October 12, 2005

Mr. L. William Pearce
Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
Post Office Box 4
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT (05000334/2005005 AND 05000412/2005005)

Dear Mr. Pearce:

On September 1, 2005, the Nuclear Regulatory Commission (NRC) completed a team inspection at your Beaver Valley Power Station. The enclosed inspection report presents the results of that inspection, which were discussed on September 1, 2005, with Mr. R. Mende, Beaver Valley Director of Performance Improvement, and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations and the conditions of your license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, the team concluded that in general, problems were effectively identified, evaluated, and corrected. However, the team identified two findings of very low safety significance (Green) associated with identification and resolution of fire protection issues. These findings were determined to involve violations of NRC requirements. However, because of their 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), in accordance with Section VI.A of the NRC Enforcement Policy. If you deny these non-cited violations, you should provide a response with the basis for your denial within 30 days of the date of this inspection report to the U.S. 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; and the NRC Resident Inspector at the Beaver Valley Power Station.

In addition, examples of minor problems were identified, including trends that were not evaluated, inconsistent evaluations for issues assigned below the root or apparent cause level, and interdepartmental communication challenges, some of which complicated evaluations of conditions adverse to quality.

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).

If you have any questions, please contact me at (610) 337-5200.

Sincerely,

/RA/

Dr. Ronald R. Bellamy, Chief
Projects Branch 7
Division of Reactor Projects

Docket No. 50-334, 50-412
License No. DPR-66, NPF-73

Enclosure: Inspection Report Nos. 05000334/2005005 & 05000412/2005005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos:	50-334, 412
License Nos:	DPR-66, NPF-73
Report Nos:	05000334/2005005 & 05000412/2005005
Licensee:	FirstEnergy Nuclear Operating Company
Facility:	Beaver Valley Power Station
Location:	Shippingport, Pennsylvania 15077
Dates:	August 15 to September 1, 2005
Team Leader:	G. T. Dentel, Senior Resident Inspector-Seabrook, Division of Reactor Projects
Inspectors:	M. P. Patel, Reactor Engineer, Division of Reactor Projects T. P. Sicola, Reactor Engineer, Division of Reactor Safety G. D. Smith, Resident Inspector-Beaver Valley, Division of Reactor Projects
Accompanied by:	Dan Hill, West Virginia State Representative
Approved by:	Dr. Ronald R. Bellamy, Chief Projects Branch 7 Division of Reactor Projects

Enclosure

SUMMARY OF ISSUES

IR 05000334-05-005, 05000412-05-005; 08/15/2005 - 09/01/2005; Beaver Valley Power Station Units 1 and 2; Biennial Baseline Inspection of the Identification and Resolution of Problems. Two violations were identified in the areas of implementation of continuous fire watches and conduct of unannounced fire drills.

This team inspection was performed by two regional inspectors and two resident inspectors. Two findings of very low safety significance (Green) were identified during this inspection. The two findings were classified as non-cited violations. 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 3, dated July 2000.

Identification and Resolution of Problems

Overall, the team determined that the corrective action program at Beaver Valley Power Station (BVPS) was generally effective in the identification, evaluation, and resolution of problems. The team determined that BVPS typically identified problems and placed them in the corrective action program, but noted some deficiencies in the identification of issues as evidenced by several NRC-identified NCVs during the previous two years. The team also identified deficiencies in the identification and resolution of trends in the corrective action program for repeat maintenance and human performance issues. The team noted that BVPS was effective in conducting root cause and apparent cause evaluations. Therefore, BVPS effectively resolved problems categorized as more significant. However, the majority of items were classified at other significance levels, including some of the non-cited violations. In these cases, the team identified inconsistent evaluation and resolution including one of the two non-cited violations identified during this inspection. The team did not identify any safety conscious work environment issues.

a. NRC Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The team identified a non-cited violation of BVPS Units 1and 2, Facility Operating Licenses for improper planning and scheduling of unannounced fire brigade drills. For several years, the unannounced drills were in the weekly planning schedule; therefore, the fire brigade knew when the drill was going to be conducted. The finding was associated with the cross-cutting area of problem identification and resolution because the condition existed for several years, BVPS did not identify the deficient condition, and corrective actions to this deficiency were untimely.

  The finding was more than minor because it affected the Mitigating System cornerstone and the reliability and capability of the fire brigade's ability to respond to a fire. The failure to conduct proper unannounced drills for several years resulted in BVPS not being able to fulfill the purpose of unannounced drills, which is to determine the fire

fighting readiness of the plant fire brigade, brigade leader, and fire protection systems and equipment. NRC management reviewed this finding and determined it to be of very low safety significance (Green) based on no significant identified weaknesses with fire brigade performance during announced drills. (Section 4OA2.a.2.1)

- Green. The team identified a non-cited violation of BVPS Unit 2, Facility Operating License, Section 2.F, "Fire Protection Program" for not entering a condition adverse to quality, associated with implementation of continuous fire watches, in the corrective action program for evaluation and resolution in April 2005. This finding was associated with the cross-cutting area of problem identification and resolution in that BVPS did not identify, evaluate, or correct the deficiency as directed by the corrective action program.

