2001 Annual Report Price-Anderson Nuclear Safety Enforcement Program

Office of Price-Anderson Enforcement
U.S. Department of Energy

March 2002

1. ANNUAL REPORT HIGHLIGHTS

Introduction

This report describes the activities and accomplishments of the U.S. Department of Energy (DOE or Department) Price-Anderson Amendments Act (PAAA) nuclear safety Enforcement Program covering the period January 1, 2001, to December 31, 2001. This report also highlights program improvements planned for 2002. Appendix A to this report provides an overview of the Department's Enforcement Program for those who may not be familiar with the overall process.

A small, well-trained, professional, dedicated staff in the Office of Price-Anderson Enforcement (OE) administers DOE's nuclear safety Enforcement Program. Cooperative efforts between OE and DOE Field and Program Offices continue to contribute strongly to the success of the program. Accordingly, technical advisors from these offices, called PAAA Coordinators, provide valuable assistance to OE in the review and resolution of nuclear safety issues.

Procedural requirements, processes, and policies for the Enforcement Program are contained in Title 10 of the *Code of Federal Regulations*, Part 820 (10 CFR 820), and in Appendix A to 10 CFR 820. DOE enforces two substantive nuclear safety rules: 10 CFR 830 (which includes 830.120, *Quality Assurance* and 10 CFR 830.200, *Safety Basis Requirements*) and 10 CFR 835, *Occupational Radiation Protection.* Other requirements, such as the *Information Requirements* provision in 10 CFR 820.11, may be enforced under the PAAA. Under 10 CFR 708, DOE has discretion to take enforcement action against contractors that are found to have retaliated against employees for raising nuclear safety concerns. A more detailed description of DOE's Enforcement Program and the regulations upon which it is based is provided in Appendix A to 10 CFR 820. Figure 1-1 provides a summary of enforcement activities for 2001.

The goal of DOE's Enforcement Program is to improve nuclear safety in the DOE complex by providing incentives for voluntary compliance with nuclear safety requirements coupled with a credible deterrent to noncompliance. DOE expects its contractors to (1) implement measures to ensure that their activities comply with these nuclear safety requirements, (2) self-identify and report noncompliances to DOE, and (3) correct noncompliances in a timely manner. When voluntary compliance fails, DOE has a number of enforcement tools available to ensure compliance, including the authority to issue a Notice of Violation (NOV) with civil penalties to a contractor.

In 2001, OE continued to address priority problems in the areas of work controls, procurement of quality items and services, quality improvement, and worker radiological exposures. The DOE Enforcement Program issued six NOVs with civil penalties totaling $1,443,750 to DOE contractors for significant violations. Of this amount, $880,000 was waived due to the statutory exemption for specific not-for-profit contractors. Contractors self-reported 236 nuclear safety noncompliances into the Noncompliance Tracking System (NTS) for review by OE. OE reviewed 469 additional issues that were not reported into the NTS for potential Price-Anderson applicability. Figure 1-2 summarizes this information and compares it with activity from prior years. The civil penalties and monetary remedies imposed on contractors by DOE are shown in Figure 1-3. Other OE activities included the issuance of two Enforcement Letters to contractors, completion of four PAAA Program Reviews at selected sites, and issuance of two Enforcement Guidance Supplements (EGS). Additional OE accomplishments are described in Chapter 4 of this report.

Significant Enforcement Actions

The following are examples of significant enforcement actions issued in Calendar Year (CY) 2001.

Worker Exposures and Other Violations at Los Alamos National Laboratory Result In an NOV
NOV Issuance Date: January 19, 2001

Civil Penalty: $605,000 (Waived)

DOE cited the University of California, operator of DOE's Los Alamos National Laboratory (LANL), for violations stemming from several events, including an event in March 2000 at one facility where eight workers were exposed to airborne radioactive material during a leak from a glovebox auxiliary system. The NOV cited additional violations at a second LANL facility where workers performed experiments in nuclear [ ]. DOE found instances in which this facility was operated outside the limits and controls established by the Laboratory for safe operation.

