



**Department of Energy**  
Washington, DC 20585

July 20, 2005

Michael C. Hughes, President and General Manager  
Bechtel Jacobs Company, L.L.C.  
Building K-1225/MS-7294/RM 107  
P.O. Box 4699  
East Tennessee Technology Park  
Oak Ridge, TN 37831-7294

Subject: Bechtel Jacobs Company Price-Anderson Amendments Act Program Review

Dear Mr. Hughes:

The Department of Energy's (DOE) Office of Price-Anderson Enforcement (OE), in conjunction with the Oak Ridge Operations Office, conducted a review of your Price-Anderson Amendments Act (PAAA) program and a limited review of your management and independent assessment programs during May and June 2005, including a site visit on June 21-22, 2005. This review included pertinent PAAA program and assessment program documentation and interviews with key Bechtel Jacobs Company (BJC) personnel.

Your PAAA program was evaluated against the criteria and guidance established by DOE Enforcement Guidance Supplement 00-02, *Price-Anderson Amendment Act (PAAA) Program Reviews*. As part of this review, OE evaluated your processes for identifying and screening nuclear safety noncompliances for PAAA applicability, reporting applicable noncompliances into DOE's Noncompliance Tracking System, your internal tracking and trending of noncompliances, and your causal analysis and corrective action processes.

Overall, our review concluded that your PAAA program effectively meets DOE expectations and guidance. Though the review did identify some weaknesses, such as the evaluation of potential programmatic noncompliances and legacy waste issues, we found the overall structure of your program to be sound and effectively maintained by your PAAA staff. Your centralized approach to issues management for capturing potential PAAA noncompliances and the use of your independent assessment program to systematically evaluate subcontractor PAAA performance are viewed as effective tools to promote a consistent approach to potential PAAA noncompliance identification.

The strengths and weaknesses of your PAAA and assessment programs are identified below and are further described in more detail in the enclosed report.

**PAAA and Assessment Program Strengths**

- The PAAA Coordinator and alternate are knowledgeable of all aspects of the BJC PAAA program.


- The PAAA Coordinator chairs the Senior Review Board.
- PAAA requirements are well integrated into supporting procedures.
- Documentation and maintenance of potential noncompliance screening and evaluation determinations are comprehensive.
- There is a good ratio of reportable noncompliances from events, trends, and assessments identified in the Noncompliance Tracking System (NTS).
- There is a good ratio of nonreportable noncompliances to NTS reportable noncompliances.
- The Issue and Corrective Action Tracking System is an effective centralized database for identifying potential noncompliances.
- There is effective use of independent assessments in evaluating subcontractor PAAA related performance.
- Annual schedules for management and independent assessment are established and followed.
- The Issues Review Board is useful in reviewing and evaluating management assessments.

### **PAAA and Assessment Program Weaknesses**

- The actual process used to screen and evaluate potential noncompliances is not always consistent with the implementing procedure.
- A few potential noncompliances are not being formally screened.
- A few issues are not being evaluated for potential programmatic noncompliance.
- A few issues were identified for which the NTS reportability determination of legacy waste issues was questioned.
- A trend analysis tool which specifically examines internally tracked noncompliances does not exist.
- Refresher training for BJC PAAA related personnel is not offered.
- No formal training is offered for personnel conducting management assessments.
- The Closure Project Evaluation Board independent assessment color scheme used to characterize subcontractor PAAA performance is nonquantifiable and in some cases not supported by assessment results.

No reply to this letter is required. Please contact me at (301) 903-0100 or have your staff contact Richard Day at (301) 903-8371 if you have any questions.