  The finding was more than minor because it affected the Mitigating System cornerstone and the reliability and capability of the fire watches to fulfill their function of monitoring and responding to a fire. The finding was determined to be of very low safety significance since the plant was already in cold shutdown at the time of concern. (Section 4OA2.a.2.2)

b. Licensee-Identified Violations

None.

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (PI&R)

a. Effectiveness of Problem Identification

1. Inspection Scope

The inspection team reviewed the procedures describing the corrective action program (CAP) at the BVPS. Beaver Valley Power Station identifies problems by initiating condition reports for conditions adverse to quality, plant equipment deficiencies, industrial or radiological safety concerns, or other significant issues. The condition reports are subsequently screened for operability, categorized by significance and evaluation method, and assigned for evaluation and resolution. The significance categories are significant condition adverse to quality, condition adverse to quality, and condition not adverse to quality. The evaluation methods are root cause analysis, apparent cause evaluation, fix, and close. The team attended daily initial screening and management review meetings to assess whether issues were appropriately categorized in accordance with BVPS procedures.

The team reviewed Condition Reports (CRs) selected across the seven cornerstones of safety in the NRC's Reactor Oversight Program to determine if problems were being properly identified, characterized, and entered into the CAP for evaluation and resolution. The team selected items from the maintenance, operations, engineering, emergency planning, security, radiological control, and oversight programs to ensure that BVPS was appropriately considering problems identified in each functional area.

In addition to CRs, the team selected items from other processes at Beaver Valley to verify that they appropriately considered problems identified in these areas for entry into the corrective action program. Specifically, the team reviewed a sample of maintenance work orders, request for assistance from other areas, control room deficiency and work-around lists, operability determinations, engineering system health reports, the current temporary modification list, quality assessment reports, and self-assessments. The documents were reviewed to ensure that underlying problems associated with each issue were appropriately considered for resolution via the corrective action process. In addition, the team interviewed plant staff and management to determine their understanding of and involvement with the CAP. The team also conducted walkdowns of selected systems and plant areas. The CRs and other documents reviewed, and a list of key personnel contacted, are listed in the Attachment to this report.

2. Assessment

The team determined that, in general, BVPS satisfactorily identified deficient conditions and initiated CRs where appropriate. There were approximately 10,000 CRs initiated per year. However, the team noted some deficiencies in the identification of issues as evidenced by several NRC-identified NCVs during the previous two years. The team also identified deficiencies in the identification of trends in the corrective action program for repeat maintenance and human performance issues.

The team, through review of CRs, identified several deficient trends which were not evaluated and therefore, the underlying causes may not have been fully addressed. For example:

- The team identified a degrading trend in operator performance. In 2005, four human performance events at Unit 2 potentially impacted safety equipment and/or industrial safety. Operator errors resulted in loss of one of two direct current buses, potential inoperability of feedwater isolation valves, out-of-phase closure of a safety-related breaker during maintenance activity, and temporary loss of instrument air. A trend CR was not initiated for these issues.

- The team identified a degrading trend for a security component. The security component failed six times in the last year. Although the component was fixed each time, a trend CR was not initiated to address the underlying causes of the failures. The team noted that the security equipment failed in its designed protective condition and therefore did not impact the ability to implement the BVPS Security Plan.

- The team identified a degrading trend for quench spray solenoid valve performance based on three separate failures during the two year period. Although the components were evaluated or fixed each time, a trend CR was not initiated to address the cause of the failures. Separately, BVPS identified further corrective actions to establish a preventive maintenance activity to address the ongoing failures.

The team evaluated the trend deficiencies noted above for potential significance. The team determined that none of the individual issues were findings of more than minor significance based upon the guidance in NRC Manual Chapter 0612, “Power Reactor Inspection Reports,” and therefore not subject to enforcement action.

The team noted some deficiencies in the identification of issues as evidenced by several NRC-identified NCVs during the previous two years. For example, BVPS had multiple opportunities to identify past NRC violations such as flood control level switches which were never tested (NCV 2004005-01). Operators, maintenance technicians, and engineers were frequently in the area without questioning the function and condition of the switches. During the inspection, the team identified two findings related to fire protection that the licensee had opportunities to identify. The team also identified

several minor deficiencies during plant tours which were not identified in the CAP or were not corrected in a timely manner.

3. Unannounced Fire Drills Not Conducted in Accordance with Standards

Introduction: The team identified that BVPS did not properly plan and schedule unannounced fire brigade drills, in that the fire brigade knew when the drill was going to be conducted. This NRC-identified finding was determined to be of very low safety significance (Green) and was characterized as an NCV of BVPS Units 1 and 2, Facility Operating Licenses.

Description: In Mid-2004, the resident inspectors identified that BVPS unannounced fire brigade drills were published in the 12-week schedule, which allowed fire brigade members to be aware that a drill was being planned and when it was to be conducted. The resident staff did not fully evaluate the issue and recommended the team determine the acceptability of the unannounced drills and the effectiveness of BVPS' evaluation and resolution of the issue. Beaver Valley issued a condition report, 04-05839, on July 22, 2004, to evaluate the issue and to determine corrective actions. The licensee determined that their method of conducting fire drills was not in accordance with NRC requirements as stated in 10 CFR 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979" and Branch Technical Position 9.5.1, "Fire Protection Program." In January 2005, the BVPS site fire marshal changed their program requirements to coincide with NRC and industry standards. From January to August 2005, BVPS has completed unannounced drills and/or has credited response to fires for three of the six shift fire brigades. The final three fire brigade shifts' unannounced drills are planned for the final four months of 2005.

