

MEMORANDUM FOR: New York Power Authority Assessment Panel (NAP) Members

FROM: Blake D. Welling, Reactor Engineer, DRP Section 1B

SUBJECT: **REVIEW OF INPO'S CORPORATE EVALUATION OF NYPA**

From December 20 to 22, 1993, the Institute of Nuclear Power Operations (INPO) conducted a review of New York Power Authority (NYPA) corporate support and monitoring of Indian Point 3 and FitzPatrick nuclear plants. INPO's observations and conclusions and NYPA's response were submitted to the NRC on January 31, 1994. During NAP meeting 94-02, the NAP agreed that a review of INPO's corporate evaluation should be conducted for any regulatory issues that may need follow-up inspection. The attached review identifies the major INPO conclusions and significant supporting findings and, for those that are regulatory issues, discusses NRC inspection activity which review these findings. One supporting finding related to the Indian Point 3 Motor Operated Valve program will require additional inspection support.

Blake D. Welling

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Reactor Engineer, DRP Section 1B

Enclosure:

1) Review of INPO's Corporate Evaluation of NYPA

NAP Members

R. Capra, NRR
B. McCabe, NRR
N. Conicella, NRR
M. Davis, NRR
G. Meyer, DRS
J. Joyner, DRSS
C. Cowgill, DRP
P. Eselgroth, DRP
W. Cook, SRI - FitzPatrick
G. Tracy, SRI - Indian Point 3

94-01-01	Conicella	Expedite NRR review of IP3 control building ventilation issue.	Open
94-01-02	Conicella	Provide list of proposed additions and modifications to Restart Action Plan to NAP members.	Closed
94-01-03	Conicella	Compile IP3 technical issues notebook.	Open
94-01-04	Cowgill	Updated status for Restart Action Plan.	Closed
94-01-05	Cook	Report when inspection of IP3 SIT report items has been completed at FitzPatrick.	Closed
94-02-01	Welling	Review INPO report for regulatory items which may require follow-up inspection.	Closed
94-02-02	NAP members	Review items on Restart Tracking List that meet the restart issue criteria.	On-going
94-02-03	Conicella/ Welling	Develop detailed description of Restart Tracking List items.	Open
94-02-04	Meyer	Review course of action for inspection support of Indian Point 3 MOV program.	Open
94-03-01	Capra	Follow up (review) results of OSRE.	Open
94-03-02	Conicella	Determine IP3 plans for MOV program commitments and for response to GL 89-10 Supplement 6. (Due date: 4/15/94)	Open
94-03-03	Cowgill/ Welling	Revision to Restart Action Plan.	Open

NYP&A ASSESSMENT PANEL

PROPOSED RESTART ISSUES FOR INDIAN POINT 3

DETAILED DESCRIPTIONS

During NAP meeting 94-02, we discussed the Indian Point 3 Restart Inspection Follow-Up Tracking List. This list is a compilation of the 32 original NRC restart issues (currently in the Restart Action Plan) and additional NRC inspection items which have some bearing on plant restart. This list of 108 items was screened by the NAP and it was determined that there were an additional 28 items that met the restart issue criteria, thus, should be included in the NRC Restart Issues List contained in the Restart Action Plan.

An action item was assigned during NAP meeting 94-02 for the IP3 Project Manager to develop a detailed description for each of the NRC restart issues. The first stage of this task was to develop a detailed description for each of the new restart issues (the additional 28 items) which is attached. Each issue also contains, in parenthesis, the recommended Restart Action Plan Section where the item should be listed.

During the development of the detailed descriptions for the new restart issues, it was determined that several minor changes needed to be made to the Follow-Up Tracking List. Please note, since one proposed change is to delete Item No. 73 since it is a duplicate of Item No. 4, there are actually 27 additional restart items. The proposed changes are as follows:

NUMBER PROPOSED CHANGE

52 Resolution of H2 Monitor Heat Trace Deficiencies on VC Sample Lines

This item was never discussed in an NRC inspection report. Therefore, we do not have enough information to determine if it should be a restart issue. The item should be reclassified as an IFI item until such time that it can be more thoroughly inspected and documented.

