

**SPECIAL REPORT**

**OVERVIEW OF BVPS-1 AND BVPS-2 TECHNICAL  
SPECIFICATION COMPLIANCE ISSUES  
AND  
CORRECTIVE ACTIONS TAKEN**

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## BACKGROUND

This special report provides an overview of recent Technical Specification compliance issues and related corrective actions.

In April of 1997 the DLC, Quality Services Unit (QSU) issued an assessment of the Technical Specification surveillance requirements.<sup>1</sup> This assessment resulted from identified events related to failure to adhere to specific surveillance sequence requirements within Technical Specifications. Technical Specification surveillance requirements were reviewed to determine if the wording implied that the surveillance was to be performed in a specific scheduling sequence or was mandated following a plant event. This assessment identified 20 different Technical Specification surveillance requirements where administrative errors could possibly prevent the performance of the surveillance. While no missed surveillance requirements were identified, the assessment did identify the potential for error.

The NRC issued a Notice of Violation (NOV) EA 97-255 to DLC in July of 1997.<sup>2</sup> The letter cited six violations in the aggregate as one Severity Level III problem concerning the failure to comply with Technical Specification requirements for surveillance testing. Considered individually, the missed surveillances had minimal safety consequence; however, collectively they indicated weaknesses in the procedures, scheduling, coordination and communication processes used for surveillance testing.

In the August 1, 1997 response to the NOV<sup>3</sup>, DLC committed to: 1) conduct an evaluation of the adequacy of Technical Specification surveillance procedures to ensure that the procedures implement the required testing, 2) revise the process for preparing or making intent changes to Technical Specification surveillance procedures to include a technical review led by the System Performance and Engineering Department, and 3) improve the coordination and scheduling processes for Technical Specification surveillances.

An evaluation of the adequacy of surveillance procedures that implement Technical Specifications was conducted to ensure that the procedures implement the required testing. The evaluation report was issued in February of 1998.<sup>4</sup> Problems were documented consistent with the condition report program. Procedures were changed to support immediate corrective actions as well as to ensure full compliance in the future.

Additionally, there were instances identified where it was determined that technical specification surveillance requirements had been fulfilled, but the existing procedures were written such that future compliance was not certain; for example, the reviewer identified that completed surveillances correctly complied with Technical Specification surveillance requirements but that the procedure had incorrect statements. In these cases, procedures were also revised to correct the statements. Enhancements to procedures that were adequate, were also identified and submitted for processing.

A self assessment of Technical Specification related Licensee Event Reports (LERs), NOVs and Condition Reports was issued in February of 1998.<sup>5</sup> The assessment was performed to determine the significance of open corrective actions in view of recent lessons regarding technical specification surveillance implementation. LERs issued between January 1, 1996 and January 13, 1998, Condition Reports issued between January 1, 1997 and January 13, 1998, and 1997 data regarding NRC violations were screened for Technical Specification implementation problems,

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especially surveillance problems. The Assessment methodology was primarily a document review process, interspersed with interviews, in order to gain insight into procedural deficiencies. This review did not identify any open corrective actions or issues that could impact plant startup. In addition, the completed corrective actions were judged to be appropriate and effective for correction of the specific problem identified.

A management overview of ongoing Technical Specification Review Team and Generic Letter 96-01 Review Team efforts was conducted from February 9, 1998 to February 13, 1998.<sup>6</sup> The overview consisted of interviews with personnel and document reviews. The Management Overview Report concluded that the review of documents associated with the Technical Specification Review Team and Generic Letter 96-01 Review Team efforts, and the interviews of personnel indicated a strong desire to attain and maintain the highest level of compliance with and consistency between the Technical Specifications and the surveillance procedures.

From March 16, 1998 to March 19, 1998 discussions were held with a number of DLC employee groups concerning questions or issues related to implementation of Technical Specifications or surveillance procedures.<sup>7</sup> During that period discussions were held with six operating crews, one group of system engineers and the Unit 2 current SRO License class. The questions from the sessions confirmed the desirability to conduct special training. A number of issues were identified related to procedures. It was recommended that management standards and expectations related to Technical Specifications be clearly articulated, communicated and institutionalized. It was also recommended that a standard process be developed for responding to and resolving issues related to Technical Specifications and surveillance procedures.