Analysis: BVPS's failure to properly plan and schedule unannounced fire brigade drills was considered a performance deficiency. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or BVPS procedures.

The finding was more than minor because it involved the Mitigating System cornerstone and the attribute of protection against external factors (fire) in that the reliability and capability of the fire brigade to respond to a fire was affected. The failure to conduct proper unannounced drills for several years resulted in BVPS not being able to fulfill the purpose of the drills. The purpose of unannounced drills, described in 10 CFR Part 50, Appendix R, Section III, I.3.b is "to determine the fire fighting readiness of the plant fire brigade, brigade leader, and fire protection systems and equipment." Inspection Manual Chapter 0609, Appendix A, Fire Protection, states that fire brigade drills will be assessed by management review. This finding has been reviewed by NRC Region 1 management and is determined to be a finding of very low safety significance (Green) based on no significant identified weaknesses with fire brigade performance during announced drills.

This finding was associated with the cross-cutting area of problem identification and resolution in that BVPS for several years did not identify that fire brigade members shall

not be aware of unannounced fire brigade drills prior to the commencement of the drill. In addition, the corrective actions to this deficiency were untimely, in that the program requirements were not revised for six months after initial identification and unannounced drills meeting the requirements have yet to be completed for three of six shifts.

Enforcement: Beaver Valley Power Station, Units 1 and 2, Facility Operating Licenses, Section 2.C.5 and Section 2.F, respectively, require that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report. The Final Safety Analysis Report describes the fire protection program and specifies that it include procedures to implement the program. Beaver Valley Power Station procedure 1/2-ADM-1900, “Fire Protection Program” requires that the site fire brigade shall be implemented in accordance with procedure 1/2-ADM-1902, "Fire Brigade." Procedure 1/2-ADM-1902, "Fire Brigade," requires that each shift shall participate in at least one unannounced drill per year. Both 10 CFR 50, Appendix R and Branch Technical Position 9.5.1 describe unannounced drills as drills, in which, the responding shift fire brigade members are not aware that a drill is being planned until it is begun.

Contrary to this, BVPS did not conduct drills that meet requirements as unannounced, in that, BVPS published unannounced fire brigade drills in their 12-week work planning schedule. Therefore, the fire brigade members were aware that a drill was being planned and when it was to be conducted. BVPS had been conducting unannounced drills in this manner for several years. BVPS plans to meet the standard for unannounced drills for 2005, when the unannounced fire brigade drills are completed for all six fire brigade shifts. BVPS has completed unannounced drills for three of the six fire brigade shifts. **(NCV 05000334/2005005-01 & 05000412/2005005-01, Unannounced Fire Drills Not Conducted in Accordance with Requirements).**

4. Fire Protection Implementation Deficiency Not Identified, Evaluated, and Corrected in Accordance with Corrective Action Program

Introduction: The team identified that BVPS, after identifying a condition adverse to quality associated with continuous fire watches, did not enter the condition in the corrective action program for evaluation and resolution. This NRC-identified finding was determined to be of very low safety significance (Green) and was characterized as an NCV of BVPS Unit 2, Facility Operating License, Section 2.F, "Fire Protection Program."

Description: On April 23, 2005, BVPS identified potential issues with the continuous fire watches established for hot work associated with Unit 2 containment air recirculation (CAR) fans. Beaver Valley Power Station procedure 1/2-ADM-1900, “Fire Protection Program,” Revision 10 states that personnel designated as fire watches must monitor assigned areas when hot work is performed and complete a fire watch log. The fire watch's ability to monitor must not be affected by additional work responsibilities. The fire watch log requires the continuous fire watch to specify their start and stop times. For the Unit 2 CAR fan work activity, BVPS identified that the continuous fire watch only signed in and out at the beginning and end of the shift and did not properly turn over the fire watch responsibilities when the individual left the job site to obtain tools. Therefore,

without a designated fire watch, the fire protection program requirements were not implemented and the ability to respond to a fire was impacted. This condition adverse to quality was not entered into the corrective action program for evaluation and resolution.

On August 15, 2005, the team identified this deficiency during process reviews. Through an extent-of-condition review, the team identified that BVPS had similar issues for hot work activities involving contractors. Twelve additional examples where individuals were signed on as continuous fire watches for greater than eight hours were noted. Four of the twelve continuous fire watches were for hot work in the 'AE' switchgear room. Based on door records, the fire watches for the switchgear room exited their assigned area three to seven times each shift for periods of up to one hour each. The fire watch logs did not specify any replacement fire watch during these periods and only had the one individual assigned who was signed in for the eight to eleven hour shift. Door records were not available for the remaining eight areas. The extent-of-condition review also identified numerous administrative deficiencies in the fire watch logs including missing worker and supervisor signatures and start/stop times.

Analysis: BVPS's failure to identify, evaluate, and correct a deficiency associated with implementation of the fire protection program for fire watches was considered a performance deficiency. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or BVPS's procedures.