73 Resolution of Instrument Air Deficiencies

Delete this entire item since it is the same issue as Item No. 4. To avoid confusion, it is recommended that the Follow-Up Tracking List not be re-numbered.

85 Resolution of Numerous Valve Issues: MS non-return check valves S&K, MOV Weak Link Analysis, MOV Anti-Rotation Keys

Delete "MS non-return check valves S&K" from the title since this specific issue is addressed by Item No. 78

3. Most Indian Point 3 personnel said that a procedural adherence policy was not believed or philosophically accepted in the past.

Recurring procedural adherence deficiencies were identified in Indian Point 3 inspection reports 50-286/93-22, 93-27, 93-29. This finding will be further reviewed by on-going resident inspection activities and as part of the Indian Point 3 Restart Action Plan, Restart Issues Checklist, Item IV. 4.

4. The Indian Point 3 operations and training departments have not yet developed a detailed training plan for restart.

Operator and staff training and qualifications will be reviewed by the NRC in the Restart Action Plan, Restart Readiness Assessment Checklist, Section III.

III. CONCLUSION

Regulatory issues identified in the INPO corporate evaluation of NYPA are addressed by NRC inspection activities, NAP oversight, and the Indian Point 3 Restart Action Plan, with the exception of a finding related to the Indian Point 3 MOV program. Additional inspection support is recommended for review of this finding.

4. Overall planning and budgeting and business plan implementation in the nuclear organization are inadequate.

Business planning and budgeting generally are not direct regulatory matters. However, business plan implementation at Indian Point 3, as it related to NYPA corporate performance, was discussed at the January 1994 NRC Senior Management Meeting. Further inspection will be conducted as part of the assessments of licensee management and plant/corporate staff in the Restart Action Plan, Restart Readiness Assessment Checklist.

5. None of the eight refueling outages conducted at the two nuclear stations in the past seven years have been completed on schedule, and most have extended well beyond the scheduled duration.

Past refueling outages have been closely monitored by NRC inspectors. Refueling outage duration, as presented in this INPO conclusion, is not a regulatory issue.

6. A credible restart plan or schedule for Indian Point 3, which was shut down in February 1993, has not been developed.

Indian Point 3 restart plans have been reviewed in depth by the NAP. During management meetings with NYPA on August 18, 1993, December 17, 1993, and January 24, 1994, the NRC has questioned the adequacy of NYPA's Performance Improvement Plan (PIP) and restart plans. A revised restart plan is being developed by the NYPA Situation Assessment Team (SAT). Further NAP review will be focused on the results of the SAT activities.

II. SIGNIFICANT INPO SUPPORTING FINDINGS

The following four items were identified as significant supporting findings for the major conclusions presented above. Applicable NRC inspection activity follows each item. Additional inspection support is recommended for finding #2, related to the Indian Point 3 motor operated valve (MOV) program.

1. Information sharing between the nuclear stations and corporate office is weak.

Weaknesses in communications between corporate and plant staffs were reviewed during an NRC inspection conducted at the NYPA corporate offices from December 1 to 3, 1993. Further review will be conducted as part of the Indian Point 3 Restart Action Plan, Restart Readiness Assessment Checklist, Section III.

2. Indian Point 3 is significantly behind schedule in implementing an effective motor operated valve (MOV) testing program.

An MOV program inspection by DRS is recommended.

REVIEW OF INPO'S CORPORATE EVALUATION OF NYPA

I. MAJOR INPO CONCLUSIONS

INPO's evaluation of NYPA corporate support and monitoring of Indian Point 3 and FitzPatrick identifies six major areas of improvement. These conclusions are summarized below. Following each conclusion is a discussion of NRC inspection activity that reviewed or will review related regulatory issues.

1. The line organization, and therefore NYPA's ability to properly monitor, support, and operate its nuclear units, has been seriously weakened by several factors including: excessive turnover, weaknesses in succession planning, and distractions by outside organizations.