On April 22, 1998, Duquesne Light Company (DLC) received a Notice of Violation from the NRC stating that conditions adverse to quality affecting the Technical Specifications were not promptly corrected.<sup>8</sup> Investigations into this matter revealed that this was not an isolated instance. A condition report was initiated on May 8, 1998 to evaluate inadequate implementation of administrative controls in procedures.<sup>9</sup> Existing programmatic controls did not ensure proposed Technical Specification Allowable Value changes and/or administrative controls were incorporated into Maintenance Surveillance Procedures (MSP). In addition, the related License Amendment Requests (LAR) were not submitted to the NRC in a timely manner. This issue resulted in the formation of a Multi Disciplinary Analysis Team (MDAT) on May 15, 1998 and a subsequent extent of condition review.<sup>10</sup>

The extent of condition was determined from a review of Licensing, Engineering, Operations and Maintenance databases including the associated site surveillances, processes and procedures. Combined this comprised a set of approximately 15,000 documents. Fourteen technical issues were identified as requiring evaluation prior to startup. Solutions for the 14 technical issues were identified and approved. Where appropriate, license amendment requests are being submitted to the NRC. Administrative controls were enhanced or established as appropriate. The inadequacies in the procedures are being corrected and training on the administrative controls was provided to the appropriate plant and support staff.

An independent review by outside consultants was conducted to determine why a backlog of significant license amendment requests existed without visibility to management or attention to resolution. The cause analysis prepared in response to Condition Report 981101<sup>11</sup> (approved July 14, 1998), noted 1) insufficient procedure guidance on processing and controlling Technical

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Specification changes, 2) a weakness in communication of the license amendment request backlog and its significance within the Safety & Licensing organization, 3) lack of an effective work management system within Safety & Licensing that properly prioritized work, clearly established accountability, and provided workload significance information and visibility to senior management, and 4) lack of knowledge and sensitivity by the site staff regarding the importance of proper and timely implementation of design basis changes in both administrative controls and Technical Specifications.

A Phase II report was issued, on August 1, 1998, as an addendum to the original assessment of Technical Specification related LERs, NOVs, and condition reports dated February 25, 1998.<sup>12</sup> The Phase II report used the same methodology as the original report, and was based on data beginning with the completion of the original report and ending in mid July, 1998. Overall, no new generic issues were identified, and corrective actions have been completed or are in progress for the previously identified issues. The actions taken after the original report have been effective in improving Technical Specification knowledge, and correcting the process related to Technical Specification implementation.

An independent review of reporting practices was conducted between July 9, 1998 and August 7, 1998.<sup>13</sup> The purpose of this review was to determine if requirements in Title 10 of the code of Federal Regulations and in the BVPS licenses were effectively implemented. The focus was on information that must be submitted to the NRC for review and approval before changes are implemented. Instances where the company has failed to submit information to the NRC under regulatory requirements were identified. These instances are documented in DLC Quality Assurance Audits and Condition Reports and in NRC Inspection Reports. Corrective actions have been initiated for these identified deficiencies. The independent review team did not identify any other instances where DLC failed to submit information for review and approval or for prior approval before implementation.

A Technical Specification surveillance self assessment was completed in September of 1998.<sup>14</sup> The scope of the self-assessment included evaluating: commitments implemented in response to the reply to NOV EA 97-255, related BVPS procedures, the Condition Report Program database, Unit 1 and Unit 2 LERs, and results of the Technical Specification Training program and surveillance test procedure review process. The assessment included survey questionnaires and interviews with station personnel. While some program weaknesses were identified, the self-assessment indicated that the Technical Specification Surveillance Review (completed in February 1998) and subsequent procedure review projects conducted in response to the Reply to NOV EA 97-255 were effective in increasing overall compliance to Technical Specification surveillance requirements. Recently completed Technical Specification training has also improved site personnel knowledge and understanding of BVPS Technical Specification compliance. Changes to station programs ensuring Technical Specification compliance have been effectively implemented, resulting in an awareness of Technical Specification requirements by groups involved in performing surveillance activities.

## ISSUES

Technical Specification issues have been identified in four key areas: knowledge, culture/standards, processes (Technical Specification amendment, Technical Specification interpretation, and administrative controls), and Procedures. A summary of issues related to each of these key areas is presented below.

### KNOWLEDGE

It was found that training of individuals on Technical Specifications had been varied, depending on job function and is mainly oriented at operations personnel. Knowledge of the design and licensing basis by site personnel also varied widely.

### CULTURE/STANDARDS

Previous interpretations of Technical Specifications were oriented toward what was understood to be the technical intent of the Technical Specifications and not necessarily compliance with the Technical Specification requirements. Operators and procedure writers were often formally trained on these contemporary interpretations and thus did not recognize the recently identified noncompliance as such. At times, a non-conservative decision-making process was being used when addressing the implementation of Technical Specifications or when determining plant compliance with Technical Specifications.

### PROCESSES

Program/Process weaknesses were identified in the implementation of Technical Specification amendments, the Technical Specification interpretation process, and the procedure development and review process.

**Technical Specification Amendment** - The process for Technical Specification change implementation was fragmented. There was no visible accountability for effective coordination between departments to ensure appropriate implementation of Technical Specification requirements. In some cases, reviews were limited to the scope of the change, and commitments were not effectively communicated. Procedures and manuals that govern the Technical Specifications amendment process required enhancement to ensure amendments were properly implemented.

