendix E of IMC 0612, involving the failure to perform a TS surveillance test for an extended period of time.

The feedwater flow signal is used in conjunction with steam flow and steam generator (SG) level to ensure protection is provided against a loss of heat sink, and actuates the

Enclosure

auxiliary feedwater (AFW) system prior to a low level that could uncover the SG tubes. The channel check surveillance is a qualitative assessment performed by observation of channel behavior during operation which includes a comparison of multiple channel indications. This is used to help assure that the system will operate properly when required to perform its safety function. The failure to perform the required surveillance impacted the mitigating systems cornerstone objective, and was associated with the cornerstone's procedure quality attribute. Entergy's failure to include this surveillance in their test procedure prevented them from ensuring the reliability of a system that responds to initiating events to prevent undesirable consequences. The inspectors conducted a Phase 1 SDP screening and determined that the failure to perform the required surveillance was of a very low safety significance since the feedwater flow instruments met the surveillance criteria when subsequently performed, and did not render the mitigating equipment inoperable.

Enforcement. ITS SR 3.3.1.1 requires, in part, that a channel check of feedwater flow instrumentation be performed every 12 hours. Contrary to this requirement Entergy failed to perform this surveillance requirement from December 12, 2003 to June 8, 2004. This was determined to be a violation of Entergy's Technical Specifications. Because this violation is of very low safety significance and has been entered in Entergy's corrective actions program (CR IP2-2004-2656), this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: **(NCV 50-247/04-06-05; Failure to implement a Technical Specification Surveillance Requirement).**

1R23 Temporary Plant Modifications

a. Inspection Scope (71111.23 - 2 samples)

The inspector reviewed temporary alterations associated with the recirculation sump and the containment sump that were initiated to prevent sump screen bypass flow via gaps around piping and associated equipment penetrations in the deck plating directly above the sumps. The inspector reviewed: 1) the individual temporary alteration control packages to ensure these plant modifications were performed in accordance with ENN-DC-136, "Temporary Alterations," Revision 7, dated 3/29/04; and 2) to ensure compliance with 10 CFR 50.59 screen-out evaluations associated with each of these modifications. To verify compliance, the inspector also conducted a visual examination of each of the temporary alterations in containment on June 19, 2004, in conjunction with Entergy's monthly containment entry and inspection at power conditions. The inspector reviewed the following documents associated with temporary modifications of the recirculation sump and the containment sump:

Recirculation Sump

- TA-04-2-078, Install clamps on pipe collars around recirculation pump 21 and 22 bypass lines, WO No. IP2-04-18017; installed April 22, 2004.
- TA-04-2-080, Install clamp on 2-inch pipe (line No. SI-601R-293) above the collar at the recirculation sump, WO No. IP2-04-18146; installed April 28, 2004.

- TA-04-2-081, Install a temporary clamp on the identified pipe above the collar at the recirculation sump, WO No. IP2-04-18178; installed April 28, 2004.
- TA-04-2-083, Install a clamp on No. 22 recirculation pump one-inch drain line from seal leak-off and motor cooler to the recirculation sump above the collar, WO No. IP2-04-18321; installed April 28, 2004.

Containment Sump

- TA-04-2-082-001, Reduce gap around components penetrating the containment sump deck plate, WO No. IP2-04-18268, installed April 28, 2004.

The inspector also referenced station procedure ENN-LI-101, "10 CFR 50.59 Review Process."

b. Findings

No findings of significance were identified.

1EP6 Emergency Plan Drill

a. Inspection Scope (71114.06 - 1 sample)

On May 12, 2004, the inspectors observed Entergy's emergency response organization during an announced emergency preparedness training drill initiated at IP3 and extending to the entire site. The simulated emergency included the activation of the Operations Support Center (OSC), Technical Support Center (TSC), Emergency Operations Facility (EOF), and the Joint News Center (JNC) after an Alert (simulated) was declared by the simulator control room operators.

