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Nuclear Power Plant
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New York Power Authority

November 28, 1983
IP-LAH-1208

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

Dr. Thomas E. Murley, 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 Dr. Murley:

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 Federal 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.

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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 orginal installation. These modifications have been therefore deemed to not involve an unreviewed safety question.

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, 1982 to December 31, 1982 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

John C. Brons
Resident Manager

LAH:jd/01
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

ATTACHMENT I

Modifications & Evaluations

78-03-063 FP - Fire Protection System

This modification was developed to improve plant fire protection and involved the installation of buried piping along the outer perimeter on the east side of P.A.B. and piping penetrations through the east P.A.B. wall and through the north side of the pipe tunnel leading to the waste holdup tank pit. The majority of the piping is used as a fire protection water supply to the P.A.B. The remainder includes a potable water heater and a demineralized water heater which supplies the radioactive machine shop.

The modification has been designed and was installed in accordance with all applicable codes and standards. The core boring required in the P.A.B. and pipe tunnel was evaluated and it was determined that it does not affect the seismic capability of these structures.

78-03-078 RCS - Replacemnt of Blind Flanges with Swagelok Caps

A majority of vent and drain valves are provided with flanged outlets capped with blind flanges when not in use. These flanged joints required a new gasket every time they were broken apart and capped. On some high pressure systems these flanged connections can be very large and bulky compared to the size of the connection. Replacement of the flanges with swagelok caps on some of the more troublesome connections reduces the mass of the vent or drain, allows rapid capping and uncapping and permits re-use of all components.

The replacement reduces the mass of the connection thus reducing fatigue and stress on the associated components and welds. The properly installed swagelok connection will remain leak-free far beyond the allowable working pressure of the heaviest tubing of the same size. Swagelok fittings have been repeatedly tested to the burst pressure of the heaviest wall tubing for each size. These pressures are far in excess of any pressures that these connections would ever be subjected. The reduction in time required for capping and uncapping reduces radiation exposure to personnel.

78-03-081 WCCPP - Install Test Connections in the WCCP Lines to the Equipment Hatch and Personnel Airlock

Valves and caps were added to provide the capability of leak testing the weld channel and containment penetration pressure system for the equipment hatch and airlock.

The valves, tees, and caps were fabricated and installed to the same requirements as the existing piping. The valves are manually operated and used only for testing. This modification was designed in accordance with applicable seismic criteria.

System operability is therefore not affected and the modification does not create the possibility of an accident or malfunction of a different type than previously evaluated in the FSAR. The WCCPP system function has not been altered, therefore, the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report was not increased.

78-03-087 FP - New Fire Protection Water Storage Tanks

The two new tanks provide water storage for fire protection and domestic water needs.

Each tank has a 350,000 gallon capacity with 300,000 gallons in each tank being reserved for fire protection.

The tanks have been designed to meet the requirements of NFPA-STD-22-1976 and AWWA D100. Welding during the installation was performed by welders qualified in accordance with the requirements of ASME Code, Section IX, and was performed in accordance with written procedures that complied with requirements of AWWA D100. All welds were inspected, tested and repaired in accordance with AWWA D100. Certified mill test reports for pressure retaining materials have been provided in accordance with ASTM specification and include mechanical and chemical properties.

This modification imposed no compromise of the integrity of the existing fire protection system. The reliability of the fire protection system to perform its function has been increased since it will make the Unit 3 Fire Protection system independent from Units 1 and 2 fire protection system.

79-03-001 FP - Fire Protection - CO_2 System

This modification involves the installation of a low pressure CO_2 system which provides fire protection for the turbine generator bearings, cable spreading room, relay room, and battery rooms.

The Fire Protection scope of work satisfies three major concerns: to have a completely independent Fire Protection system for the Indian Point 3 Site; to comply with NRC Branch Technical Position 9.5.1 dated May 1, 1976; to comply with requests of American Nuclear Insurers (ANI).

A QA program in accordance with Branch Technical Position 9.5.1 was imposed where applicable. Installation of all piping, supports and controls that fall within the QA Program, were in accordance with PASNY QA program requirements for Category I work. The remaining portions of the Fire Protection Program installation work complied with the various specifications technical requirements.

The design of the CO_2 Fire Protection Systems was designed in accordance with the National Fire Protection Association NFPA Standards 12, 13, and 70, and ANSI B31.1 power piping code. This modification was designed in accordance with applicable seismic criteria. Electrical separation was in accordance with the Electrical Separation Implementation Design Guide. The design has been reviewed to evaluate the effects on safety systems, of carbon dioxide leaks resulting from cracks in the piping or inadvertent system operation. All areas have a Low-Fire Load rating, except the turbo-generator lubricating oil systems which are not safety related and are remotely located from safety related zones. Failures of piping or system operation cannot damage any safety-related equipment or prevent the safe shutdown of the unit.