**Technical Specification Interpretation** - Non-conservative application and interpretations of Technical Specification requirements were found in station procedures. It was determined that to achieve and maintain a high degree of confidence in procedures, procedures providing Technical Specification guidance should be reviewed prior to use to ensure each procedure provides appropriate, conservative guidance. The mechanism for communicating Technical Specification interpretations was not consistent and did not ensure timely or consistent notification to operating personnel of new Technical Specification interpretations.

**Administrative Controls** - It was found that administrative controls were less than adequate in providing guidance to site personnel on processing and controlling Technical Specification amendments. The governing procedures did not include provisions for the proper handling of

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administrative controls associated with Technical Specification allowable values prior to NRC approval. Department implementing procedures were also found to be less than adequate.

**PROCEDURES**

It was determined that Technical Specifications surveillance procedures were being changed and classified as "non-intent changes" when in fact the procedure changes were "intent-changes". These procedure changes impacted the intent of the surveillance procedure and, in some cases, adversely impacted the conservative interpretation of Technical Specifications. Additionally, no formal process guidance was provided for operability determinations.

## CORRECTIVE ACTIONS

Corrective actions initiated to address Technical Specification compliance issues are summarized below. Corrective actions are presented in six categories including: Technical Specification Training, Revised Technical Specification Change Process, Revised Procedure Development And Review Process, Process Improvements, Revised Technical Specification Interpretation Process, and STAR.

### TECHNICAL SPECIFICATION TRAINING

This training covered; (1) The overall licensing process including the relationship between the Code of Federal Regulation, the Updated Final Safety Analysis' Report, the NRC Safety Evaluation Report, and Technical Specifications, (2) The ownership of the Technical Specifications and departmental interfaces, (3) Management's standards and expectations, (4) compliance with requirements as stated in the Technical Specifications, (4) Purpose of each section of the Technical Specifications, (5) Application of Technical Specification definitions, (6) Application of Technical Specifications to assess a set of plant conditions and apply/relate the requirements of 3.0.1 through 3.0.6, and 4.0.1 through 4.0.5, to ensure Technical Specification compliance, and (7) Maintenance of train separation.

Technical Specifications training was provided to personnel holding an active Reactor Operator (RO) or Senior Reactor Operator (SRO) license and other personnel participating in Technical Specification related activities. Over 400 Station personnel completed the two-day training, that included comprehensive examinations, between April 3, 1998, and April 28, 1998.

### REVISED TECHNICAL SPECIFICATION AMENDMENT PROCESS

License Amendment Implementation guidelines were issued on April 2, 1998. The Guidelines assist site personnel in recognizing the activities associated with license amendment implementation and expectation guidelines of personnel involved. The Guidelines are divided into 2 sections: 1.) *Implementation Activities* and 2.) *Implementation Responsibilities and Guidelines*.

The *Implementation Activities* begin when the license amendment request is submitted to the USNRC and involve identifying changes to the Plant, documenting revisions needed to address the amendment, and developing a preliminary implementation schedule. The activities continue, following issuance of the license amendment by the USNRC, with meetings among affected groups and revisions to processes that finalize plant design and document changes that are required to implement the new amendment. Additionally, management involvement with the implementation activities ensures that the revisions, changes, and associated training are implemented in a timely manner.

The *Responsibilities and Guidelines* provide personnel with the expectations associated with their involvement in the license amendment implementation activities. Examples are provided in the *Guidelines* to illustrate the concepts addressed.

A revision to the License Amendment Implementation Request and Licensing Requirements Manual Control procedure was issued on May 29, 1998. This revision provided enhanced guidance for requesting and implementing license amendments. An August 17, 1998 revision to



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this procedure added a requirement to forward License Amendment Requests to the NRC within 60 days of Offsite Review Committee approval or notify the General Manager of Nuclear Operations and the initiating department of the revised submittal schedule. The August 17, 1998 revision also required that accepted license amendment requests be logged and scheduled for submittal to the NRC. Nuclear Power Division Administrative Procedure (NPDAP) 7.1, *Technical Specifications Control Program*, was revised and became effective June 2, 1998. It provides enhanced guidance for requesting and implementing Technical Specifications changes.

Technical specification changes have been inventoried, prioritized and scheduled as appropriate.

### **REVISED PROCEDURE DEVELOPMENT AND REVIEW PROCESS**

New and revised procedures are verified for Technical Specification compliance through completion of the NPDAP 8.18, 10 CFR 50.59 Applicability Determination and NPDAP 2.3, Procedure/Periodic Review Checklist.

Pending surveillance procedure changes that could have "intent changes" are now reviewed for compliance with Technical Specification surveillance requirements. This review assesses the text changes within the surveillance procedure to determine if the proposed change constitutes a change in the licensing or design bases of the Plant.

