APPENDIX B – NRC REPORTS ON 2009 BLN INSPECTION FOR TRANSITION TO DEFERRED STATUS

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

December 2, 2009

Mr. Ashok S. Bhatnagar
Senior Vice President
Nuclear Generation Development
and Construction
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BELLEFONTE NUCLEAR PLANT UNITS 1 (CPPR-122) AND 2 (CPPR-123) - TRANSITION TO DEFERRED STATUS - NRC INSPECTION REPORT 05000438/2009601 AND 05000439/2009601

Dear Mr. Bhatnagar:

On October 23, 2009, the Nuclear Regulatory Commission (NRC) completed an inspection at your Bellefonte Nuclear Plant, Units 1 and 2 associated with transition to a "Deferred Plant" status, as defined by the Commission Policy Statement on Deferred Plants. The enclosed report documents the inspection results which were discussed on October 23, 2009, with yourself and other members of your staff.

The purpose of the inspection was to identify the status of the applicable program areas, specified in Section III.A, "Deferred Plant", of the Commission Policy Statement on Deferred Plants (52 FR 38077), currently established at the Bellefonte Nuclear Plant. Primarily, the NRC recognized the need to address the lapse in Quality Assurance (QA) oversight and investment recovery consequences that occurred in the period from withdrawal of the site's Construction Permits until when the QA program was reestablished. Specific actions were taken to evaluate if Tennessee Valley Authority (TVA) had properly implemented the NRC-approved QA program, adequately addressed the status and quality of currently installed and stored equipment, and established associated processes and controls necessary to comply with regulatory requirements associated with your construction permits. Specific areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selected examinations of procedures and representative records, interviews with personnel, equipment status verification, and observations of program and process implementation. Based on the results of this inspection, no violations of NRC requirements 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 Publicly Available Records (PARS) component of NRC's document system (ADAMS).

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ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert C. Haag, Chief
Construction Projects Branch 3
Division of Construction Projects

Docket Nos. 50-438, 50-439
Construction Permit Nos. CPPR-122, CPPR-123

Enclosure: NRC Inspection Report 50-438/09-01 AND 50-439/09-01
w/Attachment - Supplemental Information

cc w/encl: (See page 3)

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NAME	JBaptist	W Fowler	CJulian	JBlake	MSheikh	
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TVA 3

cc w/encl:
Mr. Gordon P. Arent, Manager
New Generation Licensing
Nuclear Generation Development
and Construction
Watts Bar Nuclear Plant
P.O. Box 2000
Spring City, Tennessee 37381

Mr. William R. Campbell
Senior Vice President, Fleet Engineering
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Mr. Preston D. Swafford
Chief Nuclear Officer
and Executive Vice President
Tennessee Valley Authority
3R Lookout Place
1101 Market Place
Chattanooga, Tennessee 37402-280

General Counsel
Tennessee Valley Authority
6A West Tower
400 West Summit Hill Drive
Knoxville, Tennessee 37902
Nashville, TN 37243-1532

Mr. Larry E. Nicholson, General Manager
Performance Improvement
Tennessee Valley Authority
4X Blue Ridge
1101 Market Street
Chattanooga, Tennessee 37402-2801

Mr. Robert J. Whalen
Vice President, Nuclear Engineering
3R Lookout Place
Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402-2801

Mr. Michael J. Lorek
Vice President, Nuclear Engineering &
Projects
Tennessee Valley Authority
3R Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Mr. Frederick C. Mashburn
Acting Manager, Corporate Nuclear
Licensing & Industry Affairs
Tennessee Valley Authority
4K Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Mr. Michael A. Purcell
Senior Licensing Manager
Tennessee Valley Authority
4K Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Chairman
Jackson County Commission
Courthouse
Scottsboro, AL 35768

State Health Officer
Alabama Dept. of Public Health
RSA Tower- Administration
Suite 1552
P.O. Box 303017
Montgomery, AL 36130-3017

TVA 4

cc email distribution w/encl:
Andrea L. Sterdis
Tennessee Valley Authority
Electronic Mail Distribution

Letter to Ashok S. Bhatnagar from Robert Haag dated December 2, 2009.

SUBJECT: BELLEFONTE NUCLEAR PLANT UNITS 1 (CPPR-122) AND 2 (CPPR-123) - TRANSITION TO DEFERRED STATUS - NRC INSPECTION REPORT 05000438/2009601 AND 05000439/2009601

Distribution w/encl:
L. Raghavan, NRR
P. Milano, NRR
C. Evans, RII
L. Slack, RII EICS
E. Guthrie, RII DRP
J. Baptist, RII
PUBLIC

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: Construction Permit Nos:	50-438 and 50-439 CPPR-122 and CPPR-123
Report Nos:	50-438/2009601 and 50-439/2009601
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Bellefonte Nuclear Plant, Units 1 & 2
Location:	Bellefonte Road Hollywood, AL 35752
Dates:	October 19 - 23, 2009
Inspectors:	J. Baptist, Senior Project Inspector, Division of Construction Projects (DCP), Construction Projects Branch (CPB) 3, Region II (RII) M. Sheikh, Senior Project Inspector, DCP, CPB 4, RII W. Fowler, Project Inspector, DCP, CPB 2, RII C. Julian, Senior Project Manager, Division of Construction Inspection (DCI), Construction Inspection Branch (CIB) 1, RII J. Blake, Senior Program Inspector, DCI, CIB 3, RII
Approved by:	Robert C. Haag, Chief Construction Projects Branch 3 Division of Construction Projects

Enclosure

EXECUTIVE SUMMARY

Bellefonte Nuclear Plant, Units 1 and 2
NRC Inspection Report 05000438,439/2009601

The inspection included aspects of engineering and construction activities, performed by Tennessee Valley Authority (TVA), associated with the Bellefonte Nuclear Plant (BLN), Units 1 and 2 project. This report covered a one-week period of inspections in the areas of quality assurance (QA); identification and resolution of problems; maintenance activities; engineering activities; access controls; and control of documents and records. The inspection guidance was primarily performed under NRC inspection procedure (IP) 92050, "Review of Quality Assurance for Extended Construction Delay."

