UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

September 21, 2002

Duke Energy Corporation
ATTN: Mr. G. R. Peterson
Site Vice President
Catawba Nuclear Station
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 50-413/02-07 AND 50-414/02-07

Dear Mr. Peterson:

On August 23, 2002, the NRC completed an inspection at your Catawba Nuclear Station. The enclosed report documents the inspection findings which were discussed on August 22, 2002, with you and other members of your staff.

This inspection was an examination of activities conducted under your licenses as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations, and with the conditions of your operating licenses. The inspectors reviewed selected procedures and representative records, observed activities, and interviewed personnel.

On the basis of the sample selected for this review, there were no findings of significance identified during this inspection. The inspection concluded that problems were properly identified, evaluated, and resolved within the problem identification and resolution programs (PI&R). However, during the inspection, several isolated examples were noted of incomplete corrective action implementation and a lack of detail in operability review.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) 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,

/RA/

Robert C. Haag, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos. 50-413, 50-414
License Nos. NPF-35, NPF-52

Enclosure: NRC Inspection Report 50-413/02-07, 50-414/02-07
w/Attachment - Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-413, 50-414
License Nos:	NPF-35, NPF-52
Report No:	50-413/02-07, 50-414/02-07
Licensee:	Duke Energy Corporation
Facility:	Catawba Nuclear Station, Units 1 and 2
Location:	420 Concord Road York, SC 29745
Dates:	August 5 - 9 and August 19 - 23, 2002
Inspectors:	S. Shaeffer, Senior Resident Inspector - McGuire (Team Leader) M. Scott, Senior Reactor Inspector, Region II M. Giles, Resident Inspector, Catawba
Approved by:	R. Haag, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000413-02-07, IR05000414-02-07, Duke Energy Corporation, on 8/5 - 23/2002, Catawba Nuclear Station, Units 1 & 2, baseline inspection of the identification and resolution of problems.

The inspection was conducted by two resident inspectors and a regional reactor inspector. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Identification and Resolution of Problems

Overall, the licensee's corrective action program was effective in the identification, evaluation and correction of problems. The threshold for entering problems into the corrective action program was appropriate. Reviews of sampled operating experience information were comprehensive. In general, the licensee properly prioritized items (by Action Category) in its corrective action program database, which ensured that timely resolution and appropriate causal factor analyses were employed commensurate with safety significance. One exception was noted in the area of implementation of corrective actions to address time critical operator actions. Although a majority of the programmatic elements were established, portions of the time critical action program, as defined by Nuclear System Directive (NSD) 514, Control of Time Critical Tasks, have not been fully implemented to ensure continued operator success in meeting time critical actions.

Root cause determinations were generally considered effective evaluations and provided a clear basis to establish corrective actions. Licensee audits and assessments were found to be adequately broad based and effective in providing management a tool for identifying adverse trends. A review of completed evaluations identified one example where the licensee did not develop a complete evaluation to support current operability of degraded portions of the service water system.

Previous non-compliance issues documented as non-cited violations were properly tracked and resolved via the corrective action program. The results of the last comprehensive corrective action program audit conducted by the licensee were properly entered and dispositioned in the corrective action program. Based on discussions with plant personnel and the apparently low threshold for items entered in the corrective action program database, the inspectors concluded that workers at the site generally felt free to raise safety concerns to their management. The inspectors identified a problem identification process report that was not in the employee concerns program (ECP) which had attributes that warranted it being included into the ECP. The inspectors concluded that the issue was being addressed by site management and was determined not to be indicative of any programmatic problem.

A. <u>Inspector Identified Findings</u>

No findings of significance were identified.

B. Licensee Identified Violations

One violation of very low significance which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and corrective action tracking number is listed in Section 4OA7 of this report.

Report Details

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Effectiveness of Problem Identification

(1) Inspection Scope

This baseline inspection reviewed the licensee's corrective action program (CAP) activities and included a review of CAP documents for issues previously documented in NRC inspection reports and the plant issues matrix. The inspectors focused on open corrective actions, non-cited violations (i.e., correction of previous examples of non-compliance with NRC regulations), and on issues and corrective actions from operating experience reviews. For further insight into potential problems, CAP entries were discussed with the resident inspectors who routinely evaluated these activities as part of the NRC baseline inspection program.

