

POWER AUTHORITY OF THE STATE OF NEW YORK

INDIAN POINT NO. 3 NUCLEAR POWER PLANT

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April 7, 1983
IP-HHH-111

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

James A. Allen, Acting Regional Administrator
Region 1
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: Code of Federal Regulations
10CFR50.59
Changes, Tests and Experiments

Dear Mr. Allen:

The following constitutes the annual report on changes, tests and experiments for Indian Point 3 Nuclear Power Plant as required by 10CFR50.59.

The code of Regulations 10CFR50.59 a. specifies that changes to the facility as described in the safety analysis report, changes in the procedures as described in the safety analysis report and conduct of tests or experiments not described in the safety analysis report may be made without prior Commission approval provided the proposed change, test or experiment does not involve a change in the technical specifications incorporated in the license or constitute an unreviewed safety question.

All the electrical modifications have been designed considering original separation criteria thus maintaining the integrity of electrical separation where required. These modifications were installed in accordance with standards equal to or better than those used during original installation. These modifications have been therefore deemed to not involve an unreviewed safety question.

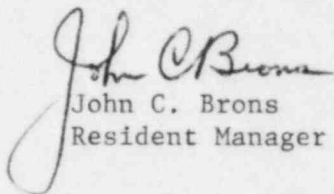
Any welding on the involved modifications has been accomplished using appropriate plant specific procedures based on applicable codes. These modifications were designed considering both thermal growth and seismic criteria as appropriate. They were also fabricated and installed in accordance with standards equal to or better than those used during original installation. These modifications have been therefore deemed to not involve an unreviewed safety question.

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A description of such changes, procedures and tests performed at Indian Point 3 and a summary of the safety evaluations of each for the period of January 1, 1981 to December 31, 1981 are contained in Attachment I. Each has been reviewed to ensure that the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report has not been increased, the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report has not been created, or the margin of safety as defined in the basis for any technical specification has not been reduced. It was concluded that the changes, tests and experiments do not constitute an unreviewed safety question.

Very truly yours,


John C. Brons
Resident Manager

HHH:jd
Attachment

cc: Robert De Young, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Attn: Documents Control Desk

IP3 Resident Inspector's Office

I. Modifications and Evaluations

78-03-023 IA - Installation of a Breathable Air System Inside Containment

This modification provides a source of clean breathable air for maintenance personnel at selected locations inside the Containment Building.

The modification consists of a compressor package, refrigerant dryer, a breathing air purifier, moisture traps, air hose manifolds, and associated valves, piping and instrumentation.

During a plant shutdown, the breathable air system may be placed in service by connecting the piping to a specific containment penetration. Prior to plant operation, the piping is disconnected from the penetration and the penetration is blank flanged and tested for leak tightness. Supports for this modification were designed and fabricated in accordance with seismic criteria for category I components.

79-03-021 CVCS - Charging Pump Suction and Discharge Pulsation Dampeners

This modification involves the installation of pulsation stabilizer/separators in the 4" suction lines and the installation of pulsation dampeners in the 3" discharge lines of the positive displacement charging pumps No. 31, 32, and 33 to reduce hydraulic pulsations during operation. Previously the stabilizer/separator portion of the modification had been installed in all three pumps. A discharge pulsation dampener has now been installed on charging pump No. 31.

79-03-035 STR - Access to V.C. Light Above 95' Elevation

This modification provides an easier method for lighting replacement or repairs in the upper part of the containment building. The original procedure for lighting repairs required personnel to be in close proximity to the high voltage collector rings for the polar crane.

A structural steel platform was installed at the approximate level of the lighting above the collector rings. The platform is supported off the crane trolley on the side of the trolley facing the extended end of the crane. Access to the platform is by ladder from the crane trolley platform. With the crane trolley moved to the trolley stops, the extended platform will clear the containment duct work and allow unobstructed rotation of the polar crane. During lighting repairs or replacement, the trolley can be moved as close to the stops as necessary to allow the lights to pivot as required. The platform is located off the trolley centerline to avoid interference with hook, block and cable swing during trolley movement.

80-03-020 FP - Fire Control and Alarm System CO₂ System Electrical and
Instrumentation Installation

The purpose of this modification was to complete the physical and mechanical installation of all electrical and instrumentation items for the CO₂ Fire Protection System. The following portions of the system have been installed and are fully operational:

Zone #7, El. 33' Control Building, Cable Spreading Room
Zone #8, El. 15' Control Building, Switchgear Room
Zone #31, El. 31 Diesel Generator Room
Zone #32, El. 32 Diesel Generator Room
Zone #33, El. 33 Diesel Generator Room

The above portions of the CO₂ fire protection system were installed under the PASNY Q.A. program since they protect areas containing safety related equipment.

