UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

December 13, 2010

Mr. Joseph E. Pollock
Site Vice President
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 3 – NRC COMPONENT DESIGN BASES INSPECTION REPORT NO. 05000286/2010009

Dear Mr. Pollock:

On October 29, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 3. The enclosed integrated inspection report documents the inspection results, which were discussed on October 29, 2010, with you and other members of your staff, and during a subsequent telephone call with Mr. T. McCaffrey on December 10, 2010.

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. In conducting the inspection, the team examined the adequacy of selected components and operator actions to mitigate postulated transients, initiating events, and design basis accidents. The inspection involved field walkdowns, examination of selected procedures, calculations and records, and interviews with station personnel.

This report documents one NRC-identified finding which was of very low safety significance (Green). The finding was determined to involve a violation of NRC requirements. Because of the very low safety significance of the violation and because it was entered into your corrective action program, the NRC is treating the violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U. S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Senior Resident Inspector at Indian Point Nuclear Generating Unit 3.

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

Sincerely,

Lawrence T. Doerflein

Lawrence T. Doerflein, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-286
License No. DPR-64

Enclosure: Inspection Report No. 05000286/2010009
w/Attachment: Supplemental Information

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Sincerely,

/RA/

Lawrence T. Doerflein, Chief
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-286
License No.:	DPR-64
Report No.:	05000286/2010009
Licensee:	Entergy Nuclear Northeast (Entergy)
Facility:	Indian Point Nuclear Generating Unit 3
Location:	450 Broadway, GSB Buchanan, NY 10511-0249
Inspection Period:	October 4 – October 29, 2010
Inspectors:	K. Mangan, Senior Reactor Inspector, Division of Reactor Safety (DRS), Team Leader E. Burkett , Reactor Inspector, DRS R. Fuhrmeister, Senior Reactor Inspector, DRS L. Scholl, Senior Reactor Inspector, DRS G. Morris, NRC Electrical Contractor W. Sherbin, NRC Mechanical Contractor C. Williams, Reactor Inspector, DRS (Trainee)
Approved By:	Lawrence T. Doerflein, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000286/2010009; 10/04/2010 – 10/29/2010; Indian Point Nuclear Generating (Indian Point) Unit 3; Component Design Bases Inspection.

The report covers the Component Design Bases Inspection (CDBI) conducted by a team of four NRC inspectors and two NRC contractors. One finding of very low risk significance (Green) was identified. The finding was also considered to be a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects were determined using IMC 0305, "Operating Reactor Assessment Program." 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 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, in that Entergy did not verify the adequacy of the flood barrier design for the service water (SW) strainer room to ensure safety-related equipment would not be impacted during a design basis flood. Specifically, electrical conduits which passed through the SW strainer room wall, separating the service water strainer room from the Hudson River, were not sealed. Additionally, the sump pump discharge piping which also passed through the wall did not have a backflow prevention device in the pipe. This resulted in the service water strainers being susceptible to flooding at the design flood level. Entergy entered the issue into their corrective action program for evaluation and installed seals in the conduits.

  The finding was more than minor because it was associated with the external factors (flood hazard) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding using IMC 0609 Attachment 4 "Phase 1 – Initial Screening and Characterization of Findings," which determined that a Phase 3 evaluation was required because the finding screened as potentially risk significant due to a flooding event. The Region I Senior Reactor Analyst (SRA) performed a Phase 3 evaluation based on the plants Individual Plant Examination of External Events (IPEEE) study and determined the risk to be of very low safety significance (Green). The team did not identify a cross-cutting aspect with this finding because this was an original design issue and therefore was not reflective of current performance. (Section 1R21.2.1.4)

B. Licensee-Identified Violations

None.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Component Design Bases Inspection (IP 71111.21)

.1 Inspection Sample Selection Process

The team selected risk significant components and operator actions for review using information contained in the Indian Point Unit 3 Probabilistic Safety Assessment (PSA) and the U.S. Nuclear Regulatory Commission's (NRC) Standardized Plant Analysis Risk (SPAR) model. Additionally, the team referenced the Risk-Informed Inspection Notebook for Indian Point Unit 3 in the selection of potential components and operator actions for review. In general, the selection process focused on components and operator actions that had a Risk Achievement Worth (RAW) factor greater than 1.3 or a Risk Reduction Worth (RRW) factor greater than 1.005. The components selected were located within both safety related and non-safety related systems, and included a variety of components such as pumps, breakers, ventilation fans, transformers, and valves.

The team initially compiled a list of components and operator actions based on the risk factors previously mentioned. Additionally, the team reviewed the previous CDBI report (05000286/2007006) and excluded the majority of those components previously inspected. The team then performed an assessment to narrow the focus of the inspection to 14 components, 5 operator actions, and 4 operating experience (OE) items. The team's evaluation of possible low design margin included consideration of original design issues, margin reductions due to modifications, or margin reductions identified as a result of material condition/equipment reliability issues. The assessment included items such as failed performance test results, corrective action history, repeated maintenance, Maintenance Rule (MR)(a)(1) status, operability reviews for degraded conditions, NRC resident inspector insights, system health reports, and industry OE. Finally, consideration was also given to the uniqueness and complexity of the design and the available defense-in-depth margins. The assessment review of operator actions included complexity of the action, time to complete the action, and extent-of-training on the action.

The inspection performed by the team was conducted as outlined in NRC Inspection Procedure (IP) 71111.21. This inspection effort included walkdowns of selected components, interviews with operators, system engineers and design engineers, and reviews of associated design documents and calculations to assess the adequacy of the components to meet design basis, licensing basis, and risk-informed beyond design basis requirements. Summaries of the reviews performed for each component, operator action, and OE sample, and the specific inspection finding identified are discussed in the subsequent sections of this report. Documents reviewed for this inspection are listed in the Attachment.

.2 Results of Detailed Reviews

.2.1 Detailed Component and System Reviews (14 samples)

.2.1.1 Diesel Building Ventilation Fan 32

a. Inspection Scope

The team inspected the 32 diesel building ventilation supply fan to verify it was capable of performing its design basis function. The team reviewed the the calculations related to the emergency diesel generator (EDG) room exhaust air ventilation requirements, and compared the calculated airflow requirements with fan test data to ensure adequate heat removal capability was provided. Seismic qualification calculations for the fan were also reviewed to ensure the supply fan's operation would not be impacted during or following a seismic event. In addition, the team reviewed preventive maintenance (PM) activities for the fan motor and fan to ensure they were being performed in accordance with vendor recommendations. Finally, the team conducted a system walkdown and reviewed condition report history to determine the overall health of the fan components.

b. Findings

No findings were identified.

.2.1.2 Emergency Diesel Generator 32 (Mechanical)

a. Inspection Scope

The team inspected the 32 emergency diesel generator mechanical systems to verify they were capable of supporting the design basis function of the EDG. The team selected the EDG engine, fuel oil system, air start system, lube oil system, and cooling systems for an in-depth review. The team reviewed the fuel oil consumption calculations to ensure that Technical Specification (TS) surveillance requirements verified sufficient fuel oil inventory was maintained for design bases accidents. The team also reviewed recent fuel oil sample records to ensure fuel quality was within required specifications. The team reviewed the EDG air start capacity tests to ensure the capability of the starting air system to deliver the required number of engine start attempts, and the recent corrosion/erosion examination results for the starting air tanks were reviewed to ensure structural integrity of tanks was maintained. In addition, EDG lube oil on-site storage capacity was reviewed to ensure sufficient lube oil was available for extended operation of the EDGs.