The inspectors reviewed Problem Investigation Process reports (PIPs), which served as the licensee's formal means of documenting equipment and human performance deficiencies, concerns, issues, and events. The inspectors also reviewed other CAP documents, including completed corrective actions documented in PIPs, and operating experience program (OEP) documents to verify that industry-identified problems potentially or actually affecting Catawba were appropriately entered into and resolved by the formal CAP process. Items included in the OEP effectiveness review were NRC Information Notices (INs), industry or vendor-generated reports of defects and non-compliance under 10 CFR Part 21, and vendor information letters (VILs). A detailed listing of PIPs and OEP documents that were reviewed during this inspection is included in the Attachment to this report. The inspectors also reviewed several audits and self-assessments, including those periodically performed to evaluate the corrective action program. The effectiveness of the audits and assessments was evaluated by comparing the results against self-revealing and NRC-identified findings.

The inspectors toured areas of the plant that contained equipment important to safety. This included walkdowns of systems and components with issues relevant to the PIPs being reviewed. The inspectors discussed issues identified during the PIP reviews with various system engineers, maintenance personnel, procedure writers, and other plant personnel to determine if the corrective action system was effective for identifying and tracking conditions adverse to quality (CAQ).

(2) Findings

No findings of significance were identified. In general, the licensee's threshold for entering problems into the CAP was satisfactory. The inspectors did not identify any significant plant equipment problems or industry-related issues that had not been entered in the CAP. Considering the total number of PIPs generated at the Catawba site each year, the observed low threshold for documenting issues, and the discussions held with plant personnel, the inspectors concluded that the licensee's CAP was effective in the identification of deficiencies. This conclusion was based on a review of over 100 licensee-initiated PIPs; which, with few exceptions, appropriately identified

applicable problem areas. Licensee audits and assessments were of sufficient depth and identified issues similar to those that were self-revealing or identified during previous NRC inspections. Also, during this inspection, there were no instances identified where conditions adverse to quality were being handled outside the CAP.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors attended PIP prioritization screening meetings and reviewed PIPs that were assigned various Action Categories to determine whether issues were properly prioritized and evaluated in accordance with NSD 208, Problem Investigation Process. The Action Categories (1 through 4) were defined in NSD 208 and were numbered based on decreasing significance. Action Category 1 PIPs were "significant" CAQs that required formal root cause evaluations, while Action Category 4 PIPs were low level CAQs or conditions not adverse to quality, neither of which required any type of causal evaluation. The majority of the reviewed PIPs were screened as Action Category 3. Action Category 2 PIPs were defined as CAQs for which management could use its discretion in deciding whether a formal root cause evaluation was warranted. Action Category 3 PIPs were problems for which an "apparent cause" analysis was sufficient in resolving the immediate problem. The inspectors also reviewed evaluations that were performed regarding the appropriateness of decisions made for Maintenance Rule functional and maintenance preventable functional failures.

(2) Findings

.1 General

No findings of significance were identified. In general, the licensee's threshold for prioritization and evaluation of problems in the CAP was considered to be satisfactory. The inspectors noted that the technical adequacy and depth of evaluations, as documented in the corrective action program, were generally acceptable. Considering the total number of PIPs reviewed during this inspection that contained root cause evaluations, the inspectors concluded that the licensee's corrective action program was effectively implemented with respect to the prioritization and evaluation of problems. The inspectors reviewed over 100 licensee-initiated PIPs which were appropriately prioritized and evaluated. However, the inspectors identified one exception where the licensee's evaluation of service water piping degradation was not thorough in establishing a basis for continued operability. This exception is discussed below.

.2 Evaluation of Degraded Pipe Weld on Service Water System

PIP C-01-0884, Indications in Buried Nuclear Service Water (RN) Piping, was initiated after both trains of the RN system piping interior surfaces were cleaned in November 2000. Cleaning was necessary due to problems experienced with reduced flow. A robotic crawler had videoed the interior of over 5,000 feet of the 42-inch RN system piping. The video was used to verify pipe cleanliness just prior to returning an associated RN train back to service. The RN piping is constructed from seam welded

piping fabricated in sections 20 feet long (i.e., rolled plate joined by both an interior and exterior weld to fill the longitudinal seam of each pipe section).