The inspection evaluated if TVA had properly implemented the NRC-approved QA program, adequately addressed the status and quality of currently installed and stored equipment following investment recovery activities, and established associated processes and controls necessary to comply with regulatory requirements associated with its construction permits. The inspection evaluated the status of the applicable program areas, specified in Section III.A, "Deferred Plant", of the Commission Policy Statement on Deferred Plants through examination of procedures and representative records, interviews with personnel, equipment status verification, and observations of program and process. The inspection concluded that TVA has established the necessary programs to support transition to deferred status, consistent with the Commission Policy Statement for Deferred Plants. The inspection results are discussed in detail below.

Inspection Results:

- The QA organizational structure and functional relationships were clearly stated. The equipment that the TVA QA plan covers was properly identified and scoped. Work and inspection activities were performed by qualified personnel using approved procedures. (Section I.Q.1)

- Audit procedures were adequate and the audits and self-assessments conducted to assess readiness to transition to a deferred plant status were of good quality. (Section II.C.1)

- The corrective action program (CAP) procedures were established to support transition to deferred status. Licensee management was actively involved and emphasized the need for all employees to identify and report problems. (Section II.C.1)

- The licensee had a process established, governing site procedures applicable to determination of construction status and maintenance activities, to support transition to deferred status. (Sections III.E.1 and IV.M.1.1)

- Documentation was found to be properly prepared, reviewed, approved, and distributed. QA records were stored, maintained, and controlled in a manner to support transition to deferred status. (Section V.R.1)

REPORT DETAILS

Summary of Plant Status

During the inspection period, Bellefonte Nuclear Plant (BLN), Units 1 and 2 remained in a "terminated plant" status, as defined by the Commission Policy Statement on Deferred Plants (52 FR 38077)

I. Quality Assurance (QA) Program Structure and Implementing Procedures

Q.1 QA Organization and Procedures (IPs 92050, 35060, 35100, 36100)

a. Inspection Scope

The team reviewed programs and procedures, and interviewed personnel, to determine the adequacy of the Tennessee Valley Authority (TVA) QA program as it supports transition of BLN to deferred plant status. The QA program was specified in TVA Nuclear Quality Assurance Plan (NQAP), TVA-NQA-PLN89-A, Revision (Rev.) 21, with some requirements specific to the BLN delineated within paragraphs of the main body of the NQAP and the general description of how the NQAP was to be implemented at the site provided by Appendix G to the NQAP.

The adequacy of implemented procedures was evaluated on a sampling basis and actual procedural implementation was inspected to ensure that work was performed in accordance with procedural requirements.

The team reviewed the licensee's procedure, BLN Site Standard Practice (SSP)-2.3, "Administration of Site Procedures," Rev. 13, to identify if it had been revised to provide guidance to ensure that quality-related activities would be performed using documented procedures and instructions appropriate for a deferred plant.

The team assessed the adequacy of the QA program audit procedures. The team reviewed TVA procedure NAPD-2, "Audits", and the specific provisions for BLN contained in SSP-3.1, "Conduct of Quality Assurance." The team reviewed the results of internal and external audits and self-assessments conducted during 2009, as listed in the attachment to this report. The team evaluated the results of the audits to determine the type of audit findings and recommendations, as well as, what actions were taken to address the audit results.

The team reviewed BLN procedure SSP-2.9, "Records Management," Rev. 15. The review included evaluation of completeness of procedure instructions and guidance, assessment of staff's knowledge of the procedure, and evaluation of program implementation.

The team reviewed BLN procedures for the reporting of 10 CFR 50.55(e) construction deficiencies and 10 CFR 21.21 defects and non-compliances. This review included verification of effective program implementation and the completeness of guidance used to evaluate whether or not an item is reportable.

Additional documents reviewed are listed in the attachment.

b. Observations

The QA organizational structure and functional relationships were clearly stated. The qualifications, responsibilities, and duties of QA personnel, including independence from personnel having cost or scheduling responsibilities, were well defined. Methods were established to ensure that procedures were developed, approved before use, complete, and controlled, and those performing QA inspection activities had available to them the most recent approved version. The equipment covered by the QA plan was properly identified and scoped; work and inspection activities were performed by qualified personnel using approved procedures.

The team verified that the education and experience of the BLN Project Nuclear Assurance (NA) Manager met the minimum requirements specified in TVA NQAP Paragraph C of § 4.1.6, "Nuclear Assurance."

During interviews, the team noted that due to the low level of activity at BLN, the NA manager was the only QA staff permanently assigned to the site. Other supporting QA personnel were borrowed from the corporate NA offices as needed to support audit or assessment activities. Accordingly, until construction activities resume involving QA-related structures, systems, and components (SSCs), the licensee does not plan to permanently staff local QA/Quality Control (QC) personnel.

BLN procedure SSP-2.3, "Administration of Site Procedures," Rev. 13, had been revised to reflect activation of the procedure after reinstatement of BLN construction permits (CPs) and to reflect site organizational changes. This procedure provided direction for the administration and revision of procedures required for manipulations of, and performance of work on, plant equipment.

