



## Department of Energy

Washington, DC 20585

August 25, 2005

Mr. Cornelius Murphy  
President  
Fluor Fernald, Inc.  
P.O. Box 538704  
Cincinnati, OH 45253-8704

Subject: Price-Anderson Amendment Act Program Review

Dear Mr. Murphy:

From July 11-14, 2005, the Office of Price-Anderson Enforcement (OE) conducted a review of the Fluor Fernald Inc., (FFI) Price-Anderson Amendments Act (PAAA) Program. Our review included an evaluation of processes to screen noncompliances for applicability under the PAAA, reporting and tracking in the Noncompliance Tracking System (NTS) and internal tracking systems, and correcting deficiencies in a timely manner.

Overall, we found a mature, well documented program displaying many positive attributes. However, we also found a number of weaknesses that must be addressed if the program is to regain its past status as one of the better programs in the DOE complex. Program strengths follow:

- The program is staffed by experienced personnel with little turnover.
- The program is supported by comprehensive and well written procedures.
- A large number and variety of inputs are being screened for potential PAAA noncompliance issues.
- Activities of the PAAA Oversight Team have demonstrated a significant level of involvement in all aspects of the PAAA Program, including oversight of screening, causal analysis, review of corrective actions, and closure of NTS reports. However, it should be noted that the level of activity of the team had declined significantly during the six to eight months prior to this review.
- FFI has expanded upon OE guidance in developing additional, site-specific NTS reporting thresholds.
- The NTS closure and validation process is extremely rigorous.

- The PAAA Program Annual Report provides a detailed statistical description of the program. Continued use of the report presents additional opportunities for expanded trending and analysis of the data presented.

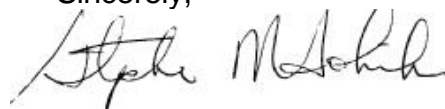
Program weaknesses included the following:

- The level of FFI NTS reporting showed a significant decline in the eight months prior to this review. OE's review of a variety of feeder documents uncovered several events or issues that should have been more thoroughly evaluated and in some cases reported to the NTS.
- PAAA screening forms provided no documented rationale for the conclusion noted on the form.
- PAAA screening determinations over-emphasized categorization of PAAA noncompliances as 10 CFR 830.122 "Work Processes" deficiencies. Underlying potential 10 CFR 835 noncompliance issues were not identified nor documented.
- The formal trending analysis conducted in conjunction with the 2004 FFI Annual Report was unnecessarily truncated. The report identified 2004 noncompliances by citation type. As indicated above, the majority of these noncompliances were categorized as 10 CFR 830.122 "Work Processes" violations. Despite this apparent striking trend, no additional actions were taken to investigate or further analyze the problem.
- Formal trending of deficiencies captured in the Radiological Deficiency Reporting (RDR) system is not being effectively performed. Informally identified RDR "problem areas" were not being investigated or captured using the Nonconformance Report (NCR) system. An apparent generic problem with Radiation Work Permit (RWP) compliance had not been formally identified.
- The FFI 10 CFR 835 assessment program is not sufficiently rigorous. The lack of findings associated with completed assessments is not consistent with the volume of radiation protection deficiencies being identified by other means.
- Over the past several years there has been a significant decrease in the number of programmatic issues identified by FFI assessments. No formal analysis or investigation has been undertaken to identify why this decrease has occurred.

Details of the OE review are provided in the enclosure. Additionally, several of the above deficiencies are subject of a Preliminary Notice of Violation and Proposed Civil Penalty. That document is provided under separate cover.

No reply to this letter is required. If you have any questions, please contact me at (301) 903-0100 or have your staff contact Roy Gibbs at (301) 903-6231.