Initially, PIP C-01-0884 documented deficiencies that were observed while the cleaning was in progress. Licensee personnel had crawled into the piping and visually inspected about half of the piping interior by accessing manways. For a section of piping between manways 7 and 8, wall pitting and loss of material from longitudinal welds were dimensionally characterized and recorded in the PIP. At the time, these were the worst observed indications. None of the recorded measurements were below the minimum wall thickness allowed in the base material specification for the pipe. The PIP indicated that the size and depth of general indications could not easily be determined from the video used for cleanliness verification.

Between July and September 2001, the subject PIP was updated reflecting a more complete review of the video for physical problems. The update indicated that, "One section of pipe had the longitudinal seam weld turned down (located at the 6 o'clock position) such that the weld was covered by accumulated silt prior to cleaning. Significant degradation of the metal in the heat affected zones (HAZ) was noted to the extent that questions were raised as to performing an operational wall thickness calculation." This section of pipe was located 140 feet south of RN manway entry number 8 on Train A. The licensee determined that the 20-foot section of piping between manways 7 and 8 was a bounding case for piping degradation. Recognizing the unique condition of this section of piping, the licensee plans to replace it in January 2003. At that time, samples will to be taken from the pipe and weld areas to determine the actual condition of the pipe and the cause for this weld deterioration. The licensee is pursuing a one-time extension of the Technical Specifications (TS) Limiting Condition for Operability (LCO) for the RN system to facilitate this piping replacement.

The inspectors reviewed the PIP and the pipe cleanliness video taken in November 2000. Based on the video, it appeared to the inspectors that the longitudinal seam weld for this piping section was more degraded than the weld which had been evaluated in the pipe section between manways 7 and 8. For the piping section located 140 feet south of manway 8, the seam weld material was reduced in height at approximate two foot intervals. The video detail indicated that the weld material was below the height of the adjacent pipe base material at numerous locations. Surface features at these weld low points were indistinct, making it difficult to detect the actual surface condition and relative relationship to the adjacent piping. Also, the fusion lines along the seam appeared to have crevices, some which were up to two feet in length.

The inspectors determined that the September 2001 update to PIP C-01-0884 was prudent. However, the PIP lacked sufficient analysis to support continued operability of the A Train of RN piping until the scheduled replacement for the section of piping. During a subsequent telephone call between the inspectors, Region II, and the licensee on September 4, 2002, the licensee indicated that PIP C-01-0884 would be updated to provide clarification regarding current operability for the identified pipe longitudinal weld condition. PIP C-01-0884 was revised on September 17, 2002, to include a more thorough justification for continued operability of the RN piping. The licensee stated in the PIP that the video equipment tends to distort the actual magnification and depth of pits and corrosion crevices and that visual inspections are much better in determining

the actual condition of the piping. The minimum piping wall thickness was addressed along with the rational for why the licensee believes minimum wall thickness requirements are satisfied. Pending evaluation of the metallurgical results following the removal of the subject piping and a clear determination that the piping remained operable, this issue will be identified as Unresolved Item (URI) 50-413,414/02-07-01: Nuclear Service Water Minimum Wall Evaluation.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed PIPs to assess the licensee's actions in determining appropriate causal factors and developing and implementing appropriate actions to correct the adverse conditions, and, if significant, prevent recurrence. These PIPs were primarily related to cornerstones in the Reactor Safety strategic performance area of the NRC inspection program. However, PIPs were also reviewed in the areas of Radiation Safety and Safeguards and Physical Security to maintain some distribution across all NRC inspection program cornerstones. PIPs associated with past Non-Cited Violations (NCVs) were reviewed to verify that the associated problems were corrected.

The inspectors performed a vertical slice review of the licensee's control of time critical tasks to ensure that these tasks could be accomplished in the specified time assumed in certain design basis events, or in events considered to be of high-risk significance. This review included discussions with operations and training personnel and a review of Nuclear System Directive (NSD) 514, Control of Time Critical Tasks; approximately 15-20 PIPs from 1998 and 1999; and several station implementing procedures and associated training records. For a variety of the time critical operator actions, the inspectors reviewed the licensee's communication with their primary vendor on the technical details, and the degree that the licensee had incorporated the output changes into their emergency procedures. The inspectors also observed a scenario involving event recognition to the performance of critical action steps on a personal computer that emulated the control room simulation. The inspectors reviewed whether it was reasonable that the time critical operations could be completed in the allotted time.