Sincerely,



Stephen M. Sohinki

Director

Office of Price-Anderson Enforcement

Enclosure: PAAA Program Review

cc: J. Shaw, EH-1

R. Shearer, EH-1  
A. Patterson, EH-1  
M. Zacchero, EH-1  
L. Young, EH-1  
R. Day, EH-6  
Docket Clerk, EH-6  
R. Loesch, EH-31  
C. Anderson, EM-2  
L. Vaughan, EM PAAA Coordinator  
G. Boyd, ORO  
S. McCracken, ORO  
R. Casteel, ORO  
P. Baxter, BJC PAAA Coordinator

## **Price-Anderson Amendments Act Program Review Bechtel Jacobs Company**

### **I. Introduction**

During May and June 2005, including a site visit on June 21-22, 2005, the Department of Energy's (DOE) Office of Price-Anderson Enforcement (OE), in conjunction with the Oak Ridge Operations Office (ORO), conducted a review of the Price-Anderson Amendments Act (PAAA) program implemented by Bechtel Jacobs Company (BJC). The OE/ORO team performed a review in accordance with DOE Enforcement Guidance Supplement 00-02, *Price Anderson Amendment Act Program Reviews*. This review evaluated (1) BJC's PAAA program pertaining to the identification and screening of nuclear safety noncompliances, (2) the method for determining a noncompliance's reportability into the DOE Noncompliance Tracking System (NTS), (3) the causal determination process for noncompliances reported to the onsite tracking system and the NTS, and (4) corrective action tracking, implementation, and closure. The OE/ORO team also reviewed BJC's Management and Independent Assessment programs.

### **II. General PAAA Program Implementation**

The BJC PAAA program is formally established by and described in BJC-PQ-1610, *Price-Anderson Amendments Act (PAAA) Noncompliance Determination and Reporting*, revision 3, dated March 31, 2004. This procedure provides the general framework by which BJC identifies, evaluates, reports, tracks, corrects, and trends PAAA noncompliances.

Issues identified through occurrence reports, audits, assessments, surveillances, employee concerns, nonconformance reports, etc., are entered into the Issue and Corrective Actions Tracking System (ICATS). Issues specific to subcontractor internal practices are tracked by individual subcontractor organization. ICATS issues are to be initially screened by the PAAA Coordinator (the term PAAA Coordinator used in this report may also include duties performed by the alternate PAAA Coordinator) and forwarded to the Interpretive Authority/Subject Matter Expert/Functional Manager for noncompliance determination. Subcontractor specific issues are reviewed by the Quality Engineer and likewise forwarded to the Interpretive Authority/Subject Matter Expert/Functional Manager by the PAAA Coordinator for noncompliance determination. If a noncompliance is determined to exist, then the noncompliance is evaluated by the PAAA Coordinator for Noncompliance Tracking System (NTS) Reportability. Those noncompliances which are initially determined to be NTS reportable are sent to the

Senior Review Board (SRB) for final reportability determination. Those noncompliances which are initially determined not to be NTS reportable are tracked internally.

The actual practice of screening and evaluating potential noncompliances differs somewhat from that described in the implementing procedure. Specifically, (1) a “prescreening” is conducted prior to completion of Part A of the Compliance Determination Report (CDR), (2) Part B of the CDR is seldom completed by the Interpretive Authority/Subject Matter Expert/Functional Manager; rather it is completed by the PAAA Coordinator, and (3) the Functional Manager or designee never signs the CDR signature block as required by the PAAA implementing procedure.

Sufficient and technically competent staff (1.5 Full Time Equivalents) is assigned to perform the rudimentary functions of the BJC PAAA program such as screening, evaluation, and reporting of noncompliances. In addition, the current staffing is deemed sufficient, although stretched, to perform those aspects of the BJC PAAA program such as (1) trending and analysis of data, (2) periodic assessment of the program or the PAAA activities performed at the BJC subcontractor level, (3) corrective action verification, and (4) PAAA training, all of which are considered equally important to any properly implemented PAAA program.

BJC addresses PAAA training in three ways: (1) all new BJC employees receive a brief indoctrination to PAAA through their General Employee Training, (2) BJC senior managers receive “PAAA Awareness Training,” and (3) BJC personnel actively involved in the PAAA program receive training on “Identification, Reporting, Correcting and Tracking of Potential Nuclear Safety Noncompliances.” Formal refresher training for those BJC employees actively involved in the PAAA program has not been established by BJC. Thus, new and emerging issues relative to PAAA activities are not formally addressed through additional training. It is noted that the BJC PAAA Coordinator has been actively involved for several years in the PAAA subgroup of the Energy Facility Contractors Group, which actively addresses emerging PAAA issues.