Kaiser-Hill Company, L.L.C., Cited for Continuing Nuclear Safety Violations at Rocky Flats
NOV Issuance Date: July 17, 2001

Civil Penalty Amount: $385,000

DOE cited the Kaiser-Hill Company, L.L.C. (KH) for repeated failures to ensure the quality of materials procured for nuclear-related work; multiple deficiencies in complying with [ ] safety and authorization basis requirements; and deficiencies with its implementation of a building radiation safety program, which resulted in worker exposures. DOE also cited KH for failing to take effective corrective actions for previously identified problems in the areas of procurement, [ ] safety, and work controls. DOE determined that had effective corrective actions been taken, many of the deficiencies cited in the July 2001, NOV might have been avoided.

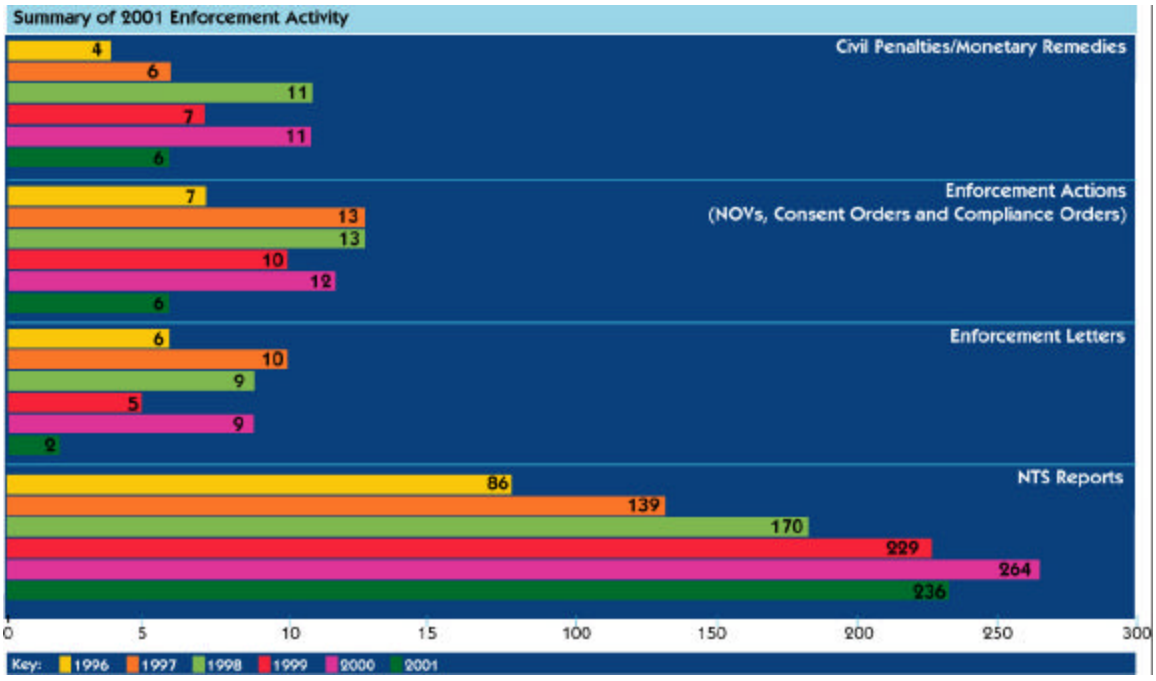


Figure 1-2

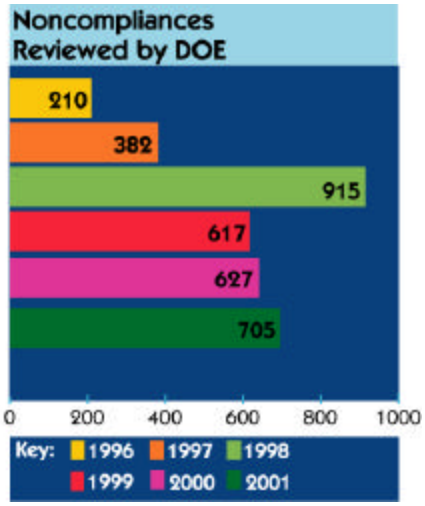
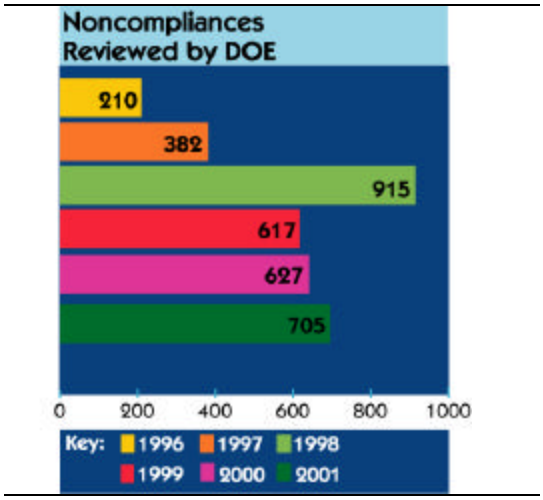


Figure 1-3



2. SIGNIFICANT ENFORCEMENT ACTIONS

In CY 2001 OE took several significant enforcement actions. The operator of Argonne National Laboratory was cited for nuclear safety violations. A contractor at Oak Ridge was cited for violations associated with a metal fire. At Mound, the contractor was cited for radiological control practices and problems in their bioassay program, and at Rocky Flats the contractor was cited for nuclear safety, procurement, and radiological protection violations. The University of California, operator of the Los Alamos National Laboratory, was cited in 2001 for violations occurring during CY 2000, which were described in OE's Annual Report for CY 2000. These actions are detailed below.

University of Chicago Cited Twice for Nuclear Safety Violations

The Argonne National Laboratory (ANL) is a multi-program national laboratory that conducts research and technology development. ANL is operated by the University of Chicago and occupies two sites. The Illinois site, Argonne National Laboratory–East (ANL-E), is located southwest of Chicago. Argonne National Laboratory–West (ANL-W) is located in Idaho.

EA-2001-01 (ANL-W)
On February 28, 2001, DOE cited the University of Chicago for nuclear safety violations that occurred at ANL-W in 2000. The enforcement action would have been accompanied by a civil penalty of $110,000, but the University of Chicago is exempt by statute from paying civil penalties.

