

May 14, 2007

Mr. Britt T. M^cKinney
Senior Vice President, and
Chief Nuclear Officer
PPL Susquehanna, LLC
769 Salem Boulevard - NUCSB3
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION - NRC INTEGRATED
INSPECTION REPORT 05000387/2007002 AND 05000388/2007002

Dear Mr. M^cKinney:

On March 31, 2007, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Susquehanna Steam Electric Station Units 1 and 2. The enclosed integrated inspection report presents the inspection results, which were discussed on April 20, 2007, with Mr. R. Saccone, Vice President - Nuclear Operations and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents two NRC-identified findings of very low safety significance (Green). Both of the findings were determined to involve violations of NRC requirements. Additionally, two licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Susquehanna Steam Electric Station.

B. McKinney

2

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any), will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the 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/

Paul G. Krohn, Chief
Projects Branch 4
Division of Reactor Projects

Docket Nos. 50-387; 50-388
License Nos. NPF-14, NPF-22

Enclosures: Inspection Report 05000387/2007002 and 05000388/2007002
Attachment: Supplemental Information

cc w/encl:

R. A. Saccone, Vice President - Nuclear Operations
T. L. Harpster, General Manager - Plant Support
R. D. Pagodin, General Manager - Nuclear Engineering
R. R. Sgarro, Manager - Nuclear Regulatory Affairs
W. E. Morrissey, Supervisor, Nuclear Regulatory Affairs
M. H. Crowthers, Supervising Engineer, Nuclear Regulatory Affairs
S. Cook, Manager - Quality Assurance
L. A. Ramos, Community Relations Manager, Susquehanna
B. A. Snapp, Esquire, Associate General Counsel, PPL Services Corporation
Supervisor - Document Control Services
R. W. Osborne, Allegheny Electric Cooperative, Inc.
Director - Bureau of Radiation Protection, PA Department of Environmental Protection
Board of Supervisors, Salem Township
J. Johnsrud, National Energy Committee, Sierra Club
E. Epstein, TMI-Alert (TMIA)
Correspondence Control Desk

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any), will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the 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/
 Paul G. Krohn, Chief
 Projects Branch 4
 Division of Reactor Projects

Docket Nos. 50-387; 50-388
 License Nos. NPF-14, NPF-22

Enclosures: Inspection Report 05000387/2007002 and 05000388/2007002
 Attachment: Supplemental Information

cc w/encl:

Distribution w/encl: (via E-mail)

- S. Collins
- M. Dapas
- D. Lew, DRP
- J. Clifford, DRP
- P. Krohn, DRP
- R. Fuhrmeister, DRP
- A. Blamey, DRP - SRI Susquehanna
- F. Jaxheimer, DRP - RI Susquehanna
- S. Farrell, DRP - Susquehanna OA
- J. Lamb, RI OEDO
- J. Lubinski, NRR
- R. Guzman, PM, NRR
- J. Hughey, NRR
- ROPreports@nrc.gov (All Inspection Reports)
- Region I Docket Room (with concurrences)

SUNSI Review Complete: PGK (Reviewer's Initials)

ML071350251

DOCUMENT NAME: C:\FileNet\ML071350251.wpd

After declaring this document "An Official Agency Record" it will be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure

"E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRP	RI/DRP	RI/DRP
NAME	Ablamey/PGK for	Rfuhrmeister/PGK for	PKrohn
DATE	05 / 14 /2007	05 / 11/2007	05 /14 /2007

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-387, 50-388

License Nos.: NPF-14, NPF-22

Report No.: 05000387/2007002 and 05000388/2007002

Licensee: PPL Susquehanna, LLC

Facility: Susquehanna Steam Electric Station, Units 1 and 2

Location: Berwick, Pennsylvania

Dates: January 1, 2007 through March 31, 2007

Inspectors: A. Blamey, Senior Resident Inspector
C. Welch, Acting Senior Resident Inspector
F. Jaxheimer, Resident Inspector
S. Barr, Senior Emergency Preparedness Specialist
J. Furia, Senior Health Physicist
G. Ottenberg, Reactor Inspector
P. Presby, Operations Engineer
T. O'Hara, Reactor Inspector

Approved by: Paul G. Krohn, Chief
Reactor Projects Branch 4
Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY OF FINDINGS	iii
REPORT DETAILS	1
REACTOR SAFETY	1
1R01 Adverse Weather Protection	1
1R04 Equipment Alignment	2
1R05 Fire Protection	3
1R06 Flood Protection Measures	4
1R07 Heat Sink Performance	4
1R08 Inservice Inspection Activities	5
1R11 Licensed Operator Requalification Program	8
1R12 Maintenance Effectiveness	8
1R13 Maintenance Risk Assessments and Emergent Work Control	11
1R15 Operability Evaluations	12
1R19 Post-Maintenance Testing	12
1R20 Refueling and Other Outage Activities	13
1R22 Surveillance Testing	14
1R23 Temporary Plant Modifications	15
1EP2 Alert and Notification System (ANS) Evaluation	15
1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System	16
1EP4 Emergency Action Level (EAL) and Emergency Plan Changes	16
1EP5 Correction of Emergency Preparedness Weaknesses	17
1EP6 Drill Evaluation	17
RADIATION SAFETY	18
2OS1 Access Control to Radiologically Significant Areas	18
2OS2 ALARA Planning and Controls	19
2OS3 Radiation Monitoring Instrumentation and Protective Equipment	20
OTHER ACTIVITIES	20
4OA1 Performance Indicator Verification	20
4OA2 Identification and Resolution of Problems	20
4OA3 Event Follow-up	22
4OA6 Meetings, Including Exit	23
4OA7 Licensee-Identified Violations	23
ATTACHMENT: SUPPLEMENTAL INFORMATION	A-1
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED	A-1
LIST OF DOCUMENTS REVIEWED	A-2
LIST OF ACRONYMS	A-7

SUMMARY OF FINDINGS

IR 05000387/2007002, 05000388/2007002; 01/01/2007 - 03/31/2007; Susquehanna Steam Electric Station, Units 1 and 2; Inservice Inspection Activities and Maintenance Effectiveness.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by a regional senior health physicist, a senior emergency preparedness inspector, and a reactor inspector. Two Green findings, both of which were non-cited violations (NCVs), were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion IX, "Control of Special Processes," for the failure to provide sufficiently detailed instructions for performing a reactor coolant system (RCS) pressure boundary weld on March 19, 2007, during the Unit 2 refueling outage. Lack of instructions resulted in a leak in the RCS pressure boundary. PPL entered this issue into the condition reporting system, made changes to the affected work instructions, and repaired the leak.

This finding is more than minor because it affected the Human Performance attribute of the Initiating Events cornerstone. The finding is of very low safety significance because the leak was small with sufficient mitigating equipment available in accordance with IMC 0609, Appendix G, Attachment 1, "Boiling Water Reactor (BWR) Refueling Operations Significance Determination Process." A contributing cause of this finding was related to the Resources aspect of the Human Performance cross-cutting area in that PPL did not provide complete, accurate and up-to-date documentation, procedures and work packages, which contributed to a welder breaching the RCS boundary. (Section 1R08)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50.65 (b)(2) because PPL did not scope an accident and transient mitigation function of the Reactor Building (RB) equipment floor drain system (EFDS) into the Maintenance Rule monitoring program. The RB EFDS is relied upon to mitigate internal flooding events and failure of the system to function could prevent safety-related structures, systems and components from fulfilling their safety-related functions. PPL entered this issue into the condition reporting system.

Summary of Findings (cont'd)

The finding was more than minor because the RB EFDS's performance is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences because on January 10, 2007, the RCIC room floor drain isolation valve operator and position indication were found inoperable. This finding was of very low safety significance because the finding did not contribute to an actual loss of mitigation equipment functions, and did not increase the likelihood of a fire or flooding event. A contributing cause of this finding was related to the Corrective Action aspect of the Problem Identification and Resolution cross-cutting area in that PPL's corrective action did not result in all the required functions of the EFDS being scoped into the Maintenance Rule program. Specifically, PPL's corrective actions for NCV 05000387/2004004-02 were not commensurate with the significance and complexity of the issue. (Section 1R12)

B. Licensee-Identified Violations.

Violations of very low safety significance, which were identified by PPL have been reviewed by the inspectors. Corrective actions taken or planned by PPL have been entered into PPL's corrective action program. These violations and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Susquehanna Steam Electric Station (SSES) Unit 1 began the inspection period at full Rated Thermal Power (RTP). With the exception of brief power reductions to perform control rod adjustments and a reduction to 74 percent power for a planned control rod sequence exchange on February 25, 2007, the unit remained at full RTP for the remainder of the inspection period.