The inspectors reviewed a sample of industry operating experience issues to determine if this information had been appropriately assessed for applicability to the station and whether applicable issues were incorporated into the station's corrective action program. Items reviewed for the OEP included VILs, INs, and NRC Generic Letters. A list of the OEP subjects reviewed is included in the Attachment to this report.

In addition, the inspectors interviewed plant personnel directly involved with the corrective action program, as well as those cognizant of specific technical issues, to verify and understand corrective actions associated with the items reviewed.

(2) Findings

.1 General

No findings of significance were identified. Based on the sample reviews, the licensee was effective in developing and implementing corrective actions to prevent recurrence

for significant issues. The inspectors noted the use of risk insights in prioritizing correcting actions such that implementation of corrective actions was based on safety significance. Sampled industry operating experience issues were appropriately assessed for applicability to the station and applicable issues were incorporated into the station's corrective action program.

.2 Implementation of Corrective Actions for previously identified Time Critical Operator Action PIPs

While no findings of significance were identified, the inspectors made the following observations during this review. The first observation involved the licensee's analysis in determining the required completion time for each identified time critical task, and the ability to perform each task within its bounding analysis. The inspectors concluded that the licensee's analysis was consistently thorough in nature and adequately incorporated aspects of related design basis events. In addition, the inspectors did not identify any omissions in the licensee's scoping of time critical tasks, or the inability of the licensee to perform such tasks.

The second observation pertained to the timeliness associated with the development and implementation of the licensee's time critical action program. The inspectors noted that most all PIPs documenting individual time critical tasks originated during 1998 and 1999; however, NSD 514, Control of Time Critical Tasks, was not effective until September 3, 2001, and has still not been fully implemented. As an example, Section 514.4.2, Work Affecting time Critical Tasks, step 2, requires maintenance technicians to notify operations prior to performing any work that could hinder access to equipment required to be operated during the performance of time critical tasks (i.e., radiography, asbestos abatement, fabrication of scaffolding, etc.). This requirement has not been formally integrated into the work control process. Additionally, the inspectors identified that the current program did not test the ability of non-licensed operators to perform time critical tasks on a periodic basis. Validation of non-licensed operator time critical tasks was being performed only during initial training while licensed operators were receiving periodic validation during scheduled requalification training. As a result, the licensee modified the corrective actions previously established in PIP 01-01036 to address these areas.

The final observation involved programmatic documentation and the tracking of records associated with periodic validations for each licensed and non-licensed operator. Specifically, PT/0/A/4700/061, Time Critical Operator Action Review, was intended to provide a documented matrix which could be used to review and evaluate the program's comprehensive implementation. The inspectors discovered through discussions with licensee personnel that this procedure, although approved, had not been fully implemented. As a result, validation records were not readily available for tracking and the status of individual operator training for time critical operator tasks was not being effectively monitored.

Although a majority of the programmatic elements were established, portions of the time critical action program as defined by NSD 514 have not been fully implemented to ensure operators continued success in meeting time critical actions.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

While performing follow-up activities related to the PIP review, the inspectors assessed how well the licensee was maintaining a safety conscious work environment. Specifically, personnel were asked questions regarding any reluctance to initiate PIPs and the adequacy of corrective actions for identified issues. In addition, the inspectors interviewed members of the licensee's employee concerns staff to determine the adequacy of procedural controls, tracking of concerns, and trending of issues in order to identify problems in the area of safety conscious work environment as implemented by NSD 602, Employee Concerns Program. The inspectors also reviewed files from the open and closed inventory of employee concerns issues and evaluated how the issues were resolved in relation to maintaining and promoting a safety conscious work environment.

(2) Findings

No findings of significance were identified. The inspectors did identify one closed PIP (C-01-2613) which was not included in the licensee's employee concerns program that had attributes that warranted inclusion into the employee concerns process. The inspectors reviewed the details of management resolution of the specific issue and concluded that appropriate corrective actions were either completed or in process. At the end of the inspection period, the licensee was reviewing measures to highlight the screening of PIPs having subject matter related to safety conscious work environment such that they could be flagged for inclusion into the employee concerns process.

4OA3 Event Followup

(Closed) Licensee Event Report (LER) 50-413/02-003-00: Emergency Personnel Hatch Unlatched

Identified as a NCV in Section 4OA7 below, the inspectors reviewed this item for indications of corrective action problems. No new information was identified from review of the LER.