The remaining portions of the CO₂ fire protection system for non-safety related equipment are partially installed and will be operational in the near future.

80-03-029 WDS-L - Use of Containment and Recirculation Sump As
Temporary Storage Facility

This evaluation allowed the use of the containment sump and the recirculation sump as temporary radioactive waste water storage areas for the various drains in containment until such time that the volume of radioactive waste water in the waste holdup system could be processed. The use of these sumps for this purpose did not detrimentally affect the previous calculations of the containment water level considering postulated Post-LOCA conditions.

The existing containment sump has the capability to store 4,700 gallons of water and the recirculation sump has the capability to store 13,067 gallons of water. The use of these combined sumps would afford the site the opportunity to temporarily store an additional 17,767 gallons of waste water.

With this additional temporary storage capacity, it was possible to avoid excessive filling of the waste holdup tanks. When the existing volume of waste water was processed, the water held in the sump storage areas was transferred to the waste system for processing. A new Liquid Radwaste Storage Facility has been constructed to provide additional waste storage capacity (see 80-03-040 WDS-L below).

The use of the containment sump and recirculation sump as temporary waste water storage areas did not affect the environmental impact of the plant nor did it degrade the security plan or the fire detection and suppression systems.

80-03-039 SWS - Replacement of Service Water Pump Discharge Strainers

This modification replaced the Service Water System strainers to increase system reliability and reduce corrective maintenance.

The original Zurn Model 67 rotary strainers were replaced with new Zurn special 596 modified rotary strainers. The new strainer is a 360° type, subject to indirect flow, to replace the Zurn Model 67-120° strainer, subject to direct flow. The 360° design prevents wiper jamming and subsequent motor burnout, while indirect flow configuration prevents filter damage due to forces imparted by particles being removed. The model 596 is a continuous back flush strainer with 1/16" perforations. While new design characteristics assure differential pressure is below 4.5 psi, the new finer strainer provides better filtering than the original 1/8" perforated strainer. The strainer is 316 stainless steel to replace the existing cast carbon steel body with associated liner. The strainer motor is rated for a hostile environment, and is totally enclosed and fan cooled to provide service consistent with the local environmental conditions.

80-03-040 WDS-L - Construction of Liquid Radwaste Storage Facility

This modification involved the construction of a Liquid Radwaste Storage Facility located east of the existing Radwaste Facility. The new Radwaste Storage Facility conforms to the safety criteria of 10CFR part 50, 10CFR part 100 and Regulatory Guide 1.143. The waterproofing system provided is adequate to prevent contamination of the existing ground water.

The seismic joint adequately insures that in a seismic event the new structure will react independently of the existing structure.

The location of the opening in the existing wall is such that it will not affect the structural integrity of the existing building. The original east wall was designed to withstand a soil pressure of more than 24 feet. Locating the new building adjacent to the existing building's east wall removes all of the earth pressure and the resultant stresses. The additional stresses imposed by the penetration are less than those that were imposed by the original loading condition therefore the net result is a safer condition of stress in the existing east wall.

80-03-047 COND - Installation of Redundant Condensate Water Storage Tank Level Indication and Alarms

This modification consisted of the installation of two (2) tank level switches which are redundant to each other at the Condensate Water Storage Tank. These switches annunciate a category alarm in the Control Room indicating a low-low level in the tank. A tank level transmitter, redundant to existing LT-1128, has also been installed at the Condensate Water Storage Tank which serves the same function as existing LT-1128 by providing a new level indication in the control room. In addition, redundant limit switches are mounted at Condensate Transfer System Valves CT-6 and CT-64. Each limit switch energizes a red indicator light in the control room when these valves are "full open". The same limit switches also annunciate a category alarm in the control room when the valves are in other than the "full open" position.

80-03-061 - 480 V Undervoltage Relays

This modification installed new relays that trip the service transformer feeder and isolate the 480 V buses (2A, 3A, 5A and 6A) under degraded voltage conditions. These relays prevent potential damaging of the plant components on a sustained undervoltage condition as stated in the Degraded Voltage.

80-03-074 FP - Diesel Generator Air Intake Piping System - Diesel Generator Building

This modification provided for the installation of a Seismic Class I Air Intake Piping System for the diesel engines associated with Diesel Generators #31, 32 and 33. The air intake piping system is used to provide combustion air directly to the diesel engines from outside the diesel generator building. Previously, combustion air was provided locally at the diesel engines. However, when the CO₂ fire protection system was installed in the building, a means was necessary to enable the diesel engines to continue operating with proper combustion air during a CO₂ system actuation. Without this modification, the diesel generators could possibly trip during the CO₂ actuation resulting in severe damage to the diesel engines. The air intake piping system precludes this from occurring.