The team reviewed various completed EDG performance tests to determine whether engine performance parameters, such as vibration, exhaust cylinder temperatures, and lube oil and fuel oil filter differential pressures were maintained within the acceptance criteria. Recent PM activities for the lube oil and fuel oil filters were reviewed to ensure the filters were replaced prior to potentially impacting operation of the engine. The team also reviewed cooling water design documents for the jacket water and lube oil coolers to determine system requirements, and the recent heat exchanger inspection reports were reviewed to ensure heat transfer surface cleanliness design assumptions were maintained.

The team also reviewed corrective action documents and system health reports, and interviewed the system engineer to determine whether there were any adverse operating trends or existing issues affecting engine reliability. Finally, the team conducted a walkdown of the EDG and it support systems to assess the material condition of the equipment and determine if potential hazards to the equipment existed.

b. Findings

No findings were identified.

.2.1.3 Refueling Water Storage Tank

a. Inspection Scope

The team inspected the refueling water storage tank (RWST) to verify it was capable of performing its design basis function. The team reviewed the design basis documents (DBD), calculations and drawings to identify and verify the design assumptions regarding required water volume for the RWST. The team determined the basis for the design assumptions were related to the emergency core cooling systems (ECCS) pump net positive suction head (NPSH) and vortexing calculations when the pumps were taking suction from the RWST. Additionally, the volume of the RWST assumed to transfer to the containment sump was reviewed to verify adequate NPSH was available from the RWST prior to a switchover from the injection to recirculation mode, and to ensure adequate sump water level was achieved when ECCS suction was transferred to the sump. The team also reviewed RWST level instrument scaling and uncertainty calculations to determine if worst case level indications would still allow operators time to perform the ECCS suction transfer while maintaining NPSH to the pumps.

The team reviewed documentation of the seismic and wind loading design basis events to determine if the RWST structure was adequately designed to respond to these events. The team also reviewed RWST vent sizing calculations to verify that adequate vent area exists during tank drawdown to ensure there was no impact on ECCS pump NPSH when taking suction from the RWST. The team also conducted a walkdown of the tank to assess the general condition of the tank. Finally, condition reports were reviewed to ensure deficiencies were appropriately identified and corrected.

b. Findings

No findings were identified.

.2.1.4 Service Water Pump 33

a. Inspection Scope

The team inspected the 33 service water (SW) pump to verify it was capable of performing its design basis function. The team reviewed applicable portions of the updated final safety analysis report (UFSAR), the DBD, and drawings to identify the design basis requirements for the pump. Design calculations were reviewed to assess available pump NPSH and determine required system flows. The team reviewed the SW pump in-service testing (IST) results and system flow verification test results to verify acceptance criteria were met and that the acceptance criteria were consistent with the design basis assumptions. Specifically, the team reviewed pump data trends for vibration, differential pressure and flow rate test results to verify acceptance criteria were met. The team also verified that design requirements and operational limits were properly translated into operating instructions and procedures. In addition, the team performed walkdowns of the SW pump and strainer areas, interviewed system and design engineers, and reviewed system health reports and selected condition reports to assess the current material condition of the SW pumps.

b. Findings

Introduction. The team identified a green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control." Specifically the licensee did not verify the adequacy of the flood barrier design for the SW strainer room to ensure safety related equipment would not be impacted during a design basis flood.

Description. The team reviewed the Indian Point Unit 3 UFSAR, Section 2.5, which stated that the unit was designed to withstand the worst case flood levels and Section 1.3, which stated that the design flood level was 15 feet above mean sea level (MSL). The team performed a walkdown of the intake structure which included the SW pumps and SW strainers to assess the potential impact of worst case flood water on safety related equipment. The team identified that the service water strainers were located in a room in which the walls and floor would be in contact to the Hudson River during a flood and found that the SW strainer control panels, at an elevation of approximately 9 feet above MSL, could be susceptible to flood water levels.

During the walk down of the intake structure, the team questioned the integrity of the wall and penetration seals of the strainer room. Specifically, the team noted degraded electrical conduits at 13 feet above MSL that passed through the SW strainer room wall which could allow flood water to run inside the conduit and spill into the SW strainer room. The team also questioned the design of the strainer room sump pump discharge line which exits through the wall of the SW strainer room at approximately 10.5 feet above MSL because the team could not determine if a check valve was installed in the pipe to prevent river water from back-flowing through the pipe into the room. Because the conduits and the sump pump discharge line were located below the design flood level and passed through the SW strainer room wall, the team questioned the adequacy of the flood protection for the SW strainer room.

As a result of the team's observations, Entergy performed a walk down of the SW strainer areas to assess the potential for flooding. As a result of the walk down, Entergy determined two electrical conduit boxes mounted on the wall of the SW strainer room were unsealed. Specifically, 4 inch diameter conduits that exited the boxes penetrated through the SW strainer wall were not sealed. The two 4 inch diameter conduits were located at an elevation of approximately 12 feet above MSL and therefore were potential flooding pathways to the SW strainer room. Additionally, Entergy found an unsealed 2 inch conduit in the strainer room wall. This conduit also provided a flow path from the SW pump pit to the SW strainer room via opening located at approximately 11 feet above MSL. Entergy also determined that the sump pump 2.5 inch diameter discharge line did not have a check valve resulting in a potential open flow path from the river into the room when river water reached 10.5 feet above MSL. The team concluded that each of these deficiencies could result in flood waters entering the SW strainer room which would adversely impact the SW strainer motors leading to a loss of service water. Entergy entered this issue into their corrective action program for evaluation and promptly sealed the three electrical penetrations.

Analysis. The team determined the performance deficiency was the failure to ensure adequate design of a flood barrier in the SW strainer room. Specifically, Entergy did not ensure SW strainer room wall penetrations met design flood requirements in order to prevent water from entering that room. The finding was determined to be more than minor because it was similar to IMC 0612, Appendix E, Example 3.g. Specifically, the safety-related structure between the strainer room and the Hudson River was built out of specification and placed into service. Additionally, this finding was associated with the external factors (flood hazard) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesired consequences. The team evaluated this finding using IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The finding screened as potentially risk significant due to a flooding event per Table 4b because the loss of the service water strainers would degrade one or more trains of a system that supports a safety system or function. Per Table 4a, a Region I Senior Reactor Analyst (SRA) conducted a Phase 3 risk evaluation of the issue.

The SRA review of the IP3 IPEEE, IP3-RPT-UNSPEC-02182, dated September 29, 1997, identified that the maximum projected design river flood level was 15 feet above MSL and was based upon the coincidental maximum precipitation (17.5 inches/hour), failure of the upstream Ashokan Dam, and maximum tidal storm surge due to a hurricane directly impacting New York City harbor. The likelihood of such a unique set of circumstances is considerably less than the 1E-6/year core damage threshold that would warrant further quantitative analysis per the IPEEE guidance. Based upon historical data, the maximum observed river water level in the vicinity of the Indian Point facility was 7.4 feet above MSL and the direct result of a hurricane that occurred in November 1950. Coupled with the lowest observed degraded wall penetration (identified at 10.5 feet above MSL), an approximate 3 feet of margin exists between the highest observed river flood level and the potential flooding of the strainer pump room area via a degraded penetration. Based upon the as-found degraded condition of the pump pit wall penetrations and the very low likelihood of a river flooding event that would challenge the operability of the service water strainers, this finding was determined to be of very low safety significance (Green). The SRA noted that Entergy also has a procedure in place that would direct operators to install portable dewatering pumps in the strainer area if leakage was identified. This action coupled with the sump pump in the strainer room would provide additional mitigation in the event that water levels did exceed the 10.5 feet level. Additionally, the SRA determined that the three backup service water pumps could be credited in the event of the loss of the service water strainers and pumps because these pumps are not affected by the performance deficiency and could provide additional mitigation for the postulated event.

The team did not identify a cross-cutting aspect with this finding because this was an original design or construction issue and no recent inspections had been performed on the structure so the performance deficiency was not reflective of current performance.