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. G. Peterson, as well as other members of licensee management and staff, at the conclusion of the inspection on August 22, 2002. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee Identified Violations

The following finding of very low safety significance was identified by the licensee and constitutes a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for being dispositioned as a NCV. If you deny this NCV, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Catawba facility.

NCV Tracking Number	Requirement Licensee Failed to Meet
50-413/02-007-02	Contrary to TS LCO 3.6.14., on May 26, 2002, during a scheduled hatch integrity verification, the licensee identified that a Unit 1 containment divider barrier system access hatch was not in the closed position as required by TS. The exact time the hatch became inoperable could not be determined. Upon discovery of the condition, the licensee took appropriate actions to return the hatch to operable status. The hatch is required to be closed to prevent excess steam bypass away from the ice condenser system during a high-energy line break inside containment. Although the analyzed peak upper containment pressure would have increased for this post-accident condition, the licensee was able to demonstrate through calculations that the containment remained operable with the hatch not fully secured. This issue is captured in the licensee's corrective action program under PIP C-02-3087 and is being treated as a NCV. (Green)

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

G. Peterson, Vice President, Catawba Nuclear Station
S. Brown, Manager, Plant Operations
G. Gilbert, Manager, Regulatory Compliance
R. Sweigart, Manager, Safety Assurance
M. Glover, Station Manager, Catawba Nuclear Station
R. Parker, Manager, Maintenance
P. Herran, Manager, Engineering

ITEMS OPENED AND CLOSED

Opened

50-413,414/02-07-01	URI	Nuclear Service Water Minimum Wall Evaluation (Section 4OA2.b(2).2)

Opened and Closed During this Inspection

50-413/02-007-02	NCV	Licensee Identified Failure to Meet the Requirements of TS 3.6.14 for Containment Divider Barrier Hatch (Section 4OA7)

Closed

50-413/02-003-00	LER	Emergency Personnel Hatch Unlatched (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

CAP Documents

PIP Number	Action Category	PIP Description
C-98-00195	3	"Time Critical Operator Actions" as applied to boron dilution event termination mode 6 (<30 minutes)

Attachment

PIP Number	Action Category	PIP Description
C-98-00197	3	Concerns regarding “Time Critical Operator Actions” as applied to operator action sequence, “Initiate Safe Shutdown Facility Makeup Pump flow to NC pump seals (approximately 10 minutes)”
C-98-01726	1	Potential single failure of CM 127 could render both trains of CA (all three pumps) inoperable which is outside of the design basis for the auxiliary feedwater system
C-98-03866	3	Response to loss of secondary heat sink may not successfully mitigate the event due to reduction in the expected time
C-99-00641	3	Evaluate operator time response to align ND containment spray
C-99-00691	3	Concerns regarding “Time Critical Operator Actions” as applied to “Shutdown LOCA S/I flow initiation
C-99-00698	3	“Time Critical Operator Actions” as applied to manually isolating letdown header break
C-99-01452	3	“Time Critical Operator Actions” as applied to establishing NV backup cooling
C-99-03689	3	An OOT condition was found while performing procedure IP/2/A/3112/011, KC heat exchange 2A cooling water flow controller
C-00-02263	4	“Time Critical Operator Actions” as applied to closing CM-35 within 15 minutes
C-00-03505	3	Moore Products model 352 single loop digital controllers rated yellow during 2Q 2000 grouped component health trending
C-00-03853	3	Maintenance Rule evaluation for failure of manual loader for 1CA-36 on 1AFWPTCP
C-00-06127	3	Local ND discharge pressures on Unit 1 are increasing

PIP Number	Action Category	PIP Description
C-00-06360	3	Adequacy of the testing performed to satisfy SR 3.4.9.3, associated with ability to power the TS required pressurizer heaters from emergency power supply (NCV followup)
C-01-00035	4	Operability concerns for 2SV7 (SG PORV)
C-01-00057	3	YD Station Header Pressure backup cooling to the A Train NV pumps reading less than 60 psig as required by SLC 16.9.24
C-01-00086	3	While performing Aux Safeguards Testing on Unit 1, PT/1/A/4200/009A did not address the “reset” lights/pushbuttons for ND & NS Sump Pump 1B and 2B
C-01-00182	4	During SSDI it was discovered that no PMs were being performed on VK DA 4A and 4B and VK EH 5 and 6 (NRC inspection followup)
C-01-00254	3	Maintenance Rule evaluation for failure of manual loader for 2CA-60
C-01-00272	3	ABFU-1A failed to meet flow requirements of air flow capacity test per the PT
C-01-00275	3	During turbine trip/reactor trip event on 01/17/2001, NC loop 1A Tave hung up around 563F with loop Tc and Th around 558F causing steam dumps to remain open and exacerbate NC system cooldown
C-01-00297	4	PORC meeting on the Unit 1 reactor trip which occurred on 1/17/01
C-01-00318	4	2RF-90 dumps approximately 2-3 gallons of water out of main drain and gives false indication of sprinkler actuation signal in the control room when RF system pressure is changed by starting and stopping of main fire pump
C-01-00349	3	Copper particles found in oil sample from 2A Aux feedwater pump inboard bearing reservoir