Sincerely,



Stephen M. Sohinki  
Director  
Office of Price-Anderson Enforcement

Enclosure: Program Review Report

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## **Price-Anderson Amendments Act Program Review Fluor Fernald, Inc.**

### **I. Introduction**

During June and July 2005, including a site visit between July 11 and 14, 2005, the Department of Energy's (DOE) Office of Price-Anderson Enforcement (OE) conducted a review of the Price-Anderson Amendments Act (PAAA) program implemented by Fluor Fernald, Inc (FFI). OE staff performed the review in accordance with DOE Enforcement Guidance Supplement 00-02, *Price-Anderson Amendment Act Program Reviews*. This review evaluated (1) FFI's PAAA program pertaining to identification and screening of nuclear safety noncompliances, (2) the method for determining a noncompliance's reportability to 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. OE staff also performed a limited review of FFI's management and independent assessments conducted on the radiation protection program. One prior program review was conducted in November of 1999. The prior review found several strengths, along with some deficiencies that were subsequently corrected.

Overall, FFI PAAA program performance needs improvement. Although strong points were observed, the OE review identified several areas in which improvement is needed. These deficiencies should be addressed to ensure appropriate mitigation consideration in future enforcement actions or the potential future use of enforcement discretion that would avoid formal enforcement action.

Program strengths and weaknesses are categorized and detailed below.

### **II. General Implementation**

The FFI PAAA program is formally established by procedure MS-1008, *Identifying, Reporting, and Tracking Price-Anderson Amendments Act Noncompliances* currently in revision 14 dated 7/30/2004. This procedure establishes a system to identify, report, track, trend and develop corrective action plans for PAAA noncompliances. The PAAA program is a centralized function which reports directly to the Office of the President. FFI has established a PAAA Oversight Team consisting of four Technical Subject Experts (Quality Assurance,

Radiological Control, Safety Analysis, and Training), a legal representative, and the FFI PAAA coordinator.

The following program strengths were noted:

- PAAA program personnel are well experienced and personnel turnover has been minimal over the last several years.
- Activities of the PAAA Oversight Team have demonstrated a significant level of involvement in all aspects of the PAAA Program, including oversight of screening, causal analysis, review of corrective actions, and closure of NTS reports. Team members have been trained in formal causal analysis techniques. However, it should be noted that the level of activity of the team had declined significantly during the six to eight months prior to this review.
- The FFI PAAA Program procedure requires the completion of an investigation report including causal analysis, extent of condition review, and corrective actions for all NTS reportable noncompliances.
- In addition to meeting OE suggested criteria for NTS reporting, the FFI PAAA Program procedure includes expanded, site-specific reporting thresholds.

One weakness was noted related to PAAA training. Although PAAA training has been provided to personnel not directly involved in program implementation (i.e., program managers, etc.), requirements for such training are not contained in the PAAA Program procedure.

### **III. Identification and Screening**

OE evaluated FFI processes for screening of potential PAAA noncompliances by interview of personnel and review of selected screening documentation. Screening of information for potential noncompliances is performed by the two PAAA Facilitators, who have expertise in the areas of radiation protection, quality assurance and nuclear safety. During 2004, approximately 1200 items were screened for potential noncompliances. Non-reportable PAAA noncompliances are entered and tracked on a local PAAA database. An annual review of screening decisions is performed by the PAAA TSEs, who review a random sample of screening determinations made by the PAAA Facilitators.

OE noted that a broad set of information sources is being screened for potential PAAA noncompliances. In addition to the typical event information, deficiency and nonconformance reports, information sources include assessments (internal and external), DOE facility representative reports, employee concerns, and vendor nonconformance reports. Screening of information sources was also being performed in a timely fashion. These were noted as program strengths.

The following weaknesses were noted, in association with the identification and screening of potential PAAA noncompliances:

- Although screening determinations were typically conservative, one example was noted in which OE disagreed with FFI's determination that no PAAA noncompliance existed. The event involved the identification of legacy contamination outside posted controlled areas.
- OE noted multiple examples in which issues or upset conditions involving radiation protection (i.e., personnel contaminations, material outside posted areas) were categorized solely as 10 CFR 830.122 "Work Processes" issues. No potential 10 CFR 835 noncompliances were identified as part of the screening process.

Although the fundamental PAAA screening decision was being made correctly, this practice complicated further analysis and trending as it resulted in the majority of site PAAA issues being binned exclusively as "Work Processes" issues. See next section for additional discussion.