The significant turnover rate in key positions has been closely examined by ongoing NRC inspection activity and NAP oversight. Resignations or reassignments of the NYPA Chairman, President, Executive VP - Nuclear Generation, VP Nuclear Engineering, Indian Point 3 Resident Manager, and other senior management have been monitored by Region I management, NAP activities, and resident inspectors. Weaknesses in the line organization caused by poor succession planning and distractions by outside organizations are also under review by current inspection activity. Additionally, a comprehensive assessment of plant and corporate management and staff will be conducted as part of the Indian Point 3 Restart Action Plan, Restart Readiness Assessment Checklist, Sections II and III.

2. Feelings of uncertainty, resentment, mistrust, and/or lack of confidence in the organization and about the future are prevalent at many levels in the nuclear organization.

The effects of these concerns on plant safety and performance are being monitored by resident inspectors. The feelings have been recognized by resident staff and visiting inspectors, and have been discussed at NAP meetings. Further inspection will be conducted as part of the Indian Point 3 Restart Action Plan, Restart Issues Checklist, Item IV.8. (Assess NYPA staff attitude with respect to performance improvement), and Restart Readiness Assessment Checklist Sections II and III.

3. Supervision and supervisory training at the first-line supervisor and first-line and middle-management levels are substandard.

The specific supervisory/leadership training for supervisors and management as addressed by this INPO conclusion is not a direct regulatory requirement. However, staff training and qualifications will be reviewed as part of the Restart Action Plan, Restart Readiness Assessment Checklist Section III. In addition, the effects of substandard supervisory training on plant performance in such areas as operations and maintenance are reviewed by routine resident inspections.

Delete URI 93-16-03 from the list of applicable URIs, VIOs, EEIs and Inspection Reports since this URI is addressed by Item No. 78.

93 Resolution of recurring maintenance inadequacies (parts, procedure violations)

Delete EEI 93-22-01 from the list of applicable URIs, VIOs, EEIs and Inspection Reports since this EEI is more appropriately covered by Item No. 45.

100 IA to EDG SWS valves single failure, overpressurization of IA issue, SOVs

Delete EEI 93-29-01 from the list of applicable URIs, VIOs, EEIs and Inspection Reports since this EEI is more appropriately covered by Item No. 45.

Add IR 93-29 to the list of applicable URIs, VIOs, EEIs and Inspection Reports.

Other required changes:

Change "Quality of 10 CFR 50.72 and 50.73 Reports" located in section I.3 of the Restart Action Plan's Restart Readiness Assessment Checklist to read, "Quality and Timeliness of 10 CFR 50.72 and 50.73 Reports." This is needed to support new restart Item No. 10.

INDIAN POINT 3 RE-START INSPECTION FOLLOW-UP TRACKING LIST

27 ADDITIONAL RESTART ISSUES

NUMBER ISSUE/ADDITIONAL DETAILS

4 **Resolution of Instrument Air Deficiencies (2.II.16)**

URI 92-02-02 (Updated in IR 93-22): The instrument air dew point and particulate content requirements of ANSI/IAS 7.3 were not met and corrective actions appeared inadequate.

URI 92-02-04: GL 88-14 requested that an analysis be performed of the failure position of components on loss of instrument air and NYPA indicated that this task was complete. However, a document listing the safety related components, their position on loss of instrument air, and the analysis or rationale to show that the failed positions were correct for their safety functions was not available.

- Several WCCPPS backup supply valves, control components associated with action of the AFW regulators and standby nitrogen supply did not appear to be included in GL 88-14 type testing.

- Inconsistencies identified in NUS report 50-89 included: 1) valves BFD-PCV-1213, CA-PCV-1229 and CA-PCV-1230 were identified in the NUS report, but not in the design basis document, and 2) Valve PCV 1139/PIC-1139 was included in the design basis document but not the NUS report.

E EI 93-22-01: Incorrect o-rings were installed into the IA compressors.

IR 93-22: Several deficiencies were identified, in 1993, pertaining the administration building instrument air system. These items included expired air desiccant, the air drying towers were not swapped over and were significantly degraded, and the administration air pre-filter needed to be changed.

5 **Resolution of FCU damper deficiencies. Development of PM program. (2.II.17)**

E EI 93-08-04 (LER 93-13): Preventive maintenance on fan cooler unit dampers, required by technical specifications, was inadequate and resulted in the in-operability of several units.

