October 29, 2005

Mr. Britt T. McKinney
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 05000387/2005004 AND 05000388/2005004

Dear Mr. McKinney:

On September 30, 2005, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Susquehanna Steam Electric Station Units 1 and 2. The enclosed integrated inspection report documents the results of that inspection, which were discussed on October 19, 2005, 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.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 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 Publically 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/

James M. Trapp, Chief
Projects Branch 4
Division of Reactor Projects

Docket Nos. 50-387; 50-388, 72-28 (ISFSI)
License Nos. NPF-14, NPF-22

Enclosure: Inspection Report 05000387/2005004 and 05000388/2005004
w/ Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-387, 50-388, 72-28 (ISFSI)

License Nos.: NPF-14, NPF-22

Report No.: 05000387/2005004 and 05000388/2005004

Licensee: PPL Susquehanna, LLC

Facility: Susquehanna Steam Electric Station, Units 1 and 2

Location: 769 Salem Boulevard
Berwick, PA 18603

Dates: July 1, 2005 through September 30, 2005

Inspectors: F. Jaxheimer, Senior Resident Inspector
A. Passarelli, Resident Inspector
B. Bickett, Senior Resident Inspector
T. Burns, Reactor Inspector
J. Furia, Senior Health Physicist
R. Prince, Health Physicist

Approved by: James M. Trapp, Chief
Projects Branch 4
Division of Reactor Projects

CONTENTS

SUMMARY OF FINDINGS

IR 05000387/2005-004, 05000388/2005-004; 07/01/2005 - 09/30/2005; Susquehanna Steam Electric Station, Units 1 and 2; routine integrated report.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by a regional senior health physicist, a health physicist, and a 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.

A. NRC Identified Findings and Self-Revealing Findings

No findings of significance were identified.

B. Licensee Identified Violations

None.

Report Details

Summary of Plant Status

Unit 1 began the inspection period at full rated thermal power (RTP) and operated at or near full power during the inspection period except for planned power reductions to test and assess control cell friction issues on July 15 and August 5, 2005. On both occasions, power was reduced to 70 percent for control rod testing, after which the unit was brought back to full power.

Unit 2 began the inspection period at full RTP and operated at or near full RTP during the inspection period with the exception of planned control rod pattern adjustments and control rod drive maintenance and testing.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01- 2 samples)

a. Inspection Scope

Adverse Weather - System Review. During the week of July 18, 2005, the inspectors reviewed PPL's preparations for hot weather and implementation of actions contained in procedure, ON-000-005, "Hot Weather," Rev. 5. The inspectors also reviewed planned work on the service water system and reviewed the ultimate heat sink design temperature. Walkdowns and system reviews were conducted to determine the adequacy of PPL's weather protection activities and system features for prolonged hot weather.

Adverse Weather - Site Preparations. The Susquehanna river experienced low river flow conditions during the week of August 25, 2005. The inspectors reviewed PPL's operation with respect to the low river flow conditions and their effect on plant operation. Inspectors also evaluated river intake system health and associated condition reports to evaluate PPL's readiness for potential prolonged low river water level or drought.

The documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 3 samples; 71111.04S - 1 sample)

a. Inspection Scope

Partial System Walkdowns. The inspectors performed partial system walkdowns to verify system and component alignment and to note any discrepancies that would impact system operability. The inspectors focused on identifying any discrepancies that could impact the function of the system and potentially increase risk. The inspectors verified that portions of redundant or backup systems or trains were available

while selected system components were out-of-service. The inspectors reviewed applicable operating procedures and walked down control system components. The inspectors reviewed valve positions, electrical power availability, and the general condition of major system components. The inspectors performed the following system walkdowns:

- B, C, and D 4 KV buses and emergency diesel generators (EDGs) while 1A bus removed from service for breaker modification, Units 1 & 2
- "E" EDG while swapped in for "A" EDG, Unit 1 & 2
- control rod drive hydraulic system, Unit 1

Complete System Walkdown. The inspectors conducted a detailed review of the alignment and condition of the Unit 1 standby liquid control (SLC) system. The inspectors reviewed test procedures, system configuration and implementation of surveillance requirements and limiting conditions on operation. The inspectors evaluated condition reports associated with the SLC system to determine the effect on system reliability and to verify that equipment alignment problems were being identified and appropriately resolved. The inspectors used PPL's procedures and other documents listed below to verify proper SLC system alignment:

- OP-253-001, "Standby Liquid Control," Rev. 22
- SE-253-004, "Quarterly SBLC flow verification," Rev. 30
- UFSAR Section 7.4.1 - Systems Required for Safe Shutdown
- DBD-042, Standby Liquid Control System, Rev. 2

The inspectors verified electrical power requirements, labeling, and the status of associated support systems. Pumps were examined to determine if there were any noticeable vibration effects. The walkdown also included evaluation of system piping and supports, component degradation and any evidence of active leakage. A review of outstanding maintenance work orders was performed to verify that the deficiencies did not significantly affect the SLC system function.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 9 samples)