Enforcement. 10 CFR 50, Appendix B, Criterion III, "Design Control," states, in part, measures shall be established for verifying and checking the adequacy of design. The UFSAR, Section 1.3, states that site was designed to withstand flood waters up to 15 feet above MSL. Contrary to the above, prior to October 27, 2010, the safety-related SW strainers were not adequately verified to be protected from a design basis flood condition. Specifically, the flood barrier wall for the SW strainer room was unable to function per its design because several wall penetrations were not designed to prevent water from passing through the wall if design basis flooding elevations were reached. Because this violation is of very low safety significance and has been entered into Entergy's corrective action program (CR-IP3-2010-03336), it is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy. (**NCV 05000286/2010009-01, Inadequate Design Control of Service Water Strainer Room Flood Barrier)**

.2.1.5 EDG Service Water Flow Control Valves 1176/1176A

a. Inspection Scope

The team inspected the EDG service water flow control air operated valves (AOV 1176/1176A) to verify that they were capable of performing their design function. The team reviewed the UFSAR, the DBD, and procedures to identify the design basis requirements of the valves. The team also determined expected system alignments to assess whether component operation was consistent with the design basis assumptions. The team reviewed periodic verification diagnostic test results and stroke test documentation to verify acceptance criteria were met and consistent with the design and licensing basis assumptions. Additionally, the team verified the valves' performance capability, and design margins were adequately maintained. The team also reviewed condition reports and system health reports to verify that deficiencies were appropriately identified and resolved, and that the valves were properly maintained. The team interviewed the AOV program engineer to gain an understanding of testing and maintenance issues, and overall reliability of the valves. Finally, the team conducted a walk down to assess the material condition of the valves and to verify the installed valve configurations were consistent with design bases assumptions and plant drawings.

b. Findings

No findings were identified.

.2.1.6 Charging Pump 32

a. Inspection Scope

The team inspected the 32 charging pump to verify it was capable of performing its design basis function. The team evaluated the charging pump's performance to determine if design basis flow rates would be met during postulated transients. The team evaluated the variable speed drive and coupling between the charging pump and motor to ensure the motor was able to deliver the required horsepower to drive the pump. The team's review also included an evaluation of the pump and variable speed drive cooling water requirements, and seismic qualification of pump/motor mounting bolts. The team reviewed recent pump IST results to ensure pump capacity and vibration limits were maintained. In addition, the team walked down the charging pump, interviewed system and design engineers, and reviewed system health reports and selected condition reports to assess the current condition of the pump and motor driver. The team also reviewed the analysis that evaluated the adequacy of the relief valves for low temperature overpressure protection (LTOP) related to the assumptions used the charging pump flow rate during a mass injection transient into the reactor coolant system to ensure the pump would not exceed these assumptions.

b. Findings

No findings were identified.

2.1.7 Safety Injection Motor Operated Valves 888A/B

a. Inspection Scope

The team inspected the high head safety injection pump suction valves (888A/B) to verify that they were capable of performing their design function. The team reviewed the UFSAR, the DBD, and procedures to identify the design basis requirements of the valves. The team also determined expected system alignments to assess whether component operation was consistent with the design and licensing basis assumptions. The team reviewed periodic verification diagnostic test results and stroke testing documentation to verify acceptance criteria were met and consistent with the design basis assumptions. Additionally, the team verified the valves' safety function, torque switch settings, performance capability, and design margins were monitored and maintained in accordance with Generic Letter (GL) 89-10 guidance. Required test frequencies were reviewed to verify they were correctly determined, based on test results, as described in GL 96-05. The team also reviewed condition reports and system health reports to verify that deficiencies were appropriately identified and resolved, and that the valves were properly maintained. Finally, the team interviewed the motor operated valve (MOV) program engineer to gain an understanding of maintenance issues and overall reliability of the valves, and conducted a walk down to assess the material condition of the valves and to verify the installed valve configurations were consistent with design bases assumptions and plant drawings.

b. Findings

No findings were identified.

.2.1.8 Safety Injection Pump 31

a. Inspection Scope

The team inspected the 31 safety injection pump to verify it was capable of performing its design basis function. The team reviewed applicable portions of the UFSAR, the DBD, and drawings to identify the design basis requirements for the pump. Design calculations were reviewed to assess available pump NPSH and determine required system flows. Room ventilation calculations were reviewed to ensure adequate environmental conditions were maintained within the pump electrical component's qualification limits. The team reviewed pump IST results and system flow verification test results to verify acceptance criteria were met and bounded the system flow requirements. The team also reviewed pump data trends for vibration to ensure equipment performance was being maintained within acceptable vibration limits. The team performed a walkdown of the pump to evaluate its material condition and assess the pump's operating environment. Additionally, the team reviewed condition reports to verify the corrective actions adequately addressed the identified deficiencies. A modification of the pump discharge piping safety relief valve setpoint was also reviewed to ensure the design basis of the pump discharge piping was maintained.

b. Findings

No findings were identified.

.2.1.9 Emergency Diesel Generator 32 (Electrical)

a. Inspection Scope

The team inspected the 32 emergency diesel generator to verify that it was capable of meeting its design basis requirements. The team reviewed the EDG control and protective relay preventive maintenance activities and calibrations for selected relays to verify that the EDG would operate reliably and was not subject to spurious trips. The team reviewed EDG relay logic to determine if protective functions were retained or bypassed during emergency operation as described in the licensing bases. The team also verified that the bypass features were routinely tested and the most recent test results demonstrated satisfactory operation.

The team reviewed static loading calculations to determine whether expected worst case loading was within the rated capabilities of the generator. The TS surveillance test results that demonstrated the dynamic and full load capabilities of the EDG as well as load shedding and load sequencing were reviewed against TS surveillance requirements and established acceptance criteria to verify the results were satisfactory. The team reviewed voltage drop calculations for EDG support systems and control circuits to determine whether adequate voltage was available to support the loads under degraded voltage conditions in order to maintain the EDG in a state of readiness. The team also reviewed corrective action documents and interviewed the system engineer to determine whether there were any adverse operating trends or existing issues affecting EDG reliability. Finally, the team performed a visual examination of the EDG to assess material condition and the presence of potential hazards to the EDG or its support systems.

b. Findings

No findings were identified.

.2.1.10 Station Battery 32

a. Inspection Scope

The team inspected the 32 station battery to assess its ability to meet design basis requirements during plant transients and accidents. The team reviewed design calculations, drawings and plant procedures to ensure that the battery was designed and operated in accordance with the design and licensing bases. The team also reviewed battery discharge tests to determine if the results enveloped the design discharge requirements. The team performed walk downs of the battery to access the environment and material condition of the battery. The team reviewed a sample of maintenance work orders, CRs and system health reports to assess system performance and to ensure that Entergy identified and corrected deficiencies at an appropriate threshold. Finally, the team discussed the performance, design basis and maintenance history of the battery with the responsible design and system engineers to assess the battery's overall reliability.

b. Findings

No findings were identified.

.2.1.11 Battery Charger 32

a. Inspection Scope

The team inspected the 32 battery charger to determine if it was able to meet the design basis requirements. The team reviewed applicable portions of the UFSAR, DBD, and the TSs to identify the design basis requirements for the battery charger. The team reviewed drawings and system calculations to verify that calculation inputs and assumptions were accurate and justified. The team reviewed a sample of completed surveillance test procedures to verify acceptance criteria were met and to determine if the acceptance criteria were appropriate. The team reviewed the maintenance and functional history of the battery charger by sampling condition reports, recent system health reports, and completed maintenance procedures to verify that deficiencies were appropriately identified and resolved. The team also interviewed the design and system engineers to gain an understanding of maintenance issues and overall reliability of the battery chargers. Finally, the team conducted walkdowns to assess the material condition of the battery charger and its support systems, and to determine if adequate configuration control had been maintained.

b. Findings

No findings were identified.