Unit 2 began the inspection period at full RTP. With the exception of brief power reductions to perform control rod friction testing, control rod adjustments and scram time testing, the unit remained at full power until a plant shutdown began on March 2, 2007, for a scheduled maintenance and refueling outage. The reactor remained shutdown from March 3, 2007 through the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01- 2 Samples)

.1 Adverse Weather - Extreme Weather Conditions

a. Inspection Scope

During the week of March 5, 2007, the inspectors reviewed system operations during extreme cold weather. Plant walkdowns for selected structures, systems, and components (SSCs) were performed to determine the adequacy of PPL's weather protection features. Inspectors reviewed operator actions to address failures of equipment due to freezing and compensatory actions during the adverse cold weather conditions. The inspectors also reviewed and evaluated plant conditions resulting from cold weather and reviewed considerations in PPL's Maintenance Rule station risk assessment. Additional documents that were reviewed are listed in the attachment. The readiness of the following system was reviewed.

- Unit 2, cold weather, 7°F and high winds, freezing of supplemental decay heat removal (SDHR) equipment.

b. Findings

No findings of significance were identified.

.2 Adverse Weather - Site Seasonal Readiness

a. Inspection Scope

On February 5, 2007, during the onset of extreme cold weather (1°F with -20°F wind chill), the inspectors reviewed PPL's preparations/protection for selected risk significant

Enclosure

SSCs exposed to the cold temperatures. The inspection focused on verifying the design features and implementation of PPL's procedures to protect the mitigating systems from adverse weather effects such that the SSCs remained operable. This included review of open work items on heat trace and other freeze protection measures, plant walkdowns of the selected SSCs, and reviews of the Final Safety Analysis Report (FSAR), Technical Specifications, and plant documents for the selected SSCs. The following risk significant SSCs were reviewed:

- Common refueling water storage tank;
- Common emergency diesel generator building fire water header;
- Common emergency service water building;
- Unit 1 condensate storage tank; and
- Unit 2 condensate storage tank.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04 - 4 Samples)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial walkdowns to verify system and component alignment and to identify any discrepancies that would impact system operability. The inspectors verified that selected portions of redundant or backup systems or trains were available while certain system components were out of service. The inspectors reviewed selected valve positions, electrical power availability, and the general condition of major system components. The walkdowns included the following systems:

- Common, emergency service water (ESW) alignment to the emergency diesel generators (EDGs) on January 30, during 'B' EDG testing;
- Units 1 and 2, reactor core isolation cooling (RCIC) systems and remote shutdown panel switch alignments on January 19, following surveillance testing; and
- Unit 2, Division I core spray system while all other low pressure emergency core cooling systems were inoperable and the refueling cavity flooded.

.2 Complete Walkdown

a. Inspection Scope

The inspectors conducted a detailed review of the alignment and condition of the supplemental decay heat removal system (SDHR). The inspectors reviewed operator rounds, checkoff lists, system operating procedures, and system piping and instrumentation diagrams. The inspectors evaluated ongoing maintenance and

outstanding condition reports associated with the SDHR system to determine the effect on system health and reliability. The test results obtained before placing the system in service for the Unit 2 refueling outage were reviewed against acceptance criteria and system design documents. The inspectors verified proper system alignment and examined system operating parameters when there was a change to the available decay heat removal systems for Unit 2.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 9 Samples)

Fire Protection - Tours

a. Inspection Scope

The inspectors reviewed PPL's fire protection program to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for selected areas. The inspectors walked down those areas to assess PPL's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures to assess PPL's fire protection program in those areas. The inspected areas included:

- Units 1 and Unit 2, upper cable spreading rooms, FP-013-163 and FP-013-162;
- Unit 1, upper relay room during smoke detector replacement, FP-013-165;
- Unit 1, main turbine lubricating oil reservoir, FP-113-226;
- Unit 1, pump area including reactor feed pump turbine (RFPT) lubricating oil reservoirs, snubber test room, and caustic and acid storage tanks areas, FP-113-214;
- Unit 1, lower relay room (C-203), FP-013-139;
- Unit 2, condensate pump rooms and miscellaneous areas FP-213-270;
- Unit 2, motor generator area, evaporator area, turbine laydown area; uncontrolled passage area, FP-213-289;
- Unit 2, upper switchgear room, FP-213-287; and
- Unit 2, lower switchgear room, FP-213-279.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 Sample).1 Internal Floodinga. Inspection Scope

The inspectors reviewed documents, interviewed plant personnel, and walked down SSCs to evaluate the adequacy of PPL's internal flood protection measures. The inspection focused on verifying that PPL's flooding mitigation plans and equipment were consistent with the design requirements and risk analysis assumptions. The material condition of credited components; such as watertight and flood mitigation doors, floor drains and berms, and flood detection equipment and alarms were also assessed to determine whether the components were capable of performing their intended function. The inspectors also verified that adequate procedures were in place to identify and respond to floods. The following risk significant areas were reviewed:

- Unit 1, reactor core isolation cooling (RCIC) room;
- Unit 1, high pressure coolant injection (HPCI) room; and
- Unit 1, Division I and Division II residual heat removal (RHR) rooms.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07 - 1 Sample)a. Inspection Scope

The inspectors reviewed PPL's inspection, cleaning, and maintenance activities and reviewed PPL's evaluation of the as-found conditions for the Unit 2, Division II, RHR heat exchanger (2E205B). The inspectors verified that PPL properly evaluated the results to identify adverse trends and ensure adequate heat transfer capabilities. The inspectors compared their observations against PPL's procedures and specifications to assess whether the heat exchanger was capable of performing the safety function under design basis accident conditions. The inspectors' review included the following documents:

- Unit 2, Division II, residual heat removal/residual heat removal service water heat exchanger (2E205B) cleaning and inspection, ERPM 490967.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08 - 1 Sample)a. Inspection Scope

The inspector observed selected samples of in-process nondestructive examination (NDE) activities. Also, the inspector reviewed documentation of additional samples of NDE and component replacement activities which involved welding processes. The sample selection was based on the inspection procedure objectives and risk priority of those components and systems where degradation would result in a significant increase in the risk of core damage. The observations and documentation review were performed to verify activities were performed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspector reviewed a sample of inspection reports initiated as a result of nonconforming conditions identified during inservice inspection (ISI) examinations. Also, the inspector evaluated the effectiveness of the resolution of problems identified during ISI activities.

The inspector observed a manual ultrasonic test (UT) performed on a weld in the HPCI system piping inside the drywell. The inspector also reviewed the results of shop and field radiographs (RT's) performed during the replacement of a section of reactor water cleanup (RWCU) piping. The RT review confirmed the correctness of the Level 3 evaluations and the decisions on the subject welds.

Additionally, the inspector reviewed the completed reports (data sheets) for several other UT (10), magnetic particle test (MT)(2), dye penetrant test (PT) (4) and visual examination (VT)(3) inspections performed during the refueling outage. These reviews verified the effectiveness of the testing procedures, testing performance activities and the effectiveness of the examiner, test equipment and process in identifying degradation of risk significant systems, structures and components to evaluate those activities for compliance with the requirements of ASME Section XI of the Boiler and Pressure Vessel Code.

Additionally, the inspector reviewed all indications recorded from PPL's visual inspection of the reactor internals in-vessel visual inspection (IVVI). Several indications were reported and dispositioned for use "as-is" based upon evaluation by the reactor vendor, General Electric (GE). GE did recommend replacing the auxiliary wedge on jet pump 19, and the installation of auxiliary wedges on jet pumps 14 and 20.

The inspector selected a condition report (CR) 651331 from 2006 which reported and evaluated wear on jet pumps 19 and 20. The evaluation of this condition recommended using "as-is" for continued operation. The inspector also reviewed CR report 649556 which reported the results of an ASME visual inspection on the Unit 2 personnel hatch. This CR report evaluated the condition as acceptable for use "as-is" for continued operation. The inspector assessed PPL's evaluation and disposition for continued service without repair of a non-conforming condition identified during ISI activities.