PIP Number	Action Category	PIP Description
C-01-00390	4	Containment sump volume vs. level curve in Engineer Databook and OAC differ from corresponding curve in the SAMG procedure computational aids due to consideration of water flooding the incore room
C-01-00399	4	Level switch in diesel catchment sump has been deleted, needs to be removed from the drawing
C-01-00489	3	BAT COLR limits do not bound the cycle-specific volume calculation
C-01-00545	4	Review of 50.59 evaluation to remove flow restrictions from procedure for INV849
C-01-00557	4	Based on CNS applicable information for MNS PIP M01-366, CNS needs to secure the rod control system prior to raising PZR level during shutdowns
C-01-00643	4	Stench emitted from the NI and NV pump rooms
C-01-00657	4	Minor Mod CE-4480 written for Unit 1 and Unit 2 GB system to allow use of stainless steel piping in yard area at FWST trench
C-01-00826	3	Potential “near miss” mispositioning event when placing the Unit 2 FWST in recirc
C-01-00996	3	Local ND pump discharge pressures on Unit 1 increased
C-01-01045	3	Several loads on the blackout bus are not verified to be shed during ESF testing; TS bases 3.8.1.11 states shedding of non-essential loads should be verified. Interlock prevents the B/O bus not being tested
C-01-01097	3	Access cover was removed from 2VCAHYA003SGR without proper documentation
C-01-01122	4	RN Pump 1B Upper Motor Bearing Cooler Flow indicated 3.8 gpm, with acceptance criteria of 4.4 gpm minimum

PIP Number	Action Category	PIP Description
C-01-01181	4	Proper completion of PT1/A/4250/006E Enclosure 13.1 with white tag R&R 0-1-0-3425 requiring 1CA-6 to be in closed position
C-01-01252	3	U1 A and B ND/NS sumps do not get auto start signals
C-01-01253	3	Conflict in operating practices and the ND DBD regarding the affect of the ND pump minimum flow valve on opposite train ND operability
C-01-01421	4	MNS PIP M-01-0657 describing a thermal transient on the NCS “B” hot leg piping during the process of drawing a bubble
C-01-01460	4	Computer code Westinghouse used to generate the CNS-1 PT limit curves. The PT curves in WCAP-15203 and WCAP-15448 are nonconservative and will have to be regenerated by Westinghouse prior to submittal to staff
C-01-01480	4	2RNPG7410 indicates flow with 2B RN pump off
C-01-01515	3	Problem discovered while reviewing CF isolation valve calibration procedures
C-01-01537	4	Operability assessment for the ND pump in PIP C-98-02906 was not completely adequate in that containment sump temperatures could exceed those noted in assessment
C-01-01565	3	Cutler-Hammer (C-H) E30 pushbuttons have been received in stock with inconsistent configurations
C-01-01716	4	Valve 2NV-323 was disassembled for a seat leak, internal inspection discovered that some materials eroded
C-01-01749	3	1A RN pump motor upper bearing cooler flow was below the minimum acceptable value
C-01-01774	3	Channel 2 OT delta T failed on Unit 2. The power supply or card for this instrument failed
C-01-02296	3	INPO SER 2-01 discussing failures of an EDG engine at Seabrook
C-01-02589	4	Evaluate current guidance to align an ND pump from RHR mode to cold leg recirc to ensure actions can be performed in time required
C-01-02710	3	Found the wires terminated incorrectly on 1CASV1501
C-01-02713	3	Cables 2*RN668 and 2*RN669 were in water in the bottom of manhole 18