.2.1.12 Station Service Transformer No. 2

a. Inspection Scope

The team reviewed the adequacy of the No. 2 station service transformer (SST) to provide a reliable source of power to the safety-related electrical buses. The team reviewed one line diagrams, calculations and the interface agreement with the transmission operator to confirm adequate voltage from the 138 kV system was available in order to ensure operability of the offsite power source to SST. The team reviewed the SST oil test results for dissolved gas to confirm the results were being trended and that adequate acceptance criteria were being used to evaluate the results. The team inspected the adequacy of the overload capability for design basis loading for SST to evaluate if sufficient margin existed during worst case load profiles. The team also reviewed the corrective maintenance history and condition reports to identify potential recurring issues that could impact the transformer's reliability.

b. Findings

No findings were identified.

.2.1.13 Electrical Breaker 52/5A

a. Inspection Scope

The team inspected the 480 Vac supply circuit breaker (52/5A) to verify that it was capable of meeting its design basis requirements. The team reviewed applicable portions of the UFSAR, the DBD, and drawings to identify the design basis requirements for the breaker. The team reviewed schematic diagrams and calculations for the circuit breaker protective relays to determine whether the circuit breaker was subject to spurious tripping. The team also reviewed the undervoltage protection and bus transfer schemes for the 480 Vac breaker to determine whether it would enable continuity of offsite power to the safety buses when available, and isolate the safety bus from the non-safety 6900 Vac system when required. The team reviewed maintenance schedules, procedures, and completed work records to determine whether the breaker was being properly maintained. The team also reviewed the corrective action history to determine whether there were any adverse operating trends, and to determine if deficiencies were being identified and corrected. Finally, the team performed a visual inspection of the breaker to assess the material condition and operating environment of the equipment.

b. Findings

No findings were identified.

.2.1.14 480 Volt Vital Bus 5A

a. Inspection Scope

The team inspected the 480 Vac bus 5A to verify that it was capable of meeting its design basis requirements. The team reviewed applicable portions of the UFSAR, the DBD, and drawings to identify the design basis requirements for the bus. The team reviewed the design of the 480 Vac bus degraded voltage protection scheme to determine whether it afforded adequate voltage to safety related devices at all voltage distribution levels. The review included degraded voltage relay setpoint calculations, motor starting and running voltage calculations, and motor control center (MCC) control circuit voltage drop calculations. The team also reviewed procedures and completed surveillance tests for calibration of the degraded voltage relays to determine whether acceptance criteria were consistent with design calculations, and to determine whether relays were performing satisfactorily. Additionally, the team reviewed operating procedures to determine whether the limits and protocols for maintaining offsite voltage were consistent with design calculations. The team also reviewed schematic diagrams and calculations for 480 Vac bus protective relays to ensure that equipment was adequately protected, loads were not subject to spurious tripping, and proper breaker coordination was maintained.

The team reviewed bus loading calculations to determine whether the 480 Vac bus and breakers were applied within their specified capacity ratings under worst case accident loading and grid voltage conditions. Short circuit calculations were also reviewed to determine whether the bus and its circuit breakers were applied within their specified design ratings. The team also reviewed corrective action histories to determine whether there had been any adverse operating trends and to determine if deficiencies were being identified and corrected. Finally, the team performed a visual inspection of the bus to assess material condition and operating environment of the equipment.

b. Findings

No findings were identified.

.2.2 Review of Low Margin Operator Actions (5 samples)

The team assessed manual operator actions and selected a sample of five operator actions for detailed review based upon risk significance, time urgency, and factors affecting the likelihood of human error. The operator actions were selected from a PSA ranking of operator action importance based on RAW and RRW values. The non-PSA considerations in the selection process included the following factors:

- Margin between the time needed to complete the actions and the time available prior to adverse reactor consequences;
- Complexity of the actions;
- Reliability and/or redundancy of components associated with the actions;
- Extent of actions to be performed outside of the control room;
- Procedural guidance to the operators; and
- Amount of relevant operator training conducted.

.2.2.1 Depressurize Reactor Coolant System During Station Blackout

a. Inspection Scope

The team evaluated main control room operator actions to depressurize the reactor coolant system during a station blackout. The team evaluated the available time margins to perform the actions to verify the reasonableness of Entergy's operating procedures and risk assumptions, and evaluated if the operator actions were consistent with the design and licensing bases. The team interviewed licensed operators, reviewed associated operating procedures and operator training, and observed a simulator demonstration of a loss of all AC power, to evaluate the operators' ability to perform the required actions. In addition, the team walked down main control room panels to assess the likelihood of cognitive or execution errors. The team also walked down selected in-field components and reviewed equipment deficiency reports, engineering evaluations, and surveillance test results to assess the material condition of the associated valves, and support systems.

b. Findings

No findings were identified.

.2.2.2 Primary Feed and Bleed Cooling

a. Inspection Scope

The team evaluated main control room operator actions to establish primary feed and bleed during certain beyond design basis events to determine if there was time available as evaluated in Entergy's risk model to perform the operator actions. The team also evaluated the reasonableness of Entergy's operating procedures and risk assumptions. The team interviewed licensed operators, reviewed associated operating procedures and operator training, and observed a simulator demonstration of a loss of heat sink to assess the operators' ability to perform the required actions. In addition, the team walked down main control room panels to assess the likelihood of cognitive or execution errors. The team also walked down selected in-field components and reviewed equipment deficiency reports, engineering evaluations, and surveillance test results to assess the material condition of the associated pumps, valves, and support systems.

b. Findings

No findings were identified.

.2.2.3 Operator Response to Reactor Coolant Pump (RCP) Seal Loss of Coolant Accident

a. Inspection Scope

The team evaluated main control room operator actions to respond to a RCP seal loss-of-coolant accident (LOCA) in order to verify operator actions were consistent with design and licensing bases. The team interviewed licensed operators, reviewed associated operating procedures and operator training, and observed a simulator demonstration of a RCP seal LOCA, to evaluate the operators' ability to perform the required actions. In addition, the team walked down main control room panels to assess the likelihood of cognitive or execution errors. The team evaluated the available time margins to perform the actions to verify the reasonableness of Entergy's operating procedures and risk assumptions. The team also reviewed equipment deficiency reports, engineering evaluations, and surveillance test results to assess the material condition of the systems used to respond to the event.

b. Findings

No findings were identified.

.2.2.4 Operator Action for Steam Generator Tube Rupture

a. Inspection Scope

The team evaluated manual operator actions to prevent overfilling a faulted steam generator (SG), during a postulated design basis SG tube rupture (SGTR), to verify operator actions were consistent with the design and licensing bases. Specifically, operator critical tasks that were evaluated were: identifying the faulted SG, isolating main steam flow from the faulted SG, and stopping feedwater flow to the faulted SG. The team interviewed licensed operators and operator simulator instructors, reviewed associated operating procedures and operator training, and observed operator response during a simulator scenario of a SGTR event, to evaluate the operators' ability to perform the required actions. The team walked down applicable control panels in the simulator and the main control room to assess the likelihood of cognitive or execution errors. The team evaluated the available time margins to perform the actions to verify the reasonableness of Entergy's operating procedures and risk assumptions.

b. Findings

No findings were identified.