Also, the inspector interviewed PPL's radiographic personnel responsible for the review and interpretation of the film to assess examiner experience and knowledge of the

Enclosure

ASME Code requirements. The inspector reviewed all data sheets and pictures from the remote in-vessel visual inspections (IVVI) of the steam dryer base metal and tie bar welds. This review was conducted to confirm the examiner skill, test equipment capabilities, examination technique, and environment (water clarity) enabled the performance of the visual examination of the selected vessel internals. The inspector concluded that this remote visual examination met the requirements of ASME Section XI.

The inspector reviewed a non-code repair of the feedwater (FW) pump suction piping being performed during the refueling outage. The inspector reviewed the 50.59 screen, the modification description, the applicable work orders, and the applicable drawings.

The inspector reviewed welding activities associated with a weld overlay buildup on the reducer-to-pipe socket weld on the bonnet vent line of the "B" reactor recirculation suction valve HV243F023B. The weld buildup overlay was being applied to increase the joint's resistance to fatigue failure. PPL intended the weld overlay to have a final contour with the longitudinal length of the overlay being twice the maximum thickness of the overlay. This is known as a 2 x 1 weld overlay. This review was conducted after the PPL welder burned through the 1 inch, schedule 80 pipe causing a reactor coolant system (RCS) leak. The inspector reviewed selected portions of work order WO 792211 and weld traveler SPDCA250-1-W-5C FOR L, discussed the event with site welding engineers and conducted a walkdown of the work area inside the drywell.

b. Findings

Introduction. The inspectors identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion IX, "Control of Special Processes." The licensee did not provide specific, detailed work instructions to control the performance of a contour weld overlay on the pipe-to-reducer socket weld on the bonnet vent line of the "B" reactor recirculation suction valve, HV243F023B. Lack of specific instructions resulted in a welder burning through the pipe wall, causing a small RCS boundary leak during the Unit 2 March 2007 refueling outage.

Description. At 11:52 a.m. on March 19, 2007, with Unit 2 shutdown for refueling, a welder burned through the wall (RCS pressure boundary) of the 1 inch, schedule 80 bonnet vent line of the "B" reactor recirculation suction valve HV243F023B which caused a leak in the RCS pressure boundary. Upon investigation and questioning of the welder involved, PPL welding engineers determined that the welder had followed an unintended weld pass sequence which caused excessive heating of the pipe which eventually burned through the wall of the pipe. The welding engineers said they were relying upon the skill of the welder and had not specified a weld pass sequence which they knew had been successful on prior contour weld overlay buildups. The work instructions (WO 792211 and weld traveler SPDCA250-1-W-5C FOR L) did not specify the desired weld pass sequence. Subsequent to this event, PPL changed both documents to specify the correct weld pass sequence for the welder to use. The inspector also determined that the welder's qualification instructions and procedure did not contain a specified weld pass sequence.

Additionally, when the welder burned through the pipe, it became evident that the pipe was not drained and isolated because water sprayed out of the hole in the pipe. It was subsequently discovered that valve HV243F023B was not fully closed. PPL took local, manual control and closed the valve. The source of the pressure in the pipe was determined to be the static head of water in the vessel and refueling canal. At the time of the leak the RHR system was out of service for maintenance. Decay heat was being removed by the fuel pool cooling system.

The leak existed from approximately 11:52 a.m. until approximately 6:43 p.m. on March 19, 2007. The inspectors determined that PPL's failure to provide sufficient instructions to control and accomplish the desired contour weld overlay buildup which resulted in an RCS leak was a performance deficiency.

Analysis. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. The performance deficiency is considered to be more than minor because it is associated with the Human Performance attributes and affected the objective of the Initiating Events cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. This finding was evaluated using Manual Chapter 0609 Significance Determination Process (SDP), Appendix G, Attachment 1, Checklist 7, "BWR Refueling Operation with RCS Level greater than 23 feet." The evaluation resulted in very low safety significance due to the availability of remaining mitigating equipment and systems and due to the small size of the leak.

A contributing cause of this finding was related to the Resources aspect of the Human Performance cross-cutting area. Specifically, PPL did not provide complete, accurate and up to date documentation, procedures and work packages, which contributed to the welder breaching the RCS boundary.

Enforcement. 10 CFR Part 50, Appendix B, Criterion IX, "Control of Special Processes," requires that, "Measures shall be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements." Contrary to these requirements, PPL did not establish specific procedures and work instructions to assure the successful completion of the contour weld overlay buildup on the 1 inch, schedule 80 bonnet vent line of the "B" reactor recirculation suction valve, HV243F023B. Because this issue is of very low safety significance and because PPL has entered the condition into their corrective action process, it is being treated as a non-cited violation in accordance with Section VI.A.1 of the NRC Enforcement Policy: **NCV 05000388/2007002-01, Failure to institute effective measures to assure that special processes (welding) are controlled and accomplished.**

1R11 Licensed Operator Requalification Program (71111.11Q - 1 Sample)a. Inspection Scope

During the weeks of January 24 and February 16, 2007, the inspectors observed licensed operator performance during in-plant operator training. The inspectors compared their observations to Technical Specifications, emergency plan implementation, and the use of system operating procedures. The inspectors also evaluated PPL's critique of the operators' performance to identify discrepancies and deficiencies in operator training. The following training was observed:

- Job performance measures and control room operator training under instruction for control rod drive and RCIC system operation.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 3 Samples)a. Inspection Scope

The inspectors evaluated PPL's work practices and follow-up corrective actions for selected SSC issues to assess the effectiveness of PPL's maintenance activities. The inspectors reviewed the performance history of those SSCs and assessed PPL's extent-of-condition determinations for these issues with potential common cause or generic implications to evaluate the adequacy of PPL's corrective actions. The inspectors reviewed PPL's problem identification and resolution actions for these issues to evaluate whether PPL had appropriately monitored, evaluated, and dispositioned the issues in accordance with PPL procedures and the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance." In addition, the inspectors reviewed selected SSC classification, performance criteria and goals, and PPL's corrective actions that were taken or planned, to verify whether the actions were reasonable and appropriate. The inspector's review included the reactor building (RB) equipment and floor drain systems (EFDS). This review included the associated system design basis, including the Final Safety Analysis Report (FSAR), the RB internal flood design calculations, and previous documented violations of Maintenance Rule requirements. In addition, the inspectors performed field walkdowns and interviewed PPL staff to verify whether the identified actions were appropriate and to verify that known performance problems were included and evaluated in accordance with the PPL Maintenance Rule program and the corrective action process. The following issues were reviewed:

- Units 1 and 2 motor operated valve (MOV) dynamic testing and stem nut replacement project, CR 768920;

- Unit 1, emergency core cooling system (ECCS) and Unit 2, RCIC and HPCI room floor drain isolation valves, reactor building equipment drain system, CR 838632; and
- Unit 1 HPCI steam stop valve stem binding, CR 806988.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65 (b)(2) because PPL did not scope an accident and transient mitigation function of the EFDS into the Maintenance Rule monitoring program. Because PPL did not scope the RCIC room floor drain valve into the Maintenance Rule program, PPL did not establish performance criteria to demonstrate the effectiveness of the valve maintenance. On January 10, 2007, the valve was found failed.

Description. The RB EFDS is required to mitigate internal flooding events such as moderate and high energy line breaks; as well as, fire deluge system actuations to prevent this water from impacting safety-related equipment. FSAR Section 9.3.3.3 states that "Each of the six pump rooms (ECCS and RCIC) is provided with a separate drain line to the reactor building sump inlet header. A normally closed manual valve is provided in each drain line outside the pump room to prevent backflow." These FSAR statements assure that multiple trains or divisions of Engineering Safety Features, pumps, heat exchangers and associated pipes, valves, and instrumentation in the reactor building are not affected by an internal flooding event.