### **III. PAAA Organizational Relationship**

The BJC PAAA Coordinator, who is independent of BJC line programs, reports to the Quality Assurance Manager, who directly reports to the President and General Manager of BJC. Interviews with the PAAA Coordinator indicate that he has unfettered access to BJC senior management when PAAA issues arise and chairs the SRB responsible for reviewing potential NTS reportable noncompliances.

### **IV. Identification and Screening of Noncompliances**

BJC-PQ-1610 defines the process by which BJC identifies and screens potential noncompliances. ICATS issues are to be initially screened by the PAAA Coordinator and forwarded to the Interpretive Authority/Subject Matter Expert/Function Manager for noncompliance determination. Subcontractor specific issues are reviewed by the Quality Engineer and likewise forwarded to the Interpretive Authority/Subject Matter

Expert/Functional Manager by the PAAA Coordinator for noncompliance determination. Trending and analysis of issues for potential repetitive or programmatic noncompliances is done by both the PAAA Coordinator and the Manager of Projects/Functional Manager and will be discussed in more detail later in this report.

In reviewing the various sources for PAAA noncompliance screening, OE/ORO concluded that BJC is almost exclusively relying upon ICATS data, which contains operational information from a number of different sources, in performing its PAAA noncompliance screening. Very few noncompliance screenings were conducted on issues identified from subcontractor internal processes (less than 1 percent of all noncompliance screening determinations performed). Noncompliance screening is almost exclusively being conducted by the BJC PAAA Coordinator, with some input being provided by the Interpretive Authority/Subject Matter Expert/Functional Manager. This practice is contrary to that indicated in the implementing procedure, which states that the Interpretive Authority/Subject Matter Expert/Functional Manager is to perform the screening and complete Part B of the CDR. A sample of ICATS issues was reviewed to assure that issues were being captured and properly evaluated. A few examples were noted of issues that were not formally screened, using the CDR, for a noncompliance determination. Of the issues reviewed, OE/ORO was in agreement with the potential noncompliance determination and the noncompliance determination criteria used were consistent with OE expectations. Documentation for screening determinations, using the CDR, was found to be complete and comprehensive. OE/ORO used all NTS reports filed by BJC over the past two years to evaluate the timeliness by which BJC completed its noncompliance screening determinations. It was found that the average time to complete the determination from time of discovery was 21 days, which seems reasonable given the number of issues which BJC screens per year.

## **V. Evaluation for Reportability**

For those issues in which it is determined that a PAAA noncompliance has occurred, as determined through the screening of issues against the applicable nuclear safety requirements, BJC evaluates these noncompliances for reportability into the NTS. An initial reportability determination is made by the PAAA Coordinator. An SRB is convened for those noncompliances which are initially determined to be NTS reportable. The PAAA Coordinator serves as chair-person for the SRB. If the SRB concurs with the initial reportability determination, a report is entered into the NTS, root cause analysis is performed, an extent-of-condition review is conducted, and corrective actions are developed. For those noncompliances which are determined not to meet NTS reportable criteria by either the PAAA Coordinator or the SRB, a root cause analysis may or may not be performed based on the significance of the noncompliance, an extent-of-condition review is conducted, corrective actions are developed, and the noncompliance is internally tracked, in ICATS, to closure.

OE/ORO reviewed all noncompliance reportability evaluations associated with BJC's NTS reports that have been submitted over the past two years and a sampling of CDRs

determined not to be NTS reportable over this same time period. The OE/ORO review concluded that BJC has consistently and appropriately applied the reporting criteria established in Table 3.2 of the OE guidance. OE/ORO did have concerns over the reportability determination for a few noncompliances associated with legacy waste. The issues largely focused around the BJC contention that they could not have reasonably been expected to have discovered the legacy issue; thus, they did not consider the issue to be NTS reportable. Although OE/ORO would agree that there may be circumstances in which this may be true, OE/ORO did not agree that this contention has merit for the specific issues under review. Additionally, OE/ORO had concerns with the BJC review of a few noncompliances which appeared to suggest that a programmatic breakdown may have occurred. Despite the potential programmatic issues, there was no indication that the noncompliances were evaluated for NTS reportability by BJC based on the potential for such a breakdown. OE/ORO recommends that additional justification be added to CDRs for potential programmatic issues that were determined not to be NTS reportable.