The team verified that procedures clearly outlined the process for identifying deficiencies and determining whether an item is reportable. These procedures included provisions for submitting initial reports, as well as interim reports, should meeting the final report due date become unachievable. In addition, procedural attachments provided step-by-step guidance on evaluating whether a substantial safety hazard (SSH) or deviation exists. Reporting timeframes and NRC contact information was provided and was accurate. The team also reviewed evaluations for reportability associated with a failed tendon coupling in the BLN Unit 1 tendon gallery and determined the licensee had properly implemented their procedural guidance. TVA informed the team that this reportability evaluation will be reviewed when additional information regarding the failure mechanism and applicability to other tendon couplings becomes available.

During 2009, several voluntary audits and self-assessments were conducted to determine BLN readiness to transition from a terminated plant status to a deferred plant status. The audits were found to have followed approved procedures while the findings and recommendations were appropriately critical.

The team examined BLN's records retention program. The implementing procedure, SSP-2.9, "Records Management," Rev. 15, included specific instructions for records creation, identification, and storage. The team observed that the procedure required sufficient records and documentation be prepared to provide evidence of the quality of items or activities affecting quality. In addition, the procedure provided guidance regarding records processing, indexing specifications for timely retrieval, maintenance,

and lifetime storage. The team observed that the procedure discussed replacing lost, damaged, or contaminated records, and access to QA records.

c. Conclusions

The team concluded that deficiency and non-compliances procedures were adequate and provide ample direction to perform timely notification to the NRC with a report that includes all required information.

The team concluded that the audit procedures were adequate and the audits and self-assessments conducted to assess readiness to transition to a deferred plant status were of good quality.

The team concluded that the licensee has a QA plan in place that is commensurate with the level of activities during the expected construction activities and delay to support transition to deferred plant status, consistent with the Commission Policy Statement.

II. Corrective Action Program (CAP)

C.1 CAP Implementation (IPs 92050, 35100)

a. Inspection Scope

The team reviewed TVA NQAP § 10.0, "Adverse Conditions" and BLN procedure SSP-3.4, "Corrective Action Program," Rev. 13, for guidance on the identification and resolution of conditions adverse to quality. The team also reviewed numerous problem evaluation reports (PERs), interviewed personnel regarding their understanding of the CAP process and concerns resolution program (CRP), attended management review and screening meetings, and interviewed the CAP staff regarding their role in CAP implementation.

Specifically, the team reviewed several PERs to verify that initiation level was appropriate, condition classification criteria were followed, management review and action was appropriate, and resolution of the issue was sufficient. The team also conducted a detailed review to assess the adequacy of the root-cause and apparent-cause evaluations of the problems identified. The team reviewed these evaluations against the descriptions of the problem described in the PERs and the guidance in licensee procedures. The team assessed the licensee's ability to determine the cause(s) of identified problems and consideration of the following: issue reportability, common cause, generic concerns, extent-of condition, and extent-of-cause. The review also assessed if the licensee had appropriately identified and prioritized corrective actions to prevent recurrence.

The team also reviewed the findings and recommendations from four internal audits and self-assessments, one self-assessment follow-up, and one external assessment performed by industry consultants.

Additional documents reviewed are listed in the attachment.

b. Observations

The team determined that the procedures, for identification and correction of conditions adverse to quality, were adequately established and had sufficient detail regarding initiating threshold and classification criteria. Also, procedures were established to preclude repetition of activities adverse to quality and provisions were established for escalating, to higher management, those corrective actions that were not adequate and/or timely. Additionally, a management system was established for overview of trends in conditions adverse to quality. BLN personnel were familiar with the PER initiation process, understood the PER classification criteria, and displayed a willingness to identify conditions adverse to quality. The management review committee (MRC) membership and mission were sufficient to ensure that PER classification and resolution complied with written procedures.

The team found that the licensee has been effective in identifying, classifying, and resolving conditions adverse to quality and has incorporated lessons learned from the development and implementation of a CAP at BLN. Management involvement was adequate, issues were properly challenged, and timeliness goals were adequately established.

One item that was found unique to the BLN CAP was the classification of a PER component as "inactive." In the event a PER is written and an aspect of the PER would not be resolved until active construction begins (i.e. equipment is identified as degraded), the CAP allows the PER to be classified as "inactive". The team reviewed the criteria for making this determination, including the processes in place to bring these items to resolution, and found the controls to be adequate.

The audit reports were of good quality and the resulting issues and recommendations were pertinent and clearly presented. The team reviewed the PERs generated by TVA, in response to the audit issues and recommendations, and the corrective actions taken or planned. In instances where no new PER was initiated, the team determined that those conditions were previously identified in other corrective action documents. The team did identify two instances where PER documentation of corrective actions was not completely accurate. TVA initiated PERs to correct those conditions.

Based on the interviews conducted and the PERs reviewed, the team determined that licensee management emphasized the need for all employees to identify and report problems using the established methods of the CAP and CRP. These methods were readily accessible to all employees. Based on discussions conducted, with a sample of plant employees from various departments, the team determined that employees felt free to raise issues and that management encouraged employees to place issues into the CAP for resolution. The team did not identify any reluctance, on the part of the licensee staff, to report safety concerns.

c. Conclusions

The team concluded that the licensee had a CAP that was commensurate with the level of activities during the expected construction delay to support transition to deferred plant status.