The finding was more than minor because it affected the Mitigating System cornerstone and the attribute of protection against external factors (fire) in that the reliability and capability of the fire watches to fulfill their function of monitoring and responding to a fire was affected. Using Appendix F of Manual Chapter 0609, "Fire Protection Significance Determination Process," dated February 28, 2005, Step 1.3, the finding was determined to be of very low safety significance (Green) since the plant was already in cold shutdown at the time of concern.

This finding was associated with the cross-cutting area of problem identification and resolution in that BVPS did not identify, evaluate, or correct a condition adverse to quality regarding implementation of continuous fire watches.

Enforcement: Beaver Valley Power Station, Unit 2, Facility Operating License, Section 2.F, "Fire Protection Program," requires that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report. The Final Safety Analysis Report describes the fire protection program and specifies that it include procedures to implement the program. Beaver Valley Power Station procedure 1/2-ADM-1900, "Fire Protection Program," Revision 10 requires the fire protection program shall comply with Appendix C of the Augmented Quality Assurance Program (AQAP). Beaver Valley procedure 1/2-AQAP, Appendix C, "Fire Protection," Revision 1, requires that measures shall be established to assure that corrective action guidelines of the Quality Assurance Program Manual are implemented.

The Quality Assurance Program Manual, Revision 6, requires that each individual promptly identify and report conditions adverse to quality. Beaver Valley procedure NOP-LP-2001, "Condition Report Process," Revision 11, defines conditions adverse to quality to include augmented quality conditions.

On April 23, 2005, BVPS identified a condition adverse to quality associated with continuous fire watches for Unit 2 CAR fan maintenance activity, in that the activity was not completed in accordance with fire protection program requirements. Contrary to the above, this issue was not entered in the corrective action program for evaluation and resolution. The NRC team identified this issue during process reviews. Because this finding was of very low safety significance (Green) and the licensee entered this finding into their corrective action program (CRs 05-06065, 05-06069, 05-06096), this finding is being treated as an NCV consistent with Section VI.A.1 fo the Enforcement Policy **(NCV 05000412/2005005-02, Fire Protection Implementation Deficiency Not Identified, Evaluated or Corrected in Accordance with Corrective Action Program).**

b. Prioritization and Evaluation of Issues

1. Inspection Scope

The inspection team reviewed the CRs listed in the Attachment to the inspection report to assess whether BVPS adequately evaluated and prioritized the identified problems. The team selected the CRs to cover the seven cornerstones of safety identified in the NRC's Reactor Oversight Program. The team selected CRs from various departments (Operations, Maintenance, Plant and Design Engineering, Emergency Preparedness, Security and Radiation Protection) and through system reviews. The team selected the systems (service water, reactor protection, containment depressurization, and fire protection) based on NRC resident staff input and BVPS probabilistic risk analysis. The system reviews included selected CRs, system health reports, maintenance rule data and evaluations, and work orders. Portions of the CRs chosen for review were age-dependent, and accordingly, the scope of the review was expanded to five years. The team also reviewed BVPS's evaluation of industry operating experience information for applicability to the facility. The team reviewed a sample of previous NRC non-cited violations and findings to determine whether BVPS had evaluated and resolved problems related to applicable regulatory requirements and standards.

The team evaluated the appropriateness of the assigned significance, the scope and depth of the causal analysis, and the timeliness of the resolutions for each selected CR. The team also reviewed equipment operability determinations, reportability assessments, and extent-of-condition reviews for selected problems. The team attended daily BVPS Management Alignment and Ownership Meetings, in which BVPS managers reviewed incoming CRs to determine classification, evaluation method, and ownership. The team also observed a Corrective Action Review Board meeting, in which BVPS managers reviewed completed evaluations.

2. Assessment

No findings of significance were identified.

In general, BVPS effectively prioritized and evaluated the issues and concerns entered into the CAP. The team noted that significant conditions adverse to quality received a formal root cause analysis and an extent-of-condition review. Beaver Valley managers assessed conditions adverse to quality to determine the appropriate evaluation method (root cause, apparent cause, fix, or close). The team concluded that issues evaluated through root cause and apparent cause methodologies were effective in determining the cause and correcting the condition. Management oversight through the Corrective Action Review Board reinforced CAP expectations resulting in thorough reviews. The majority of CRs, greater than 98 percent, were assigned an evaluation method other than root or apparent cause. In these cases, the team identified some inconsistency in the evaluation of conditions adverse to quality. The team also identified issues related to interdepartmental communication challenges and incomplete trend evaluations.

The team identified that BVPS was not consistent in their evaluations for issues assigned evaluation less than root or apparent causes. For example:

- Evaluation for an NRC identified NCV for inadequate design control for Unit 1 flood control level switches did not address the extent-of-condition for other similar flood protection equipment. Additionally, two emergency flood sump pumps also did not have proper design controls including periodic preventive maintenance activities.

- Evaluation for reduced nitrogen pressure for a Unit 2 feedwater isolation valve during startup (CR 05-03375) did not address all performance issues. The evaluation focused on the inadequate mode change assessment. Equally as important, an alarm in the control room for low pressure was not assessed properly by multiple crews over a three-day period. This aspect was not addressed in the CR.