The inspectors observed the conduct of the exercise in the TSC and the EOF. The inspectors assessed licensed operator performance, Entergy's adherence to Emergency Plan Implementing Procedures, and their response to simulated degraded plant conditions. The inspectors verified licensee performance in the classification, notification, and protective action recommendations. In addition to the drill, the inspectors observed Entergy's controller critique and evaluated Entergy's self-identification of weaknesses and deficiencies. CR-IP2-2004-00599 concluded that three of four performance indicator opportunities (classifications, notifications, and protective action recommendations) were successful. The inspectors compared Entergy's identified findings against their observations.

b. Findings

No findings of significance were identified.

2. **RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety (OS)

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope (71121.03 - 9 samples)

During May 10-14, 2004, the inspector conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation, and the adequacy of the respiratory protection program for issuing self-contained breathing apparatus (SCBA) to emergency response personnel. Implementation of these programs was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Entergy's procedures. Nine inspection activity samples were selected consistent with Sections 02.01 through 02.06 of Inspection Procedure 71121.03. The inspector also reviewed the Condition Reports involving radiation protection related matters initiated between April and May 2004.

Plant walkdowns of accessible plant radiation monitors, review of the calibration methods and review of the most recent calibration records were performed for the following instruments:

- R-28, 29, 30, 31, main steam line radiation monitors
- R-41, 42, gaseous and particulate containment radiation monitors
- R-2,7, refueling floor area radiation monitors
- R-49, steam generator blow down radiation monitor

The inspector selected in-use portable radiation survey and continuous air monitor instruments for operable condition, source response checks, and reviewed the most recent calibration records for the following instruments:

- PRM-7 micro-R meter #315
- RO-2 ion chamber #05250
- RO-2A ion chamber #10193
- Teletector # 05177
- Gilian lapel air samplers # 05266 and 05269
- NMC continuous air monitor #05277
- RM-14 contamination monitor #05161

The inspector evaluated the adequacy of the respiratory protection program regarding the maintenance and issuance of self-contained breathing apparatus (SCBAs) to emergency response personnel. Training and qualification records were reviewed for 42 licensed operators from each of the six operating shifts, who would be required to wear SCBA's in the event of an emergency. Emergency plan specified SCBA equipment and air bottle inventory, for the IP2 control room and technical support center, were verified. Selected SCBAs and air bottles were verified to be operable. Maintenance records were also reviewed.

b. Findings

No findings of significance were identified.

Enclosure

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator (PI) Verificationa. Inspection Scope (71151 - 5 samples)

The inspectors reviewed Entergy's Performance Indicator (PI) data for five indicators to verify whether the data was accurate and complete. The inspectors compared the PI data reported by Entergy to information gathered from control room logs, condition reports, and work orders for the four quarters of 2003 and the first quarter of 2004. In addition, the inspectors compared the PI data against the guidance contained in NEI 99-02, Revision 1.

Reactor Safety Cornerstone

- Unplanned Power Changes per 7,000 Critical Hours
- Safety System Unavailability - Auxiliary Feedwater
- Safety System Unavailability - Emergency AC Power
- Reactor Coolant System Activity

The inspector observed an RCS activity sample in progress and the subsequent laboratory analysis on June 25, 2004, and compared the results and trend to the PI data reported for the fourth quarter of 2004.

- Scrams with Loss of Normal Heat Sink

The inspector noted that the three unplanned scrams and loss of normal heat removal events that occurred in 2003 (April 28, August 3, and August 14) were all attributed to loss of offsite power events. However, consistent with Regulatory Issue Summary 2001-25, which endorses NEI 99-02 guidance, and NRC's response in Frequently Asked Questions 354, posted September 25, 2003, these three loss of normal heat removal events are not counted under this PI.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems1. Baseline Procedure Problem Identification and Resolution Review (71152)

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors screened each item entered into Entergy's Corrective action program. This review was accomplished by reviewing hard copies of each condition report.