79-03-029 PW - Install Demineralized Water Header Inside V.C.

The purpose of this modification is to provide a demineralized water system, both hot for decontamination and cold for hydrostatic testing and flushing inside containment. Also it provides a source of water for standby fire protection within the containment building.

Installation of this system provides a source of water for purposes noted and not previously obtainable. This modification was designed in accordance with applicable seismic criteria. No feature of the modification compromises lines previously analyzed for the FSAR.

79-03-032 SG - Secondary Side Steam Generator Temperature Indication

The purpose of this modification is to ensure that a reactor coolant system pressure spike will not occur during starting of a reactor coolant pump.

The modification consisted of the installation of a platinum-wound resistance temperature detector (RTD) and well assembly in a lower secondary side handhole cover on each of the four (4) steam generators. The original handhole cover was replaced with a new cover. This cover was drilled to suit the RTD well. The well was inserted through the plate and welded. The entire assembly was then installed and RTD inserted. The well extended into the tube lane of the steam generator and is partially protected by the wrapper assembly.

Each of the four RTD cables run through electrical penetration H-25 and are routed to a rotary selector switch on Panel SAF in the Control Room. Alternately, through the switch, each of the RTD's are connected to a RTD/I converter in Rack A-6 which changes the signal and operates a recorder located on Panel FDF.

As each reactor coolant pump is started, the operator can set the switch to the related steam generator temperature measurement. This insures that the operator has knowledge of the secondary side temperature being within 50°F of the primary coolant temperature. The primary coolant system temperature indication already existed in the Control Room.

79-03-036 AS - Auxiliary Steam and Condensate Tie-Ins

This modification provides for the tie-in of the steam and condensate systems associated with the new Auxiliary Boiler Annex with existing systems in the Turbine Building. This modification does not involve reactor safety/protection. Its failure will not affect surrounding Seismic Class I structures or components. The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report will not be increased.

79-03-047 FP - Fire Protection System - Fire Pump House and Loop Piping

This modification involved the installation of new fire loop piping and modifications to the existing fire loop to provide a tie-in to the new fire pumps and fire water storage tanks. It also included the mechanical portion of the installation of the fire pumps, associated piping and components.

The Fire Protection Program scope of work satisfies three major concerns: to have a completely independent Fire Protection System for the Indian Point 3 Site, to comply with NRC Branch Technical Position 9.5.1 dated May 1, 1976, to comply with requests of American Nuclear Insurers (ANI).

The design of the Fire Protection Systems is in accordance with Burns and Roe Specifications, National Fire Protection Association NFPA Standards and ANSI Power piping.

This modification was designed in accordance with applicable seismic criteria. Electrical separation is in accordance with the Electrical Separation Implementation Design Guide. This modification does not affect the environmental impact of the plant nor degrade the Security Plan.The new system is an extension of the existing Fire Protection System and provides increased protection for the plant and therefore does not degrade the Fire Detection and Suppression System.

79-03-127 RMS - Containment Building High Range Radiation Monitors

The purpose of this modification was to install two high range noble gas monitors in containment with a maximum range of 10^8 rad/hr. They are designed to operate during accident conditions as well as during normal operation conditions. This will execute compliance of NUREG 0737.

Coaxial cable was routed from the containment detectors through conduit to the containment penetration(s). The existing tri-axial cables were utilized to achieve penetration. From the tunnel side of the penetration the coaxial cables were routed through conduit to the area where they penetrate the control room floor into the control room to their respective panels. All materials and fabrication conformed to Category I requirements including conduit installation. The monitor was designed to meet Class 1E safety requirements, qualified to meet IEEE 323-74 and 344-75 and "worst case" required response spectra by using composite data from eight (8) power plants. Electrical penetrations are planned to be replaced with IEEE 323-74 qualified types. This is being done because the original penetration does not meet this standard. Separation criteria requirements were respected in that each system was powered from a separate instrument bus.

80-03-051 ESS - Containment Building Pressure Monitors

This modification was designed to comply with NRC Regulatory Guide 1.97, Proposed Revision 2, which required a continuous indication of containment building pressure during and after an accident.