- Evaluation for fitness-for-duty implementation weaknesses (CR 04-09830) was narrowly focused, correcting the specifics of the issue without assessing the extent-of-condition of the original problem.

The interdepartmental communication challenges, in some cases, complicated evaluations of conditions adverse to quality. For example:

- Operability of the containment depressurization system was not fully assessed nor understood due, in part, to interdepartmental communication of key design information. On March 22, 2004 and February 16, 2004, the Unit 2 "A" and "B" train sodium hydroxide injection valves were declared inoperable for exceeding their inservice testing stroke times. Operators concluded that the valves did not impact operability of the system since parallel valves in the system appeared to provide a redundant function. However, Design Engineering documents and the Updated Final Safety Analysis Report describe the opening and closing functions of the valve.

After extensive investigation of the team's concerns, BVPS determined that the closing function of the valve is not needed for accident analysis and the system remains operable with the valve maintained in the open position.

- The team identified additional Unit 2 Appendix R Emergency Lighting failures that were not included in the maintenance rule evaluation of the system. The failures were known to the station but were not communicated properly from either the maintenance staff or the site fire marshal to the system engineer. This resulted in a reevaluation of the system for entry into (a)(1) status. BVPS determined the additional failures did not require entry into (a)(1).

- A recent calculation change resulted in a change in the number of allowable tubes plugged for Unit 1 recirculation spray heat exchanges from 56 to 40 per train. This was not communicated to the system engineer. Therefore, the system engineer's operability evaluation for the recent plugging of tubes was based on the less limiting 56 tubes per train. Only 21 tubes were plugged, and this communication breakdown did not impact operability.

The team identified two instances where trend evaluations did not address or correct the cause of the trend. For example:

- The evaluation and corrective actions for a trend of missed quality control hold points (CR 04-09787) did not fully address human factors and work performance causes. The corrective actions were narrowly focused on training. Additional examples of missed quality control hold points occurred and further corrective actions were identified and implemented.

- The evaluation for a trend of missing or inaccurate bolt torque values for mechanical joints did not properly assess the trend or develop corrective actions (CR 04-04236). The trend CR listed 22 CRs involving torquing issues. The evaluation concluded incorrectly that all the CRs were administrative issues only and thus did not identify any corrective actions. The team identified that 4 of the 22 CRs involved performance deficiencies and affected maintenance activities in the field. Additional examples of missing or inaccurate bolt torque values occurred and a condition report was generated to address the inadequate evaluation (CR 05-05163).

The team evaluated the CAP deficiencies noted above for potential significance. The team determined that none of the individual issues were findings of more than minor significance based upon the guidance in NRC Manual Chapter 0612, “Power Reactor Inspection Reports” and therefore were not subject to enforcement action. In most cases, this was based on the deficiency not having an actual impact on plant equipment operability, reliability, or availability.

c. Effectiveness of Corrective Actions

1. Inspection Scope

The team reviewed the corrective actions associated with selected CRs to determine whether the actions addressed the identified causes of the problems. The team reviewed CRs for repetitive problems to determine whether previous corrective actions were effective. The team also reviewed BVPS's timeliness in implementing corrective actions and their effectiveness in precluding recurrence of significant conditions adverse to quality.

2. Assessment

No findings of significance were identified.

Beaver Valley Power Station was, in general, effective in the resolution of problems and implementation of corrective actions. The problems evaluated using a root or apparent cause methodology were resolved in accordance with program and NRC requirements. The team concluded that corrective actions were generally completed in an appropriate time frame. However, the team identified three instances where corrective actions were untimely.

- Two of the corrective actions to address the clogging of a Unit 2 emergency diesel generator jacket water heat exchanger during an outage (CR 03-10036) were untimely. Corrective actions to update the precautions and limitations section of the service water normal operating procedure were deferred and have not been completed almost two years after the event. The team noted that, although the actions were deemed enhancements, the timely and complete performance of all corrective actions noted in this CR reduced the possibility of further clogging events.

- The corrective actions for unannounced fire drill deficiency described in Section 4OA2.a were not addressed in a timely manner. Additional details are specified in the earlier section.

- Unit 2 "A" and "B" train sodium hydroxide injection valves were declared and remained inoperable for a 13 and 14 month period, respectively. The action to reassess the inservice testing time limits was not completed in a timely manner. The valves' inoperability did not impact system operability (see Section 4OA2.b)

The team evaluated the CAP deficiencies noted above for potential significance. The team determined that none of the individual issues were findings of more than minor significance based upon the guidance in NRC Manual Chapter 0612, "Power Reactor Inspection Reports" and therefore were not subject to enforcement action. In the one case for unannounced fire drills, the original deficiency was evaluated as a non-cited violation and described in Section 4OA2.a.

d. Assessment of Safety Conscious Work Environment (SCWE)

1. Inspection Scope

The team conducted interviews with station personnel and attended morning management meetings to determine if people were hesitant to raise safety concerns to their management and/or the NRC. The team also reviewed BVPS's Employee Concerns Program (ECP) to evaluate if employees were aware of the program and had used it to raise concerns.

2. Assessment

No findings of significance were identified.