.2.2.5 Align City Water for Backup Cooling to Charging Pumps following Loss of Component Cooling Water

a. Inspection Scope

The team evaluated manual operator actions to align city water backup cooling to the charging pumps, following a loss of component cooling water (CCW) event, to verify operator actions were consistent with the design and licensing bases. Specifically, the team reviewed operator critical tasks including: align charging pump in manual at maximum speed, installing temporary hoses, and aligning CCW and city water valves. The team interviewed licensed and non-licensed operators, reviewed associated operating procedures and operator training documents, observed a tabletop demonstration of a loss of CCW, observed an in-field operator job performance measure (JPM) to install a temporary hose and to align local CCW and city water valves, and independently inventoried pre-staged equipment and tools to evaluate the operators' ability to perform the required actions. The team also reviewed test data and calculations to determine if the temporary piping configuration would provide sufficient cooling water to the equipment. In addition, the team walked down local piping and valves associated with the critical tasks to assess the likelihood of cognitive or execution errors. The team evaluated the available time margins to perform the actions to verify the reasonableness of Entergy's operating procedures and risk assumptions. The team performed field walkdowns and reviewed equipment deficiency reports to assess the material condition of the associated hoses, piping, valves, and support systems.

b. Findings

No findings were identified.

.2.3 Review of Industry Operating Experience and Generic Issues (4 samples)

The team reviewed selected OE issues for applicability at Indian Point Unit 3. The team performed a detailed review of the OE issues listed below to verify that Entergy had appropriately assessed potential applicability to site equipment and initiated corrective actions when necessary.

.2.3.1 NRC Information Notice 2006-17, Recent Operating Experience of Service Water Systems Due to External Conditions

a. Inspection Scope

The team assessed Entergy's applicability review and disposition of NRC Information Notice (IN) 2006-17. This IN discussed industry events where blockages occurred in service water systems due to agents such as silt, oil, rocks, grass, and fish. The team reviewed Entergy's program developed in response to GL 89-13, "Service Water System Problems Affecting Safety-Related Equipment," and various maintenance documents and operating procedures associated with the intake structure and service water system to assess if Entergy procedures addressed the concerns identified in the IN. In addition, the team performed a walk down of the intake structure and interviewed system engineers to assess if Entergy had adequately assessed to concerns discussed in the IN.

b. Findings

No findings were identified.

.2.3.2 IE Notice 93-58, Nonconservatism in Low-Temperature Overpressure Protection For Pressurized Water Reactors

a. Inspection Scope

The team reviewed Entergy's disposition of IN 93-58 - Nonconservatism in Low-Temperature Overpressure Protection For Pressurized Water Reactors. This IN discussed industry events where it was discovered that errors were made by Westinghouse in calculations related to LTOP system setpoints. The team reviewed the disposition of the IN as documented by Entergy in REC-093-093. In this report, Entergy discussed the evaluation of LTOP setpoint development, determined that the issues discussed in IN 93-58 had been evaluated, and concluded that there are no new issues at Indian Point Unit 3 (IP3) associated with the IN. The team reviewed the report and determined that the LTOP issues were identified and handled appropriately.

b. Findings

No findings were identified.

.2.3.3 Gas Binding of Cooling Water Systems

a. Inspection Scope

The team reviewed Entergy's actions to evaluate the potential for gas binding in cooling water systems. This is similar to the issue described in NRC Generic Letter 2008-01, except applied to CCW systems. The review was prompted by gas binding in component cooling water systems at several plants during the past year. The team assessed the adequacy of corrective actions planned and completed as documented in Entergy's corrective action system that addressed the potential for gas binding of IP3 CCW systems.

b. Findings

No findings were identified.

.2.3.4 NRC Information Notice 2010-09, Importance of Understanding Circuit Breaker Control Circuit Power Indications

a. Inspection Scope

The team evaluated Entergy's applicability review and disposition of NRC IN 2010-09. The IN was issued to inform licensees about circuit breaker control power indication issues that could result in degraded circuit breaker protection and control. The team reviewed Entergy's evaluation of the issue. Specifically, the team reviewed corrective action documents, interviewed the system engineer, reviewed operating logs and performed plant walkdowns to assess the adequacy of the licensee's programs in this area.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71152)

The team reviewed a sample of problems that Entergy had previously identified and entered into their corrective action program. The team reviewed these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions. In addition, condition reports written on issues identified during the inspection were reviewed to verify adequate problem identification and incorporation of the problem into the corrective action program. The specific corrective action documents that were sampled and reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, including Exit

The team presented the inspection results to Mr. Joseph Pollock and other members of Entergy management at an exit meeting on October 29, 2010, and during a subsequent telephone call with Mr. T. McCaffrey on December 10, 2010. The team returned proprietary information reviewed during the inspection to Entergy and verified that no proprietary information is documented in this inspection report.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

J. Pollock	Site Vice President
A. Vitale	General Manager, Plant Operations
T. Orlando	Director, Engineering
P. Conroy	Director, Nuclear Safety and Assurance
T. McCaffrey	Manager, Design Engineering
R. Burroni	Manager, System Engineering
V. Andreozzi	Supervisor, System Engineering
J. Raffaele	Supervisor, Design Engineering
M. Radvansky	Design Engineer
J. Bencivenga	Design Engineer
J. Summers	Operations
G. Dahl	Licensing

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Open and Closed

05000286/2010009-01	NCV	Inadequate Design Control of Service Water Strainer Room Flood Barrier

LIST OF DOCUMENTS REVIEWED

Calculations

32-1200124-02, SI-MOV-888A & B Differential Pressure Calc, Rev. 2
6604.003-C-DF-175, Eval. of Electro-Hydraulic Operated Valves in the Fuel Oil System, Rev. 0
6604.164-F-PAB-060, Temperature Response in PAB, Rev. 1
6604.266-8-SW-021, SWS Model Input Data Calculations and Output Results for IR Pumps, Rev. 5
6604.266-8-SW-022, Replacement Service Water Pump NPSH Evaluation, Rev. 5
6604.346-6-PAB-000, PAB Ventilation System Analysis without the Supply Fan, Rev. 2
8399.164-2-SW-088, Service Water Flows to Lube Oil and EDG Jacket Water Coolers, Rev. 2
CN-SEE-03-59, Development of Revised IP3 Unit 3 HHSI Cold Leg Injection Phase, Recirc. Phase, and Hot Leg Recirc. Phase for the SPU Project, Rev. 0A
FMX-00324, IP2 RWST Vent Verification Calculation, Rev. 0
FRS-IN-1456, NPSH Requirements for ECCS Pumps, Rev. 0
FRS-IN-983, NPSH of RHR and Safety Injection Pumps, Rev. 1
IP3 CALC-HVAC-00408, EDG Room Ventilation, Rev. 0
IP3 CALC-SI-378, Safety Injection System RWST Volume Calculation, Rev. 0