2. Semi-annual Trend Review

a. Inspection Scope (71152 - 1 sample)

The inspectors reviewed Entergy's corrective action program database over the last two calendar quarters of 2003 and the first two quarters of 2004 in order to assess the total number and significance of CRs written in various subject areas such as equipment and processes. The results were evaluated on a per quarter basis to identify any notable trends. The assessment specifically consisted of CR reviews in the following areas:

- Level "A" CRs: which required a full root cause analysis and review by the Corrective Actions Review Board (CARB) prior to closeout; and Level "B" CRs: which required an apparent cause evaluation and an optional CARB review.
- The number and significance of CRs associated with plant equipment previously identified as having reliability issues.
- A review of the corrective action database to assess trends in the number of CRs written in the previous four quarters that were related to subject areas that reflect the quality of maintenance, work controls, operations, procedures, etc.
- A review of the Indian Point Energy Center Quarterly Integrated Self-Assessment/Trend Reports for 3Q03, 4Q03, and 1Q04 written by the IPEC Quality Assurance Department, which contained Entergy's assessments of CR trends during those quarters.

b. Findings

No findings of significance were identified.

3. Quarterly Problem Identification and Resolution Review

a. Inspection Scope (71152 - 2 samples)

- CR-IP2-2003-6247: Negative trend in Operations Department configuration management and controls, potentially impacting mitigating systems operability and availability. The inspector reviewed the adequacy of the corrective actions associated with this condition report. The inspector also reviewed CR-IP2-2004-01746 which identified a similar adverse trend in the number of mispositioning events. The corrective actions for the latter CR were found to be significantly more robust and far reaching than the former CR. The inspector determined that corrective actions were appropriate to address the determined causal factors and that Entergy was identifying the discrepant issues at a low threshold.
- CR-IP2-2003-7219: Negative trend on overdue preventive maintenance activities at both IP2 and IP3, potentially having an adverse impact on mitigating systems. The inspectors assessed the corrective actions documented in related condition reports CR-IP2-2003-07155 and CR-IP2-2003-07156, and reviewed the trend in overdue preventive maintenance activities at IP2 for the first six months of 2004.

b. Findings

No findings of significance were identified.

4. Cross-References to PI&R Findings Documented Elsewhere

Inspection findings in previous sections of this report also had implications regarding Entergy's identification, evaluation, and resolution of problems, as follows:

- Section 1R07.2 - Failure to promptly identify and take actions to address a condition adverse to quality concerning a recirculation sump screen bypass flowpath and containment debris.
- Section 1R07.3 - Engineering failed to promptly identify and take actions to address a condition adverse to quality concerning EDG HX fouling.
- Section 1R15.1 - Failure to take adequate corrective actions to resolve issues associated with voltage reduction on the 13.8 KV system.

4OA3 Event Followupa. Inspection Scope (71153 - 4 samples)

1. (Closed) Licensee Event Report (LER) 2003-004, "Automatic Turbine/Reactor Trip Due to 345kV Grid Disturbance."

NRC inspection observations and findings associated with the event discussed in LER 2003-004, dated October 2, 2003, are documented in Sections 4 and 5 of Inspection Report 50-247/03-013, dated December 22, 2003. This LER is closed.

2. (Closed) LER 2003-001, "Plant in an Unanalyzed Condition due to Cable Routing Non-Compliance with Appendix R Separation Criteria."

Initial NRC inspector review of the non-conforming condition documented in LER 2003-001, dated April 2, 2003, was documented in Inspection Report 50-247/03-03, dated May 13, 2003. Pending further inspector review, an unresolved item was assigned to this issue (URI 50-247/03-03-01). The unresolved item was reviewed and closed as a licensee-identified finding in Inspection Report 50-247/04-05. The non-conforming cable separation condition was identified as low safety consequence, consistent with Appendix F, Fire Protection SDP. This LER is closed.