The violations cited in the NOV included the following:

- An April 2000 event in which a worker was contaminated while patching penetration holes at the Fuel Conditioning Facility. DOE found that the laboratory failed to effectively analyze the planned work activity and its associated hazards and did not use design and administrative controls that would minimize worker exposures to radioactive materials. Although the worker intake resulting from the event was low, the activity involved the potential for significant levels of contamination.
- Identification of multiple work control deficiencies, including failing to follow procedures for moving radioactive sources at the Transient Reactor facility; violating material transfer procedures at the Fuel Conditioning Facility; and using a procedure categorization of General Information use, implying that compliance was optional, even though the procedures covered work activities in nuclear facilities.
- Management failure to conduct assessments at the Fuel Conditioning Facility. No management assessments were performed on the material control and transfer processes at the Fuel Conditioning Facility.
- Contractor failure to effectively implement a formal quality improvement effort. The contractor's processes for detecting problems were not effective, root cause analyses were not routinely performed, and corrective actions were often inadequate to resolve the problem identification. Problems in the quality improvement area had been identified repeatedly to contractor management in prior DOE reviews.

In its deliberations, DOE noted that the contractor took significant steps following the events to address the deficiencies. These steps included management changes to place greater focus on nuclear safety requirements and compliance, safety and health performance reporting to the University Board of Governors, an enhanced and more formalized work planning control process, development and implementation of quality improvement processes, and associated personnel training. In its response to the NOV, the contractor acknowledged the violations and identified additional corrective actions.