Inspectors identified that PPL did not correctly scope the RB EFDS into the Maintenance Rule program. 10 CFR 50.65 paragraph (b)(2), requires that non-safety related SSCs whose failure to function as designed could prevent safety-related SSCs from fulfilling their safety-related functions be scoped into the maintenance rule program. Since applicable functions of the RB EFDS were not scoped into the maintenance monitoring program, PPL did not establish performance criteria to demonstrate the effectiveness of the RB EFDS maintenance. Consequently, PPL did not identify less than adequate preventive maintenance which resulted in a component failure. Specifically, on January 10, 2007, operators found the RCIC room floor drain valve detached from the operator reach rod which eliminated the indication of valve position and manual control of the valve from above the RB sump platform. The RCIC room floor drain isolation valve 161122 was later determined to be approximately 80 percent open, contrary to its normally closed position as described in the FSAR.

PPL previously missed opportunities to place the maintenance rule function of these drain isolation valves into the maintenance rule scope. NRC inspection report 05000387/1997-09, CR 973271, CR 973301 and the associated PPL operability evaluation document a previous failure of an ECCS room drain isolation valve which remained in the open position for several months. Although PPL initiated an inspection of all Unit 1 and Unit 2 ECCS floor drain valve actuators, reach rods, and valve stems to verify proper operation and valve position indication, PPL did not initiate any routine preventive maintenance for these components. In addition, inspectors identified in September 2004 that PPL had not properly scoped EFDS functions into the

Maintenance Rule as documented in NCV 05000387/2004004-02. In 2004, PPL's corrective actions were narrowly focused on the portion of the system which had recurrent drain flow blockage and caused significant water intrusion into multiple ECCS rooms. The inspectors determined that PPL's failure to scope the required functions of the RB EFDS into the Maintenance Rule Program and perform adequate maintenance to prevent repetitive equipment failures was a performance deficiency.

Analysis. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. The finding was more than minor because it had greater significance than similar issues described in the NRC Manual Chapter 0612, "Examples of Minor Issues", Appendix E, Section 7.d. In addition, the RB EFDS's performance is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objectivity to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, on January 10, 2007, the RCIC room floor drain isolation valve operator and position indication were found inoperable and this valve was determined to be 80 percent open, contrary to the FSAR-described position. This finding was considered to have very low safety significance (Green) using the NRC's SDP for Reactor Inspection Findings for At-Power situations because the finding did not contribute to a loss of mitigation equipment functions and did not increase the likelihood of a fire or flooding event.

A contributing cause of this finding was related to Problem Identification and Resolution cross-cutting area. Following a previous NRC identified non-conformance with EFDS maintenance rule functions, PPL's corrective action did not result in all the required functions of the EFDS being scoped into the Maintenance Rule program. Specifically, PPL's corrective actions for NCV 05000387/200400402 were not commensurate with the significance and complexity of the issue.

Enforcement. 10 CFR Part 50.65 (b)(2) requires, in part, that the scope of the monitoring program specified in paragraph (a)(1) include non-safety related structures, systems and components whose failure can prevent safety-related structures, systems and components from fulfilling their safety-related functions. 10 CFR Part 50.65 (a)(2) states that "Monitoring as specified in paragraph (a)(1) of this section is not required where it has been demonstrated that the performance or condition of a structure, system, or component is being effectively controlled through the performance of appropriate preventive maintenance, such that the structure, system, or component remains capable of performing its intended function."

Contrary to the above, PPL did not include sections of the RB EFDS in the scope of the monitoring program as specified in 10 CFR Part 50.65(b)(2). The inclusion of the RB EFDS in the scope of the monitoring program was necessary because the system is utilized in the mitigation of internal flooding events. As a result, PPL did not effectively control the performance or condition of the system through appropriate preventive maintenance, as required by 10 CFR Part 50.65(a)(2). The RCIC room floor drain isolation valve failed to perform its intended design function on January 10, 2007.

Therefore, the inspectors concluded that the RB EFDS system had not been effectively controlled through the performance of appropriate preventive maintenance and, as a result, a Maintenance Rule (a)(2) demonstration could not be justified. Because this finding was of very low safety significance and it was entered into the PPL corrective action program, (CR 867484) this finding is being treated as non-cited violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. **NCV 05000387/200700202, Reactor Building Floor and Equipment Drains Not Fully Scoped into the Maintenance Rule.**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 6 Samples)

a. Inspection Scope

The inspectors reviewed the assessment and management of selected maintenance activities to evaluate the effectiveness of PPL's risk management for planned and emergent work. The inspectors compared the risk assessments and risk management actions to the requirements of 10 CFR Part 50.65(a)(4) and the recommendations of NUMARC 93-01 Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities." The inspectors evaluated the selected activities to determine whether risk assessments were performed when required and appropriate risk management actions were identified.

The inspectors reviewed scheduled and emergent work activities with licensed operators and work-coordination personnel to evaluate whether risk management action threshold levels were correctly identified. In addition, the inspectors compared the assessed risk configuration to the actual plant conditions and any in-progress evolutions or external events to evaluate whether the assessment was accurate, complete, and appropriate for the emergent work activities. The inspectors performed control room and field walkdowns to verify whether the compensatory measures identified by the risk assessments were appropriately performed. The selected maintenance activities included:

- Common, elevated risk condition (Yellow), 'blue max' on February 16;
- Common, jacketwater leak causing inoperability of "E" EDG during substitution for "D" EDG;
- Unit 2, elevated risk condition (Yellow) on January 29-30, for a planned logic system functional test (LSFT) of the Division II RHR system;
- Unit 2, failure of HV251F024B to close during inservice testing surveillance, SO-249-805, on February 1;
- Unit 2, elevated risk condition (Yellow) on February 5, for Division II RHR LSFT; and
- Unit 2, elevated risk condition (Yellow) on February 8, for RHR LSFT from remote shutdown panel.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 7 Samples)a. Inspection Scope

The inspectors reviewed operability determinations that were selected based on risk insights, to assess the adequacy of the evaluations, the use and control of compensatory measures, and compliance with the Technical Specifications. In addition, the inspectors reviewed the selected operability determinations to verify whether the determinations were performed in accordance with NDAP-QA-0703, "Operability Assessments." The inspectors used the Technical Specifications, Technical Requirements Manual, FSAR, and associated Design Basis Documents as references during these reviews. The issues reviewed included:

- Common, sluggish response of "C" EDG fuel oil booster pump during monthly PM 800654, CR 845015;
- Units 1 and 2, control rods with greater than 3.6 inches/sec withdrawal speeds, CR 832818, CR 833054;
- Units 1 and 2, main steam line snubbers analysis loading above manufacturer's load ratings, CR 847036;
- Units 1, and 2, "B" ESW pump 4.16KV breaker failure due to breaker assembly issue by manufacturer, CR 835002;
- Unit 1, HV143F019, main steam line drain failed to close automatically on swap of 'B' RPS power, CR 840524;
- Unit 1, HPCI injection valve's breaker thermal overload incorrect size, CR 842590; and
- Unit 1 and 2, Part 21 communication on RHR and core spray suppression pool suction strainers, CR 850697.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 5 Samples)a. Inspection Scope

The inspectors observed portions of post-maintenance testing activities in the field to determine whether the tests were performed in accordance with the approved procedures. The inspectors assessed the test adequacy by comparing the test methodology to the scope of maintenance work performed. In addition, the inspectors evaluated acceptance criteria to determine whether the test demonstrated that the tested components satisfied the applicable design and licensing bases and the Technical Specification requirements. The inspectors reviewed the recorded test data to determine whether the acceptance criteria were satisfied. The post-maintenance testing activities reviewed included:

- Common, "B" EDG post-modification and overhaul testing, PCWO 844866;
- Unit 2, core spray comprehensive flow test following system outage;
- Unit 2, Division I core spray system leakage quantification test, SE-51-400, RTSV 731363;
- Unit 2, control rod drive testing after directional control valve replacement, TP-055-004; and
- Unit 2, Division II RHR following system outage and modifications.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20 - 1 Sample)

.1 Refueling Outage

a. Inspection Scope

Outage Risk Assessment

The inspectors reviewed the outage risk management plan for the Unit 2 refueling outage, to be conducted March 4, to April 12, 2007, to confirm that PPL had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth.

New Fuel Inspections

The inspectors observed PPL personnel perform new fuel inspection in accordance with procedure OP-ORF-002, Revision 9. The inspector verified personnel performing the inspections were qualified, the torque wrench was in calibration, and that the inspections were being performed in accordance with procedure requirements. The inspector also observed a sample of motion accelerometers for tripped indications and discussed the fuel inspection evolution with the lead reactor engineer on the refuel floor.