III. Evaluation of Current Plant Status

E.1 Assessment of Current Plant Status (IP 92050)

a. Inspection Scope

In October 2005, TVA requested that the CPs be withdrawn and ceased all quality-related activities. At that time, BLN was maintaining current plant status in the Engineering, Construction, Maintenance, and Documentation (ECM&D) database. After the CPs were withdrawn in 2006, TVA terminated the BLN QA program and started investment recovery (salvage) activities. Because recovery activities took place without the controls of a QA program, the status and quality of currently installed and stored equipment is unknown. TVA also recognized that potential collateral effects/damage to plant equipment could have occurred during recovery activities. TVA ceased investment recovery activities when they decided BLN was a viable option for completion and subsequently implemented an NRC-approved QA program.

During this inspection, the team reviewed procedures, inspected plant hardware, and interviewed personnel to verify the implementation of TVA's program for the assessment of the plant status for the BLN. At the time of the inspection, TVA was in the process of attempting to re-establish configuration control of BLN through the "configuration recovery" efforts being conducted by contractor, Sargent & Lundy^{LLC} (S&L)

The team reviewed the S&L procedures for the determination of plant system status. The S&L procedures and a brief description of the program are as follows:

PI-TVAN-06, Rev. 1, 12/03/2008, *Bellefonte Nuclear Plant Configuration Recovery*. Phase 1 of the configuration recovery project involving the mark-up of piping and instrumentation drawings (P&ID) and electrical schematic drawings to clearly identify mechanical and electrical components that had been removed during investment recovery (salvage) operations.

PI-TVAN-07, Rev. 0, 02/02/2009, *Bellefonte Nuclear Plant Configuration Control Assessment*. This program was the method for conducting an assessment of the ECM&D configuration control process at BLN. The assessment was done by selecting a sample of various plant components and comparing the in-plant configuration with construction documents/records to check for agreement.

PI-TVAN-08, Rev. 1, 04/13/2009, *Bellefonte Nuclear Plant Configuration Recovery Record/Identification*. This procedure provided instruction for Phase 2 of the Sergeant and Lundy program for configuration recovery at BLN. This phase used the results of the phase 1 program to identify the construction records within ECM&D database which were impacted by the removal of equipment.

PI-TVAN-09, Rev. 0, 07/13/2009, *Bellefonte Nuclear Plant Configuration Recovery Record Update*. This procedure described Phase 3 of the program and involved the updating of the various construction documents/records that were impacted by equipment that was removed during the investment recovery effort at BLN. The Phase 3 effort was designed to generate a report defining the type of records that were updated and the outstanding items that must be processed during the BLN Detailed, Scoping,

Estimating, & Planning (DSEP) effort and/or items that must be processed during the construction effort.

PI TVAN 10, Rev. 0, 09/08/2009, *Bellefonte Nuclear Plant Configuration Recovery Phase 4 Record Update*. This phase of the program was in process at the time of this inspection and was intended to complete the documentation of investment recovery affected equipment and investment recovery collateral damage identified during Phase 3 walk-downs. It was also designed to update the site construction records to account for:

- Plant equipment shipped from the Bellefonte Site to other facilities. These items were tracked using shipping tickets.
- Identify the ECM&D records and update the ECM&D database for the following equipment that was not included in the Phase 2 & 3 scope:
  - System heat trace
  - Instrument sense lines
  - Removed instrument racks
  - Sample lines
  - Acid/Caustic Building
  - Uninstalled instruments in received status

The team reviewed the "Configuration Control Assessment Report" dated July 15, 2009, performed by S&L, in accordance with PI-TVAN-07, which reported the results of comparing construction records to actual component configuration. The assessment involved a total of 157 components; 128 components assessed using a method of selecting a record and then inspecting the component in the field and 29 components were assessed by randomly selecting the component in the field and verifying the records.

The team also reviewed the results of a TVA corporate NA observation concerning the BLN 1&2 Population of the ECM&D Database. During this assessment the NA observer also reviewed the results of the S&L configuration recovery project.

As an independent review of the status of configuration control, the team conducted walkdowns using the S&L updated "red-line" drawings where investment recovery activities had taken place and also in areas of the plant where it was presumed recovery activities did not occur. These walkdowns included the auxiliary feedwater, component cooling water, spent fuel pool cooling, decay heat removal, auxiliary building air conditioning, and high pressure fire protection systems for Unit 1 and Unit 2. While conducting the walk-downs, the team evaluated if the equipment removed for investment recovery had been properly identified. The team compared the condition of components in the field with the P&IDs and the isometric drawings, which had been marked up by S&L personnel during the phase 1 plant status reviews. During this independent review, the team also selected a number of components from each system to determine if the licensee's ECM&D database was in agreement with the observed field conditions for the selected components.

In addition, due to the designation of protecting the QA records vault, the team conducted independent walkdowns on the Raw Service Water (RSW) fire protection water storage tanks, diesel driven fire pumps, and the RSW pumps and power supplies. The walk-down reviewed instrumentation used to automatically start the RSW pumps on

low level, physical conditions of the diesel driven fire pumps, fuel oil levels and valve lineups for the RSW and diesel driven fire pumps.

Additional documents reviewed are listed in the attachment.

b. Observations

During the walkdowns the team observed the physical condition of the SSCs. The team identified that TVA had a clear understanding of the need to capture the details surrounding the investment recovery effort as an attempt to validate equipment status affected by the investment recovery effort and to also restore confidence in the ECM&D database. Additionally, TVA identified in the "Bellefonte Nuclear Plant Units 1 & 2 Deferred Status Assessment Report", dated August 4, 2009, that, if construction activities are resumed, multiple programs will be required to fully understand the plant's equipment status, pedigree, and condition necessary to fully evaluate the proper methods of equipment restoration.