3. (Closed) LER 2002-006, "Two of Three Emergency Diesel Generators Inoperable Due to Component Failures: A Condition Prohibited by Technical Specifications."

NRC observations and findings associated with the event discussed in LER 2003-006, dated December 4, 2002, are documented in Inspection Report 50-247/02-07, dated February 11, 2003. Entergy appropriately adhered to the Technical Specifications limiting conditions for operation and there were no violations of NRC requirements associated with this event. This LER is closed.

4. (Closed) LER 2002-005, "Central Control Room Wall Identified as Being in Non-Conformance with Design Drawings."

NRC inspector review of this licensee-identified original construction/design deficiency was documented in Inspection Report 50-247/02-07, dated February 11, 2003. Entergy's discovery of this condition was prompted by their extent of condition review for associated control room west wall fire barrier deficiencies. Entergy's corrective actions for this construction deficiency were determined to be appropriate (reference Inspection Report 50-247/03-10, dated August 4, 2003). This non-conforming condition was dispositioned as a licensee-identified violation (see Section 4OA7). This LER is closed.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

1. Offsite Power System Operational Readiness

Cornerstones: Initiating Events, Mitigating Systems

a. Inspection Scope (2515/156)

The inspectors performed Temporary Instruction 2515/156, "Offsite Power System Operational Readiness." The inspectors collected and reviewed information pertaining to the offsite power system specifically relating to the areas of the maintenance rule (10 CFR 50.65), the station blackout rule (10 CFR 50.63), offsite power operability, and corrective actions. The inspectors reviewed this data against the requirements of 10 CFR 50 Appendix A General Design Criterion 17, "Electric Power Systems," and Plant Technical Specifications. This information was forwarded to NRR for further review.

b. Findings

No findings of significance were identified.

2. (Closed) URI 05000247/200402-04: Evaluation of the Frequency limits associated with the 118 VAC instrument bus and determination of the impact of operating at 60.7 Hz on risk significant loads.

The inspectors reviewed Entergy evaluation of operating the instrument busses at 60.7 Hz due to an inoperable inverter and the impact this could have on risk significant loads. It was determined that the acceptable operating range based on the most limiting components was 57.0-63.0 Hz. Within that frequency range all component output signals would still be within the required tolerance. It was found that based on original purchase documents, the most limiting component would only tolerate a +/- 0.6 HZ deviation but the as delivered equipment was more tolerant of frequency variations and could therefore maintain its required accuracy over a +/- 3.0 Hz deviation. It was determined that there was no adverse impact from operating the instrument bus at 60.7 Hz. No violation of NRC requirements was identified. This unresolved item is closed.

40A6 Meetings, Including Exit

1. Routine Exit Meetings

On **July 22, 2004**, the inspectors met with Indian Point 2 representatives to review the inspection activities. At that time, the purpose and scope of the inspection were reviewed, and the preliminary results were presented. Entergy acknowledged the preliminary inspection results.

The inspectors asked Entergy whether any materials examined during the inspection should be considered proprietary. No proprietary information was reviewed during this inspection.

The inspectors for the Operator Requalification Program presented the inspection results to members of licensee management at the conclusion of the inspection on May 28, 2004, and obtained pass/fail results from a licensee representative on July 6, 2004. No materials reviewed were identified by Entergy as proprietary.

2. Management Site Visits

On July 14, 2004, Ellis Merschoff, Deputy Executive Director of Reactors and Brian Holian, Deputy Director, Division of Reactor Projects, visited the Indian Point Energy Center, toured IP2 and IP3 plant areas, and met with senior members of Entergy Nuclear Northeast, Inc.