Outage Activities

During the refueling outage, the inspectors observed and/or reviewed the outage activities listed below.

- Plant shutdown and cool down activities;
- Establishment of a reactor vessel cool down rate;
- Transition to RHR shutdown cooling method of decay heat removal;
- Outage configuration controls including:
 - 1) availability and accuracy of reactor coolant system instrumentation;
 - 2) electrical power alignments;
 - 3) decay heat removal system operation, including spent fuel pool cooling system and supplemental decay heat removal system;

Enclosure

- 4) availability of reactor inventory makeup water systems; and
- 5) secondary containment controls and integrity.

- Drywell, suppression chamber, and refuel floor walkdowns after shutdown and prior to final closeout;
- 4 KV emergency buses and supplemental decay heat removal equipment clearances; and
- Fuel handling operations including fuel movement, control of reactivity, fuel assembly tracking, and core verification activities.

During the conduct of the refueling inspection activities, the inspectors reviewed the associated documentation to ensure that the tasks were performed safely and in accordance with plant Technical Specification requirements and operating procedures.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 6 Samples)

a. Inspection Scope

The inspectors observed portions of selected surveillance test activities in the control room and in the field and reviewed the test data results. The inspectors compared the test results to the established acceptance criteria and the applicable Technical Specification or Technical Requirements Manual operability and surveillance requirements to evaluate whether the systems were capable of performing their intended safety functions. The observed or reviewed surveillance tests included:

- Common, "A" EDG load reject test and 24 hour loaded run, SE-024-A01;
- Unit 1, Division I core spray quarterly flow verification, SO-151-A02;
- Unit 2, RCIC comprehensive flow verification, SO-250-006;
- Unit 2, main steam isolation valve stroke timing, SO-284-006, Revision 0, on March 3, 2007; and
- Unit 2, local leak rate testing and secondary containment bypass leakrate results;
- Unit 2, Division II LOCA/LOOP testing, SE-224-207.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 1 Sample)a. Inspection Scope

The inspectors reviewed temporary plant modifications to determine whether the temporary changes adversely affected system or support system availability, or adversely affected a function important to plant safety. The inspectors reviewed the associated system design bases, including the FSAR, Technical Specifications, and assessed the adequacy of the safety determination screenings and evaluations. The inspectors also assessed configuration control of the temporary changes by reviewing selected drawings and procedures to verify whether appropriate updates had been made. The inspectors compared the actual installations to the temporary modification documents to determine whether the implemented changes were consistent with the approved documents. The inspectors reviewed selected post installation test results to determine whether the actual impact of the temporary changes had been adequately demonstrated by the test. The following temporary modifications and documents were included in the review:

- Unit 1, Division I, Suppression Pool Temperature Monitoring TE-15751, Dummy Resistor Installation. Temporary Modification 850038.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System (ANS) Evaluation (71114.02 - 1 Sample)a. Inspection Scope

An on-site review was conducted to assess the maintenance and testing of PPL's ANS. During this inspection, the inspectors interviewed corporate and site EP staff responsible for implementation of the ANS testing and maintenance. Condition reports (CRs) pertaining to the ANS were reviewed for causes, trends, and corrective actions. The inspectors discussed with PPL the new ANS system design and the performance aspects of the current system that led to PPL's decision to obtain a new system. The inspectors reviewed PPL's original ANS design report to ensure compliance with those commitments for system maintenance and testing. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 2. Planning standard, 10 CFR 50.47(b)(5) and the related requirements of 10 CFR 50 Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System (71114.03 - 1 Sample)

a. Inspection Scope

A review of Susquehanna's ERO augmentation staffing requirements and the process for notifying the ERO was conducted. This was performed to ensure the readiness of key staff for responding to an event and to ensure timely facility activation. Records from call-in drills as well as one actual event were reviewed. The inspectors reviewed procedures and CRs associated with the ERO notification system and drills, and interviewed personnel responsible for testing the ERO augmentation process. The inspectors compared qualification requirements to the training records for a sample of ERO members. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 3. Planning standard 10 CFR 50.47(b)(2) and related requirements of 10 CFR50 Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04 - 1 Sample)

a. Inspection Scope

Prior to this inspection, the NRC had received and acknowledged changes made to the Susquehanna Emergency Plan and implementing procedures. PPL developed these changes in accordance with 10 CFR Part 50.54(q), and determined that the changes did not result in a decrease in effectiveness of the Plan. PPL also determined that the Plan continued to meet the requirements of 10 CFR Part 50.47(b) and Appendix E to 10 CFR Part 50. During this inspection, the inspectors conducted a sampling review of Susquehanna's 10 CFR Part 50.54(q) screenings for the changes made to the Plan that could potentially result in a decrease in effectiveness. This review did not constitute NRC approval of the changes and, as such, the changes remain subject to future NRC inspection. Also, the NRC reviewed PPL's EAL scheme for logic and consistency. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 4. The requirements in 10 CFR Part 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05 - 1 Sample)

a. Inspection Scope

The inspectors reviewed self-assessments and audit reports to assess PPL's ability to evaluate their performance and programs. The inspectors reviewed CRs initiated at Susquehanna from drills, self-assessments, and audits. The inspectors additionally reviewed the EP aspects of the March 1, 2006, Alert declaration event. This inspection was conducted according to NRC Inspection Procedure 71114, Attachment 5. Planning standard 10 CFR Part 50.47(b)(14) and the related requirements of 10 CFR Part 50 Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - 1 Sample)

a. Inspection Scope

The inspectors reviewed the combined functional drill scenario (2007 Gold Team HP Drill) that was conducted on January 23, 2007, and observed selected portions of the drill at the simulator control room and technical support center. The inspection focused on PPL's ability to properly conduct EAL classification, notification, and protective action recommendation activities and on the evaluators' ability to identify observed weaknesses and/or deficiencies within these areas. Eight performance indicator (PI) opportunities were embedded in the scenario. The inspectors attended the evaluator's post-drill critique and compared identified weaknesses and deficiencies against those identified by PPL to determine whether PPL was properly identifying failures in these areas.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01 - 9 Samples)

a. Inspection Scope

The inspector identified exposure significant work areas within radiation areas, high radiation areas (<1 R/hr), or airborne radioactivity areas in the plant and reviewed associated PPL controls and surveys of these areas to determine if controls (e.g., surveys, postings, barricades) were acceptable.

The inspector walked down these areas or their perimeters to determine: (1) whether prescribed radiation work permits (RWP), procedure, and engineering controls were in place; (2) whether surveys and postings were complete and accurate; and (3) whether air samplers were properly located.

The inspector reviewed RWPs used to access these and other high radiation areas and identify what work control instructions or control barriers had been specified. The inspector reviewed electronic personal dosimeter alarm set points (both integrated dose and dose rate) for conformity with survey indications and plant policy.

Based on PPL's schedule of work activities, the inspector selected two jobs being performed in radiation areas, airborne radioactivity areas, or high radiation areas (<1 R/hr) for observation (scaffold work in the drywell and nozzle and vessel in-service inspection). The inspector reviewed radiological job requirements (RWP requirements and work procedure requirements). The inspector observed job performance with respect to these requirements. The inspector verified that radiological conditions in the work area were adequately communicated to workers through briefings and postings.

During job performance observations, the inspector verified the adequacy of radiological controls, such as: required surveys (including system breach radiation, contamination, and airborne surveys), radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls.

For high radiation work areas with significant dose rate gradients (factor of 5 or more), the inspector reviewed the application of dosimetry to effectively monitor exposure to personnel. The inspector verified that PPL controls were adequate.

During job performance observations, the inspector observed radiation worker performance with respect to stated radiation protection work requirements. The inspector verified that the workers were aware of the significant radiological conditions in their workplace, and the RWP controls/limits in place, and that their performance took into consideration the level of radiological hazards present. The inspector also reviewed a number of instances where workers were not following plant procedures and inconsistent enforcement of plant policies as they relate to radiological workers.