During the walkdowns, the team observed the physical condition of the various system's pumps, valves, piping and electrical terminations. The team noted that investment recovery activities included some pump and pump motor removals and that the deliberate cutting of electrical connections, to aid in their removal, was not uncommon. Furthermore, the team's walkdowns identified examples where the investment recovery efforts had additional unknown and detrimental effects on surrounding plant equipment that was not captured by S&L's efforts. These items were placed in the CAP and will be resolved at the appropriate time if construction reactivation occurs.

As part of the walkdown activities, the team performed random samples of drawings referenced by the parent drawing used during the walkdown. The team verified that the references could be retrieved and were appropriately revised. Additionally, if any documents were superseded the team verified that document control had properly identified the referenced drawing as superseded. Individual components, identified during the walkdown, were also verified to ensure their conditions were accurately reflected in the site's ECM&D database.

The licensee's use of the electronic ECM&D database, to define current plant status, has historically been and remains an adequate method for defining project status. Additional methods and data tacking systems were being used in concert with the ECM&D database to attempt to restore confidence to BLN's evaluation of current plant status. BLN was aware that conditions exist within the plant that were not properly reflected in the approved databases and have confidence that, if construction activities resume, additional scoping walkdowns will more accurately reveal plant status. The team identified that the BLN efforts to understand the current plant status were effective but, due to the complexity of any construction project, BLN could not precisely capture the current plant status of the BLN construction status in the ECM&D database.

c. Conclusions

The team concluded that investment recovery activities were primarily isolated to certain areas of the plant and, while some recovery efforts resulted in significant collateral damage, programs are established to capture the overall impact of the salvage activities. In addition, documents used by BLN to identify and record items that were damaged

and/or removed, during the time period when the QA program was not in effect, appear to be detailed and accurate.

The team concluded that the licensee had a process in place, concerning site procedures applicable to determination of construction status during the expected construction delay, to support transition to deferred plant status, consistent with the Commission Policy Statement.

IV. Maintenance and Preservation (M&P)

M.1.1 M&P Controls (IP 92050)

a. Inspection Scope

Through discussions with licensee personnel and review of procedures and documentation, the team determined that as a result of investment recovery activities without proper QA control, the licensee considers that the condition of all SSCs on site is indeterminate. Therefore, the consideration of safety classification of each individual SSC does not apply. For that reason, preventive maintenance activities were restricted to those activities deemed to be necessary for investment protection. If construction resumes at a later date, TVA plans to individually assess each SSC for overall condition and safety classification. Those SSCs that can be qualified will be reviewed for required PMs, commensurate with the safety classification of the SSC.

The team reviewed the controls established to ensure maintenance activities performed while in a terminated or deferred plant status did not advance construction of the plants. Personnel were interviewed, plan of the day meetings were attended, weekly and daily work schedules were reviewed, and BLN procedures SSP-6.2, "Work Control," Rev. 8, and QCP-10.8, "Temporary Installations or Omissions," Rev. 20 were evaluated.

During the course of this portion of the inspection, the following documents were reviewed:

- Bellefonte DSEP Phase I Design Basis Reconstitution, Engineering Calculations, Unit 1 & 2, October 13, 2009.
- Bellefonte DSEP Phase I Design Basis Reconstitution Program Study, Design Basis Documents, Unit 1 & 2.

Additional documents reviewed are listed in the attachment.

b. Observations

Several thousand active PM activities currently exist at BLN. The PM database was re-created from the previously implemented PM schedule, prior to CP cancellation, and was revised with findings from the S&L investment recovery impact assessment. PM activities were implemented in April 2009 and have been performed weekly by BLN maintenance staff. As PMs were attempted, positive and negative feedback, regarding equipment status and PM performance feasibility, was incorporated into the PM and ECM&D databases to improve the assessment of current plant status. At an approximate performance of 500 PM activities per month, TVA plans to have performed the majority of the expected PM activities by April 2010. Team observation of PM

activities indicated that proper controls were established to minimize further degradation of targeted equipment.

The team verified that BLN management approved work orders, daily work activities, and weekly schedules prior to implementation. Additionally, BLN site procedures established controls for work activities performed under a deferred plant status. Specific guidance is provided that prohibits any work that could be identified as furthering plant construction or completion. If the work is questionable, it shall be reviewed by BLN management prior to the start of the effort. If work requires temporary installation of equipment to facilitate operation or PM of equipment, the temporarily installed equipment is identified and tracked in an independent database that will ensure replacement by qualified equipment, if the BLN construction effort is resumed.

c. Conclusions

The team concluded that the licensee has a process in place, concerning site procedures applicable to maintenance and preservation of equipment during the expected construction delay, to support transition to deferred plant status, consistent with the Commission Policy Statement.

M.1.2 M&P Implementation (IP 92050)

a. Inspection Scope

The team reviewed procedures, observed licensee activities, performed facility walkdowns, and interviewed personnel to verify the implementation of TVA's QA program for the Bellefonte site in the area of maintenance and preservation of equipment. The team observed PM activities involving the rotation of EDG building fans, the inspection of the condition of the inert gas (Nitrogen) in the Containment System electrical penetrations, and corrective maintenance removal of groundwater in-leakage into the essential raw cooling water (ERCW) cable tunnel (pipe tunnel). The team reviewed the applicable procedures, documentation, and qualification of the workers conducting the PM and corrective maintenance.

Additionally, the team observed corrective maintenance activities, taken to return the diesel driven fire pumps and RSW pumps to an operational status, for fire protection of plant. This was done to verify the equipment's capability of providing fire protection for the sites lifetime vault. This inspection included a review of the original design basis of the high pressure fire protection system and the impacts of placing certain air operated valves (AOVs) in locked open positions. This also included walk-downs of the main control room to verify RSW pump automatic controls were in appropriate positions and that indications exist that provide pump start on low tank levels.