80-03-079 FP - Fire Protection - Fire Dampers

This modification involved the installation of seismically qualified fire dampers to maintain the integrity of the fire rated barriers separating fire zones. The following buildings contain these additional fire dampers:

- A. Fan House
- B. Primary Auxiliary Building
- C. Control Building
- D. Diesel Generator Building

The fire dampers were installed in existing HVAC system wall penetrations. All fire dampers have a U.L. label with a 3-hour fire rating. The damper assemblies are composed of integrally hinged sections of the folding blade curtain type.

All dampers in the Diesel Generator Building (Numbers 51 through 56 inclusive) and damper numbers 1, 2, 9, 10, 11, 12, 13 and 50 in the control building have electro-thermal links and are electrically connected to corresponding control relays and exhaust fan interlocks in the CO₂ system control cabinet. All other dampers are provided with fusible links.

80-03-092 ESS - Engineered Safety Features Electrical Override/Bypass Modifications

The installation of hinged safety covers involved the reset pushbuttons for the Safety Injection, Containment Spray, Containment Isolation Phase A and Phase B and Containment Ventilation Isolation Systems.

This installation requires deliberate operator action by lifting the safety cover prior to pushing the reset pushbutton of any of the above mentioned engineered safety features.

The reset relays and their associated contacts were removed from the actuation scheme of the Containment Ventilation Isolation System to prevent the system from being placed in a bypass (reset) condition while the automatic containment spray or containment Phase A isolation signal is present.

The contacts of the safety injection relay were removed from the actuation scheme of the containment spray system to ensure that the automatic containment spray signal will actuate this system at the containment high-high pressure setpoint independent of the status of the safety injection system.

80-03-094 FCU - Fan Cooler Unit Cooling Coil Tube Modification

This modification allowed U-tubes in No. 31 fan cooler unit to be plugged. This involved cutting a window in the 4" cupro-nickel inlet and outlet coil headers. Fabricated plugs were installed and soldered in place. The windows were then replaced in the headers.

80-03-107 WDS-L - Installation of Flow Transmitter to Monitor Waste Condensate Pumps' Discharge to River

Previously, the waste condensate pumps' discharge flow to the river was measured using an in-line flow meter (FT-1064) which provides local indication, via FI-1064, at the waste disposal/boron recycle panel. The new flow transmitter is an ultra-sonic type, utilizing a pair of transducers which was mounted on a horizontal section of line #263 just downstream of RCV-018 in the room housing the waste condensate tanks and pumps, on elev. 55'-0" of the PAB. The flow computer (transmitter) was mounted on the waste disposal/boron recycle panel and provides local indication (both flow and totalization) via its own digital display. This flow computer provides a signal to a recorder on the flight panel in the control room.

Neither the waste condensate pump discharge piping nor the waste disposal/boron recycle panel are seismic category I. Therefore, this was not a Category I installation.

81-03-003 WDS-G - Manual Isolation Valves on Gas Sample Header

This modification adds a manual isolation valve in each of the following gas sample flow paths at the gas sample header in the Gas Sampling Room on the 55' elevation in the PAB:

- Spent Resin Tank
- Pressurizer Relief Tank
- Large Gas Decay Tanks
- #31, #32 and #33 Holdup Tanks
- Small Gas Decay Tanks
- Boric Acid Evaporator

The original design of the Gas Sampling System intended to automatically sample and analyze selected equipment. Due to the intrusion of process water into the gas sample tubing from some of this equipment and the inability to remove this water with the system in the automatic mode, the sampling has been performed in a scheduled manual mode. To provide a more reliable means of isolating the respective gas sample flow paths, the manual isolation valves have been installed.

81- 3-007 WDS-G - Gas Sample Moisture Carry Over Improvements

This modification included improvements to the Gas Sample System Inlet Gas Flow Path to the MSA Gas Sample Cabinet. The improvements are as follows:

1. The addition of a nitrogen supply header connected to the gas sample inlet header to the gas sample cabinet. The nitrogen header has provisions to provide a purging supply of nitrogen from the PAB Nitrogen Bank or from a local bottle supply in the Sample Room on the 55' elevation in the PAB.
2. The addition of a water trap in the Sample Gas Flow Path just upstream of the Gas Sample Cabinet. The water trap has a level control system which when placed in service is automatically purged of trapped water when the high water level mark in the water trap bottle is reached.