40A7 Licensee-Identified Violation

The following violation of very low safety significance (Green) were identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a non-cited violation:

10 CFR 50, Appendix B, Criterion III, states that measures shall be established to assure that applicable regulatory requirements and design basis for structures, systems, and components are correctly translated into specifications and drawings to ensure essential safety-related functions are established and maintained. Contrary to this requirement, Entergy identified the central control room south masonry wall did not meet the specific design basis earthquake requirements as described in the IP2 Final Safety Analysis Report. However, the seismic qualification of the wall was evaluated by the licensee and determined to have remained operable, but degraded. This issue was documented in CR 2002-09027 and LER 2002-005, dated February 11, 2003. This licensee-identified violation was of very low safety significance.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT**Licensee Personnel:

W. Axelson	Radiological Engineering Supervisor
T. Barry	Security Superintendent
T. Beasley	System Engineering
F. Bloise	PI-10 Project Manager
T. Burns	NEM/Respiratory Protection Supervisor
R. Christman	Supervisor, Nuclear Operator Training
P. Conroy	Licensing Manager
F. Dacimo	Site Vice President
G. Dahl	Senior Licensing Engineer
R. Deschamps	Radiation Protection Coordinator
R. DeCensi	Technical Support Manager and Radiation Protection Manager
C. English	Unit 1 Project Coordinator
D. Gainer	Risk Analyst
D. Gately	Assistant Radiation Protection Manager
D. Gray	Environmental Engineer
P. Gropp	Manager DBI Project
G. Hocking	Instruments and Dosimetry Supervisor
F. Inzirillo	Emergency Preparedness Manager
T. Jones	Nuclear Safety/Licensing Specialist, Licensing
M. Kerns	Chemistry Manager
R. LaVera	ALARA Supervisor
L. Lee	System Engineering Supervisor, Support Systems
T. McCaffrey	Manager of System Engineering
D. Mayer	Unit 1 Project Manager
R. Milici	Senior Engineer, Electrical Design Engineering
K. Naku	Unit 2 Instrumentation and Controls Assistant Superintendent
J. O'Driscoll	System Engineer (CCW)
D. Pace	Vice President - Engineering Northeast
J. Peters	Unit 2 Plant Chemist
S. Petrosi	Manager, Design Engineering
J. Raffaele	Design Engineering Supervisor - Electrical
R. Robenstein	Simulator Support Leader
B. Rokes	Senior Licensing Engineer
A. Singer	Supervisor, Nuclear Operator Requalification Training
R. Sutton	Maintenance Rule Coordinator
J. Toscano	System Engineering
J. Tuohy	Manager Engineering Support
M. Vasely	Engineering Supervisor
R. Walpole	Nuclear Manager
C. Wend	Radiation Protection Superintendent
D. Wilson	Chemistry Assistant Superintendent

B. Young Senior Mechanical Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened/Closed

NCV 50-247/04-06-01	Failure to implement appropriate design controls during modifications to the recirculation sump.
NCV 50-247/04-06-02	Failure to identify and correct deficiencies associated with the recirculation sump.
NCV 50-247/04-06-03	Failure to identify a condition adverse to quality which could impact EDG reliability.
FIN 50-247/04-06-04	Failure to implement adequate corrective actions for low voltage conditions on the 13.8 KV system.
NCV 50-247/04-06-05	Failure to implement Technical Specification Surveillance Requirement SR 3.3.1.1 for channel checks of the feedwater flow instrumentation.

Closed

LER 2003-004	Automatic Turbine/Reactor Trip Due to 345kV Grid Disturbance.
LER 2003-001	Plant in an Unanalyzed Condition due to Cable Routing Non-Compliance with Appendix R Separation Criteria.
LER 2002-006	Two of Three Emergency Diesel Generators Inoperable Due to Component Failures: A Condition Prohibited by Technical Specifications.
LER 2002-005	Central Control Room Wall Identified as Being in Non-Conformance with Design Drawings.
URI 50-247/04-02-04	Static inverter frequency specification for operability.