- Screening determinations are documented on Form FS-F-5712. OE review of multiple forms identified that little or no information is included on the completed forms to support the basis for screening decisions (i.e., why does or does not the issue represents a PAAA noncompliance).

#### **IV. Evaluation of NTS Reportability**

FFI has historically demonstrated effective performance in the area of NTS reporting. Past reporting decisions have been conservative and the site has been fairly consistent in the number of NTS reports generated per year. OE noted a decline in reporting prior to this review, with no NTS reports for the period of November 2004 through May 2005. While this could have been the result of the declining number of nuclear hazards at a closure site, OE was concerned that this failure to make any reports during the above period could also be explained by a relaxation in vigilance with respect to issues that should have been reported but were not.

As described by procedure MS-1008, trending of locally tracked PAAA issues for potential repetitive or programmatic issues is currently performed in several ways. Informal trending and analysis is performed by the PAAA Facilitators on an ongoing basis, as issues are initially screened for reportability. Issues identified by the PAAA Facilitators as being potentially reportable are referred to the PAAA Oversight Team for review. On a monthly basis, noncompliances identified during the month are reviewed and charted. On an annual basis, the PAAA database and monthly graphs are reviewed for trends and the results are reported in the PAAA Annual Report.

As part of the review in this area, OE noted several examples of PAAA noncompliances which appeared to meet NTS reporting thresholds but were not reported to the NTS. This was noted as a program weakness. Examples include the following:

- Review of Radiological Deficiency Report (RDR) logs and specific RDRs for the past 12 months described multiple events in which personnel failed to comply with site Radiological Work Permits (RWP). These ranged in significance from failure to sign in or out on the RWPs, to instances in which work had proceeded without required Radiological Control Technician (RCT) coverage and examples in which RCTs had violated requirements of the RWPs. OE has concluded these multiple RWP violations are a programmatic issue.
- The above RDR review also identified several examples of events in which radioactive material had been identified outside of controlled areas. OE views this deficiency as a programmatic issue and consequently potentially reportable, but acknowledges the trend was not as notable as the RWP issue.
- During April 2005 an event occurred in which workers twice attempted to take down a facility wall (which comprised the boundary of a contamination area) without RCT coverage. This was clearly a repetitive event.
- An additional example was noted in which the site violated a dosimetry procedure for an extended period, which impacted all thermoluminescent dosimeter (TLD) badged employees. OE views this as potentially programmatic.

Discussion with FFI personnel regarding the above events and trends identified that all of the individual events were screened and determined to be PAAA noncompliances, however, contractor trending did not identify the individual deficiencies as part of a trend or repetitive noncompliance.

The following additional weaknesses were identified as part of the review in this area:

- The formal trending analysis conducted in conjunction with the FFI PAAA Annual Report shows a breakdown for identified 2004 noncompliances by citation type. As noted in Section III, the majority of these noncompliances were binned as 10 CFR 830.122 "Work Process" violations. Despite this apparent striking trend, no additional actions were taken to further analyze and sub-divide the data or determine if a generic deficiency existed. OE consequently viewed the annual trending as limited in value.
- Discussion with members of the PAAA Oversight Team indicated that potentially reportable NTS issues are typically "brought" to the team by

individual team members or the PAAA Facilitators, and that the team does not do their own reviews of information sources (such as RDRs) to identify potential trends. OE noted this opportunity for additional involvement by the team as a potential program improvement.

## V. Corrective Action Management

### A. Quality Problem Resolution/Corrective Actions

OE review in this area focused on contractor implementation of the Nonconformance Report (NCR) process and the RDR process. These processes are controlled by the following FFI procedures:

- Procedure QA-0001, *FFI Nonconformance Identification and Tracking System*
- Procedure RP-0021, *Radiological Control Administrative Requirements*, section 7.3

Both procedures allow any individual to initiate an NCR or RDR for problems or potential deficiencies. The RDR procedure requires that an NCR be initiated for nonconforming conditions identified in an RDR that involve longer term corrective actions. Both processes also require development and assignment of corrective actions. FFI uses an electronic commitment tracking system to monitor the status of corrective actions.