The review of the NTS reports filed by BJC over the past two years revealed that 47 percent of noncompliances were self-disclosed through an event, 33 percent of the noncompliances were identified through trending and analysis, and 20 percent of the noncompliances were identified through BJC assessments. This ratio of NTS reportable noncompliances identified through events, trending, and assessments is better than average for the DOE complex at this point in time. However, it is OE's expectation that BJC would further improve its assessment process so that fewer NTS reportable noncompliances would be disclosed through events and that more would be proactively self-identified through the BJC assessment process. In this regard, OE has discussed with the contractor community the goal of achieving at least a 70:30 assessment-driven to event-driven ratio by the end of fiscal year (FY) 08. This is a first step toward becoming a predominately assessment-driven complex. OE/ORO also determined that the BJC ratio of nonreportable noncompliances to NTS reportable noncompliances over the past two years has been approximately 10:1. OE/ORO considered this to be a good ratio indicating that less significant noncompliances are also being captured by BJC. Finally, OE/ORO evaluated the timeliness with which BJC submits an NTS report from the time of the noncompliance determination. The review of all NTS reports submitted by BJC over the past two years indicates the average time to submit a report is 27 days. Although this exceeds the 20 day guidance provided by OE, it is recognized that a number of the NTS reports in the review involved Unreviewed Safety Question Determinations, which often take longer to resolve.

## **VI. Cause Determination and Corrective Action Management**

The BJC process for corrective action management is contained in BJC-PQ-1210, *Issues Management Program*, revision 5, dated February 2, 2004. Captured for review are all issues related to (1) external assessment/surveillance/oversight, (2) BJC assessment and oversight activity, (3) Nonconformance Reports, (4) PAAA noncompliances, (5) Occurrence Reports, (6) trend analysis, and (7) management commitments. Issues are then evaluated for significance and an issue owner is

assigned. The Issues Review Board (IRB) then reviews all issues to (1) determine if the issue requires compensatory measures, (2) ensure that extent-of-condition is determined, (3) recognize negative trends, (4) provide feedback to the issue originator, (5) ensure that issues are properly documented, and (6) provide feedback to the Lessons Learned Program. All IRB-approved issues are entered into ICATS. The issue owner then (1) reviews ICATS for similar issues, (2) conducts a root cause analysis for significant issues or those directed by the IRB, and (3) develops an Issue Corrective Action Plan (ICAP). The ICAP is then independently validated and submitted to the Corrective Action Review Board (CARB) to determine if (1) the scope of the ICAP is acceptable, (2) the timeframe to implement the ICAP is realistic and achievable, (3) adequate resources have been assigned to successfully close the issue, and (4) an end point assessment is needed to verify successful implementation of corrective actions. The corrective actions associated with a CARB-approved ICAP are then entered into ICATS. Once the corrective actions associated with an issue have been completed, they are independently verified and, if appropriate, closed. An effectiveness review of issue-related corrective actions is then conducted. If the corrective actions are deemed effective, the issue is then closed in ICATS.

The BJC procedures used in their corrective action management system, including issue identification, causal analysis, corrective action identification, and corrective action effectiveness reviews, are well structured and integrated to include specific applications related to PAAA noncompliances. The ICATS provides an excellent centralized platform for conducting trend analyses, tracking of corrective actions, and conducting effectiveness reviews. OE/ORO did identify one assessment in which the findings discussed in the report were not captured in ICATS. However, it does appear that this is an exception, with the vast majority of issues being captured. There was some evidence of similar types of recurring issues, suggesting that there may be some weakness in BJC's causal analysis or corrective action identification/implementation or both.