Each department (which has procedures involving plant equipment) established a team to review procedures for correct Technical Specification application. If the procedure impacted any of the Technical Specifications, it was reviewed to ensure the requirements of the Technical Specifications were not violated by the procedure.

### **PROCESS IMPROVEMENTS**

The following paragraphs describe corrective actions associated with Technical Specification related process improvements.

**Operability Determination** - Operating Manual Section 1/2OM-48.1.I, *Technical Specification Compliance*, was approved with an effective date of May 26, 1998. The Revision includes guidance regarding: identification of operability conditions, using Technical Specifications to evaluate operability, actions taken upon discovery of inoperability, the safety significance of inoperability, and non-conforming/degraded conditions of SSCs.

**Surveillance Testing** - Work Management Improvement Team recommendations were incorporated in Revision 5 to NPDAP 7.12, *Non-Outage Planning, Scheduling, and Risk Assessment*. Operational experience was folded into the planning process by including licensed Senior Reactor Operators as members of the team preparing work packages; thus, a burden was removed from the Control Room staff. Outage Management has incorporated the 12 week schedule and the forced outage schedule into a single schedule used on a daily basis.

**Post Maintenance Testing** - Post Maintenance Testing (PMT) of Technical Specifications equipment is performed and tracked through the Maintenance Work Request (MWR) process. The controlling procedure for the MWR process, NPDAP 7.5, *Processing a Maintenance Work Request*, requires identification of PMT requirements during the planning phase of each work package. Additionally, MWRs are reviewed by an Operations Senior Reactor Operator (SRO)

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Scheduler and by an Operations Work Control Center (OWCC) Supervisor, prior to release to the Control Room.

A Unit 2 SRO has also been dedicated as a PMT coordinator with the task of identifying, tracking, and scheduling MWRs and PMT involving equipment required for plant startup. This SRO assists in identifying work to the Nuclear Shift Supervisor, the OWCC Supervisor, and the Maintenance Programs Unit to ensure activities are appropriately prioritized and completed, including performance of any required PMT.

**Engineering Memoranda** - NPDAP 2.4, *Engineering Memoranda*, Revision 6, became effective April 28, 1998. Revision 6 requires that Technical Specification questions or issues, be prioritized or categorized as Priority 1. This includes Technical Specification questions or issues that were raised, based on significant industry operating experience information received from vendors or others.

**Technical Evaluation Reports** - NEAP 2.13, Revision 16 became effective April 28, 1998, and ensures that questions or issues associated with compliance with Technical Specifications are appropriately recognized, prioritized, and tracked to a timely closure.

The TER process was revised to include controls to ensure design basis changes affecting Technical Specifications are communicated to other Departments and plant documents requiring revision are identified

### **REVISED TECHNICAL SPECIFICATION INTERPRETATION PROCESS**

The Technical Specification Interpretation Process was included in administrative procedures and now shows that the General Manager of Nuclear Operations is responsible for Technical Specifications Interpretations. Approved interpretations are now contained in the Operations Manual.

A revision to Operating Manual Section 1/2OM-48.1.I, *Technical Specifications Compliance*, was made to require that Technical Specification interpretations be reviewed by licensed personnel via the required reading program and Night Orders.

### **STAR**

BVPS formally adopted the self-checking method STAR (Stop, Think, Act, Review). Personnel are expected to utilize the STAR self-checking method during work activities to ensure tasks are performed error free. STAR techniques include verbalizing concerns, taking time out, reviewing the situation and making a conscious effort to perform the job right the first time, every time. STAR principles are emphasized to personnel during training to further underscore the importance of proper self-checking and peer-checking techniques.

## CONCLUSION

Beaver Valley has responded aggressively to identified conditions by performing comprehensive "Extent of Condition" reviews and by instituting: (1) a culture of compliance with Technical Specification requirements, (2) rigorous Technical Specification training, and (3) revisions to the Technical Specification change and interpretation processes, as well as numerous other procedure development and review processes. These actions, along with more specific remedial and prevent recurrence corrective actions, are expected to effectively address the identified Technical Specification compliance issues.

This was confirmed in part by the recent Technical Specification self assessment. This assessment included a review of condition reports, Licensee Event Reports, and surveillance test procedure review process, as well as survey questionnaires and interviews with station personnel. While some program weaknesses were identified, the self-assessment indicated that the Technical Specification Surveillance Review (completed in February 1998) and subsequent procedure review projects conducted in response to the Reply to NOV EA 97-255 were effective in increasing overall compliance to Technical Specification surveillance requirements. Recently completed Technical Specification training has also improved site personnel knowledge and understanding of EVPS Technical Specification compliance. Changes to station programs ensuring Technical Specification compliance have been effectively implemented, resulting in an awareness of Technical Specification requirements by groups involved in performing surveillance activities.

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