OE evaluation of the above quality problem resolution processes included review of RDR and NCR logs for items identified over the past year, review of specific NCR and RDR reports, and discussions with cognizant personnel. Based on this review, OE determined that, once identified, corrective actions associated with NCRs and RDRs were being completed in a timely fashion. Review of a sample of 14 RDRs and 12 NCRs associated with nuclear safety issues identified the average time of completion to be less than one month. During a review of NTS report corrective actions for reports issued in 2004, OE found the average time from identification of the issue to completion of all actions (which typically included a verification assessment) to be approximately seven months. This resolution time is considered typical, considering the broader actions that are usually needed to resolve an NTS issue. Overall timeliness of completing corrective actions was viewed as a program strength.

The following program weaknesses were identified as part of the above review:

- Issues that are identified through the RDR process are not being effectively tracked nor dispositioned. OE determined through discussion



with the Radiological Control Manager (RCM) that RDRs are trended at the end of the year by tallying the number of RDRs occurring in each of three “problem area” categories – contamination control, personnel/work practices, and posting. Although informal actions (such as communication with responsible managers, briefings, etc.) have been taken by the RCM in response to the perceived problem areas, no NCRs have been generated to formally capture the issues, drive further analysis of the problems and their underlying causes, or develop formal corrective actions.

- As described in Section IV, OE review of the RDR logs and specific RDRs identified potential programmatic issues with RWP compliance and the control of radioactive material. These issues had not been formally identified as potential repetitive issues by FFI, and consequently no formal actions to address the issues (such as NCR generation) had been taken. OE does recognize the overlap between the potential programmatic issue of RWP compliance and the personnel/work practices “RDR problem area” as discussed above; however, as noted above, no formal action had been taken to identify or resolve the problem area.
- The FFI NCR procedure requires consideration of potential repetitive conditions or trends when processing an NCR. OE noted during review of selected NCRs that the documented NCRs do not provide evidence that such reviews took place.
- Two recent RDRs (05-029 and 05-030) described a repetitive event involving the attempted removal of a radiological area boundary wall twice in one workday without the presence of the required RCT. OE noted that the events had potential willful aspects. However, the contractor investigation into the event (as documented by RDRs) did not appear to evaluate the potential broader implications of the event. The documented RDRs did not contain adequate detail to arrive at a clear determination of the causes of the event.
- FFI is not taking rigorous actions to evaluate radiological Field Observation reports to identify potential repetitive and programmatic problems. The Quarterly and Annual summaries of these reports provide a tally of the frequency of problems in different areas, but they do not take the next steps to provide the results of an analysis of the data, identification of potential problem areas, and recommended actions to management to address them.

#### B. NTS Report Closeout

Procedure MS-1008, *Identifying, Reporting, and Tracking Price-Anderson Amendments Act Noncompliances*, establishes a rigorous process to ensure

that corrective actions for an NTS report are verified as complete prior to requesting DOE closeout of the report. The process owner responsible for the NTS corrective actions provides a corrective action completion package to the PAAA Facilitator. This package includes a documented self-assessment or surveillance confirming that corrective actions are complete. Subsequent to receipt of the corrective action package, an independent assessment is performed by the QA organization to verify that corrective actions are complete. The closure package with supporting evidence is then provided to the PAAA Oversight Team members for their review, prior to forwarding to local DOE.

OE reviewed closure packages associated with several NTS report corrective actions and found them to be complete. The FFI NTS closure process was noted to provide multiple levels of review and is considered a program strength.

## **VI. Assessment Program**

As part of this Program Review, OE evaluated implementation of the FFI management and independent assessment programs, since OE has concluded that an effective assessment program is the most proactive method to identify and address nuclear safety problems before they result in serious nuclear safety incidents. It should be noted that OE's review in this area was limited in scope, and does not constitute a comprehensive evaluation of the FFI assessment program.