Enclosure

During job performance observations, the inspector observed radiation protection technician performance with respect to radiation protection work requirements. The inspector verified that they were aware of the radiological conditions in their workplace and the RWP controls/limits, and that their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

b. Findings

No findings of significance were identified

2OS2 ALARA Planning and Controls (71121.02 - 5 Samples)

a. Inspection Scope

The inspector obtained from PPL a list of work activities for the Unit 2 Refueling and Inspection Outage (2RIO13) ranked by actual/estimated exposure that were in progress and selected three work activities of highest exposure significance (scaffolding work in the drywell; control rod drive exchange; and nozzle and vessel in-service inspection)

The inspector reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspector verified that PPL had established procedures, engineering, and work controls based on sound radiation protection principles to achieve occupational exposures that are ALARA.

The inspector compared the results achieved (dose rate reductions, person-rem used) with the intended dose established in the licensee's ALARA planning for these work activities. The inspector reviewed the results of the control rod drive exchange which indicated that the job exceeded its exposure estimate by approximately 2.1 person-rem (40 percent above its ALARA goal).

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03 - 1 Sample)a. Inspection Scope

The inspector reviewed corrective action program reports related to exposure significant radiological incidents that involved radiation monitoring instrument deficiencies since the last inspection in this area. No events of this type have occurred since the last inspection in this area.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 - 3 Samples)a. Inspection Scope

The inspectors reviewed data for the EP PIs which are: (1) Drill and Exercise Performance (DEP); (2) ERO Drill Participation; and (3) Alert and Notification System (ANS) Reliability. The inspectors reviewed supporting documentation from drills and tests in the third and fourth quarters of 2006 to verify the accuracy of the reported data. The review of these PIs was conducted in accordance with NRC Inspection Procedure 71151. The acceptance criteria used for the review were 10 CFR Part 50.9 and NEI 99-02, Revision 4, "Regulatory Assessment Performance Indicator Guidelines."

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 - 1 Annual Sample).1 Review of Items Entered into the Corrective Action Program

As required by Inspection Procedure 71152, "Identification and Resolution of Problems", and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed screening of all items entered into the licensee's corrective action program. This was accomplished by reviewing the description of each new condition report and periodically attending daily management review committee meetings.

.2 Annual Operator Work Around Review

a. Inspection Scope

The inspectors reviewed station documents, interviewed plant operators, and conducted in-plant tours to identify operator work around(s), challenges, and burdens previously identified by PPL and to look for those not yet identified. This inspection focused on identifying potential adverse impact(s) on the operating crews ability to execute critical tasks required in off-normal or emergency operating procedures. The following work around(s), challenges, and burdens were identified and reviewed:

- Required operator actions to restore HPCI and or RCIC to injection mode during routine quarterly surveillance testing; and
- Removal of entrained air from the emergency diesel generator jacket water system following diesel operation.

b. Findings and Observations

No findings of significance were identified.

.3 Cross-References to PI&R Findings Documented Elsewhere

Section 1R12 describes a condition in which PPL did not scope an accident and transient mitigation function of the Reactor Building (RB) equipment floor drain system (EFDS) into the Maintenance Rule monitoring program. Specifically, following a previous NRC-identified non-conformance with EFDS Maintenance Rule functions, PPL's corrective action did not result in all the required functions of the EFDS being scoped into the Maintenance Rule program.

.4 Inservice Inspection Activities PI&R Reviews

a. Inspection Scope

The inspector reviewed a sample of corrective action reports shown in the attachment, for Section 1R08, which identified nonconforming conditions discovered during this and the previous outage. The inspector verified that flaws and other nonconforming conditions identified during nondestructive testing were reported, characterized, evaluated, and appropriately dispositioned and entered into the corrective action program.

The inspector reviewed condition report 852659 which evaluated the applicability of the recent Duane Arnold primary system nozzle indications (NRC Power Reactor Event No. 43172) to operation at Susquehanna Unit 1 and Unit 2. The evaluations contained in the report indicate that Susquehanna has completed corrective actions to address this issue. PPL will continue to inspect these components within their current inspection plan. The inspector verified the justification for this decision.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153 - 4 Samples)

.1 (Closed) LER 05000387/2006-002-00, Missed Technical Specification Surveillance Requirement SR 3.6.1.1.1

On March 23, 2006, PPL discovered that a required pre-modification local leak rate test (LLRT), on containment penetration X100E/F, had not been performed as required by the station's containment leakage rate program. The failure to perform the test constituted a missed Technical Specification surveillance requirement, SR 3.6.1.1.1. This failure to comply with the Technical Specifications constituted a violation of minor safety significance not subject to enforcement action in accordance with Section IV of the NRC's enforcement policy. The violation posed no actual safety consequence and is of minor safety significance because (1) the penetration was not required to be operable when first disturbed as the plant was in a cold shutdown condition, (2) no actual degraded condition existed or is believed to have existed with this penetration, and (3) the penetration exhibited satisfactory performance well within the established administrative leakage limit during prior LLRTs. Review of the LER found it accurately reported the issue and that PPL's planned corrective actions, identified in CR 764090, were appropriate. This LER is closed.

.2 (Closed) LER 05000387/2006-003-00, Motor Operated Valve Stem Nut Failures

On April 4, 2006, PPL voluntarily reported the failure of two Unit 1 RHR safety-related motor operated valves (MOVs). The failures resulted due to wear of the actuator stem nut. The worn stem nut threads prevented the valve actuators from converting motor operator rotational motion into vertical motion of the valve stem as necessary to open and/or close the valves. Review of the LER found it accurately reported the issue and that PPL's planned corrective actions, identified in CR 768920, were appropriate. The MOV failures were previously reviewed and the findings documented in Section 1R15 of NRC inspection reports (IRs) 05000387/2006003 and 05000388/2006003. This LER is closed.

.3 (Closed) LER 05000387/2006-004-00/01, Reactor Scram During Transfer of RPS Power Supplies

On June 15, 2006, due to a design deficiency in the power range neutron monitoring system (PRNMS), Unit 1 automatically shutdown from 100 percent power when operators attempted to switch from the normal to the backup power supply for Division II of the reactor protection system. The PRNMS design deficiency and plant transient were previously reviewed and the associated finding documented in NRC inspection report (IR) 05000387/2006003 and 05000388/2006003, Section 1R20. This LER is closed.

.4 (Closed) LER 05000387/2006-005-00, HPCI Safety Function Compromised

On August 31, 2006, the Unit 1 HPCI system's turbine stop valve did not, on an intermittent basis, attain complete closure during surveillance testing, thereby compromising the safety function of the HPCI system. The enforcement aspects of this finding are discussed in Section 4OA7 of this report. This finding was considered as licensee-identified since the issue was discovered through a licensee surveillance testing program. Inspector review of the LER found that it accurately reported the issue and that PPL's planned corrective actions, identified in CR 806988, were appropriate. This LER is closed.

4OA6 Meetings, Including Exit

On April 10, 2007, the resident inspectors presented the inspection results to Mr. R. Saccone, Vice President - Nuclear Operations, and other members of your staff, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by PPL and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation.

- TS 6.12.1 requires that each high radiation area shall be barricaded and conspicuously posted. On December 20, 2006, the entrance to the Unit 2 Division II core spray pump room was left unposted and opened by a radiation protection technician for approximately 10 minutes. The event is documented in the licensee's corrective action system as CR 834681. The finding is of very low safety significance because it did not involve a very high radiation area or personnel over-exposure.
- TS 5.4.1 requires that written procedures shall be established, implemented and maintained for the activities encompassed by Regulatory Guide 1.33. On August 31, 2006, during surveillance testing, the Unit 1 HPCI system experienced a failure of the Unit 1 HPCI turbine stop valve to go fully closed due to mechanical binding. This failure caused an additional 109 hours of unplanned unavailability for this safety system. The cause of this equipment degradation was the failure to perform established preventive maintenance tasks required by PPL procedure NDAP-QA-0524. This issue is documented in PPL's corrective action system as CR 806988. The finding is of very low safety significance as determined by the SDP (Phase 1) because this performance issue did not represent an actual loss of safety function of a single train for greater than the Technical Specification allowed outage time. Also, see LER 05000387/2006-005-00, Section 4OA3.4, of this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Coffin, Supervisor - Nuclear Emergency Planning, Susquehanna
L. Fuller, Senior Engineer
F. Habib, Senior Engineer
M. Houssock, Production Supervisor
R. Kessler, Senior Health Physicist - ALARA
D. Kostelnik, Supervising Engineer
R. Linden, Inservice Supervisor Specialist
E. Miller, Senior Engineer
R. Sacco, Manager, Field Services Generation
V. Schuman, Radiological Protection Manager
R. Sgarro, Manager, Nuclear Regulatory Affairs
S. Sienkiewicz, Supervisor Nondestructive Examination
J. Skrocki, Supervising Engineer
R. Smith, Manager - Site Preparedness and Response, Susquehanna
A. Ulitchney, Instructor