The team determined that individuals were aware of the importance of nuclear safety, stated a willingness to raise safety issues, had not experienced retaliation in any prior issues raised, and had an adequate knowledge of the CAP and ECP. Based on these limited interviews, the team concluded that there was no evidence of an unacceptable SCWE.

4OA6 Meetings, including Exit

The team presented the inspection results to Mr. R. Mende, Beaver Valley Director of Performance Improvement, and other members of the Beaver Valley staff on September 1, 2005. No proprietary information was retained by the team.

ATTACHMENT: Supplemental Information

In addition to the documentation that the inspectors reviewed (listed in the attachment), copies of information requests given to the licensee and email correspondence between the NRC and licensee personnel are in ADAMS, under accession number ML052640276.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

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R. Ferrie, Staff Nuclear Specialist
R. Hansen, Nuclear Oversight Manager
R. Harris, Senior Nuclear Specialist
P. Hartig, System Engineer
C. Hrelec, Senior Radiation Protection Technician
T. King , Reactor Controls and Indications Systems Engineer
J. Kramer, Advanced Nuclear Specialist
R. Kuhn, Staff Nuclear Specialist
S. Lieberman, Supervisor, Nuclear Mechanical Maintenance
T. McGourty, System Engineer
J. Meyers, Nuclear Engineer
J. Miller, Fire Marshall
L. Miller, System Engineer
M. Mitchell, Work Planning Supervisor
M. Mulderrin, System Engineer
B. Murtaugh, Design Engineering
P. Pauvlinch, Supervisor, Nuclear Rapid Response
E. Peace, Staff Nuclear Specialist
M. Pergar, Supervisor, Nuclear Oversight
J. Redman, Acting Instrumentation and Controls Supervisor
R. Rossomme, Superintendent, Nuclear Oversight
K. Schweikart, System Engineer
B. Sepelak, Regulatory Compliance Supervisor
K. Strazisar, Plant Engineering Representative
F. Trusky, Supervisor, Nuclear Work Planning
G. Watts, Supervisor, Nuclear Mechanical Maintenance
M. Wimmel, Senior Nuclear Specialist

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed:

05000334/2005005-01 and 05000412/2005005-01	NCV	Unannounced Fire Drills Not Conducted in Accordance with Requirements (Section 4OA2.a.2.1)
05000412/2005005-02	NCV	Fire Protection Implementation Deficiency Not Identified, Evaluated or Corrected in Accordance with Corrective Action Program (Section 4OA2.a.2.2)

LIST OF DOCUMENTS REVIEWED

Procedures:

1MSP-1.05-1, Solid State Protection System Train B Bi-Monthly Test, Revision 21 (January 2004 and September 2004)
1MSP-6.27-I, Reactor Coolant Flow Loop 2 Channel I Calibration, Revision 10
1OM-41D.4.AAB, Service Building Water Accumulation, Revision 3
1OM-13.4.ABA, Refueling Water Storage Tank Below Normal Level, Revision 0
1OM-13.4.ABD, Refueling Water Storage Tank Above/Below Normal Level, Revision 0
1OST-6.6, Operating Surveillance Test PORV Isolation Valve Stroke Time and Position Check-Test, Revision 7 (July 2003)
1/2-ADM-2113, Operability Determination & Basis for Continuous Operation, Revision 2
½ MI-01RC-Rod Control, Trouble Shooting Guidelines for Rod Control, (August 2004)
2CMP-11SIS-P-21A-B-1M, Low Head Safety Injection Pump Overhaul, Revision 2
2MSP-24.29-1, 2FWS-F486, Loop 2 Feedwater Flow Channel IV Calibration (April 2003)
2OST-47.3I, Containment System - Operating Surveillance Test Procedure, Revision 4
NOBP-WM-1101, Order Planning Process Instructions, Revision 0
NOP-LP-2001, Condition Report Process, Revision 11
NOP-WM-1001, Order Planning Process, Revision 5
PIPS M08.3, Category I, II, III, and F Bolting Program, Revision 3

Nuclear Oversight Quarterly Reports:

BV-C-03-03, 3rd Quarter, 2003 BV Assessment Report
BV-C-03-04, 4th Quarter, 2003 BV Assessment Report
BV-C-04-01, 1st Quarter, 2004 BV Assessment Report
BV-C-04-02, 2nd Quarter, 2004 BV Assessment Report
BV-C-04-03, 3rd Quarter, 2004 BV Assessment Report
BV-C-04-04, 4th Quarter, 2004 BV Assessment Report
BV-C-05-01, 1st Quarter, 2005 BV Assessment Report

Self Assessments:

BV-SA-03-13, Operator Rounds
BV-SA-03-17, Order Content and Format
BV-SA-03-35, Security Equipment Maintenance
BV-SA-03-57, Beaver Valley Power Station Alert & Notification System
BV-SA-03-60, Rework Program
BV-SA-03-83, Electrical Testing of Large Motors
BV-SA-04-142, Beaver Valley Boric Acid Corrosion Control Program
BV-SA-04-169, Latent Issues Review
BV-SA-05-04, Trend Condition Report Review Process - Security
BV-SA-05-08, Collective Condition Report Review Process-Oversight/Quality Control, January - December 2004
BV-SA-05-11, Emergency Preparedness Possible Trend Documents
BV-SA-05-15, Design Engineering
BV-SA-05-18, Plant Engineering, October – December 2004
BV-SA-05-21, Collective Condition Report Review Process - Operations, October - December 2004
BV-SA-05-24, Radiation Protection Possible Trend
BV-SA-05-26, Mechanical Maintenance Possible Trend
BV-SA-05-27, Electrical Maintenance Possible Trend
BV-SA-05-28, Instrumentation and Controls Maintenance, October – December 2004
BV-SA-05-112, QC Inspection History - Review of QC Hold Points