This modification makes possible the continuous monitoring of containment pressure well above the existing system which fulfills the criteria of NUREG-0737. In addition, it meets the requirements of Standards IEEE-323-1974 and IEEE-344-1975. Power requirements for the two systems were met from vital instrument buses. The installation of cable and conduit was consistent with separation criteria. All cables met IEEE-383-1974 and FSAR Bonfire Tests. This modification was designed in accordance with applicable seismic criteria. The containment pressure transmitters equipment qualification is pending final NYPA review and NRC approval.

80-03-060 EL - Transient Recorders on Instrument Buses 31, 32, 33 and 34

Voltage spikes (transients) occasionally occur on Instrument Buses 31, 32, 33 & 34. This event could cause a unit trip which requires N.R.C. notification. In order for the unit to come back on line, the cause of the trip has to be identified. Monitoring these buses will assist in identifying the problem and correcting it quickly if the problem exists on any one of the instrument buses.

Monitoring the instrument buses will be accomplished with the use of four oscilloscopes and one strip chart recorder (oscillograph). This modification was designed in accordance with applicable seismic criteria and meets the applicable requirements of the electrical separation implementation design guide.

These modifications do not increase the probability of an occurrence or consequences of an accident or malfunction of equipment important to safety that has been previously evaluated in the FSAR.

80-03-076 MULT - Piping Encapsulation for Hydrogen Recombiner Shielding

The purpose of this modification was to reduce radiation fields in the pipe penetration following a LOCA, allowing extended operator access to the Hydrogen Recombiner Controls. Shielding modifications were installed to provide adequate access to this area.

In order to permit such accessibility, a shielding scheme was used which consists of concentric semi-cylindrical shielding encompassing the source and thereby maximizing the shielding influence zone while minimizing the required shielding mass. The encapsulation shielding materials were lead and steel. The steel encapsulation was selected because of its high attenuation coefficient, its excellent structural properties and its corrosion resistance. Lead assemblies, which serve as additional shielding where required, were bolted directly to the steel encapsulation shielding/support assembly.

The temperatures that the encapsulation will be subject to after an accident is well below the melting point of lead. Existing insulation was removed to reduce the diameter of the shielding, thereby reducing the amount of lead and steel required. Any additional heat transfer outside of the RHR heat exchangers as a result of the removal of this insulation will in no way be detrimental. The encapsulation scheme will in fact perform the same personnel protection function as the insulation. Seismic loads were addressed in the encapsulation design and the final designs have been seismically analyzed.

The encapsulation will not inhibit any growth of the lines being shielded and encapsulation does not contact the shielded lines thereby adding additional loads to these lines. The slab which is accepting the encapsulations mass can accept the

additional loads within design limits. All anchor bolt, structural shape and baseplate is in accordance with current criteria.

80-03-081 WDS-L - Liquid Radwaste - Interconnections for New Facility

This modification involves a core bore into reinforced concrete and the installation of piping, tee's and isolation valves in the existing liquid radwaste holdup influent lines at the point of interconnection with the piping to the proposed new holdup facility. The work was performed in the existing Waste Holdup Tank Pit.

The addition of the two branch connections to the existing liquid radwaste lines does not impact the safety function of the waste disposal system. The isolation valve provided in each branch connection and the pipe cap welded to the pipe stub on the outlet of the isolation valve maintain the pressure boundary of the existing system.

The added piping and valve for each seismic Class I line was seismically supported out to the first anchor point. The added mass of the new piping is considerably less than that of the existing piping system. This resulted in low seismic stresses below the design allowables in the existing system.

Failure of the branch connections will not damage any safety related equipment or prevent the safe shutdown of the unit. Since all of the piping and valves associated with this modification are located below grade in a leak tight seismic Class I concrete vault, failure of the branch connections will not cause the off site radiation dose rate to exceed allowable limits.

80-03-108 WDS-L - Liquid Radwaste Storage Extension Mechanical/Electrical Systems

This modification involved the installation of mechanical and electrical systems to increase the capacity of the existing low level radioactive liquid waste holdup system. The work was performed in the existing Waste Holdup Tank Pit as well as in the building added to extend the Waste Holdup Tank Pit.

The extension of the waste holdup facility does not adversely impact the safety function of the Waste Disposal System. The equipment added for the extension is located within a leak-tight concrete structure below grade. Failure of the mechanical/electrical systems added for the facility extension will not damage any safety related equipment or prevent the safe shutdown of the unit. All piping connected to seismic Class I Waste Disposal System piping is seismically supported out to the first anchor point. This modification had no additional impact on the existing plant environment.

The work was performed in accordance with the quality assurance guidelines of NRC Regulatory Guide 1.143.