IP3-CALC-DCPWR-311, Battery Racks for Station Battery 31 & 32 Seismic Evaluation, Rev. 2
IP3-CALC-ED-00207, 480V Buses and EDGs Accident Loading, Rev. 8
IP3-CALC-ED-00300, Evaluation of Short Time Operation of SSTs above 3200 A, Rev. 1
IP3-CALC-ED-00301, Evaluation of Short Time Operation of 480 V Switchgear above 3200 A, Rev. 1
IP3-CALC-ED-00358, 480V Bus and EDG Loading for Reactor Trip/No SI and 480V Bus Loading for Feedwater Transient, Rev. 2
IP3-CALC-ED-01131, 480V Interlock Timer Setpoint Accuracy, Rev. 1
IP3-CALC-ED-01303, Setpoint Calculation – 480V Bus Degraded Voltage Time Delay Relay Setpoint Calculation, Rev. 1
IP3-CALC-ED-03154, 480V Degraded Voltage Relay Setpoint, Rev. 0
IP3-CALC-ED-03158, Fast Bus Transfer Study, Rev. 1
IP3-CALC-ED-03258, Motor Operated Valve Terminal Voltage at Starting Condition for BFD-MOV-90-1, -2, -3, -4 and BFD-MOV-5-1, -2, -3, -4, Rev. 1
IP3-CALC-EG-00217, Emergency Diesel Generator Storage Tank Level Setpoints, Rev. 4
IP3-CALC-EL-00114, 118 V AC Instrument Bus 32 Voltage Drop Calculation, Rev. 0
IP3-CALC-EL-00119, 125V DC System Short Circuit Calculations, Rev. 2
IP3-CALC-EL-00185, 32 Battery Charger, Panels and Cables Component Sizing and Voltage Drop Calculations, Rev. 3.
IP3-CALC-EL-01972, IP3 Degraded Grid Voltage Study, Rev. 1
IP3-CALC-ESS-03154, Instrument Loop Accuracy and Setpoint Calculation – 480V Degraded Voltage Relays, Rev. 0
IP3-CALC-SI-00725, EC-18904, Instrument Loop Accuracy/Setpoint Calc./RWST Level, Rev. 2
IP3-CALC-SI-01055, Thrust and Torque Limits SI-MOV-888B, Rev. 3
IP3-CALC-SI-01108, Analysis of Thrust and Torque Limits for SI-MOV-888A, Rev. 2
IP3-ECAF-DP32-16, Curve IP3-CRVE-ED-CC-DP32-16 (DC Coordination), Rev. 1
IP3-ECAF-MCC37-1FL, Curve IP3-CALC-EL-00146 (BC 32 Supply), Rev. 1
IP3-RPT-ED-03133, Evaluation of Station Battery 31, 32 and 34 Capacity Based on Initial Equalizing Charge Following a Design Basis Discharge, Rev. 1
IP-CALC-09-00244, EC-23267, Backup Cooling from City Water to SI/RHR/CHG Pumps, Rev. 1
IP-RPT-09-00014, Critical Submergence Evaluations Related to Surface Vorticies in Nuclear Safety and Augmented Quality Tanks/Pumps at IPEC, Rev. 1
IP-RPT-09-00067, Pump Test Acceptance Criteria, Rev. 0
IP-RPT-10-00006, Minimum Flow Calculation, Rev. 0
S&A Calculation No. C-001, USI A-46 Outlier Resolution for RWST, Rev. 0
Screening Evaluation Work Sheet (SEWS), for EQID 33 SW PUMP, No. 33 Service Water Pump, dated 10/06/95
Screening Evaluation Work Sheet (SEWS), for EQID CSAPCH2, No. 32 Charging Pump, dated 03/10/95
Screening Evaluation Work Sheet (SEWS), for EQID F-316, EDG Exhaust Fans, dated 8/11/94
Screening Evaluation Work Sheet (SEWS), for EQID RWST-31, Refueling Water Storage Tank, dated 11/06/95

Surveillance and Modification Acceptance Testing

0-GNP-404-ELC, Emergency Diesel Generator 2-Year Inspection, performed 6/14/10
0-VLV-412-MOV, Use of Motor Operated Valve Diagnostics, performed 3/19/07
0-VLV-421-MOV, Motor Operated Valve Major Preventative Maintenance, performed 3/17/07
3-PC-OL27A, Bus 2A 480V Degraded Grid Voltage Relays Calibration, performed 11/17/09
3-PC-OL27C, Bus 5A 480V Degraded Grid Voltage Relays Calibration, performed 12/18/09
3-PC-OL27D, Bus 6A 480V Degraded Grid Voltage Relays Calibration, performed 11/18/09
3-PT-2Y001B, 32 Diesel Generator Overspeed Trip Test, performed 3/23/10
3-PT-A029B, 32 EDG Underground FOST Leak Test, performed 10/13/09
3PT-CS014B, RHR System Valve Test for AC-MOV-730, 731, 743,744, & 1870 and SI-MOV-882, 883, 888A & 888B (RCS in Mode 5), performed 3/31/09
3-PT-M021, Station Battery Surveillance, performed 6/28/10
3-PT-M079B, 32 EDG Functional Test, performed 7/12/10 and 8/08/10
3-PT-M62A, 480V Undervoltage/Degraded Grid Protection System Bus 2A and 3A Functional, performed 10/21/10
3-PT-M62B, 480V Undervoltage/Degraded Grid Protection System Bus 5A Functional, performed 8/26/10 and 10/21/10
3-PT-M62C, 480V Undervoltage/Degraded Grid Protection System Bus 6A Functional, performed 10/21/10
3-PT-OL3B, Containment Spray Pump #31 Load Sequencer Calibration, performed 7/21/10
3-PT-OL3B10, Containment Recirculation Fan #31 Load Sequencer Calibration, performed 5/11/10
3-PT-OL3B12, Containment Recirculation Fan #33 Load Sequencer Calibration, performed 4/22/10
3-PT-OL3B17, Safety Injection Pump #31 Load Sequencer Calibration, performed 4/23/10
3-PT-OL3B20, Service Water Pump #31 Load Sequencer Calibration, performed 10/20/09
3-PT-OL3B23, Service Water Pump #34 Load Sequencer Calibration, performed 12/14/09
3-PT-OL3B7, Component Cooling Water Pump #31 Load Sequencer Calibration, performed 9/21/10
3-PT-Q001B, Station Battery 32 Surveillance, performed 6/01/10
3-PT-Q016, EDG and VC Temperature Valves SWN-FCV-1176 & 1176A and SWN-TCV-1104 & 1105, performed 6/22/10
3-PT-Q062B, 32 Charging Pump Operability Test, performed 7/25/10
3-PT-Q092C, 33 Service Water Pump, performed 7/23/10
3-PT-Q116A, 31 Safety Injection Pump, performed 7/16/10
3-PT-R003B, Safety Injection System Test – Breaker Sequencing/Bus Stripping, performed 3/14/09
3-PT-R003D, Safety Injection Test, performed 4/09/09
3-PT-R034, Residual Heat Removal System Valve Interlock Test, performed 3/27/09
3-PT-R064, High Head Safety Injection Check Valves, performed 3/29/09
3-PT-R067, Leakage Test RHR Low to High Head Xtie and Valves SI-MOV-888A & B, performed 4/02/09
3-PT-R156B, Station Battery 32 Load Profile Service Test, performed 3/13/09.
3-PT-R160B, 32 EDG Capacity Test, performed 3/24/09
3-PT-R172B, Station Battery 32 Modified Performance Test, performed 4/12/03 and 3/13/07
3PT-R185C, Turbine Building SW System Piping and Valve Flush, performed 2/19/07
3PT-R185D, Containment (VC) SW System Piping and Valve Flush, performed 3/27/07

3PT-R185E, Control Building and Diesel Generator Building SW System Piping and Valve Flush, performed 2/20/07
3-PT-SA069, City Water Backup Cooling Flow Test, performed 10/19/10
3-PT-W001, EDG Support Systems Inspection, performed 8/28/10 and 9/16/10
3-PT-W013, Station Battery Visual Inspection, performed 7/14/10, 10/07/10, 10/13/10 and 10/15/10
3-PT-W020, Electrical Verification Inverters and DC Distribution, performed 8/28/10
3-TOP-209, 33 EDG Performance Test, performed 10/05/10
FAN-010-VSS, Inspection of EDG Exhaust Fan, performed 10/23/07
IC-PC-I-E, No.32 Static Inverter Maintenance Procedure, performed 3/30/09
IC-PC-I-E-CCRBUS, CCR Bus Indicators, performed 6/01/09
IC-PM-I-E-32BC, 32 Battery Charger Preventive Maintenance, performed 10/13/00
SEP-SW-001, IPEC NRC GL 89-13 Service Water Program, Heat Exchanger (HX) Inspection Report, EDG 32 Lube Oil HX and Jacket Water HX, performed 9/09/10