The nitrogen supply header is intended to perform the following functions:

1. Purging of the Gas Sample Flow Path to remove moisture which may have been entrained in the Gas Sample System.
2. Perform leak testing of the gas sample headers and connections.
3. Provide the motivating force to remove trapped moisture from the water trap just upstream of the sample cabinet.

The water trap system is intended to perform the following functions:

1. Remove entrained moisture from the gas samples to prevent damaging the oxygen and hydrogen sample instrumentation within the gas sample cabinet during periodic sampling of process tanks.
2. Direct the trapped moisture to a suitable drain.
3. Serve as a means to store and release controlled gas samples to the plant vent for calibration of R-14 Process Gas Monitor.

81-03-008 WDS-G - R-14 Monitor Calibration Flow Path From The Gas Analyzer

This modification was installed to allow easier calibration of the Plant Vent Gas Monitor R-14. The modification consists of the following:

1. Addition of stainless steel tubing and a manual isolation valve between the gas sample analyzer effluent header to the plant vent stack upstream of the R-14 monitor.
2. Addition of a pressure gage to the existing water trap bottle upstream of the gas analyzer cabinet.

The pressure gauge installed on the water trap bottle provides indication of calibration gas state in the bottle and can be used to determine the controlled gas quantity to prevent an uncontrolled release during calibration activities.

The connection from the gas analyzer effluent header to the plant vent stack provides a flow path for the calibration gas from the water trap bottle to R-14.

81-03-013 COND. - Replacement of CS-2 Valves

This modification replaced the existing CS-2 Condensate Suction Valves, manufactured by the Henry Pratt Co., with Series 8000 Jamesbury Wafer Valves.

The existing valves were removed from the Condensate System and a flanged stub fabricated at the existing 30" suction tap attached to the 54" header. A 10" flanged spool piece was fabricated to allow removal of the existing in line strainer assembly for cleaning without removing the new wafer valves.

81-03-015 H₂ - Addition of Hydrogen Vent At Truck Fill (F.S.B.)

This modification added hydrogen venting capabilities in the location of the hydrogen truck fill inlet connection on the south wall of the Fuel Storage Building.

The addition of a venting mechanism installed between the existing isolation valves further insures the safety concerns of transferring hydrogen by assuring that in the event of isolation valve leakage, escaping hydrogen will be vented to atmosphere and will not threaten the integrity of the conventional low pressure hydrogen system.

81-03-034 EL - No. 32 Main Transformer Replacement Project

This modification involves replacement of a failed 345 KV Westinghouse Transformer with a 345 KV General Electric Unit. Although the name plate values are the same, the physical design features of the G.E. Transformer differ from those of the Westinghouse. Therefore design modifications were needed in order to install the General Electric Transformer. The main areas that needed modification were the isophase bus connections, the 345 KV power line terminations, the transformer control power, control room alarm circuitry and the fire protection deluge system.

81-03-041 SWS - Sectional Replacement of Line #1096 Service Water Piping

This modification replaced a section of service water piping which had begun to deteriorate.

The modification involved the replacement of a section of line No. 1096 Service Water Piping. The original pipe was carbon steel, cement lined and the replacement was ASTM A 312 TP 316 stainless steel. The replacement pipe was fabricated and replaced in the system with the same configuration as the original piping.

81-03-046 SWN - Repair of Service Water Check Valves (SWN-1)

This modification provided a procedure for the application of Belzona epoxy coating to the Service Water pumps discharge check valves (SWN-1).

The river water had eroded and corroded the disc and hinge bracket of the service water check valves to the point of requiring repair as well as protection from further damage. To correct this problem, the surfaces of the bushing housings hinge pin housing and the inside surfaces of the valve body were coated with Belzona.

The use of Belzona is ideally suited to correct this condition because of the following:

1. The resistance of the valve to erosion and corrosion will be greatly improved with the application of Belzona. This will eliminate the erosion, corrosion problem thereby maintaining the structural and functional integrity of the valve.
2. Weld repair and heat damage is avoided.
3. The time required to refit the bushings and hinge pin is reduced.
4. The time required for the Belzona repair is considerably less thus limiting down time of safety-related equipment.
5. The ability of Belzona Metal to remain on the applied surface (Tensile Shear Adhesion) is many times greater than the forces exerted by the service water flow to remove it.