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 inspectors toured the following areas important to reactor safety:

- Units 1 & 2, ESS transformers, fire zone 0-00
- Units 1 & 2, main and auxiliary transformers, fire zone 0-00

- “E” EDG building, fire zone 0-41E
- Units 1 & 2, common refuel floor, fire zone 0-8A
- Units 1 & 2, standby gas treatment filter area, fire zone 0-30B
- Unit 1, heating and ventilation filter rooms, fire zone 1-7A
- Unit 2, standby liquid control area, fire zone 2-5A-N
- Unit 2, upper relay room, fire zone 0-27A
- Unit 2, core spray pump room, fire zone 2-1A

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 sample)

a. Inspection Scope

Internal Flooding. The inspectors reviewed documents and inspected safety-related and risk significant structures, systems, and components to evaluate the adequacy of internal flood protection measures. The inspectors performed walkdowns of the ESW pump house and both unit’s RHR rooms to verify the adequacy of watertight doors and other flood protection features. The inspectors verified that adequate procedures were in place to identify and respond to flooding. The inspectors observed the condition of watertight doors, drain and sump systems, and penetrations in floors and walls.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A - 1 sample)

a. Inspection Scope

The inspectors reviewed PPL’s inspection, cleaning, and maintenance activities. This review included PPL’s evaluation of the as-found condition for the “A” EDG jacket water and lube oil coolers during a maintenance overhaul. The inspectors verified that PPL properly evaluated the inspection 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 exchangers were capable of performing their safety function under design basis accident conditions.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q - 1 sample)

a. Inspection Scope

On August 17, 2005, the inspectors observed licensed operator performance in the simulator during operator requalification training. The inspectors observed Technical

Specifications application, emergency plan implementation, and the use of emergency operating procedures. The inspectors also evaluated PPL's critique of the operators' performance to identify discrepancies and deficiencies in operator training. The following training scenario was observed:

- Station blackout and restoration of offsite power - Activity #12

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 samples; 71111.12B - 6 samples)

.1 Routine Maintenance Effectiveness

a. Inspection Scope

The inspectors evaluated PPL's work practices and follow-up corrective actions for selected system, structure, or component (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 with regard to potential common cause or generic implications to evaluate the adequacy of PPL's corrective actions. The inspectors reviewed PPL's corrective actions 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. PPL's corrective actions that were taken or planned were reviewed to verify whether the actions were reasonable and appropriate. The following issues were reviewed:

- Units 1 & 2, station portable diesel generator
- Unit 1, reactor protection system EPA breaker failures on alternate supply

b. Findings

No findings of significance were identified.

.2 Biennial Periodic Evaluation

a. Inspection Scope

The inspector reviewed PPL's most recent periodic evaluation report for Units 1 and 2 which covered the interval January 1, 2003 through December 31, 2004. The inspector reviewed the periodic evaluation required by 10 CFR 50.65 (a)(3) for Susquehanna Steam Electric Station, Units 1 and 2, to determine if SSCs within the scope of the maintenance rule were included in the evaluation and, balancing of reliability and availability/unavailability (R&U) was given adequate consideration. The inspector determined that the periodic evaluation was completed within the required two year time period.

The inspector selected the following category (a)(1) systems for detailed review:

Unit 1:

Containment & Suppression (system 159) - Feedwater Check Valves
Reactor Building HVAC (system 134) - Backdraft Isolation Damper

Unit 2:

Containment & Suppression (system 259) - Seismic Island Check Valves
Containment & Suppression (system 259) - Main Steam Isolation Valves

Units 1 & 2 (single systems common to both Units):

SPING Monitor Sample Pumps (system 079)
Control Structure HVAC (system 030) - Chiller OK112A

The inspector reviewed action plans for the above selected systems in category (a)(1) to assess that: (1) goals and performance criteria were appropriate, (2) industry operating experience was considered, (3) problem identification and resolution of maintenance rule-related issues were addressed, (4) corrective action plans were accomplished, and (5) performance was being monitored with results being factored into the periodic system health reports. The inspector reviewed adjustments made in action plans for SSCs in (a)(1) status as a result of PPL's review of system performance against established goals. As of December 31, 2004, two (2) systems, one each in Unit 1 and Unit 2, were in (a)(1) status. Both systems were risk significant. These two systems were in various stages of evaluation, monitoring, and corrective action. The inspector reviewed documentation for a sample of high safety significant SSCs to verify that PPL balanced reliability and unavailability and adjusted (a)(1) goals as necessary.

The inspector reviewed the Outage Risk Assessment and Management (ORAM) and Equipment Out of Service (EOOS) program which provides the guidelines to assess and manage the risk associated with the performance of maintenance activities on maintenance rule SSC configurations during any plant operational mode. The review was performed to determine if guidance was provided for planning and scheduling of preventive and corrective maintenance activities so they will be performed in a manner that will maintain risk within an acceptable range.