LIST OF BASELINE INSPECTIONS PERFORMED

71111.04	Equipment Alignment	1R04
71111.05	Fire Protection	1R05
71111.06	Flood Measures	1R06
71111.07	Heat Sink Performance	1R07
71111.11	Operator Requalification	1R11
71111.12	Maintenance Effectiveness	1R12
71111.13	Maintenance Risk Assessment and Emergent Work Activities	1R13
71111.14	Personnel Performance During Non-Routine Plant Evolutions	1R14
71111.15	Operability Evaluations	1R15
71111.19	Post Maintenance Testing	1R19
71111.22	Surveillance Testing	1R22
71111.23	Temporary Plant Modifications	1R23
71114.06	Emergency Plan Drill	1EP6
71151	Performance Indicator Verification	4OA1
71152	Problem Identification and Resolution Sample	4OA2
71153	Event Followup, LER's, Open Items	4OA3

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Clearance 2C16
 Tagout 2-480V-MCC26B-6MR (MOV887B) Bucket PM
 Tagout 2-480V-MCC26B-4DR (MOV851B) Bucket PM
 Tagout 2-480V-22SIP 2A Breaker EM
 CR-IP2-2004-02898

Section 1R05: Fire Protection

Fire Protection Implementation Plan, Pre-Fire Plans
 Station Administrative Order (SAO)-700, "Fire Protection and Prevention Policy,"
 SAO-703, ""
 ENN-DC-161, "Transient Combustible Program."

Section 1R06: Flood Protection Measures

IPEEE, Section 5
 2AOP-FLOOD-1, "Flooding"
 Background Document for 2AOP-FLOOD-1
 Operations Document Feedback IP2-4826
 WO IP2-03-06699

Section 1R07: Heat Sink Performance**89-13 Program and Design Basis Documents**

WCAP-12313, Safety Evaluation for an Ultimate Heat Sink Temperature Increase to 95°F at Indian Point Unit 2, Rev. 2, dated January 2004

Consolidated Edison Letter, Stephen B. Bram to the NRC, dated February 2, 1990, Service Water System Problems Affecting Safety Related Equipment

Consolidated Edison Letter, Stephen B. Bram to the NRC, dated July 19, 1991, Implementation Status of Generic Letter 89-13 Required Actions

EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines, December 1991

EPRI TR-107397, Service Water Heat Exchanger Testing Guidelines, March 1998

Corrective Action Documents (CR-IP2-20XX)

01-05679	02-08272	03-00912	03-06197	04-01416
02-05311	02-09667	03-02592	03-06539	04-01781
02-05637	02-10749	03-03166	04-00277	04-01820
02-06897	02-10853	03-03741	04-00341	04-08597
02-06905	03-00860	03-04192	04-00450	04-08931
02-07065	03-00886	03-04618	04-00998	

Engineering Evaluations and Calculations

TA-03-2-111-001, Remove Internals From S.W. Strainer Blowdown Valves

TA-04-2-078, Install Clamps on Pipe Collars Around Recirc Pump 21 and 22 Bypass

PGI-00186-00, Test Data and Analysis for IP2 Safety Injection Pump Lube Oil Cooler Performance, Rev. 0

PGI-00219-00, RHR Heat Exchangers Performance - 1996, dated 11/8/96

PGI-00354-02, Generic Letter 89-13 Heat Exchanger Performance Assessment Program, dated 1/11/01

FMX-00295-00, Tube Plugging Limits for EDG Lube Oil Coolers and Jacket Water Coolers, Rev. 0

FMX-00142-00, Study the Effect of LOCA Generated Debris on ECCS Performance, dated 12/22/1999