Employee qualifications were reviewed to determine if the necessary training had been provided to qualify licensee personnel for the conduct the PM activities observed. The training required employees conducting the PM to have read SSP- 9.9, "Preventive Maintenance Long Term Layup."

Additional documents reviewed are listed in the attachment.

b. Observations

Preventive maintenance and walkdown plans and procedures were adequate to identify and minimize degradation of safety related structures. The System Engineer Walkdown procedure called particular attention to those portions of the safety-related structures most susceptible to degradation due to environmental effects. These areas included the primary containment steel liner and portions of the facility prone to ground and rainwater in-leakage. The Bellefonte DSEP Phase I Groundwater In-leakage Assessment contained measures to identify possible degradation due to groundwater in-leakage which occurred after cancellation of the construction permits. PERs 174710 and 201868 had been initiated and contained adequate measures to track the evaluation, correction, and prevention of adverse conditions associated with groundwater in-leakage into the reactor building, auxiliary building, and ERCW pipe tunnel.

The team verified that the employees, who carried out the PM on reactor building electric penetration nitrogen fill, had successfully completed the required training.

The team determined that the current maintenance of the high pressure fire protection system was adequate and that the system could provide protection of plant equipment and assets at BLN.

c. Conclusions

The team concluded that the licensee has a process in place, concerning site procedures applicable to maintenance and preservation of equipment during the expected construction delay, to support transition to deferred plant status, consistent with the Commission Policy Statement.

M.1.3 M&P Storage Activities (IP 92050, 35065)

a. Inspection Scope

The team reviewed procedures and interviewed personnel to verify the implementation of TVA's QA program for the BLN in the areas of housekeeping and storage controls.

The licensee's procedure for housekeeping, SSP-12.7, "Housekeeping/Cleanliness Control," Rev. 7, was reviewed and compared with the commitment requirements of ANSI-N45.2.3-1973, "Housekeeping During the Construction Phase of Nuclear Power Plants." Additionally, to determine the extent in which the licensee conducts their housekeeping tasks, several PERS were reviewed.

To evaluate warehouse, in-place, and in-plant storage conditions and determine whether the requirements of the policy statement were being met, the team performed document reviews and walk-down inspections of warehouse and in-plant storage areas. The team reviewed SSP-10.3, "Material Storage and Handling," Rev. 9, and PER 168868, Warehouse Storage-Env. Controls. The team also conducted walk-down inspections of Storage Huts HR and HU, as well as various locations within the plant.

Additional documents reviewed are listed in the attachment.

b. Observations

Inventory and environmental controls were terminated following cancellation of the CPs. Level A and B storage area requirements were not met and all indoor storage areas were subsequently classified as Level C by the licensee. Many components and materials were either removed from the site or placed in alternate, integrated storage areas containing safety and non-safety related items, as well as items that were not ready for use. The licensee has classified all components as non-safety related due to its lack of inventory and environmental control. Storage areas were clearly marked indicating that all components within must be evaluated before use in safety-related applications.

The team verified, through walkdown inspections and discussions with licensee personnel, that because housekeeping controls had not been in place during the time the construction permits were cancelled, BLN does not have any areas more restrictive than Zone IV, as described in ANSI N45.2.3-1973. The team was informed that more restrictive housekeeping zones will be established as the licensee conducts individual "hand-over-hand" inspections of SSCs and re-establishes controlled warehousing.

The licensee had initiated PER 168868 to address the storage issues and restore compliance with its material storage and handling procedure SSP-10.3. This PER requires an inventory of all stored items, restoration of Level A and B storage conditions and controls, identification of the appropriate storage level for each item, and evaluation of items for use in safety-related applications. Inventory activities were already underway at the time of the inspection.

c. Conclusions

The team concluded that the licensee has a process in place concerning applicable housekeeping and storage controls during the expected construction delay to support transition to deferred plant status, consistent with the Commission Policy Statement.

V. QA Records

R.1 Procedural Guidance and Record Validation (IP 92050, 35100)

a. Inspection Scope

The team conducted walkdowns of QA record storage facilities and assessed retrieval, access control, quality, storage, and protection of records. The team evaluated BLN's program for retrieval of QA records by requesting copies of various construction and test records and observing staff retrieving records electronically using the enterprise document management (EDM) system.

The team reviewed assessments performed by outside organizations, conducted interviews with staff responsible for records management, and reviewed implementing procedures for document control and QA records to verify that the BLN was operating in accordance with the TVA NQAP. The team evaluated the completeness of procedural instructions and guidance, assessed the staff's knowledge of the procedures, procedure implementation, and TVA plans to improve plant records. The following procedures were reviewed for adequacy:

BLN Procedure SSP-2.9, "Records Management," Rev. 15, defines the requirements and processes for managing records including generation, approval, receipt, transmittal, retention, storage, retrieval, and disposition of records. The procedure also described indexing, and access controls to records.

BLN Procedure SSP-2.3, "Document Control," Rev. 9, included requirements for generation, review, approval, and distribution control of documents.

Additional documents reviewed are listed in the attachment.

b. Observations

The team found, during the records storage facilities walkdown, that the records were stored in one of two vaults located on site. These vaults were classified as the permanent storage facility (lifetime storage) or the construction storage vault. Both facilities had proper environmental controls (temperature and humidity) restored after the lapse in QA programs at BLN following CP withdrawal. The team verified operability and calibration of equipment used for climate control and determined that QA records were protected against damage from temperature and humidity.