The inspector selected a sample of risk significant SSCs that were in a(2) status to determine if PPL had established appropriate performance criteria (PC). The inspector confirmed that PPL performed adequate reviews, for systems that failed to meet their performance criteria, to determine the cause of the failure and whether or not the SSCs required placement in category (a)(1) for goal setting, corrective action and monitoring.

The inspector reviewed documentation for a sample of systems that PPL had changed from (a)(1) status to (a)(2) status during the evaluation period. The inspector selected Radiation Monitoring from Unit 1 & 2, and Containment and Suppression (MSIV's) from Unit 1 & 2, to evaluate that (a)(1) goals had been met and were reviewed by the expert panel prior to returning the systems to category (a)(2) status.

In addition, the inspector reviewed the site's established and implemented program that manages preventive maintenance activities for systems in both (a)(1) and (a)(2) status. A sample of risk significant systems in (a)(1) and (a)(2) status were reviewed to verify the performance of condition monitoring and scheduled maintenance. The documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (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 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 verify 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:

- TP-264-033, "Steam Dryer Acoustic Wave Data Collection," Rev. 0
- OP-272-001, "Common Recombiner - Offgas Switchover," Rev. 33
- OP-144-001, "Returning an Isolated Feedwater Heater String and Maximum Critical Power Ratio Limiting Condition of Operation Entry," Rev. 35
- TP-124-00, "1A and 2A engineering safeguards (ES) bus, emergency diesel generator (EDG) feeder breaker modification," Rev. 0
- "A" EDG overhaul with Unit 1 HPCI surveillance
- "A" EDG swap for "E" EDG

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, Updated Final Safety Analysis Report (UFSAR), and associated Design Basis Documents as references during these reviews. The issues reviewed included:

- Units 1 & 2, "B" EDG crankcase rapid pressure relief valve door loose bolting, EWR 696842
- Unit 1, control cell friction issues and control rods 46-27 and 14-35 scram time testing
- Unit 1, 480V breaker replacement, RHR suction from suppression pool valve
- Unit 1, control cell friction issues with control rods 26-11 and 26-51 and their failure to settle during testing
- Unit 1, T-20 transformer operation with ten failed cooling fans
- Unit 1, EPA alternate power supply breaker failures
- Unit 1, RHRSW pump 1P506A failed to meet IST acceptance criteria

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16 - 1 cumulative sample)

a. Inspection Scope

Cumulative Effects Review. The inspectors reviewed the aggregate impact of Unit 1 and Unit 2 documented operator workarounds and challenges, equipment deficiencies, and open operability evaluations. The inspectors evaluated the cumulative effects of these items on the ability of operators to respond in a correct and timely manner. The inspectors also reviewed these deficiencies to determine if there were any items that complicated the operators' ability to implement emergency operating procedures, but were not identified as operator workarounds.

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 testing adequacy by comparing the test methodology to the scope of maintenance work performed. In addition, the inspectors evaluated the test acceptance criteria to verify 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:

- SO-024-001A," "A" EDG Monthly Operability Test for magnetic pickup modification," Units 1 & 2, Rev. 40
- SE-070-A09, "SBGT system "A" HEPA and charcoal leak test," Units 1 & 2, Rev. 4
- TP-024-163, " "A" EDG governor replacement post maintenance test (PMT)," Unit 1 & 2, Rev. 40
- SO-030-001A, " "A" CREOAS Monthly Operability Run," Unit 1 & 2, Rev. 11
- TP-024-145, " "A" EDG Restoration, single load reject test," Unit 1 & 2, Rev. 11

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 5 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 results. The inspectors compared the test result 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:

- OP-024-001, "Monthly operating test of the A, B, and C emergency diesel generators," Units 1 & 2, Rev. 44
- SE-024-100, "Ten year simultaneous start of four emergency diesel generators," Units 1 & 2, Rev. 1
- SO-152-004, "HPCI valve exercising and flow surveillance," Unit 1, Rev. 39
- SO-251-A02, "Core spray flow test," Unit 2, Rev. 12
- SO-250-002, "RCIC flow verification (quarterly)," Unit 2, Rev. 30

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modification (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 UFSAR, 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 verify whether the actual impact of the temporary changes had been adequately demonstrated by the test. The following temporary modification was included in this review:

- Unit 1, drywell equipment drain tank primary containment isolation valve (PCIV) knife switch modification