EDG Testing and Inspections

SE-330 Inspection Report for 21 EDG HXs, dated 2/16/03

SE-330 Inspection Report for 21 EDG HXs, dated 6/16/03

SE-330 Inspection Report for 21 EDG HXs, dated 2/24/04

SE-330 Inspection Report for 22 EDG HXs, dated 10/27/02

SE-330 Inspection Report for 22 EDG HXs, dated 4/23/03

SE-330 Inspection Report for 22 EDG HXs, dated 3/23/04

SE-330 Inspection Report for 23 EDG HXs, dated 1/7/02

SE-330 Inspection Report for 23 EDG HXs, dated 5/19/03

Record of Eddy Current Inspection of Emergency Diesel Generator 21 Lube Oil Cooler & Jacket Water Cooler at IP2, dated 2/25/03
Record of Eddy Current Inspection of Emergency Diesel Generator 22 Lube Oil Cooler & Jacket Water Cooler at IP2, dated 10/2/02
Record of Eddy Current Inspection of Emergency Diesel Generator 23 Lube Oil Cooler & Jacket Water Cooler at IP2, dated 11/6/02
PT-R84A, 21 EDG 8 Hour Load Test, dated 11/18/02
PT-R84B, 22 EDG 8 Hour Load Test, dated 11/19/02
PT-R84C, 23 EDG 8 Hour Load Test, dated 11/17/02
2-PT-M021A, Emergency Diesel Generator 21 Load Test, dated 3/22/04
2-PT-M021B, Emergency Diesel Generator 22 Load Test, dated 3/23/04
2-PT-M021C, Emergency Diesel Generator 23 Load Test, dated 3/24/04

Miscellaneous

Unit 3 Service Water Intake Pump Bay Silt Mapping, dated 7/23/01
Unit 3 Service Water Intake Pump Bay Silt Mapping, dated 2/9/04
NRC Information Notice 2004-07: Plugging of Safety Injection Pump Lubrication Oil Coolers With Lakeweed, dated 4/7/04
PI-M2, Containment Building Inspection, Rev. 18
QS-2004-IP-004, Quality Assurance Surveillance Report, "Preparations Review for NRC Heat Sink Inspection, dated 4/12/04
IP3-LO-2004-00167, IPEC Focused Self-Assessment, "Indian Point Unit 2 Ultimate Heat Sink," dated 4/09/04
IP2 Chlorination Sample Results 1/1/03 - 9/11/03
Indian Point 2 - NRC Inspection Report No. 50-247/02-03
2003 Indian point Zebra Mussel Monitoring program Report, dated 12/18/03
2-PT-Q90, Component Cooling Water System Quarterly Alignment Verification, dated 2/22/04
Safety Assessment of the Recirculation and Containment Sumps for Indian Point Station Unit 2, dated May 1995
Risk-Informed Inspection Notebook for Indian Point Nuclear Power Plant, Unit 2, Revision 1

Procedures

STR-P-004A, IP2 Zurn Service Water Strainers (Preventive Maintenance), Rev. 5
STR-B-003A, IP2 Zurn Spare Service Water Strainer Overhaul, Rev. 11
SOP 27.3.1.2, Emergency Diesel Generator Manual Operation, Attachment 1, Post-Run Line-up Verification, Rev. 14
SE-330, Service Water Inspection Standard, Rev. 3
SAO-213, Containment Entry, Egress and Inspection, Rev. 5
2-AOP-SW-1, Service Water Malfunction, Rev. 2
2-COL 24.1.1, Service Water and Closed Cooling Water Systems, Rev. 36
2-COL 4.1.1, Component Cooling System, Rev. 20
COL 24.1.2, Service Water Essential Header Verification, Rev. 14
OSP 24.1, Support Procedure - Service Water System Operation, Rev. 4
SOP 24.1, Service Water System Operation, Rev. 52
SOP 24.1.1, Service Water Hot Weather Operations, Rev. 9

2-CY-3172, Zebra Mussel Monitoring, Rev. 0
SOP-RW-007, Circulating and Service Water Sodium Hypochlorite Injection System, Rev. 26

RHR & SI Pump Testing

PT-Q28A, 21 Residual Heat Removal Pump, dated 3/30/04
PT-Q28B, 22 Residual Heat Removal Pump, dated 1/24/04
PT-Q29A, 21 Safety Injection Pump, dated 3/1/04
PT-Q29B, 22 Safety Injection Pump, dated 3/29/04
PT-Q29C, 23 Safety Injection Pump, dated 1/20/04