PIP Number	Action Category	PIP Description
C-01-02727	4	Evaluate what actions may be required to allow significantly dropping the level in the upper surge tanks so that they may be used as originally intended
C-01-02849	3	PZR spray valve did not open until 13% demand
C-01-02929	3	Unplanned entry into TS 3.7.8 for RN due to 2A RN pump not indicating correct discharge pressure when started
C-01-02946	3	During recirc of 1A2FD tank NLO noticed that valves for 1B1 FD tank recirc were open (1FD-45 and 1FD-52)
C-01-02972	4	Section of piping between the isolation valve for the auxiliary steam supply to the TDAFWP and the SA steam header to be full of water
C-01-03031	3	CPCS Power Supply GD in 1CPCC1, failed on 6/25/01 did not meet its minimum predicted service life of 15 years
C-01-03035	4	Valve 2NI-10B has small leak found while performing PT/2/A/4206/06
C-01-03058	4	Review of SGTR failure modes and effects analysis
C-01-03060	3	While stroking ND miniflow protection valve (1ND-25A) a link was slid that defeats Open-Close Auto Function (CNEE014-01.04) which would isolate ND pump miniflow of the valve's related pump
C-01-03162	4	RN supply piping to EDGs degraded by VG aftercooler operation
C-01-03189	3	Discrepancies in KC surge tank levels on Unit 2
C-01-03225	4	DG fuel rack MM settings outside the "+/-" 1MM range
C-01-03239	4	OEDB item 97-015406 "Time Critical Operator Actions" concerning operator action sequence, "Isolate NS Hx wet lay-up recirc valves within 8 hours
C-01-03285	4	Current work practice of performing OPS routines for DG operability tests and preps for these tests
C-01-03326	4	DG vendor is reporting that there is a shelf life for the fuel oil filter elements (stock code 82836 of 2 years)
C-01-03395	4	Credit has been taken for a ND pump aligned in cooling mode as a boration flow path on the DID sheet though no explicit guidance addressing issue can be found

PIP Number	Action Category	PIP Description
C-01-03786	3	PT/1(2)/A/4600/003B, Quarterly Surveillance items, has inadequate acceptance criterion for verifying 150kW from PZR heater groups A & B as required by TS SR 3.4.9.2
C-01-04231	4	Documentation and tracking of any issues identified during ENG walkdowns of ice condenser
C-01-04250	3	Void formed in reactor vessel head following NC depressurization after completion of crud burst
C-01-04350	2	A rod control cluster assembly (RCCA) was lifted along with the upper internals
C-01-05586	2	Heat tracing temperature recorder below the 375F minimum temperature required for turbine-driven CA pump operability
C-01-05890	2	Power supplies are Maintenance Rule status A1 based on repetitive maintenance preventable functional failures
C-02-01393	3	2 EMF 46B Hi Rad came into alarm momentarily, preceded by increase in KC surge tank levels

OEP Documents

PIP Number	Action Category	Description/OEP#
C-96-00239	3	NRC Inspector identified that a S Texas Nuclear Station was not testing the Tornado Dampers to verify operability OEA Report 0-G96-0053 (IN96-06)
C-98-00197	3	“Time Critical Operator Actions” as they apply to operator action sequence, “Initiate Safe Shutdown Facility makeup Pump flow to NC Pump Seals (approximately 10 minutes) OEDB 97-015406
C-98-00644	3	“Time Critical Operator Actions” OEDB 97-015406 (IN 97-78)
C-01-00074	3	Radio frequency interference event occurred during fire drill which affected one of the U2 containment pressure channels
C-01-00675	4	McGuire PIP M-00-04926, Corrective Action 2, requests, “Determine effect very low or non-existent off gas flow may have on current primary to secondary leak rate calculations and monitoring