The required borings through the existing end wall adjacent to the new structure have no adverse effect on the structural integrity of this wall since all horizontal external loads have been removed due to excavation. In the existing interior walls, the sizes of the holes were kept to a maximum of 6" diameter. The

stresses imposed on these walls after core boring are much less than the allowable stresses for which these walls were originally designed.

The seam welded pipe has been analyzed to comply with the existing site design specification. An analysis performed assured that the ratio of the maximum calculated stress to the allowable stress, is adequate for this installation.

80-03-115 ESS - Engineered Safety Features Electrical Override/Bypass Concerns, Status Lights Indication

The purpose of this modification was to install multi-light control indicators for the manual reset pushbuttons in the Containment Isolation Phase A and B Systems, manual reset pushbuttons for the Containment Spray System, and for the automatic S.I. actuation pushbuttons.

The modification provided for new indicators to be installed in the Control Room Supervisory Panels SNF and SBF-1 and replacement of one indicator in the SBF-2 panel. These indicators reflect the new operational mode established by MOD 80-03-113 ESS, which consisted of a) an additional set of normally closed contacts on the manual actuation pushbuttons in the Containment Spray and the Containment Isolation Phase A System; and b) a manual actuation pushbutton Containment Isolation Phase B System. The new indications, which indicate the status of the systems once they have been manually reset, are:

1. Auto Cont. Spray Train A Blocked.
2. Auto Cont. Spray Train B Blocked.
3. Auto Cont. PH A Iso. Train A Blocked.
4. Auto Cont. PH B Iso. Train A Blocked.
5. Auto Cont. PH.A Iso. Train B Blocked.
6. Auto Cont. PH.B Iso. Train B Blocked.
7. Auto S.I. Actuation Train A Blocked.
8. Auto S.I. Actuation Train B Blocked.

Items 7 and 8 replaced the present "S.I. Auto Block" indicator in the SBF-2 panel which required the blocking of both A and B trains. The new indicator shows when A or B train is blocked separately.

81-03-010 SWS - Cross-Over Piping from 4" Line #494 to 2" Line #12

The purpose of this modification was to radiologically monitor the service water return from the Fan Cooler Unit motor coolers. This capability allows monitoring of all service water discharge from the Fan Cooler Units during both normal and emergency situations.

The installation of crossover piping from line #494 to line #12 now allows the discharge from the fan cooler unit motor coolers to be monitored by existing detectors RE-16 and RE-23.

Upon indication of radioactivity in the effluent, each Fan Cooler Unit will be individually isolated to locate the defective cooling coil. When identified, the defective cooling coil will remain isolated and the other Fan Cooler Units will be

allowed to remain in service. Radiation levels measured by detectors RE-16 and RE-23 are monitored and recorded at regular intervals.

This installation will allow monitoring of the facility effluent discharge paths for radioactivity released during normal operations, from anticipated transients and from accident conditions.

81-03-021 EL - Emergency Diesel Generator Standby Power Supply to Meterological Facility

The purpose of this modification was to ensure that the Indian Point site meteorological facility is sufficiently powered regardless of the condition of its normal power supply. This was accomplished by employing a diesel generator as a standby power supply. Diesel starting and power source transfer will be automatic upon loss of normal power.

The installation of this diesel generator was in response to and in accordance with NUREG-0654, Rev. 1, Appendix 2 and Appendix A, Annex 1, Part 1.C.4 of the NRC's February 11, 1980 Confirmatory Order to the Indian Point 3 Facility.

81-03-023 RCS - Additional Pressure Gauge for the Reactor Coolant System

The purpose of this modification was to achieve the capability to remotely read the pressure of the Reactor Coolant System in case of failure of Pressure Transmitters Nos. 3PT-402 and 3PT-403 in the event of a postulated LOCA.

The tie-in to the Reactor Coolant System is Seismic Class I. This modification was designed in accordance with applicable seismic criteria.

81-03-029 AFW - Installation of Aux. Boiler Feed Pump Turbine Missle Shield

The purpose of this modification was to install an auxiliary boiler feed pump missile shield to protect safety related systems and instrumentation in the vicinity of the turbine in the unlikely event of a turbine disc failure.

The maximum kinetic force exerted by the internally generated missiles impinging upon the missile shield is less than half the available strain energy exerted by the shield to retain them. The gauges removed from the auxiliary boiler feed pump No. 32 Turbine Gauge Board were relocated to the auxiliary boiler feed pump control panel to facilitate missile shield installation.

This modification was designed in accordance with applicable seismic criteria.

82-03-001 CVCS - Interconnection of FI-115 and 116 Tubing

The intent of this modification was to enable monitoring of RCP #34 Seal Injection Flow with FI-116 in lieu of FI-115.