SW Testing

PT-Q26A, 21 Service Water Pump, dated 2/16/04
PT-Q26B, 22 Service Water Pump, dated 3/8/04
PT-Q26C, 23 Service Water Pump, dated 3/15/04
PT-Q26D, 24 Service Water Pump, dated 4/5/04
PT-Q26E, 25 Service Water Pump, dated 2/5/04
PT-Q26F, 26 Service Water Pump, dated 2/13/04
PT-3Y9, Flow Test For Underground Service Water Line 408, dated 8/21/02
PT-3Y10, Flow Test For Underground Service Water Line 409, dated 9/3/02

System Health

Maintenance Rule Program Quarterly Report (First Quarter 2004)
Unit 2 Service Water System Health Report (Fourth Quarter 2003)
Unit 2 Safety Injection System Health Report (Fourth Quarter 2003)
Unit 2 Residual Heat Removal System Health Report (Fourth Quarter 2003)
Unit 2 Emergency Diesel Generators Health Report (Fourth Quarter 2003)

Work Orders (IP2)

01-23308	00-14369	03-13430	04-17509	03-17921
02-48726	03-10440	03-16606	03-16602	

Section 1R19: Post-Maintenance Testing

WO IP2-03-24066
WO IP2-04-19810

Section 1R22: Surveillance Testing

WO No. IP2-03-21761
WRT No. IP2-04-20762
CR-IP2-2004-02644

Section 1R23: Temporary Plant Modifications

ENN-LI-101, "10 CFR 50.59 Review Process
WO No. IP2-04-18017
WO No. IP2-04-18146
WO No. IP2-04-18178
WO No. IP2-04-18321
WO No. IP2-04-18268

Section 4OA1: Performance Indicator Verification

1PC-S-009-S	Primary Sampling System "Sentry"
NL-04-036	Indian Point Unit 2 - 1Q2004 - PI Data Elements (QR)
NL-04-008	Indian Point Unit 2 - 4Q2003 - PI Data Elements (QR) and Change Report (CR) for 2Q2003 and 2Q2003
NL-03-163	Indian Point Unit 2 - 3Q2003 - PI Data Elements (QR)
NL-03-122	Indian Point Unit 2 - 2Q2003 - PI Data Elements (QR)
NL-03-065	Indian Point Unit 2 - 1Q2003 - PI Data Elements (QR)
Indian Point 2 Narrative Operating Logs for 1Q2003 through 1Q2004	

Section 4OA2: Identification and Resolution of Problems

CR-IP2-2003-07219
CR-IP2-2003-07155
CR-IP2-2003-07156

LIST OF ACRONYMS

AFW	auxiliary feedwater
CAP	corrective action program
CARB	Corrective Actions Review Board
CCW	component cooling water
CFR	Code of Federal Regulation
COL	check off list
CR	condition report
CS	containment spray
ECCS	emergency core cooling system
EDG	emergency diesel generator
EOF	emergency operations facility
EP	emergency planning
EPRI	Electric Power Research Institute
GT	gas turbine
HX	heat exchanger
IMC	inspection manual chapter
IP	Indian Point
IP2	Indian Point Unit 2
IPEC	Indian Point Energy Center
IPEEE	Individual Plant Examination for External Events
ITS	improve technical specifications
JPM	job performance measures
JW	jacket water
LOCA	loss-of-coolant accident
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OA	other activities
OE	operating experience
OS	occupational radiation safety
OSC	operations support center
PAB	primary auxiliary building
PI	performance indicator
PWR	pressurized water reactor
PWT	post work test
RCS	reactor coolant system
RHR	residual heat removal
SAO	station administrative orders
SCBA	self-contained breathing apparatus
SDP	significance determination process
SE	safety evaluation
SI	safety injection
SOP	system operating procedure
SW	service water
TA	temporary alteration
TS	technical specifications
TSC	technical support center
UFSAR	Updated Final Safety Analysis Report

VC
WO

vapor containment
work order