C-01-00829	4	Westinghouse issued Technical Bulletin W-TB-00-003 concerning bypassing or removing the blocking diodes in the moveable and stationary gripper coil in the rod control system
C-01-01026	4	NRC Bulletin 88-04 commitment for testing BAT pumps needs to be revised
C-01-01222	4	Review of McGuire PIP M-00-04645 concerning a forced turbine runback due to a breaker failure
C-01-01746	4	Actuators on PZR PORVs 1/2NC32, 1/2NC34 and 1/2NC36 are rated for 100 psig while the relief valves in the nitrogen supply to the actuators are set at 150 psig
C-01-01794	3	Response to NRC Bulletin 88-04; PT/1(2)/A/4200/07D was committed to be run quarterly
C-01-01952	4	Design change associated with Rotork NA1 actuator terminal blocks OEDB 01-027494
C-01-02275	3	“Time Critical Operator Actions” as they apply to operator action sequence, “8 Minute Feed and Bleed assumptions (Initiate Bleed within 8 minutes of Rx Trip) OEDB 97-015406
C-01-02806	4	Woodward Electronic Governors with electrolytic capacitors
C-01-03166	4	Westinghouse identified potential problems with selected 7300 cards. The problems involved heat sinks that were improperly tightened, improperly installed, and had screws missing
C-01-03303	4	V.C. Summer Benchmarking Report - Flow Accelerated Corrosion Program
C-01-03413	4	RCS leak at Fort Calhoun Station required unit power reduction OE 12257 (OEDB 01-027576)
C-01-03451	4	Reactor trip occurred at McGuire on 07/16/2001 when main steam isolation valves closed inadvertently
C-01-03786	3	PT/1(2)/A/4600/003B, quarterly surveillance items has inadequate acceptance criterion for verifying 150kW from PZR heater groups A & B as required by TS SR 3.4.9.2
C-01-04783	4	Review of industry operating experience concerning inadvertent flood-up of reactor vessel and refueling cavity OE 99-023658

C-01-06263	4	Atwood & Morrill (A & M) MSIV problem is potentially applicable to Catawba since similar type of MSIVs are used. McGuire has experienced similar MSIV stem problems and is currently pursuing correction actions under PIP M-01-04120
C-01-06274	4	INPO issued SEN224, Recurring event, inadvertent reactor vessel inventory reduction during RHR crosstie line flushing

Other Audits, Assessments, and Information Reviewed to Validate or Corroborate PIP Corrective Actions

PIP 98-02906, OAC ND Pump Room Temperature Alarm [PIP 01-01537]
Engineering Spread Sheets on Units' ECCS Leakage [pumps seals, PIP 01-01537]
PT/1/A/4600/002B, Quarterly Surveillance Items, Revision 20 [PIP 01-03786]
PIP 01-01749, RN Flow Balance "A" Train [PIP 01-01122]
PT/0/A/4400/008A, RN Flow Balance Train A, Revision 37 [PIP 01-01122]
Calculation CNC-1223.11-00-0023, Past Operability of ND System with 2ND59B in Open Position, Revision 1 [PIP 01-01253]
PIP 00-06127 [Unit 1 Aux Building Operator Rounds [PIP 01-00996]
PT/1/A/4200/09, Engineering Safety Features Actuation Periodic Test, Change 167 [PIP 01-01045]
PIP 00-6360, Testing to Satisfy SR 3.4.9.3 [PIP 01-01045]
PIP 01-00254, Maintenance Rule Evaluation of Manual Loader 2CA-60 [PIP 00-03505]
PIP 97-00574, Moore Controller Firmware Problem [PIP 00-03505]
PIP 99-03689, RN OOT identified on Work Order 98159263-1 [PIP 00-03505]
WR 98166595, Check for Loop Drift [PIP 01-00275]
PIP 02-01393, 2 EMF 46B High Level Alarm Annunciated [PIP 01-03189]
PIP 98-00196, Review of OEDB item 97-015406 (IN 97-78) [PIP 98-03866]
EP/1/A/5000/FR-H.1, Response to Loss of Secondary Heat Sink, Revision 22 [PIP 98-03866]
SA-01-03, Problem Identification and Screening
SA-01-26, Cause/Problem Evaluation
SA-01-27, Corrective Action and Corrective Action Effectiveness
SA-01-28, Trending of PIP Data

LIST OF ACRONYMS

ASME - American Society of Mechanical Engineers
CAP - Corrective Action Program
CAQ - Conditions Adverse to Quality
ECP - Employee Concerns Program
GL - Generic Letters
IN - Information Notices
LCO - Limiting Condition for Operability
LER - Licensee Event Report
HAZ - Heat Affected Zones
NCV - Non-Cited Violation
NSD - Nuclear System Directive
NSM - Nuclear Safety Manual

OEP - Operating Experience Program
PIP - Problem Investigation Process
RN - Nuclear Service Water
TS - Technical Specifications
URI - Unresolved Item
VIL - Vendor Information Letter