Condition Reports (* denotes a CR generated as a result of this inspection):

02-04780	03-01295	03-09322	03-12556	04-06081	04-00127	04-01965
02-09819	03-03673	03-09919	04-10013	04-05668	04-00137	04-01975
02-11015	03-03677	03-10036	04-01454	04-04942	04-00207	04-02000
03-12400	03-03927	03-10169	04-09524	04-04854	04-00212	04-02071
03-12375	03-04291	03-10184	04-09350	04-04686	04-00289	04-02088
03-10864	03-04378	03-10279	04-09057	04-04184	04-00425	04-02111
03-10888	03-04406	03-10395	04-09026	04-04013	04-00508	04-02240
03-11236	03-04476	03-10432	04-08938	04-01493	04-00509	04-02295
03-11410	03-05010	03-10446	04-08668	04-01569	04-00547	04-02304
03-12062	03-05901	03-11124	04-08646	04-01664	04-00980	04-02314
03-09718	03-07822	03-11134	04-08397	04-01761	04-01238	04-02350
03-09431	03-07885	03-11198	04-08383	04-02436	04-01261	04-02364
03-09329	03-08164	03-11440	04-00665	04-02489	04-01324	04-02368
03-09276	03-08192	03-11460	04-00792	04-02583	04-01385	04-02438
03-09199	03-08294	03-11625	04-08145	04-02626	04-01386	04-02583
03-08575	03-08369	03-11681	04-00986	04-03317	04-01423	04-02622
03-08417	03-08651	03-11878	04-01009	04-03399	04-01442	04-02706
03-07960	03-08764	03-11879	04-07863	04-03876	04-01454	04-03244
03-07996	03-08925	03-11880	04-06775	04-03913	04-01677	04-03261
03-08007	03-08963	03-11959	04-06673	04-04012	04-01906	04-03341
03-10557	03-08966	03-12417	04-06293	04-09892	04-01908	04-03362

04-03481	04-04981	04-08646	05-01187	05-01546	05-03211	05-05792*
04-03528	04-06083	04-08676	05-01402	05-01567	05-03242	05-05793*
04-03535	04-06151	04-08703	05-01546	05-01630	05-03375	05-05801*
04-03587	04-06173	04-09003	05-01623	05-01657	05-03565	05-05804*
04-03642	04-06293	04-09046	05-01736	05-01680	05-03856	05-05806*
04-03728	04-06493	04-09147	05-02312	05-01701	05-03868	05-05987
04-03738	04-06669	04-09449	05-02451	05-01885	05-03871	05-05995
04-03762	04-07178	04-09458	05-02578	05-02114	05-04042	05-06002
04-03790	04-07227	04-09557	05-04595	05-02255	05-04186	05-06028
04-03836	04-07264	04-09608	05-02663	05-02269	05-04325	05-06045*
04-03877	04-07427	04-09830	05-00125	05-02303	05-04363	05-06058*
04-03934	04-07441	04-09892	05-00233	05-02356	05-04427	05-06065*
04-04013	04-07477	04-09994	05-00262	05-02393	05-04468*	05-06069*
04-04056	04-07778	05-04124	05-00303	05-02400	05-04603	05-06092*
04-04063	04-07863	05-04826	05-00346	05-02489	05-04826	05-06096*
04-04066	04-07918	05-03036	05-00481	05-02521	05-05029	05-06126*
04-04081	04-08104	05-03004	05-00561	05-02752	05-05033	05-06138*
04-04086	04-08235	05-02994	05-00666	05-02757	05-05163	99-00842
04-04232	04-08287	05-02986	05-00693	05-02814	05-05336	99-02637
04-04236	04-08383	05-05134	05-01022	05-02986	05-05714*	99-03244
04-04389	04-08420	05-00467	05-01150	05-03034	05-05741*	99-00842
04-04544	04-08436	05-00785	05-01156	05-03077	05-05766*	
04-04639	04-08466	05-01177	05-01273	05-03204	05-05788*	
04-04966						

NRC Non-Cited Violations and Findings Reviewed:

NCV 2004005-01: Inadequate Design Control Associated with Unit 1 Flood Control Level Switches
NCV 2005002-01: Ineffective Procedural Controls Caused a Mechanical Seal Failure on the Unit 1 “A” River Water Pump
NCV 2004004-01: Inadequate Corrective Action Associated with Emergency Diesel Generator Ventilation System Failures
NCV 2004004-02: Inadequate Corrective Action Associated with a Boric Acid Leak on the Unit 1 “A” LHSI Pump
NCV 2003008-01: Failure to Re-Evaluate a Condition Adverse to Quality Associated with the Performance of MCCBs During Testing
NCV 2003008-02: Failure to Take Corrective Actions for a Significant Condition Adverse to Quality Involving the Use of Uncalibrated M&TE