6 **Resolution of AFWS in-operability issues (2.II.18)**

IR 93-22: The AFW system requires a significant amount of work prior to plant

startup. Items of concern included a deficient modification to the ABFP bearings, a broken instrument air line to the operator of 32 ABFP, the non-linear response of 32 ABFP turbine speed control valve (MS-HCV-1118), the ABFP room exhaust fan was rotating in the reverse direction, and there were numerous air leaks on valve operators.

VIO 93-23-01: Painting/coating work in the auxiliary feedwater building was not performed in accordance with the procedures. Identification tags, linkages and shafts of piping supports were inappropriately painted over.

10 **Resolution of LER Reporting Deficiencies (3.I.3)**

VIO 93-04-06: LERs were issued late.

18 **Resolution of Overdue and Outstanding EDSFI Issues (2.II.19)**

VIO 91-80-02 (Updated in IR 92-02): Corrective actions were not taken to address potentially excessive bus loads.

URI 91-80-06: Battery chargers were not seismicly qualified.

URI 91-80-07: Voltage drop calculations for 120VAC vital bus loads were not available.

URI 91-80-08: Voltage short circuit current exceeds interrupting capability. This could cause the unavailability of redundant safety buses as a result of the catastrophic failure of one breaker - redundant buses are housed within the same enclosure.

URI 91-80-10: Due to a 10% tolerance in the start times that each group is sequenced onto the DGs, some groups may actually be sequenced on at the same time (the start time ranges for successive groups overlap). Additionally, there was no analysis or tests that demonstrated that the Dgs can handle design basis loads. A transient analysis is required to resolve these concerns.

URI 91-80-11: Static load capabilities of the diesel generators were not supported with appropriate justification and test data for the installed design conditions.

URI 91-80-13: No failed fuse detection circuit exists for MCC fuses.

URI 91-80-16 (Updated in IR 93-18): The amount of fuel in DG fuel oil tanks was below the design basis minimums due to inadequate design controls when level switch set-points were changed.

URI 91-80-17 (Updated in IR 92-003): The control and replacement of fuses

was not adequate. Fuses of different types, manufacturers and rating were used indiscriminately.

URI 93-18-02: The loading of the EDGs may be in excess of the manufacturers recommendations.

21

NRC (DRS) Review of Submerged Cable Issue (2.II.20)

URI 87-22-05 (Updated in IR 93-25): NYPA utilized the insulation resistance (IR) trend method in addition to the diffusion model to environmentally qualify for submergence, certain cables located in the containment. These cables, which support the operation of numerous indicators and controls, include General Electric (GE) silicone rubber cable, Kerite FR and HTK cables, Lewis Engineering silicone rubber insulated cable, Harbour Industries silicone rubber cable, and Rockbestos XLPE cable. These cables would become submerged during a design basis event. The issue first arose during the 1987 EQ inspection and was believed to involve only the GE silicon rubber cable. NRR had reviewed both qualification methodologies and by a Task Interface Agreement (TIA) dated 10/23/92, both methodologies were found to be unacceptable. During a subsequent inspection in 1993, the NRC noted that the other cables listed above were also qualified for submergence using the same methodologies. NRR developed a supplemental TIA which indicated that none of the cables listed above have been adequately qualified and concluded that NYPA should perform additional tests to support qualification for submergence or remove these cables from submerged applications.

45

Review Work Control and Operations Clearance Weaknesses (2.III.10)

URI 93-08-02 (Updated in IR 93-13): The RCP motor was damaged after work was performed, by vendor technicians, using an inadequate maintenance procedure.

- Vendor technicians mistakenly removed four rings of packing from 32 accumulator discharge stop valve SI 894B. Workers should have worked the 34 valve (SI 894D) instead.

- The problems with vendor control were determined to be caused by the following:

- inadequate procedure quality/formatting
- inadequate procedure review
- inadequate vendor personnel qualification
- inadequate personnel self-verification
- inadequate job supervision
- worker complacency
- ineffective tools to monitor field activities
- inadequate control of purchased services

- inadequate inspection

VIO 93-09-02: Prerequisites were not satisfied and RCP seal replacement work was conducted prior to setting the appropriate plant conditions.