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluations (71114.06 - 1 sample)

a. Inspection Scope

Simulator Based Event. On July 12, 2005, the inspectors observed a control room simulator based training event. The inspectors assessed licensed operator adherence to emergency plan implementing procedures, and their response to simulated degraded plant conditions to identify weaknesses and deficiencies in event classification and notification. The inspectors observed PPL's critique of the simulator control room participants to evaluate PPL's identification of weaknesses and deficiencies. The inspectors compared PPL's identified findings against the inspectors' observations to determine whether PPL adequately identified problems.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2PS3 Radiological Environmental Monitoring Program (71122.03 - 10 samples)

a. Inspection Scope

The inspector reviewed the current Annual Environmental Monitoring Report, and PPL's assessment results, to verify that the radiological environmental monitoring program (REMP) was implemented as required by technical specifications (TS) and the offsite dose calculation manual (ODCM). The review included changes to the ODCM with

respect to environmental monitoring commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, interlaboratory comparison program, and analysis of data. The inspector also reviewed the ODCM to identify environmental monitoring stations. In addition, the inspector reviewed self-assessments and audits, licensee event reports, inter-laboratory comparison program results, the updated final safety analysis report (FSAR) for information regarding the environmental monitoring program and meteorological monitoring instrumentation, and the scope of the audit program to verify that it met the requirements of 10 CFR 20.1101.

The inspector walked down six air particulate and iodine sampling stations; four milk sampling stations; four surface water stations; and, 24 thermoluminescent dosimeter (TLD) monitoring locations and determined that they were located as described in the ODCM and determined the equipment material condition to be acceptable. The inspector also observed PPL's receipt of six sediment samples from a vendor.

The inspector observed the collection and preparation of a variety of environmental samples (listed above) and verified that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.

Based on direct observation and review of records, the inspector verified that the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the FSAR, NRC Safety Guide 23, and site procedures. The inspector verified that the meteorological data readout and recording instruments in the control room and at the tower were operable.

The inspector reviewed each event documented in the Annual Environmental Monitoring Report which involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement for the cause and corrective actions. The inspector conducted a review of PPL's assessment of any positive sample results.

The inspector reviewed any significant changes made by PPL to the ODCM as the result of changes to the land census or sampler station modifications since the last inspection. The inspector also reviewed technical justifications for any changed sampling locations and verified that PPL performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The inspector reviewed the calibration and maintenance records for air samplers. The inspector reviewed: the results of PPL's interlaboratory comparison program to verify the adequacy of environmental sample analyses; PPL's quality control evaluation of the interlaboratory comparison program and the corrective actions for any deficiencies; PPL's determination of any bias to the data and the overall effect on the REMP; and quality assurance (QA) audit results of the program to determine whether TS/ODCM requirements were met. The inspector verified that the appropriate detection sensitivities with respect to TS/ODCM are utilized for counting samples and reviewed the results of the quality control program including the interlaboratory comparison program to verify the adequacy of the program.

The inspector observed several locations where PPL monitors potentially contaminated material leaving the radiologically controlled area (RCA), and inspected the methods used for control, survey, and release from these areas, including observing the performance of personnel surveying and releasing material for unrestricted use verifying that the work is performed in accordance with plant procedures.

The inspector verified that the radiation monitoring instrumentation was appropriate for the radiation types present and was calibrated with appropriate radiation sources. The inspector reviewed PPL's criteria for the survey and release of potentially contaminated material; verified that there was guidance on how to respond to an alarm which indicates the presence of licensed radioactive material; and reviewed PPL's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material. The inspector also reviewed the procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters and verified that PPL has not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

.1 Corrective Action Review by Resident Inspectors

a. Inspection Scope

Continuous Review. The inspectors performed a daily screening of items entered into PPL's corrective action program as required by Inspection Procedure 71152, Identification and Resolution of Problems. The review facilitated the identification of potentially repetitive equipment failures or specific human performance issues for follow-up inspection. The inspectors accomplished this daily screening by review of each condition report issued by station personnel, observation of condition report screening meetings, and review of operator logs.

b. Findings

No findings of significance were identified

.2 Maintenance Effectiveness Biennial Periodic Evaluation

a. Inspection Scope

The inspector reviewed a sample of corrective action reports documented in attachment which identified problems related to maintenance effectiveness program issues. The

inspector reviewed problems identified in the implementation of maintenance effectiveness activities to determine they were being evaluated, appropriately dispositioned and entered into the corrective action program.

b. Findings

No findings of significance were identified.

.3 Radiological Environmental Monitoring Program

a. Inspection Scope

The inspector reviewed PPL's Licensee Event Reports, Special Reports, and audits related to the radiological environmental monitoring program performed since the last inspection. The inspector determined that identified problems were entered into the corrective action program for resolution. The inspector also reviewed corrective actions affecting environmental sampling, sample analysis, or meteorological monitoring instrumentation.

b. Findings

No findings of significance were identified.

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

.1 (Closed) LER 05000387/2005-001-00;2005-001-01 Primary Containment Instrument Lines Outside Secondary Containment

On November 22, 2004, it was identified that six primary containment instrument line penetrations were improperly aligned outside secondary containment in the Unit 1 reactor building railroad bay. PPL did not control the reactor building railroad bay ventilation in accordance with the Final Safety Analysis Report assumptions and analysis. The violations associated with the inadequate configuration control and operability evaluation are documented in NRC inspection report 50-387/2004-005, sections 1R04 and 1R15 respectively. The LERs were reviewed by the inspectors and no additional findings of significance were identified. PPL documented their corrective actions for this event in CR 621353. These LERs are closed.