NRC Personnel

A. Blamey, Senior Resident Inspector
C. Welch, Acting Senior Resident Inspector
F. Jaxheimer, Resident Inspector
S. Barr, Senior Emergency Preparedness Specialist
J. Furia, Senior Health Physicist
G. Ottenberg, Reactor Inspector
P. Presby, Operations Engineer
T. O'Hara, Reactor Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000388/2007002-001	NCV	Failure to Institute Effective Measures to Assure that Special Processes (Welding) are Controlled and Accomplished. (Section 1R08)
----------------------	-----	--

05000387/2007002-002 NCV Reactor Building Floor and Equipment Drains not Fully Scoped into the Maintenance Rule. (Section 1R12)

Closed

05000387/2006-002-00 LER Missed Technical Specification Surveillance Requirement SR 3.6.1.1.1. (Section 4OA3.1)

05000387/2006-003-00 LER Motor Operated Valve Stem Nut Failures. (Section 4OA3.2)

05000387/2006-004-00/01 LER Reactor Scram During Transfer of RPS Power Supplies. (Section 4OA3.3)

05000387/2006-005-00 LER HPCI Safety Function Compromised. (Section 4OA3.4)

LIST OF DOCUMENTS REVIEWED
(Not Referenced in the Report)

Section 1R01: Adverse Weather Protection

OP-185-001, Revision 13, Freeze Protection System
NDAP-00-0024, Revision 10, Winter Operation Preparation
NDAP-00-0030, Revision 2, Severe Weather Preparations (winter, storm, hurricane)

Calculation EC-035-1024, Time to Freeze Supplemental Decay Heat Removal Line as a Function of Outside Air Temperature.

Section 1R04: Equipment Alignment

OP-150-001, Revision 25, RCIC system
OP-100-001, Revision 9, Remote Shutdown Panel
P&ID, M-149, Reactor Core Isolation Cooling
P&ID, M-156, RCIC turbine pump
TP-235-011, "Refuel Outage Decay Heat Removal and Tie-In of the SDHR Temporary Cooling Equipment
ON-249-001, "Loss of Residual Heat Removal Shutdown Cooling Mode"
OP-011-001, "Supplemental Decay Heat Removal System"
Calculation EC-035-1016, "Fuel Pool Time to Boil Evaluation"
Calculation EC-011-1003, "Frictional Head Loss with 6000 gpm Flow in SDHR Piping"
Drawing M-2153, Unit 2 Fuel Pool Cooling System
50.59 Evaluation # NL-95-001, Rev 2

1R07: Heat Sink Performance

MT-GM-031, Revision 9, Immersed Component/Heat Exchanger Internals Epoxy Lining/Cladding

MT-216-002, Revision 8, RHR Heat Exchanger Cleaning, Inspection and Repair

Section 1R08: Inservice Inspection Activities

Condition Reports/Action Reports

855202, 856192, 857250, 856512, 856608, 857769, 556567, 859071, 857751, 857893, 852023, 858796, 738741, 657632, 858778, 858778, 858796, 857632, 855933, 857075, 857752, 856888, 860029,* 857760, 858094, 858091, 857341, 856888, 859440,* 852659, 651331, 855933, 856006

* indicates that CR/AR was written as a result of this inspection

GE Customer Notification Forms (CNF)

IVVI-06-23, IVVI-06-22, IVVI-06-21, IVVI-06-40, IVVI-07-63, IVVI-07-59, IVVI-07-73, IVVI-07-57, IVVI-07-53, IVVI-07-55, IVVI-07-54, IVVI-07-56, IVVI-07-72, IVVI-07-74, IVVI-07-75, IVVI-07-76, IVVI-07-77, IVVI-07-78, IVVI-07-70, IVVI-07-79, IVVI-07-67, IVVI-07-68, IVVI-07-69, IVVI-07-66, IVVI-07-80, IVVI-07-71, IVVI-07-65, IVVI-07-64, IVVI-07-61, IVVI-07-60, IVVI-07-81, IVVI-07-58

50.59 Screen or Evaluation

5059-01-2490, Revision 0; Reactor Feed Pump Suction Flange Changeout Unit 1 and Unit 2 - EPU
5059-01-2490, Revision 1; Reactor Feed Pump Suction Flange Changeout Unit 1 and Unit 2 - EPU
5059-01-2490, Revision 2; Reactor Feed Pump Suction Flange Changeout Unit 1 and Unit 2 - EPU
5059-01-2490, Revision 3; Reactor Feed Pump Suction Flange Changeout Unit 1 and Unit 2 - EPU
5059-01-2081, Revision 0; Use-As-Is Disposition for U2- 12th RIO Jet Pump 19 and 20 Wedge Wear
5059 SD 00155, Revision 2; U213RIO FAC Program Piping Replacement

Radiograph Review

ISI-07-042, Radiographic Film Review of Weld 18A, DBB222-2FW in RWCU System (accept)
ISI-07-040, Radiographic Film Review of Weld 16A, DBB222-2FW in RWCU System (accept)
ISI-07-041, Radiographic Film Review of Weld 17A, DB222-2FW in RWCU System (accept)
ISI-07-080, Radiographic Film Review of Weld 14A, DB222-2FW in RWCU System (reject)
ISI-07-081, Radiographic Film Review of Weld 34A, DB222-2FW in RWCU System (reject)
ISI-07-079, Radiographic Film Review of Weld 2A, DB222-2FW in RWCU System(reject)

NDT Examination Reports

BOP-UT-07-008, SP-DCA-250-1-FW-5B; UT data sheet pipe-to-reducer socket weld between valve HV243F023B and valve 243FO25B on the B reactor recirculation loop (BEFORE WELD BUILDUP)

UT-07-037, DBA2022-FW-3, HPCI, UT; UT-07-008, DCA2071-2-B, CS, UT; UT-07-007, DCA2071-FW-5, CS, UT; UT-07-032, DLA2021-FW-10, FW, UT; UT-07-010, SPDCA2081-FW-1, RHR, UT; VE-07-002, N1A, RPV-E, UT; VE-07-004, N1A IR, RPV-E, UT; UT-07-001, 2E-205B-1, RHR, UT; MT-07-004, 2E-205B-1, RHR, MT; MT-07-003, 2E-205B-10A, RHR, MT; VT-07-766 HRC2123-H1, RHRSW, VT; VT-07-752, RPV-N6A-BG2, RPV-E, VT; VT-07-773, DBA2011-H22, RWCU, VT; PT-07-020, VRRB313-14-F, RR, PT; PT-07-018, VRRB313-14-G, RR, PT; PT-07-017, VRRB314-3-F, RR, PT; PT-07-001, DBB2212-HW-1A, PT; 724995(GE), N4A IR, RPV-E, UT; 724995(GE), N4A Bore, RPV-E, UT

IWE Inspection Reports

9912001, IWE Visual Exam Records, 3/11/05
UCC Inspection, Project No. 07-361, 2/22/07; Containment Suppression Chamber Submerged Area Cleaning & Inspection

NDT Examination Procedures

NDE-UT-034 R3, Automated Ultrasonic Examination of Dissimilar Metal Welds, and Nozzle to Safe End Welds
NDE-UT-001 R6, Manual Ultrasonic Examination of Austenitic Pipe Welds for IGSCC
NDE-VT-003 R6, Visual Examination VT-3
NDE-MT-001 R2, Wet and Dry MT Examination
NDE-UT-042 R2, Manual Examination of Reactor Vessel Assembly Welds in Accordance with PDI
NDE-RT-001 R1, Radiographic Specification for Examination of Welds
NDE-UT-013 R2, Manual Ultrasonic Examination of Dissimilar Metal Piping Welds
NDE-UT-002 R4, Manual Ultrasonic Examination of Ferritic Welds
NDE-ET-001 R1, Eddy Current Data Acquisition
NDE-PT-002 R0, Solvent Removable Liquid Penetrant Examination In Accordance With ASME Section V, 1995 Edition
NDE-MT-002 R1, Magnetic Particle Wet and Dry Examination - Yoke Method
NDE-VT-001 R4, Visual Examination, VT-1