Requested QA records were provided to the team in a timely manner. The team observed that access to QA records was controlled and records were adequately maintained in fire resistant structures with adequate smoke and fire suppression systems. The team noted that there was no PM on the fire damper for the permanent QA records vault. The HVAC system for this storage facility is supported by a temporary unit located outside the vault in a hallway. The team determined that the fire damper could be a communicating path should the fire damper fails to close if a fire was to occur in the hallway. PER# 205486 was initiated to evaluate this issue.

The team reviewed assessment # 47-9072951-000 performed by AREVA. One of the areas that was evaluated during this assessment was radiographic films records. This AREVA assessment identified that some degradation was found on a small percentage of the films. The cause of the degradation was attributed to inadequate film processing techniques by the vendor and not caused by the storage conditions in the records vaults. An additional item, from the AREVA assessment, was that items intended to preserve the radiographic films records were missing. During this inspection, the NRC team observed staff interleaving radiography films records with acid free paper, as corrective actions from this AREVA assessment, and determined that the method used to perform this task was in accordance with implementing procedures.

c. Conclusion

The team determined that documents were properly prepared, reviewed, approved, and distributed and that QA records were stored, maintained, and controlled in accordance with the TVA's requirements.

The team concluded that the licensee has a process in place, concerning QA records applicable to equipment during the expected construction activities and delay, to support transition to deferred plant status, consistent with the Commission Policy Statement.

VII. Access Controls

A.1 Procedural Guidance and Program Implementation (IP 92050)

a. Inspection Scope

The team reviewed BLN procedure SSP-11.50, "Bellefonte Security and Plant Access", Rev. 10, and interviewed personnel to verify the implementation of TVA's access control program. While not specifically required by the guidance in the Commission Policy Statement for Deferred Plants, the team recognized the potential effect on BLN "current plant status" if efforts were not in place to minimize unauthorized plant access.

b. Observations

The team verified through witnessing entrance and exit requirements of both personnel and vehicles that security measures were implemented in accordance with prescribed procedures. Additionally, the team witnessed proper implementation of plant access procedures as Security escorted un-badged contract maintenance personnel performing building maintenance at BLN.

c. Conclusions

The team concluded that the licensee has adequate controls established to minimize potential unwanted access to BLN that might adversely and unknowingly affect plant equipment status.

V. Management Meetings

X.1 Exit Meeting Summary

On October 23, 2009, the team presented the inspection results to Mr. Ashok Bhatnagar and other members of his staff. Although some proprietary information may have been reviewed during the inspection, no proprietary information was included in this inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel
Ron Arsenault, Electrical Engineer
Cheryl Auvinen, Doc / Records Management
Glen Camper, Maintenance Foreman
Jim Chardon, Construction, Maintenance and Modifications Manager
Theresa Cheek, NGDC OE / CE Manager
Bob Davis, Plant Support
Alvin Hinson, Engineering Support Manager
Christine Johnson, Corrective Actions Program Administrator
Walter Justice Jr., Site Engineering Manager
Jool Landors, Safety Consultant
Vernon Lee, Maintenance Specialists – PM
John Muir, Operations
Tom Neissen, Nuclear Assurance Manager
Mark Palmer, Project Controls / OPS Manager
Larry Parvin, Corrective Action Program Coordinator
Scott Patterson, Design Engineer
Dan Pratt, Project Engineer
Zack Rad, Bellefonte Licensing Project Manager
Tom Ryan, NGDC Licensing Project Manager
Dan Sanchez, NGDC Training Manager
Andrea Sterdis, NGDC Licensing Manager
Bill Wasylow, Facilities Supervisor
Dale Whitecomb, Licensing Support
Dennis Williams, Operations

Attachment

List of Documents Reviewed

Drawings
3BE1818-CA-01A, "Auxiliary Feedwater System," Rev. 0
35W0606-CS-01, "Condensate System," Rev. 0
3BE0854-NM-01A, "Spent Fuel Pool Cooling," Rev. 0
3BE1856-KC-01A, "Component Cooling System," Rev. 0
3BE1812-ND-01A, "Decay Heat Removal System," Rev. 0
3BE1843-VE-01A, "Auxiliary Building Trained Areas Air Conditioning System," Rev. 0

Procedures
SSP-1.50, "Bellefonte Organization and Responsibilities," Rev 10,
SSP-2.3, "Administration of Site Procedures," Rev 13,
SSP- 2.7, "Document Control", Rev. 9,
SSP- 2.9, "Records Management," Rev.15,
SSP-3.1, "Conduct of Quality Assurance," Rev. 13,
SSP-3.4, "Corrective Action Program," Rev. 6,
SSP-4.5, "Regulatory Reporting Requirements," Rev. 13,
SSP- 6.2, "Work Control," Rev. 8,
SSP-10.3, "Material Storage and Handling," Rev. 9,
SSP-12.7, "Housekeeping/Cleanliness Controls," Rev. 7,
SSP-11.50, "Bellefonte Security and Plant Access," Rev. 10,
BLTI-PREV-09, "System Engineer Walkdowns," Rev. 11,
PI-TVAN-06, Bellefonte Nuclear Plant Configuration Recovery, Rev. 1,
PI-TVAN-07, Bellefonte Nuclear Plant Configuration Control Assessment, Rev. 0,
PI-TVAN-08, Bellefonte Nuclear Plant Configuration Recovery Record/Identification, Rev. 1,
PI-TVAN-09, Bellefonte Nuclear Plant Configuration Recovery Record Update, Rev. 0,
PI-TVAN-10, Bellefonte Nuclear Plant Configuration Recovery Phase 4 Record Update, Rev. 0
NAPD-2, Audits, Rev. 0025, February 18, 2009.