.2 (Closed) LER 05000388/2005-001-00, Degradation of Primary Coolant Pressure Boundary

On March 20, 2005, PPL discovered during the Unit 2 ASME Class boundary leakage test that there was a leak on the welded connection of an abandoned pipe stub to the 'B' reactor recirculation pump discharge valve, HV243 F031B. Susquehanna station determined this condition constituted a degraded reactor coolant pressure boundary and repaired the cracked weld. The inspectors reviewed this LER and corrective actions including extent of condition for similar welds. The inspectors did not identify any findings of significance. PPL documented this issue in CR 659286. This LER is closed.

.3 (Closed) LER 05000388/2005-002-00 Degraded 125 VDC Battery Charger Results in Technical Specification Required Shutdown

On April 10, 2005, PPL discovered that the output of the 2D633 battery charger to the 125 VDC battery had failed low after receiving an alarm in the control room. Because the associated DC electrical subsystem could not be returned to operable status within the required LCO action statement time, Unit 2 was shut down to Mode 3 as required by Technical Specifications. The inspectors reviewed the event and PPL's root cause analysis and documented a violation of Technical Specifications Section 5.4.1 "Administrative Controls - Procedures," in IR 05000387/2005003. PPL documented their corrective actions in condition report CR 665179. The LER was reviewed by the inspectors and no additional findings of significance were identified. This LER is closed.

.4 (Closed) LER 05000388/2005-003-00 Reactor Manual Scram Due to Loss of Main Transformer Cooling

On April 28, 2005, as part of alarm response, operators found the Unit 2, B phase Main Transformer was without any cooling. With no cooling, procedures required prompt removal of the transformer from service. Reactor power was reduced from 100% to 75% while attempting to restore transformer cooling. Transformer cooling restoration was unsuccessful and the reactor was manually scrammed. Following the manual scram the Unit 2 generator output breakers automatically opened as designed removing load from the main transformers and all other plant systems responded as designed. The cause of the event was attributed to a previously identified design weakness in the main transformer cooling system electrical logic and the inability of plant operators to promptly implement manual actions to restore cooling to the main transformer.

Inspectors found that corrective actions were not effective following previous losses of cooling to the Unit 2 Main transformers in 2003. Contrary to the corrective action procedure, PPL initiated no actions to prevent recurrence or mitigate its effects on the initiating events cornerstone prior to this LER event. This corrective action finding was documented and discussed in detail in NRC Inspection Report 50-387,388/2005-003. This issue was documented in PPL's corrective action program as condition report CR 670326. PPL has implemented corrective actions associated with this LER and the associated root cause evaluation. This LER was reviewed by the inspectors and no additional findings were noted. This LER is closed.

4OA5 Other Activities

.1 (Closed) NOV 05000387/2004005-02 Failure to perform an evaluation and document a change to the facility in accordance with 10 CFR 50.59

The inspectors reviewed PLA-5870, Susquehanna Steam Electric Station reply to NOV 05000387/2004005-02, dated February 28, 2005. PPL's response included why the violation occurred, corrective actions that PPL has taken and their associated results and corrective actions that will be taken to prevent recurrence. The inspectors reviewed the PPL actions as outlined in letter PLA-5870 and no additional concerns were noted. This NOV is closed.

.2 Followup Inspection of Responses to Temporary Instruction 2515/163, Operational Readiness of Offsite Power

The inspector performed a supplemental inspection of Temporary Instruction (TI) 2515/163, Operational Readiness of Offsite Power. The inspector collected and reviewed recent revisions to Susquehanna station procedures and supporting information pertaining to the offsite power system specifically relating to the areas of offsite power operability, the maintenance rule (10 CFR 50.65), and the station blackout rule (10 CFR 50.63). The procedure revisions were issued subsequent to the initial TI 2515/163 inspection documented in Inspection Report IR 05000387,388/2005003. The inspectors reviewed the information gathered using guidance provided by the NRC Office of NRR (ML052230423). This information was forwarded to NRR for further review. The documents reviewed are listed in the attachment.

.3 Independent Spent Fuel Storage Installation (ISFSI) (IP 60855)

a. Inspection Scope

The inspection consisted of evaluating activities associated with the 2005 ISFSI campaign. Inspection activities consisted of interviews with cognizant personnel, reviews of licensee documentation and field observations. Areas inspected included a review of the processes associated with characterization of spent fuel assemblies selected for storage, handling and lifting of heavy loads, review of work packages, procedures and supporting documentation.