Corrective Action Documents

01-02912	09-01156	10-01517	10-03132*	10-03290*
06-06361	09-01383	10-01536	10-03146*	10-03291*
07-00245	09-01528	10-01658	10-03158*	10-03292*
07-00285	09-02132	10-01901	10-03193*	10-03295*
07-00682	09-02475	10-02076*	10-03195*	10-03299*
07-01129	09-02664	10-02607*	10-03198*	10-03303*
07-02059	09-03343	10-02835	10-03208*	10-03322*
07-02961	09-04437	10-02979	10-03216*	10-03331*
07-04129	09-04496	10-03024*	10-03217*	10-03333*
07-04217	10-00347	10-03038*	10-03259*	10-03336*
08-00220	10-00998	10-03040*	10-03270*	10-03337*
08-00335	10-01026	10-03043*	10-03284*	10-03337*
08-00337	10-01212	10-03044*	10-03285*	10-03344*
08-00343	10-01268	10-03070	10-03286*	
08-00352	10-01441	10-03072*	10-03287*	
08-01286	10-01494	10-03077*	10-03288*	
08-02193	10-01514	10-03092	10-03289*	

*identified during inspection

Design and Licensing Basis Documents

IP3-DBD-304, Service Water System, Rev. 3
IP3-DBD-306, Safety Injection System (SIS), Rev. 3
IP3-DBD-307, 125V DC Electrical Distribution System, Rev. 3
IP3-DBD-311, CVCS DBD, Rev. 2
IP3-DBD-315, HVAC DBD, Rev. 2
IP3-DBD-324, EDG and Appendix R DBD, Rev. 1
IP3-RPT-STR-01932, Maintenance Rule Basis Document for System C09 IP3 Structures System, Rev. 0
IP3-RPT-SWS-01927, Maintenance Rule Basis Document for System F44-0151 Service Water System, Rev.1
Maintenance Rule System Screening Form, CVCS, System Number E25-0034

Maintenance Rule System Screening Form, EDGs, System Number E26-0048
Maintenance Rule System Screening Form, Safety Injection/Recirculation, System Number D16-0169

Drawings
500B971, Elementary Wiring Diagram – 480V MCC 311 Feeder, Sheet 87A, Rev. 10
500B971, Sht. 127, Elementary Wiring Diagram, Motor Operated Valves, Rev. 8
500B971, Sht. 14, Elementary Wiring Diagram, Switch Development, Rev, 5
500B971, Sht. 28, Elementary Wiring Diagram, Safety Injection Pump 31, Rev. 7
500B971, Sht. 44, Elementary Wiring Diagram, Service Water Pump 33, Rev. 9
500B971, Sht. 9, Elementary Wiring Diagram, Switch Development, Rev. 4
617F641, 480 V One Line Diagram, Rev. 33
617F643, 6900V One Line Diagram, Rev. 10
617F644, 480V One Line Diagram, Rev. 33
617F644, Main One Line Diagram, Rev. 19
617F645, Main V One Line, Rev. 19
617F649, Main One Line Diagram, Rev. 19
9321-F-10063, Intake Structure Platform Framing Plan and Details, Rev. 3
9321-F-10107, Intake Structure Part Plan at El. 15'-0", Rev. 1
9321-F-10136, Intake Structure Grating Partition and Support Steel Framing, Rev. 1
9321-F-10403, Intake Structure Valve Pit Concrete and Reinforcing Details, Rev. 4
9321-F-20113, Intake Structure General Arrangement Plan, Rev. 12
9321-F-20123, Intake Structure General Arrangement Sections, Rev. 12
9321-F-20303, Flow Diagram, Fuel Oil to Diesel Generators, Rev. 29
9321-F-20333, Sht. 1, Service Water System, Rev. 49
9321-F-20333, Sht. 2, Service Water System, Rev. 27
9321-F-21193, Flow Diagram, Lube Oil to EDGs, Rev. 8
9321-F-21463, Intake Structure Floor & Wall Sleeves, Rev. 8
9321-F-27223, Service Water System, Rev. 43
9321-F-27353, Flow Diagram, Safety Injection System, Rev. 41
9321-F-27353, Sht. 1, Safety Injection System, Rev. 41
9321-F-27363, Flow Diagram, CVCS, Rev. 51
9321-F-27503, Sht. 2, Safety Injection System, Rev. 50
9321-F-30083, Single line Diagram-DC System, Rev. 58
9321-F-41023, Flow Diagram, Ventilation System EDG Building, Rev. 23
9321-F-70243, Sht. 1, Pressure Gauge & Switch Details Instrumentation, Rev. 11
9321-H-20283, Flow Diagram, Jacket Water to EDGs, Rev. 21
9321-H-20293, Flow Diagram, Starting Air to EDGs, Rev. 33
9321-H-20303, Flow Diagram, Fuel Oil to EDGs, Rev. 29
9321-H-36933, Extension of Electrical Facilities One Line Diagram, Rev. 11
9321-L-60882, Sht. 3, Pipe Support Details, Rev. 1
9321-LL-31173, Sht. 2, Schematic Diagram 480V Switchgear 31 – Bus 2A, 3A, & 5A Undervoltage Relays, Rev. 18
9321-LL-31173, Sht. 21, Schematic Diagram 480V Switchgear 31 – Breaker 52/FP-P-3 - Backup Feed to Fire Pump FP-P-3, Rev. 1
9321-LL-31173, Sht. 3, Schematic Diagram 480V Switchgear 31 – Bus 5A Relay Tabulation Rev. 18

9321-LL-31173, Sht. 5, Schematic Diagram 480V Switchgear 31 – Bus 5A Interlocking Relays, Rev. 22
9321-LL-31173, Sht. 7, Schematic Diagram 480V Switchgear 31 – Breaker 52/5A Station Service Transformer 5 - Bus 5A Tie, Rev. 11
9321-LL-31183, Sht. 17, Schematic Diagram 480V Switchgear 32 – Breaker 52/EG2-Emergency Generator 32, Rev. 13
9321-LL-31313, Sht. 15, Schematic Diagram Misc Solenoid Valves, Rev. 10
9321-LL-38023, Sht. 1, Schematic Diagram, 480V Motor Control Center 312A, Rev. 1
9321-LL-38023, Sht. 3, Schematic Diagram, 480 V Motor Control Center 312A, Rev. 0
IP3V-0183-0002, Layout of 2-Step Special Mod. Seismic Rack, Gould, Inc., Rev. 4
IP3V-0209-0064, General Arrangement Ingersoll-Rand Pump, Rev. 1
IP3V-13-0002, Breaker Control Schematic, Rev. 16
IP3V-180-0006, General Arrangement 125/150 Drilling with Hammel Dahl Actuator, Rev. 2
IP3V-38-6.13-0002, Type 1500 Butterfly Valve with Hammel Dahl Actuator Tag No. FCV-1176 & 1176A, Rev. 2
IP3V-91-0068, Refueling Water Storage Tank-General Plan Drawing, Rev. 2
P-E274165-179, Charging Pump Outline, Rev. C