FI-115, 116, 143, and 144 are local flow indication gauges used to monitor RCP Seal Injection Flow to RCP #34, 33, 32, and 31 respectively. FI-115 was defective requiring a replacement gauge which had a long lead time for delivery. Due to the immediate unavailability of a replacement gauge, the tubing was modified to enable monitoring of RCP #33 and 34 via a common flow indicator gauge (FI-116)). Through manipulation of the respective valve manifold, RCP #33 or RCP #34 Seal Injection Flow could be measured via common gauge FI-116. FI-115 has since been replaced. The cross-connect tubing is left in place if this problem should reoccur.

82-03-008 RMS - Installation of Flow Metering Devices for Containment and Plant Vent Post Accident Sampling Systems

The purpose of the modification was to install flow metering devices in the containment and plant vent sampling systems which allow regulation of sample flow. This flow meter has isolation and bypass capabilities for the containment air and plant vent sampling systems. An additional sample filter housing was installed in each system to allow separator filtration for both particulate and iodine sampling, thus offering a means to minimize radiation exposure levels per NUREG 0737 II.F.1.

The piping and fittings installed are Non-Category I as allowed by the original system design. The rotameter supports attached to the existing enclosures are Category I and weld histories have been recorded. The additional weight and configuration of the new installation is negligible as compared to the existing seismic structure.

82-03-016 COND - CST Level Instrumentation Isolation Valves

The purpose of this modification was to install isolation valves and test tees on the Condensate Storage Tank Level Instruments LT-1128 and LIC-1102S to permit them to be independently calibrated and serviced.

In the past, the instrument impulse lines for LT-1128 and LIC-1102S and the impulse line for LC-1104S tapped off the same level connection to the Condensate Storage Tank. The level connection has an isolation valve and the instrument impulse line to LC-1104S has an isolation valve, but the instrument impulse line to LT-1128 and LIC-1102S did not have isolation valves.

The installation of individual isolation valves and test tees for LT-1128 and LIC-1102S improved plant safety by enabling independent isolation of the various level instruments thus ensuring that level indication is available in the control room at all times and that the various control and protective functions associated with the instruments remaining in service will not be disrupted during calibration.

82-03-028 FP - Fire Pump House Modifications

The purpose of this modification was to provide for improvements to the fire pump house and the pressurized fire loop. To prevent unnecessary operation of the main fire pumps due to "PULSE" in pressure, orifices were installed in the pressure

sensing lines. These orifices act as a hydraulic shock absorber and allow system pressure to recover before the main pump(s) start. To provide increased protection for the diesel fire pump batteries, they were relocated and supported on a rack in accordance with NFPA 20 section 8-2.6.5.

82-03-036 N_2 - Nitrogen Supply System Improvements

The purpose of this modification was to provide a means of cross-filling the N_2 Storage Tanks of the Isolation Valve Seal Water System (IVSWS) from the main N_2 Supply System.

A tie-in was made between the existing nitrogen supply headers and the IVSW System nitrogen bottles from the main nitrogen storage tanks. The tie-in included an isolation and check valve that meets the design requirements of the systems. All tubing was properly supported in accordance with sound engineering practices.

82-03-092 CB - Modification of Containment Building Penetrations C, E, & G

The purpose of this modification was to ensure the continued operational integrity of Containment Penetrations C, E, & G.

During performance test 3PT R35, Containment Penetrations C, E, & G were found to have cracks in their pipe to end plate welds outside of containment, but the steam and feed water penetrations were still within their allowable limits for weld channel leakage. Due to the thickness and type of the existing weld, weld repair was not practical. The modification consisted of a split ring which was welded over the existing pipe to endplate weld. The ring material was ASTM 516 Grade 60, to match the existing endplate. This modification restored the penetrations to their original condition, and thereby reduced the weld channel leakage rate. Calculations verify the modification will withstand the original design pressure. The split ring used in the modification was welded to and supported by the penetration sleeve and as such will not effect the seismic response of the main feedwater and main steam lines.

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-014, "Safety Evaluation - Authority Quality Assurance Program Changes" dated February 19, 1982, relates to the realignment of the QA Program Manual to conform to the current FSAR format.

2. NSE-NYO-015, "Safety Evaluation - Authority Organization and Management Title Changes" dated March 15, 1982, relates to the reorganization of various corporate financial and administrative services which were consolidated under a First Executive Vice President and Chief Administrative Officer. The new position of First Executive Vice President and Chief Administrative Officer reports directly to the President and Chief Operating Officer.