Certificate of Compliance (CoC) number 1004 for the NUHOMS-61BT dry storage cask system specifies the parameters that must be met for storage of spent fuel at the Susquehanna ISFSI. The inspector reviewed licensee procedures and methods for selecting and characterizing spent fuel assemblies selected for storage at the ISFSI. Technical Specifications require selected fuel assemblies be visually inspected, independently identified, be free of cladding defects, and be within specified limits for such parameters as fuel enrichment, cooling time, burn-up, and decay heat output. The inspector discussed the fuel selection process with cognizant personnel and determined that individuals were knowledgeable of the Technical Specification requirements. The inspector discussed the loading of the selected 61 fuel assemblies for dry shielded canister (DSC) number 33. PPL performed visual checks of the fuel bundle serial numbers and video recorded the data. The inspector reviewed the fuel loading plan for cask #33 and verified that the 61 fuel assemblies were loaded per the loading plan.

The inspector reviewed the work orders associated with inspections and pre-operational checks performed on the Unit 1 Reactor Building crane that were completed prior to use for the 2005 ISFSI campaign. The Unit 1 Reactor Building crane is a single failure-proof crane utilized for dry fuel storage (DFS) heavy load lifts. Station personnel stated that rigging materials utilized to support the spent fuel loading campaign were inspected and approved for use prior to the start of the campaign. Random field checks performed by the inspector confirmed the presence of current inspection tags on rigging available for use.

The inspector observed cask preparation activities prior to lifting the loaded cask from the spent fuel pool and attended the pre-job briefing. Briefings addressed the

importance of effective communications, strict compliance with work documents and procedures, and key safety topics associated with DFS work evolutions.

The inspector reviewed the work package associated with the loading and preparation of storage cask #33. The inspector noted that required DFS-related procedures were incorporated into the work package. The field supervisor maintained control of the work package and verified that procedure steps were followed and completed as required.

Designated safe load paths have been established to ensure that heavy loads do not travel over areas of the spent fuel pools where spent fuel is stored. Various PPL procedures address the control and movement of heavy loads. The inspector noted that these procedures contained adequate controls for the movement and handling of heavy loads in the vicinity of spent fuel. The inspector observed the lifting of a loaded cask from the Unit 1 spent fuel pool to the cask decontamination stand. The inspector attended the pre-job briefing associated with the movement of the loaded cask to the truck loading bay and noted those controls during the lifting of a heavy load were discussed with appropriate emphasis on safety and safe load pathways.

The inspector reviewed the Radiation Work Permit (RWP) and the associated ALARA worksheet for the current fuel campaign. The inspector discussed radiological controls and dose estimates with cognizant personnel and noted that a dose goal of 1530 mrem was established. The dose estimate for the current campaign was 1700 mrem and based upon historical DFS dose data. The inspector noted effective contamination control and radiological work practices throughout the performance of DFS work activities. Changes in radiological conditions were communicated to members of the work crew in a timely and effective manner. The inspector interviewed health physics technicians pertaining to their knowledge of CoC dose rate limits for a loaded DSC.

The inspector reviewed the most current radiological survey data of the loaded ISFSI facility and dosimetry results of area thermoluminescent dosimeters (TLDs). The inspector noted that TLD readings along the owner controlled fence line closest to the ISFSI, accessible to a member of the public, were well below regulatory limits.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On October 19, 2005, 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 asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Saccone, Vice President - Nuclear Operations
J. Helsel, Manager - Nuclear Operations
R. Sgarro, Manager - Regulatory Affairs
D. D'Angelo, Manager - Station Engineering
B. Rhoads, Manager - Plant Chemistry
G. Ruppert, Manager - Maintenance
V. Schuman, Manager - Radiation Protection
W. Morrissey, Supervising Engineer, Regulatory Affairs
J. Hirt, Supervisor, Reactor Engineering
R.L. Rodriquez-Gilroy, HP Foreman
J. Folta, Electrical Engineer
F. Hickey, Plant Chemist
H. Reilly, Plant Chemist
J. Walker, Senior Health Physics Technician
R. Kessler, Health Physicist
F. Hickey, Health Physicist
D. Andrews, Mechanical Maintenance Training Specialist

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000387/2005-001-00/01	LER	Primary Containment Instrument Lines Outside Secondary Containment (Section 4OA3.1)
05000388/2005-001-00	LER	Degradation of Primary Coolant Pressure Boundary (Section 4OA3.2)
05000388/2005-002-00	LER	Degraded 125 VDC Battery Charger Results in Technical Specification Required Shutdown (Section 4OA3.3)
05000388/2005-003-00	LER	Reactor Manual Scram Due to Loss of Main Transformer Cooling (Section 4OA3.4)
05000387/2004-005-02	NOV	Failure to perform an evaluation and document a change to the facility in accordance with 10 CFR 50.59. (Section 4OA5.1)

LIST OF DOCUMENTS REVIEWED
(Not Referenced in the Report)

Section 1R01: Adverse Weather Protection
ON-000-005, "Hot Weather," Rev. 5
ON-009-001, "Loss of River Water Makeup," Rev. 13.
Susquehanna River water flow data from Wilkes-Barre River Gauging station - Susquehanna River Basis Commission
AR 703027
AR 703783