81-03-047 MS - Repair of Atmospheric Steam Dump Valves

Main Steam System Valves PCV 1134, 1135, 1136 and 1137, which operate at 1190 psig maximum, 650 psig normal and 568°F maximum, 508°F normal, suffered steam erosion damage behind the outlet end stainless steel seat. The valve body is ASTM A 216 Grade WCB carbon steel and the seat material is a 17-4 PH stainless steel. An acceptable repair procedure and engineering evaluation were needed for the valves to be repaired and placed back in service.

Due to erosion of the threads in the seat ring, the existing one had to be cut out and a new seat ring welded in. A review of the operation of the valves and service conditions showed these areas were in the non-pressure retaining steam outlet end.

81-03-048 BD - Furmanite Cat. 1 Blowdown Valves/Temporary Seals

This modification allowed the use of Furmanite compound to repair packing leaks on Category 1 Blowdown valves for temporary sealing purposes.

The services of Furmanite Inc. were required to drill and tap the gland housing of subject valves, install an injector mechanism, and inject furmanite compound into the gland seal housing. A log is kept, by the installer, on the amount of furmanite compound injected and the amount recovered if any to insure against excessive injection. Furmanite is a solid thermosetting compound with a natural rubber base. The compound is not adhesive and can be removed if desired.

Data indicated that furmanite has the capability of effective seals at temperatures up to 1100°F and pressures as high as 4800 psi.

The use of furmanite has been reviewed from a chemical property view point and has been found to be acceptable for the blowdown system and for previous use on the reactor coolant system. Research on compound Nuclear Grade Fiber-Cart indicates that no detrimental effects to the system integrity or pressure retaining components of the valves will occur from the injection into the valve bonnets.

81-03-062 FCU - No. 32 Fan Cooler Unit Leakage Inspection

This modification allowed cutting of a 2" wide x 6" high "inspection window" in the 6" channel that separates the cooling coil assemblies #3 and #7 of No. 32 Fan Cooler Unit.

A visual inspection between coil assemblies #3 and #7 was required to determine if an apparent leak at coil #3 was not actually a leak at coil #7 blowing across to the #3 coil assembly.

The inspection window established in the 6" separation channel was welded closed upon completion of the tube inspection and repair, thereby maintaining unit structural integrity. The seismic criteria was not affected.

II. Procedures

There were no special procedures required to be reported during this period.

III. Test and Experiments

There were no special tests or experiments required to be reported during this period.

IV. Summary of Safety Evaluations Concerning Organization Changes

The original headquarters structure for management and technical support for Indian Point 3 Nuclear Power Plant are contained in Section 12.1.1 of the Final Safety Analysis Report (FSAR) and the Facility Operating License (FOL) Section 6.2 of Appendix A (Technical Specifications) and Section 6.6 of Appendix B (Environmental Technical Specifications). The FOL was amended as applicable to reflect the current management structure changes as they occurred.

The following Safety Evaluations were performed to provide the basis for determining whether or not the changes involved an unreviewed safety question pursuant to 10 CFR 50.59:

1. NSE-NYO-009, "Safety Evaluation - Authority Organization Change" dated January 20, 1981, relates to the change in the reporting relationship of the On-Site Safety Review Group from the Senior Vice President - Nuclear Generation to the Manager, Nuclear Operations.
2. NSE-NYO-011, "Safety Evaluation - Qualification of Inspection, Examination, and Testing and Audit Personnel" dated July 27, 1981 related to compliance with Regulatory Guides 1.58 (Revision 1, September 1980) and 1.146 (Revision 0, August 1980).
3. NSE-NYO-013, "Safety Evaluation - Authority Organization and Management Title Changes" dated December 11, 1981 relates to the reorganization of the Nuclear Generation Department and title changes. The management structure for operations and technical support was realigned by nuclear facility and related reactor technology. The Nuclear Licensing, Nuclear Technical Support and Operations Divisions of the Nuclear Generation Department are replaced by BWR and PWR Technical Support Divisions - each headed by a Vice President. Four Directors (Nuclear Licensing, Nuclear Operations and Maintenance, Project Engineering and Reactor Engineering) report to each of these Vice Presidents. The staff position of Manager - Nuclear Safety Evaluation was created. An Operational Analysis and Training Division was created and the reporting relationship of the On-Site Safety Review Group was changed to the Operational Analysis and Training Manager. The reporting relationship of the Safety Review Committee was changed to the Senior Vice-President - Nuclear Generation. The title of the Manager - Radiological Health and Safety was changed to Manager of Radiological Health and Chemistry. The Director of Quality Assurance was elevated to the position of Vice President of Quality Assurance. The Director of Safety and Security was replaced by two independent positions, Director of Security and Director of Safety and Fire Protection.