FFI's independent assessment activities include the performance of Internal Quality Audits conducted by the Quality Assurance (QA) organization and Surveillances conducted by the QA and Safety & Health organizations. These activities are controlled by the following procedures:

- Procedure QA-0004, *Administration and Conduct of Quality Audit Activities*
- Procedure QA-0007, *Administration and Conduct of Surveillance Activities*

The Internal Quality Audits are conducted to determine the status and assess the adequacy and effectiveness of implementation of FFI procedures and compliance with requirements. Surveillances directly monitor an item, document or activity to verify that it conforms to specified requirements. During the period from January 1, 2004, through June 30, 2005, FFI conducted 8 Internal Quality Audits and 450 surveillances by the QA and Safety & Health organizations.

FFI management assessment activities are controlled by procedure QA-0017, *Administration and Conduct of Self-Assessment Activities*. The procedure establishes the method for organizations to assess their own work performance. From January 1, 2004, through June 30, 2005, FFI conducted 528 self-

assessments. This procedure also requires that each Division and project/program perform an annual Management Assessment of the organization. This typically involves a review of the information and assessments of the Division, program, or project performance for the year.

The following program strengths were identified:

- The QA and Safety & Health organizations are conducting a large number of direct observations of work activities (surveillances) which are identifying multiple findings.
- Review of specific assessment findings indicated that they are successfully being placed in a quality problem resolution process (primarily the NCR system).
- During the past several years FFI has placed a strong emphasis on the conduct of self-assessments, which has resulted in a large number of such assessments being completed.

The following weaknesses were noted during the above review:

- Over the past several years there has been a significant decrease in the number of programmatic issues identified by FFI assessments. No formal analysis or investigation has been undertaken to identify why this decrease has occurred.

Issues identified during FFI assessments are characterized as findings and concerns. A finding is an individual item not meeting requirements, while a concern is a determination of a programmatic breakdown or a widespread problem. Discussion with QA personnel indicated that 4 – 5 years ago, assessment concerns averaged approximately 5 to 10 percent of assessment findings. More recently, during the period from January 1, 2004 to June 30, 2005, 185 findings and 1 concern were generated as a result of assessments performed by FFI. This represents an apparent ten-fold decrease in the percentage of concerns over the past several years. FFI QA management attributed this decrease to the increasing percentage of self-assessments being conducted by FFI, with the rationale that issues were being identified earlier and were consequently not as serious or widespread. However, no formal analysis or investigation had been undertaken to support this position.

- The FFI Radiological Control organization conducts self-assessments to comply with the requirements of 10 CFR 835.102 for conducting internal audits of all functional elements of the radiation protection program every three years. FFI has identified 18 different functional areas within the radiation protection program, and assesses each of these areas once every

- three years to meet the 835.102 requirement. OE reviewed a sampling of FFI self-assessments of the radiation protection program conducted over the past two years. OE found that these assessments routinely listed areas evaluated as “SAT” (i.e., satisfactory) without findings. Data from FFI indicated that over the past three years, only two findings were identified during the performance of the radiation protection self-assessments. Further review indicated that one of the two findings was derived from an issue identified by DOE.

OE noted that the lack of findings associated with these self-assessments did not appear consistent with the volume of radiation protection issues being identified through implementation of the RDR system and through DOE assessment activities. OE subsequently reviewed the recent self-assessment of a radiation protection functional area noted as problematic elsewhere in this report (assessment 2027171, *Radiological Work Permitting and Authorization*). OE noted the self-assessment focused on flowdown of procedural requirements and review of RWP paperwork, and did not appear to review adequacy of or field level compliance with RWP requirements. OE has concluded that the current 10 CFR 835 self-assessment program is not sufficiently rigorous to confirm the adequacy of the implementation of the radiation protection program. This issue is considered a weakness in the assessment program.

## **VII. Conclusion**

This letter summarizes OE’s review of the FFI PAAA program conducted from July 11-14, 2005. Improvement items identified during the subject review should be addressed in the FFI corrective action program in order to receive mitigation consideration for any future enforcement action and to ensure that nuclear safety problems are resolved before the occurrence of an event. Any actions taken to address these items should be appropriately coordinated with the Ohio Field Office.