E EI 93-22-01 (Updated in IR 93-27): Violation of plant procedures and technical specifications resulted in several problems including the inadvertent discharge of a liquid radwaste monitor tank to the river, the inadvertent draindown of 1,000 gallons of boric acid on the primary auxiliary building floor, and the failure to take compensatory actions required by technical specifications for an inoperable emergency diesel generator (EDG) day tank level indicator.

E EI 93-29-01: Inadequate and uncontrolled maintenance on two emergency diesel generator (EDG) service water valves resulted in inoperable EDGs. Both parallel valves were closed at the same time, which isolated the service water from the EDGs.

50

Instrument Loop Calibration Issue (Containment Sump, CST Alarm, RWST) (2.II.21)

URI 93-04-04 (Updated in IR 93-27): RWST level calibration procedures did not address the loop transmitter and level calibration inaccuracies in the development of acceptance criteria values. Initially, NYPA had not evaluated the associated containment level calibration surveillance procedure to verify that the instrument was not similarly affected, which would affect the ability of operators to manually swap suction from the RWST to the containment sump. NYPA determined that the containment level instrumentation was operable. However, NYPA plans to evaluate the extent of this condition for other loop level instrument setpoints.

51

Resolution of BAHT deficiencies, Placement of BAHT Controllers, Recorders, Alarm Panel into Surveillance Program (2.II.22)

IR 92-10: There was no routine surveillance test which ensured that the temperature and alarm setpoints and sensing devices for the boric acid heat trace circuits are calibrated. NYPA evaluated this deficiency and decided to develop a test to check the calibration of the controllers, alarms, and overall functionality of the boric acid heat trace system starting with the April, 1992 outage.

VIO 92-10-01: NYPA operated the plant with boric acid heat trace circuits inoperable with the plant at power.

URI 93-09-07: NYPA to study the effects of potentially deficient boric acid heat trace circuits on instrument gage lines. Heat trace thermostats were located on the boric acid header, instead of directly on the gage lines, which could prevent the energization of some of the heat traces, when needed.

53 **Resolution of Service Water Heat Trace Deficiencies (2.II.23)**

URI 92-27-01: The intake structure de-icing system was disabled without an engineering evaluation.

EEI 92-28-13: The service water heat trace system was disabled without an engineering evaluation.

58 **Resolution of Core Exit Thermocouple (CET) Requirements in Light of FSAR (2.II.24)**

URI 93-04-01: The CETs were not available to a satisfactory level to meet the requirements specified in the FSAR. Nearly 50% of the CETs were not functioning. There may not be enough CETs available to diagnose and locate a dropped or mis-aligned control rod.

68 **Resolution of Post Accident Sampling System (PASS) Deficiencies/Missing Commitments (2.II.25)**

URI 93-16-10: PASS drill concerns included the failure to perform PH analysis; the FSAR did not clearly state that an undiluted sample must be used, and the PASS system did not monitor for conductivity chloride and hydrogen.

74 **Resolution of Salem Control Rod Issue (2.II.26)**

GENERIC ISSUE - Asymmetric Control Rod Withdrawal: Generic Letter (GL) 93-04, "Rod Control System Failures and Withdrawal of Rod Control Cluster Assemblies," was issued because of a noted single failure vulnerability within the Westinghouse solid state rod control system. NYPA's 45-day response to the GL indicated that a number of procedural and training enhancements need to be made to reduce the probability of an asymmetric rod withdrawal event and these enhancements would be implemented prior to startup from the current outage. NYPA's 90-day response indicated that WCAP-13803, "Generic Assessment of Asymmetric Rod control Cluster Assembly Withdrawal," was applicable to Indian Point 3 and the safety significance of an asymmetric rod withdrawal event was minimal since acceptable fuel design limits will not be exceeded. However, recent unsuccessful testing of the Westinghouse Owners Group (WOG)-proposed current order timing changes for the control rod drive mechanisms at South Texas and the recent WOG withdrawal WCAP-13803, will delay the NRC staff's resolution of this issue until at least 10/94. The current NRC position is that without WCAP-13803, most licensees haven't demonstrated compliance with GDC 25. NRC is of the opinion that if the report is acceptable, it will serve as an interim basis for meeting GDC 25 until the long-term timing changes are completed.