Section 1R04: Equipment Alignment

OP-024-001, Diesel Generators, Rev. 44
OP-155-001, Control Rod Drive Hydraulic System, Rev. 38
SO-024-001, Monthly Diesel Generator Operability, Rev. 41
TP-104-011, Bus 1A Outage Coordination Procedure, Rev. 2

Section 1R05: Fire Protection
FP-013-187, Standby Gas Treatment Filter Area, Rev. 7
FP-013-132, Common Refueling Floor, Rev. 2
FP-213-236, Core Spray Pump Room, Rev. 6
FP-013-371, ESS Transformers, Rev. 0
FP-013-370, Transformers Unit 1 & Unit 2 Main & Aux, T-10, T20, Rev. 0

Section 1R06: Flood Protection Measures
NE-94-001, Section 5.2, Susquehanna IPE for External Events - Floods
FSAR Section 2.4.2, Hydrologic Engineering - Floods
FSAR Section 3.4, Water Level (Flood) Design

Section 1R07: Heat Sink Performance
DBD-013, Diesel Generators and Auxiliaries, Rev. 3
ERPM 603799, D/Gen Lube Oil cooler Clean and Inspect
MT-GM-025, "Heat Exchanger Cleaning and Inspection," Rev. 13
ERPM 642859, Jacket Water Cooler Cleaning and Inspection
WO 603799
WO 642859

Section 1R12: Maintenance Implementation

Routine Maintenance Effectiveness:
OP-002-001, "Station portable diesel generator," Rev. 12
Maintenance Rule Basis Documentation - Reactor Protection System, System 58
System Health Report - Reactor Protection System, 4th Quarter 2004 & 1st Quarter 2005
CR 610892
CR 684636
CR 710737

Biennial Periodic Evaluation:
Fifth Maintenance Rule Periodic Assessment, January 1, 2003 through December 31, 2004

PSP-26, R1, ORAM-EOOS Outage Risk Assessment and Management and Equipment Out of Service Program
NDAP-QA-0413, "Maintenance Rule Program," Rev. 7
NDAP-QA-1902, "Maintenance Rule Risk Assessment and Management Program," Rev. 0
CR 92721 Condition Report, Corrective Action and Goal Setting Plan - U2 Feedwater System Check Valve
CR 98-1662 Condition Report, Corrective Action and Goal Setting Plan - Unit 1&2 Reactor Building HVAC Systems
CR 69965 Condition Report, Corrective Action and Goal Setting Plan - U1&2 MSIV's Performance Criteria
CR 272275 Condition Report, Corrective Action and Goal Setting Plan - U2 Seismic Island Check Valves
CR 264998 Condition Report, Corrective Action and Goal Setting Plan - System 79 SPING Sample Pumps
CR 479166 Condition Report, Corrective Action and Goal Setting Plan - Control Structure Chiller 0K112A
CR 486964 Condition Report, Corrective Action and Goal Setting Plan - Lighting Fixture Failures, Unit 1, 2 & Common
CR 466056 Condition Report, Evaluation and Corrective Action, U1 Core Spray Valve
CR 506415 Condition Report, Evaluation and Corrective Action for Standby DC Lighting
CR 463490 Condition Report, Evaluation, Corrective Action and Goal Setting for System 206
CR 69965 Condition Report, U1 & 2 MSIV'S Do Not Meet Performance Criteria
CR 508822 Condition Report, Structural Monitoring Aspect of Condition Monitoring
CR 504610, 534390, 549776, 557978 Condition Reports, Various Systems, Program Notification Requirements

System Health Reports:

System 259, Containment and Suppression - U2, Current Period (2005)
System 030, Unit 1&2 (Common), CPE Chillers, Current Period (2005)
System 179, Unit 1, Process and Area Radiation Monitoring, Current Period (2005)
System 279, Unit 2, Process and Area Radiation Monitoring, Current Period (2005)
System 079, Unit 1&2 (Common), Process and Area Radiation Monitoring, Current Period (2005)

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation
CR 704456
CR 704109

Section 1R15: Operability Evaluations
SO-116-A04, "RHRSW Comprehensive Flow Verification Div. 1," Rev. 0
RE-0TP-103, "Guidelines for Planned Power Maneuvers," Rev. 3
Operability Follow-up Request Form # 701214
AR 693108
AR 701134
CR 711944
CR 701214
CRA 697749
EWR 701393

Section 1R16: Operator Work-Arounds

ODM 676754, Operating Strategy with Slow-to-Settle Control Rods, Rev. 3
ON-155-001, "Control Rod Problems," Rev. 24
CR 431810
CR 688297
CR 688299

Section 1R23: Temporary Plant Modification Review

OP-169-004, "Rad Waste Collection," Rev. 13

Section 1EP6: Drill Evaluation

CR 692576	AR/MGNT	AR/MGNT	AR/WGA 692584
CR 692319	692324	692444	AR/CSPR 692437
AR/MGNT	AR/MGNT	AR/WGA 692318	AR/CSPR 692434
692319	692594	AR/WGA 692584	