Operating Procedures
3-AOP-CCW-1, Loss of Component Cooling Water, Rev. 4
3-AOP-FLOOD-1, Flooding, Rev. 4
3-AOP-RCP-1, Reactor Coolant Pump Malfunction, Rev. 9
3-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, Rev. 9
3-AOP-SW-1, Service Water Malfunction, Rev. 2
3-ARP-005, Panel SBF-2-Safeguards, Rev. 33
3-ARP-009, Panel SFT – Chemical and Volume Control System, Rev. 38
3-ARP-010, Panel SGF – Auxiliary Coolant System, Rev. 29
3-E-0, Reactor Trip or Safety Injection, Rev. 1
3-E-1, Loss of Reactor or Secondary Coolant, Rev. 3
3-E-3, Steam Generator Tube Rupture, Rev. 2
3-ECA-0.0, Loss of All AC Power, Rev. 4
3-ES-1.3, Transfer to Cold Leg Recirculation, Rev. 3
3-FR-H.1, Response to Loss of Secondary Heat Sink, Rev. 4
3-RO-1, BOP Operator Actions During Use of EOPS, Rev. 1
3-SOP-CVCS-002, Charging, Seal Water and Letdown Control, Rev. 48
3-SOP-EL-001, Diesel Generator Operation, Rev. 42
3-SOP-EL-003, Battery Charger and 125 Volt DC System Operations, Rev. 40
3-SOP-EL-005, Operation of On-Site Power Sources, Rev. 39
3-SOP-EL-005A, 480 Volt Electrical System Operation, Rev. 11
3-SOP-EL-015, Operation of Non-Safeguards Equipment during Use of EOPs, Rev. 17
3-SOP-ESP-001, Local Equipment Operation and Contingency Actions, Rev. 19
3-SOP-FP-001, Fire Protection System Operation, Rev. 29
3-SOP-RW-002, Intake Structure Operation, Rev. 25
3-SOP-RW-005, Service Water System Operation, Rev. 34
3-SOP-SI-001, Safety Injection System Operation, Rev. 44
3-SOP-V-003, EDG Building Heating and Ventilation System Operation, Rev. 9

Procedures

0-CY-1810, Diesel Fuel Oil Monitoring, Rev. 10
3-BAT-0010-ELC, Replacement of Battery Cells, Rev. 0
3-COL-EL-001, 6900 and 480 Volt AC Distribution, Rev. 45
3-PT-R172B, Station Battery 32 Modified Performance Test, Rev. 10
3-PT-W013, Station Battery Visual Inspection, Rev. 23
EN-DC-150, Condition Monitoring of Maintenance Rule Structures, Rev. 0
EN-MS-S-011-MULTI, Conduct of System Engineering, Rev. 5
IC-PM-I-E-32BC, 32 Battery Charger Preventive Maintenance, Rev. 1
PFM-100, Infrared Thermography Program, Rev. 4
PFM-100A, Thermography of Electrical Equipment, Rev. 3
PFM-22A, Inservice Testing Program Number 8, Rev. 5
STR-002-SWS, Main and Back-up Service Water Pump Strainer Manual Backwashing (in the event of Appendix R Loss of Strainer Power Supply), Rev. 1

Vendor Manuals

1003, Vendor Manual, Safety Injection Pumps, Rev. 9
13-1000000000, Vendor Manual-Six 2450 HP Diesel Engines, Rev. 33
2001-100147473, Vendor Manual-EDG Exhaust Fans, Rev. 0
410-100000565, Vendor Manual-CVCS Charging Pumps, Rev. 8
NYPA #123-100000168, Motor Operated Gate Valves, Rev. 1
NYPA #192-100000718, Pneumatic Diaphragm Type Direct Actuator, Rev. 0
NYPA #209-100000314, 26 APK-1 Service Water Pumps, Rev. 0

Miscellaneous

AIT No. 615, Resolution of LTOP Setpoint Uncertainties (IEN 93-58), dated 6/10/93
EC Number 09294, Increase Relief Valve SI-855 Setpoint to 1670 psig, Rev. 0
EPRI TR-112175, Capacitor Application and Maintenance Guide, dated 8/99
IE Notice 93-58, Non-conservatism in Low-Temperature Overpressure Protection for PWRs, dated 7/26/93
IP3LO-2009099168, IPEC Focused Self-Assessment, dated 3/01/10
IP3-NSE-93-3-428, Nuclear Safety Evaluation Covering Breaker Interrupting Capability of the 480 Vac Switchgear Breaker (DS-416), Rev. 0
IP-RPT-07-00078, Maintenance Rule Structural Monitoring Inspection Report, dated 12/13/07
JPM No. 002, Align City Water to the Charging Pumps
JPM No. 004, Align City Water to the 31 RHR Pump
JPM No. 006, Isolate Steam to 32 Auxiliary Boiler Feed Pump
JPM No. 032, Initiate Feed and Bleed of the RCS
JPM No. 036-1, Perform the Required Actions Depressurize the RCS to Restore Inventory During a SGTR Using Normal Spray and Terminate SI
LE1bg, Background Information for Westinghouse Owner's Group Emergency Response Guideline E-1, Loss of Reactor or Secondary Coolant, Rev. 1
LES13bg, Background Information for ES-1.3, Transfer to Cold Leg Recirculation, Rev. 1
Letter No. E/P-070, IP3 System Interaction Study, Transmittal of Flooding Analysis, dated 10/25/83
Letter No. IPN-94-125, Status of Action Requirements for NRC Bulletin No. 88-04, "Potential Safety-Related Pump Loss", dated 10/07/94

LO-NOE-2009-00274, OE Impact Evaluation of IN 2009-10-Transformer Failures, dated 10/19/10
MOU between IPEC and ConEdison (NERC-001 Interface Agreement), dated 3/19/10
NSE 00-3-005-FW, Install Auto-Closure Feature for Main Feedwater Motor Operated Valves BFD-5s and BFD-90's, Rev. 0
SEP-SW-001, NRC Generic Letter 89-13 Service Water Program, Rev. 3
TDR-IP3-94-EL-029, Technical Deviation Request against IP3-CALC-EL-00114, dated 10/03/94
TS-MS-027, Service Water Piping & Piping Components, Rev. 3
Unit 3 138 kV Power System Health Report, 2nd quarter 2010
Unit 3 DC Power System Health Report, 1st quarter 2010
Unit 3 DC Power System Health Report, 2nd quarter 2010
Unit 3 DC Power System Health Report, 4th quarter 2009
Unit 3 Safety Injection System Health Report, 2nd quarter 2010
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Unit 3 Service Water Scanning Sonar Inspection, dated 9/25/09
Unit 3 Service Water System Health Report, 2nd quarter 2010
Unit 3 System Health Report, CVCS, 2nd quarter 2010
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WCAP -12313, Heat Sink Temperature Increase to 95 Degrees F at Indian Point Unit 3, Rev. 0
WCAP-7817, Seismic Testing of Electrical and Control Equipment, Rev. 0

Work Orders

00138625	00197792	51558902 01	52270466 01
00180368-01	00217067	51803566 01	52279262
00180369-01	00221278	52032846	52287991 01
00188651	00228639 01	52222663	94-01648-26
00190512	00239311	52230685	IP3-03-13996
00190650	51510568	52245272 01	
00191220	51558543 01	52263242 01	

LIST OF ACRONYMS

ADAMS	Agency-Wide Documents Access and Management System
AOV	Air Operated Valve
CAP	Corrective Action Program
CCW	Component Cooling Water
CDBI	Component Design Bases Inspection
CFR	Code of Federal Regulations
CR	Condition Report
DBD	Design Basis Document
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling Systems
EDG	Emergency Diesel Generator
GL	Generic Letter

IMC	Inspection Manual Chapter
IN	Information Notice
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IST	In-Service Test
JPM	Job Performance Measure
kV	Kilovolts
LOCA	Loss-of-Coolant Accident
LTOP	Low Temperature Overpressure Protection
MCC	Motor Control Center
MOV	Motor Operated Valve
MR	Maintenance Rule
MSL	Mean Sea Level
NCV	Non-Cited Violation
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
OE	Operating Experience
PARS	Publicly Available Records
PM	Preventive Maintenance
PSA	Probabilistic Safety Assessment
RAW	Risk Achievement Worth
RCP	Reactor Coolant Pump
RRW	Risk Reduction Worth
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SG	Steam Generator
SGTR	Steam Generator Tube Rupture
SI	Safety Injection
SPAR	Standardized Plant Analysis Risk
SRA	Senior Reactor Analyst
SST	Station Service Transformer
SW	Service Water
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
Vac	Volts Alternating Current