77 **Zion Minimum Temperature for Criticality Issue (2.II.27)**

URI 93-16-09: The plant was not analyzed for critical operation with T_{ave} below 541°F; however Technical Specification allows 450°F.

78 **Completion of Vendor Recommendations for MS-2 (2.II.28)**

URI 93-16-03 (Updated in IR 93-20): A vendor recommended modification (installation of an anti-rotation pin) is required on some main steam non-return check valves.

79 **CCR A/C Service Water Valves Weights and Other Generic Concerns Plant-Wide (2.II.29)**

URI 93-16-05: Some valve were heavier than assumed in the seismic analysis.

83 **Resolution of Gas Stripper Removal (2.II.30)**

URI 93-22-04: The liquid radwaste gas stripper was removed without an adequate 50.59 evaluation.

84 **Inspection and Repair to Extraction Steam Piping (2.II.31)**

URI 93-16-02: Ten fish-mouth tees in extraction steam piping did not meet the design requirements of the construction code due to inadequate reinforcement (wall thickness were as low as 0.055 inches in piping with a nominal wall thickness of 0.312 inches). NYPA will perform necessary modifications and inspect the remaining 25 fish-mouthed branch connections that are in the erosion/corrosion program. Additionally, four elbows in the extraction steam piping system were inspected and localized areas of thinning were found. NYPA will inspect at least 6 additional elbows.

- Some of the wall thinning was found in areas that are not modeled by the Checkmate erosion/corrosion program (poor fit-up, pressure tap and thermowell configurations). The physical inspection may need to be expanded to include additional configurations of these types.

85 **Resolution of Numerous Valve Issues: MOV Weak Link Analysis, MOV Anti-Rotation Keys (2.II.32)**

URI 93-16-04 (Updated in IR 93-20): 30 MOVs had measured stem thrusts in excess of the manufacturer's allowable values. NYPA will perform an evaluation.

URI 93-16-06: Anti-rotation key failures were found on several MOVs furnished by Velan.

86 **Resolution of R-27 Monitor Database Phenomenon (2.II.33)**

URI 93-22-07: The R-27 (wide range gas monitor) dead-band offset was found to be at the wrong set point on several different occasions. Vendor (Sorrento) determined the problem to be Firmware related. A 10 CFR Part 21 Notice was issued.

88

Resolution of the Control Building Exhaust Fan Inadequate Design (Switchgear Room, 33' Level, and ABFP Room) (2.II.34)

URI 93-22-09: As a result of the individual plant evaluation (IPE) effort, NYPA determined that the failure of the control building ventilation system during a design basis event would render the 480 VAC safety-related switchgear inoperable due to overheating. The failure was reported as a single failure issue since portions of both control building ventilation trains are powered from the same motor control center. However, the control building ventilation system is not a safety-related system. By a Task Interface Agreement (TIA), NRR reviewed the operability requirements for the 480 VAC safety-related switchgear and concluded that the design basis of the switchgear was not met since a non-safety related system was being relied on to maintain operability of the switchgear during a design basis event. NYPA must either qualify the switchgear to maintain operability without reliance on the ventilation system or modify the ventilation system. A partial modification, with supporting justification, may be acceptable in the interim.

90

Review and Resolution of Recurring Construction Strainer Issue (2.II.35)

URI 93-27-01: Several temporary startup strainers were found in primary systems (CVCS pump suction line, spent fuel pit pump, 31 and 32 monitor tanks pumps, and the suction lines of the AFW pumps).

93

Resolution of Recurring Maintenance Inadequacies (Parts, Procedure Violations) (2.III.11)

URI 92-11-01: Maintenance activities and QC hold points were not appropriately documented.

EI 93-03-03: The auxiliary boiler feed pump was inoperable for approximately 26 days, which violated technical specifications (72 hour time clock). NYPA determined that when the microswitch was replaced, prior to the testing, I&C technicians failed to properly adjust the microswitch trip arm-travel and this went unnoticed at the time since the monthly surveillance testing did not verify the operability of the pump after the overspeed trip function. The pump failed to operate on demand when the next surveillance test was conducted.

100

IA to EDG SWS Valves Single Failure, Over Pressurization of IA Issue, SOVs (2.II.36)