## **VII. Trending for Repetitive and Programmatic Noncompliances**

BJC's requirements for trending and analysis of operational data to identify repetitive or programmatic noncompliances are found in the BJC PAAA implementing procedure BJC-PQ-1610. The Managers of Projects and Functional Managers are to "periodically evaluate non-NTS reportable noncompliances reported internally in ICATS associated with their responsible project or functional area for adverse trends to determine if collectively, a repetitive, programmatic, or management deficiency exists." Guidelines for performing this evaluation are included as an appendix in BJC-PQ-1610. In addition, the BJC PAAA Coordinator is to "continually evaluate non-NTS reportable noncompliances and issues reported internally in ICATS for adverse trends to determine if collectively, a repetitive, programmatic, or management deficiency exists warranting reporting into NTS."

One of the tools used by BJC to identify adverse trends in ICATS is the Integrated Safety Management Performance Metrics process. This monthly trending tool contains



metrics associated with worker safety, radiation safety, environmental protection, nuclear and criticality safety, security, packaging and transportation safety, waste inventory, and event notifications. OE/ORO determined that this trending tool does serve some value in identifying programmatic and repetitive trends, as required in BJC-PQ-1610. However, some of the metrics being trended lack sufficient data (especially on a monthly basis), making it very difficult to evaluate changing trends. In addition, the associated annunciator panel depicting improving, stable, or declining trends seems to evaluate the month-to-month change to determine trends rather than examining the entire data set. BJC also uses a BJC-wide Issue Trend Analysis to aid in identifying repetitive or programmatic noncompliances. This quarterly trend analysis looks at all ICATS issues and “cuts” the data in a number of different ways such as issue originating source broken down by subject matter area, subcontractor issues, subject matter areas, and direct cause code broken down by problem areas. This trend analysis tool is viewed as useful in identifying potential programmatic types on noncompliances. BJC does not have a trend analysis tool which specifically examines internally tracked noncompliances. The review of these noncompliances is done informally by the BJC PAAA Coordinator. Given the significant number of internal noncompliances currently being tracked by BJC, this informal process used by BJC would seem inadequate to comprehensively evaluate and identify potential programmatic and repetitive noncompliances. However, as stated previously, it is noted that of all the NTS reports that have been submitted by BJC over the past two years, one third are attributed to identification of programmatic or repetitive trends, indicating that BJC is actively seeking to identify these types on noncompliances.

### **VIII. Management/Independent Assessment Programs**

BJC has formally established its management and independent assessment programs based primarily on the following three procedures:

- BJC-PQ-1420, *Management Assessment*, revision 2, dated May 5, 2004
- BJC-PQ-1401, *Independent Assessment*, revision 2, dated October 21, 2004
- BJC-GM-213, *Closure Project Evaluation Board And ISMS Improvements Organization*, revision 1, dated May 1, 2003

The BJC management assessment process, as described in procedure BJC-PQ-1420, focuses both on work performance and program implementation within the eight BJC projects including Portsmouth and Paducah. Each project prepares an annual management assessment schedule based on planned and ongoing activities and their associated risk and/or impact. There are no procedural training requirements for personnel conducting BJC management assessments. OE encourages BJC to initiate formal training for those individuals conducting self-assessment or management assessments. The OE/ORO team reviewed the annual management assessment schedule for two of the eight BJC projects (Waste Management and K25/K27 Decontamination and Decommissioning) and found that a reasonable number of assessments were planned during FY05 and that the schedules were reasonably current, with a few assessments not being completed in the originally scheduled

timeframe. The Waste Management schedule did not contain the level of detail found in the K25/K27 Decontamination and Decommissioning schedule. Of particular note, the Waste Management schedule did not capture the number of issues found in the management assessments completed. In reviewing the number of issues identified in the K25/K27 Decontamination and Decommissioning schedule, it was observed that one assessor involved in several assessments had no issues identified in any of the assessments performed. This could simply represent an anomaly of the data reviewed or perhaps suggest a lack of inquisitiveness on the part of the assessor. Requirements to evaluate potential PAAA noncompliances for issues identified during the conduct of management assessments are well integrated into BJC-PQ-1420.