In Vessel Remote Visual Examination

VT-3, Steam Dryer Tie Bar Structural Welds

Repair-Replacement Work Orders

PCWO 781097, Prefab of RWCU Piping - DBB222-2
PCWO 781009, Replacement of RWCU Piping - DBB222-2

Procedures

NDAP-QA-0702, Revision 19; Action Report and Condition Report Process
ON-249-001, Revision 21, 3/23/06; Loss Of RHR Shutdown Cooling Mode
ON-235-001, Revision 25, 4/7/05; Loss Of Fuel Pool Cooling/Coolant Inventory
ON-218-001, Revision 18; Loss Of Instrument Air
ME-2RF-004, Revision 4; Reactor Cavity Inflatable Seal Tests
MT-GM-018, Revision 15; Freeze Sealing Of Piping

Miscellaneous

NRC Ltr. Dated 8/1/06; Susquehanna Steam Electric Station, Unit 1 and 2 - Reconciliation of Second 10 Year Interval Inservice Inspection (ISI) Program Plan (TAC Nos MC7472, MC7473, MC7474, MC7475, MC7476, MC7477, MC7478, MC7479, MC7480, MC7481)
GE Ltr. Dated 3/24/07; Susquehanna Unit 2, Evaluation of RFO13 Jet Pump Indications and Repair Recommendations
Susquehanna Steam Electric Station, Unit 2; Flow Accelerated Corrosion Program Summary Report for the 12th Refueling and Inspection Outage
Certificate of Qualification #0904; Troy A. Steinbauer

Section 1R12: Maintenance Effectiveness

PCWO 838647, Unit 1 RCIC Room Floor Drain Reach Rod Operator Does Not Operate the Valve

CR 847494

Maintenance Rule System 69 (LRW drains) Performance Criteria

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

OFR/CR 417587

Section 1R15: Operability Evaluations

Calculation EC-059-1034, Test Report and Sizing Calculation for Core Spray and RHR Stacked Disk Suction Strainers

EWR 642822

OFR 845074

Generic Letter, 10CFR Part 21 Communication, SC 07-04, dated February 16, 2007

Calculation EC-059-1032, Rev. 1.0, CS and RHR stacked disk strain stress analysis

Section 1R20: Refueling and Other Outage Activities

OP-ORF-022, Rev 9, "New Fuel Receipt, Handling, and Inspection Activities"

PCAF 2006-4330

OP-249-002, "RHR Shutdown Cooling," Rev. 43.

Section 1R22: Surveillance Testing

EC-059-1024, Rev 4, Design Requirements for and Evaluation of Potential Secondary Containment Bypass Leakage (SCBL) Pathways
Unit 2 13th Refueling Outage Valve Leakage Summary and Test Notebook
Main Steam System Engineering Journal Report (entries from March, 2007)
EWR 861162
Unit 2 Division II LOCA LOOP, SE-224-207, Pre-Job Brief Handouts and Meeting Agenda
SO-284-006, "Main Steam Isolation Valve Stroke Timing," Rev. 0, Performed 03/03/2007.

Section 1EP2: Alert and Notification System (ANS) Evaluation

2007 Test Schedule Rev.1, "Public Notification System"
EP-AD-007, "Public Notification System Annual Test," Rev. 3
EP-AD-011, "Public Notification System," Rev.3
EP-AD-018, "PNS Problem Solving," Rev. 2
PNS Action Items from January 2006 to January 2007
Current PNS Design Report: "Design of the Siren Alerting System for the Susquehanna Steam Electric Station", Final Report

Section 1EP3: Emergency Response Organization (ERO) Staffing and Augmentation System

Emergency Plan Table 6.1, "Station Emergency Plan Minimum Staffing Requirements," E-Plan, Rev. 48
NERO Page Test Results, January-December 2006 (monthly tests)
Emergency Plan Section 9.0 "Maintaining Emergency Preparedness"
Emergency Plan Section 6.2 "On-Site Emergency Organization"
NTP-QA-521, Emergency Plan Training Program," Rev. 12
NIMS Report WMXR261 (Weekly Report), Emergency Plan Program Positions and Required Courses, dated 2/4/06
NIMS Report WMXR 255, Emergency Plan Training Expiration Report, dated 2/6/2006
NDAP-QA-0777, Attachment A, Memo from Sr. VP and CNO to ERO Members re: Member Expectations, dated 11/27/2006
NDAP-QA-0014, "Nuclear Department Call-Out Procedure"
Nuclear Depart Personnel On-Call list, dated 1/22/2007
EP-AD-024, "Emergency Planning Lower Tier Performance Indicators," Revision 0

Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes

Emergency Plan Rev 48, dated 11/16/2006
Emergency Plan Rev 47, dated 1/5/2006
Emergency Plan Rev 46, dated 5/26/2005
Emergency Plan Rev 45, dated 7/29/2004
Sample of Other 50.54q's for Procedure and Equipment Changes from 2006

Section 1EP5: Correction of Emergency Preparedness Weaknesses

All EP-related Condition Reports Generated July 2005 - January 2006
 Self-Assessments for 2005 and 2006
 NDAP-00-0745 "Station Self-Assessment Procedure", Revision 6
 QA Independent Assessment Basis Document, for Emergency Preparedness, Revision 3
 QA Internal Audit Reports May 2005 - June 2006
 QA Report: Observation of the Full Scale Emergency Plan Drill at the EOF/MOC on January 24, 2006
 QA Report: Observation of an Emergency Plan Drill at the OSC on November 14, 2006

Sections 2OS1, 2OS2, 2OS3: Access Control to Radiologically Significant Areas, ALARA Planning and Controls, and radiation Monitoring Instrumentation and Protective Equipment

Condition Reports: 850374; 832673; 832641; 829875; 825640; 818599; 812398; 811575; 809317; 803752; 834681; 857324; 819772; 815780; 853358
 Radiation Work Permits/ALARA Reviews: 2007-2319; 2007-2320; 2007-2353; 2007-2360; 2007-2370
 Collective Radiation Exposure Reduction Plan, dated 3/9/07
 Unit 2 Re-Channel Outage Radiological Performance Report, October 2006

4OA3: Event Follow-up

Apparent cause evaluation for CR806988 (HPCI stop valve failure)

LIST OF ACRONYMS

ALARA	As Low As Is Reasonably Achievable
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
AV	Apparent Violation
BWR	Boiling Water Reactor
CFR	Code of Federal Regulations
CR	Condition Report
DEP	Drill and Exercise Performance
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EFDS	Equipment and Floor Drain Systems
EP	Emergency Preparedness
ERO	Emergency response Organization
ESW	Emergency Service Water
°F	Degrees Fahrenheit
FSAR	[SSES] Final Safety Analysis Report
FW	Feedwater

GE	General Electric
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
ISI	Inservice Inspection
IVVI	In-Vessel Visual Inspection
KV	Kilovolts
LER	Licensee Event Report
LSFT	Logic System Functional Test
MOV	Motor Operated Valve
MT	Magnetic Particle Test
NCV	Non-cited Violation
NDAP	Nuclear Department Administrative Procedure
NDE	Nondestructive Examination
NERO	Nuclear Emergency Response Organization
NRC	Nuclear Regulatory Commission
OA	Other Activities
PI	[NRC] Performance Indicator
PI&R	Problem Identification and Resolution
PPL	PPL Susquehanna, LLC
PT	Penetrant Test
RB	Reactor Building
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
RFPT	Reactor Feed Pump Turbine
RG	[NRC] Regulatory Guide
RHR	Residual Heat Removal
RHRSW	Residual heat Removal Service Water
RR	Reactor Recirculation
PRNMS	Power Range Neutron Monitoring System
RT	Radiographic Test
RTP	Rated Thermal Power
RWCU	Reactor Water Clean Up
RWP	Radiation Work Permit
SDHR	Supplemental Decay Heat Removal
SDP	Significant Determination Process
SSC	Structures, Systems and Components
SSES	Susquehanna Steam Electric Station
TLD	Thermoluminescent Dosimeter
UT	Ultrasonic Test
VHRA	Very High Radiation Area
VT	Visual Examination
WO	Work Order