Maintenance Work Orders:

199807594	200072132	200084260	200112241
200059207	200073382	200094719	200112564
200064879	200078540	2001017453-003	200113916
200065050	200078399	200106038	200115539
200066310	200084259	200109327	200118440

200120726	200143101	200146714
200135247	200146505	200148477

Significant Conditions Adverse to Quality:

CR 03-08121: Further Investigation Needed on Use of Non-Calibrated Controlotron
CR 03-08164: Power Operated Relief Valve Block Valve MOV-1RC-535 Failed to Stroke
CR 03-10184: Unit 2 A and C Condenser Water Box Eddy Current Results
CR 03-10778: Unit 2 21B Steam Generator LOLO Level Reactor Trip
CR 04-00137: Water Intrusion Into Unit 2 SLCRS Train B Charcoal Filters
CR 04-00980: Gas Void Detected During Performance of 3BVT01.11.04
CR 04-03642: RWST Level Decrease due to Leaking Plug SI-P-1A Discharge
CR 04-06773: Reconciliation of New Analysis Against Current Design Basis
CR 04-06911: Invalid Actuation of TV-1MS-105B, Steam Supply to FW-P-2
CR 05-00180: Maintenance Performed on Incorrect Component
CR 05-01816: Effectiveness Review Results Indicate Ineffective CAS for Procedure
CR 05-02255: "A" CAR Fan Found with Extensive Damage

System Health Reports:

System Health Report - Fire Protection - Units 1 & 2, 2nd Quarter 2005
System Health Report - Reactor Control and Protection System - Unit 1, 4th Quarter 2004
Rod Control, Digital Rod Position Indication, SSPS and AMSAC and SSPS (Included RPS Analog Channels) Sub-systems
Reactor Control and Protection System - Unit 2, 4th Quarter 2004
Rod Control, Digital Rod Position Indication, SSPS and AMSAC Sub-Systems
System Health Report - Quench Spray - Units 1 & 2, 2nd, 3rd, and 4th Quarter 2004, and 1st Quarter 2005
System Health Report - Recirculation Spray - Units 1 & 2, 2nd, 3rd, and 4th Quarter 2004, and 1st Quarter 2005
System Health Report - River Water - Unit 1, 1st Quarter 2005
System Health Report - Service Water - Unit 2, 1st Quarter 2005

Maintenance Rule Action Plans for (a)(1) Systems:

1/2ADM-2114 Attachment D, Area Ventilation 2HVD-FN270B (July 2004)
1/2ADM-2114 Attachment D, Failure to Complete 2OS-30.1B Due to High Pump Vibrations
SPEAP 3.2, Attachment 13, Reactor Control and Protection System
1/2ADM-2114 Attachment D, Circuit Boards (2004)

Miscellaneous:

BV-PNL-2LEFM, Leading Edge Flow Metering System Evaluation (March 2005)
BVPS Management Alignment and Ownership Meeting/Daily Status Report
BVPS Technical Specifications - Units 1 & 2
BVPS Updated Final Safety Analysis Report
Drawing 10080-RM-433-1C, "Fire Protection Water Aux Building," Revision 16

Drawing 10080-RM-430-1, “Service Water Supply & Distribution,” Revision 29
Drawing 10080-RM-430-2, “Service Water Primary Cooling,” Revision 30
Drawing 8770-RM-430-3, “River Water System,” Revision 18
Drawing 8770-RE-21LA, “River Water Sh.5 of 5,” Revision 7
DWG# 8700-RM-431-2, Vacuum Priming System (Circulating Water System), Revision 5
Employee Concerns Program Entries January 2004 through July 2005
Employee Concerns Program 2003 Results
Employee Concerns Program 2004 Results
Employee Concerns Program 2005 Results
Enertech Check Valve System Health Report - 1st Quarter 2005
FENOC Component Group Component Template Development (February, 2004)
Operator Workaround List - June 2005
Out-of-Spec and Out-of-Tol Reading for Unit 2 CRO Tour, Unit 2 Turbine Tour, Unit 2 Outside Tour, Unit 2 PAB Tour for August 14 to 16, 2005
Root Cause Analysis Report, Tech Spec 3.3.2 Entry Following VS-F-1B Shutdown (April 2003)
Root Cause Analysis Report, Power Operated Relief Valve Block Valve MOV-1RC-535 Failed to Stroke Closed (August 2003)
Security Recordable Logs, 3rd Quarter 2003 to 2nd Quarter 2005
TB-01-5 Attachment A, Field Inspection Procedures for Heat Sink (September 2001)
Temporary Modification List - June 2005
Unit 1 and 2 Control Room Deficiencies List - June 2005

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AQAP	Augmented Quality Assurance Program
BVPS	Beaver Valley Power Station
CAP	Corrective Action Program
CAR	Containment Air Recirculation
CR	Condition Report
ECP	Employee Concerns Program
FIN	Finding
IMC	Inspection Manual Chapter
NCV	Non-Cited Violations
NRC	Nuclear Regulatory Commission
PARS	Publically Available Records
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
PI&R	Problem Identification and Resolution