The BJC independent assessment process, as described in procedure BJC-PQ-1401, includes Operational Readiness Reviews/Readiness Assessments, Documented Safety Analysis Implementation Validation Reviews, Closure Project Evaluation Board (CPEB) assessments, Subject Matter Area and Implementation Reviews, and Event Review Team investigations. As with management assessments, an Annual Independent Assessments Schedule is developed prior to each fiscal year. The review of the FY05 Independent Assessment Schedule revealed that a reasonable number of independent assessments were planned, the schedule was current, and most assessments were being completed on schedule. Lead Assessors and Assessors involved in independent assessments are required to be qualified to lead or participate on independent assessment teams. Those currently holding an industry standard certification as a lead auditor are automatically qualified by BJC. Those not holding a certification are evaluated and qualified based on educational experience, training, communication skills, and assessment experience. Requirements to evaluate potential PAAA noncompliances for issues identified during the conduct of independent assessments are well integrated into BJC-PQ-1401. The OE/ORO team also evaluated the BJC CPEB independent assessment process. The CPEB was established to provide BJC with a comprehensive, independent, multidisciplined performance-based evaluation of the six BJC closure projects. The CPEB serves as a primary tool in the BJC independent assessment process. The CPEB seems comprehensive in its scope, assessing all primary functions/activities. The original BJC goal was to assess six projects in one fiscal year. However, this goal has yet to be achieved, and plans are now underway to evaluate once in each fiscal year the three projects for which each of the two super Managers of Projects (MOP) is responsible. For each function/activity in the CPEB assessment, Lines of Inquiry (LOI) are developed to evaluate compliance/performance. The PAAA function is one of the activities assessed in the CPEB independent assessments. The OE/ORO found the LOIs used to evaluate subcontractor performance in identifying, screening and reporting potential noncompliances to be very insightful and probing. The CPEB assessments used a red, yellow, and green format to evaluate overall performance in each of the functions/activities in the assessment. This evaluation is subjective and lacking a basis to reach conclusions regarding overall performance. The CPEB assessment performed March 15-26, 2004, was fairly critical of subcontractor PAAA performance as noted in the PAAA Summary section of the report. However, the overall PAAA evaluation of the subcontractors under review was "green." This apparent inconsistency seems to

underscore the subjective nature of the final evaluation. Discussions with BJC personnel revealed that the further use of the red, yellow, and green final evaluations in future CPEB assessments was being reconsidered.

## **IX. Conclusion**

The OE/ORO review determined that the BJC program currently meets DOE expectations and guidance. Some strengths and weaknesses were identified as previously discussed. OE/ORO is encouraged with the rigor by which BJC's PAAA Program is integrated with other related functions such as the BJC corrective action management program and management/independent assessment programs. OE/ORO is particularly encouraged by BJC's use of the CPEB in evaluating subcontractor PAAA performance. In addition, OE is pleased with the rigor with which PAAA noncompliance screening and reportability evaluations are documented. Weaknesses in NTS reportability evaluation as it relates to legacy issues and programmatic noncompliance identification should be addressed. Also, OE/ORO recommends that a trend analysis tool that specifically examines internally tracked noncompliances be established to aid in identifying and evaluating potential programmatic and repetitive noncompliances and that additional justification be added to CDRs for potential programmatic issues that were determined not to be NTS reportable. Further, it is recommended that PAAA refresher training be considered for those BJC personnel actively involved with the program. In addition, formal training should be instituted for all personnel responsible for performance assessment activities. Finally, enhancements to performance assessment processes should be considered to maximize opportunities to find and address precursor issues before they result in adverse safety events.

The DOE Enforcement Policy (10 CFR 820, Appendix A) provides positive incentives for contractors who identify, report, and promptly and comprehensively correct nuclear safety noncompliances. The weaknesses identified in this report, if not corrected, could impact the application of enforcement discretion in any future enforcement action.