Section 2PS3: Radiological Environmental Monitoring Program

Susquehanna Steam Electric Station, Units 1 and 2, 2004 Annual Radiological Environmental Operating Report
Susquehanna Steam Electric Station 2004 Meteorological Summary
2004 Land Use Census Report, November 8, 2004
Quality Assurance Audit 527452, Effluents
PLI-93557, Annual Observation of REMP Air Sampling Stations
PLI-93561, Annual Observation of REMP Milk, Ground and Surface Water
CR 692017

Procedures:

SC-099-005, "REMP Land Use Census Surveillance," Rev. 0
NDAP-QA-0627, "Radioactive Contamination Control," Rev. 17
HP-TP-600, "Analysis of Free Flowing Solids," Rev. 10
HP-TP-601, "Equipment Contamination Surveys Using the HP Gamma Spectroscopy System," Rev. 1
HP-TP-602, "Free Release Surveys," Rev. 26
HP-TP-290, "Quality Control and Calibration of Panasonic 710A Automatic Reader," Rev. 0
HP-TP-190, "Procedure for Handling and Processing of Environmental TLDs," Rev. 0
HP-TP-159, "Processing of Environmental TLDs on Panasonic 710A Automatic Reader," Rev. 0
HP-TP-284, "Generation of Element Correction Factors for Panasonic Environmental TLDs," Rev. 0

Section 4OA5: Other Activities

Offsite Power Readiness (TI 2515/163)
O1-AD-029, "Emergency Load Control," Rev. 9
NDAP-QA-1902, "Maintenance Rule Risk Assessment and Management Program," Rev. 0
NDAP-QA-1912, "Scheduling and Coordination of Work," Rev. 5
CRA 580875
CRA 665925
CRA 580869
CRA 667100

EWR 702715
AR 678931
AR 703086

ISFSI (IP 60855)
RE-081-043, "Selection and Monitoring of Fuel For Dry Storage," Rev. 1
SM-199-003, "Reactor Building Crane (1H213) - Spent Fuel Storage Pool Travel Restriction Check," performed July 5, 2005
MT-199-001, "Reactor Building Crane Operating Procedure (1H213)," Rev. 14
WO 534206, Inspect Unit 1 Reactor Building Crane Prior to Outage M1040-01, December 2004
WO 547759, Inspect 1H213 Crane for Proper Operation, December 2004
WO 540990, Bi-Annual PM on Reactor Building Crane, December 2004
WO 637159, 1H213 - Change Oil in Main Hoist, Aux Hoist and Bridge Drive Gearcases, April 2005
WO 625259, Magnaflux - Reactor Building Unit 1 Crane, June 2005
ME-ORF-023, Dry Fuel Storage - 61BT Dry Shielded Canister
Fuel and Core Component Accountability Sheet (FACCTAS) for DSC #33 Cask Loading
61BT DSC Verification Sheet for DSC #33
NDAP-QA-0505, "Crane, Hoist and Rigging Program," Rev. 2
RWP 2005-0200, Dry Fuel Storage Activities on the Refuel Floor

LIST OF ACRONYMS

ALARA	As Low As Is Reasonably Achievable
ASME	American Society of Mechanical Engineers
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
CR	Condition Report
CREOAS	Control Room Emergency Outside Air Supply
DFS	Dry Fuel Storage
DSC	Dry Storage Canister
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EOOS	Equipment Out-of-Service
EPA	Electric Power Monitoring Assembly
ES	Engineering Safeguards
ESW	Emergency Service Water
HP	Health Physics
HSM	Horizontal Storage Module
HVAC	Heating, Ventilation and Air-Conditioning
IST	Inservice Testing
ISFSI	Independent Spent Fuel Storage Installation
LCO	Limiting Condition for Operation
LDE	Lens Dose Equipment
LER	Licensee Event Report
MSIV	Main Steam Isolation Valve
NCV	Non-cited Violation
NDAP	Nuclear Department Administrative Procedure
NOV	Notice of Violation

NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
NVLAP	National Voluntary Laboratory Accreditation Program
ODCM	Offsite Dose Calculation Manual
PARS	Publically Available Records
PCIV	Primary Containment Isolation Valve
PI	[NRC] Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post Maintenance Test
QA	Quality Assurance
RCA	Radiologically Controlled Area
RCIC	Reactor Core Isolation Cooling
REMP	Radiological Environmental Monitoring Program
RG	[NRC] Regulatory Guide
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RR	Reactor Recirculation
RSPS	Risk Significant Planning Standard
RTP	Rated Thermal Power
R&U	Reliability and Availability/Unavailability
SBLC	Standby Liquid Control
SDE	Skin Dose Equivalent
SDP	Significant Determination Process
SLC	Standby Liquid Control
SSC	Structures, Systems and Components
SSES	Susquehanna Steam Electric Station
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
VHRA	Very High Radiation Area
WO	Work Order