Self-Assessments
BLN-CAP-09-01, "Review of BLN PERs for Trends"
Bellefonte Nuclear Plant Units 1 & 2 Deferred Status Assessment Report, Rev. 0, August 11, 2009
Bellefonte Nuclear Plant Units 1 and 2 Construction Permit and Plant Layup Activities – Audit BLA0901, July 15, 2009
BLN-CAP-09-01 Self Assessment Report - Review of BLN PERs for Trends, August 12, 2009
BLN-CAP-S-09-002 Self Assessment Report - Comparison of the Bellefonte Corrective Action Program to the NPG Corrective Action Process, September 9, 2009
BLN-Site-09-001 Self Assessment Report - BLN Units 1 and 2 Readiness to Return to Deferred Plant Status, June 11, 2009
BLN-Site-09-001A Self Assessment Report – Follow-up On BLN Units 1 and 2 Readiness to Return to Deferred Plant Status, September 28, 2009

PERs Reviewed
168868, Warehouse Storage–Env. Controls
170768, Lack of reportability process
171986, Lighting circuits not per drawings
173729, HP Fire Protection System
173755, Groundwater intrusion
173511, BLN Deferred Status Readiness – Internal Assessment AFI No 1

173550, BLN Deferred Status Readiness – Internal Assessment AFI No 2
174748, Document control support of upcoming reviews
174750, Plant environment following withdrawal of construction permits
174325, Limited distribution of controlled procedures
174452, Bellefonte security practices
174457, BLN procedures referencing Operating Plant requirements documents
174459, Late approval of BLN corrective action plans
174481, BLN procedure discrepancies
174487, Bellefonte procedure discrepancies
174490, In process work requests documentation
174665, Affected employee clearance training
174674, Operation review of TIO forms
174675, ER specification admin errors
174710, Groundwater In-leakage into Auxiliary Building and Reactor Building
174715, Involvement of ISO in PER 169084 corrective action
174751, Compliance with records management procedure
174752, BLN work control/ service request procedure inconsistencies
174811, Corrective action program
174831, CMTR not yet reviewed
174836, COC typographical error – Auxiliary Feedwater
174858, Record storage – Boyer underground facility
174875, NA audit BLA0901 recommendations
174894, Bellefonte tags plus
175091, Reporting requirements
177443, Fire extinguishers not secured
177446, FME program at BLN
177449, U1 containment roll-up door
177451, Document control environmental controls
177452, Recurrence controls for PER 171986
177453, Fire Protection System availability
177456, Plant security program at BLN
177458, Records vault isolation HVAC dampers
177460, Reg guide tabulation
177462, Permit status
177463, Open condition reports
177465, ECM and D software status
177468, Documentation presentation for deferral effort
177469, CP status communication
177474, Construction permit status
177476, Stellite reduction program
177478, S and L procedure details
200119, U1 V9 Tendon Coupler Failed
201357, Enhancements to SSP-3.4
201868, Water is in the ERCW cable tunnel (pipe tunnel)
202352, Open or breached systems not managed effectively
202411, Employee crossed protective barrier in 125V battery room
203644, A safety issue was identified, there appears to be energized 480v conductors exposed

PERs initiated as a result of this inspection
205213, Tagging Practice Inconsistent With NPG Standards
205215, Control of Components

205218, NRC Provided Info With Missing Pages
205281, NRC Identified - Wrong proc ref in BLN project report for Imp of Nuclear QA Prog for BLN U1/U2
205351, Bellefonte has established a practice of using policies
205375, The corrective action plan for PER 173511 was inadequate
205376, Weld damaged on pipe connected to VLV 1-INM-VCAL-79-N
205387, PER 177453 was improperly closed to per action 173511-003 and did not address original problem
205389, NRC identified duplicate use of the term "Service Request"
205390, NRC identified a possible disconnect between responsibilities outlined in SSP-1.50 and SSP-3.1
205396, Cord found in bottom of file cabinet
205397, Cabinet Drawer Locked With No Key
205398, Blanks Found on Records Signature Log
205402, Improper closure of PER 177458
205454, MRC Observation
205458, Use of flagging for barricades is not IAW with the Health & Safety Manual Section 602.
205486, There are currently no PMs on the Fire Dampers for the Permanent QA Records Vault.
205585, NRC Identified difference in nomenclature between Hold Order tag and breaker
205586, NRC Recommendation to evaluate security procedures to address unauthorized intrusion into plant
205589, Inability to provide definitive answer regarding fire damper PM requirements

Miscellaneous

Sargent & Lundy Project No. 12054-006 Rpt. No. 3 of 4, "Bellefonte DSEP Phase I Design Basis Reconstitution Program Study Design Basis Documents Unit 1 & 2", October 13, 2009
Sargent & Lundy Project No. 12054-006 Rpt. No. 1 of 4, "Bellefonte DSEP Phase I Design Configuration Control Engineering Databases and Applications Unit 1 & 2", October 13, 2009
Sargent & Lundy Project No. 12054-006 Rpt. No. 2 of 4, "Bellefonte DSEP Phase I Design Configuration Control Engineering Procedures Unit 1 & 2", October 13, 2009
Sargent & Lundy Project No. 12054-006 Rpt. No. 4 of 4, "Bellefonte DSEP Phase I Engineering Calculations Unit 1 & 2", October 13, 2009
Sargent & Lundy Project No. 12054-012 Rpt. No. 2 of 4, "Bellefonte DSEP Phase I Groundwater In-leakage Assessment Unit 1 & 2", October 13, 2009
DBD-RF, "High Pressure Fire Protection System", Revision 1
System Engineer Walkdowns, BLTI-PREV-09, 2/6/2009
Bellefonte DSEP Phase I Groundwater In-leakage Assessment

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