EA-2001-05 (ANL-E)
DOE cited the University of Chicago on August 14, 2001, for violations occurring at ANL-E. Had the laboratory not been exempt from fines by statute, the civil penalty associated with these violations would have been $165,000. The violations occurred in October 2000, during decontamination and decommissioning work at a former cyclotron facility, and resulted in an uncontrolled release of [radioactive material]. The release resulted in uptakes of radioactive material by seven workers. While the radiation doses to the workers were below regulatory limits, DOE is concerned about any nuclear activity that subjects a worker to an unexpected exposure.

The NOV cited the contractor for the following:

- Failure to properly identify the radiological hazards that resulted in the uptakes. Specifically, the Laboratory used subcontractor radiation safety personnel who were inexperienced in working with the radiological hazards at the facility.
- Deficiencies associated with work control, including inadequate planning, review, and conduct of work activities.
- Failure to employ effective administrative controls to keep radiation exposures as low as reasonably achievable (ALARA).

DOE determined that the contractor would not receive mitigation of the proposed civil penalty. Mitigation can be given in cases where a DOE contractor acts to report an event or if the contractor takes effective corrective actions. In making this decision, DOE cited the University of Chicago's failure to resolve repeated concerns affecting nuclear work and failure to ensure effective management assessments of its nuclear activities.

The contractor acknowledged the violations and developed a comprehensive plan to address them. One of the corrective steps involved implementing a comprehensive program of management assessments within each Laboratory division, as well as implementing a series of independent assessments.

Oak Ridge Contractor Cited For Violations Associated with Metal Fire

EA-2001-02
DOE issued an NOV and civil penalty of $41,250 to BNFL, Inc., a contractor conducting decontamination and decommissioning activities at the Department's East Tennessee Technology Park in Oak Ridge, Tennessee. The NOV and civil penalty stemmed from a metal fire in Building K-33, a former uranium enrichment facility.

The fire occurred on April 4, 2000, and was contained in a bundle of metal tubes housed in an assembly. DOE determined that BNFL failed to follow established procedures and failed to implement an effective quality improvement process to identify and correct problems. As a result, safety and worker hazards were neither fully identified nor analyzed prior to the fire.

The K-33 Building was placed into operation in 1954 to produce highly enriched uranium. The building was permanently shut down in 1987, and decontamination and decommissioning activities began in 1998.

DOE issued the NOV on March 19, 2001. BNFL acknowledged the violations, paid the civil penalty, and implemented corrective actions, including an improved work plan that addresses potential safety hazards and development of a detailed fire protection plan, to help ensure that an incident of this nature will not recur.

Contractor at Mound Cited for Radiological Control Deficiencies and Continued Problems in its Bioassay Program

EA-2001-03

The Mound Plant is located in southwestern Ohio. BWX Technologies of Ohio, Inc., (BWXTO) performs remediation work for DOE at the plant. On July 11, 2001, DOE issued an NOV and a $137,500 civil penalty to BWXTO for a series of nuclear safety violations that occurred during 2000 and 2001. The NOV cited violations in four areas.

- Violations associated with a January 25, 2001, event when a worker, who was not wearing a respirator, inhaled [radioactive material]. Fortunately, the worker's intake was low. However, multiple procedural breakdowns including inadequate work planning, inadequate hazard evaluation, and inadequate hazard control caused the event and could have led to a higher worker intake.
- Failure to properly review and test changes in the computer software meant to ensure timely turn-around time for analyzing bioassay samples. As a result, sample analyses were not performed in a timely manner. There were no actual worker exposures arising from this failure. However, DOE was concerned because the Department had previously issued a Severity Level II NOV to the contractor for similar problems, and effective corrective actions from the previous NOV could have prevented the problems cited in the July 2001 NOV.
- Multiple examples of Radiological Work Permits that failed to require appropriate bioassay monitoring for all anticipated radionuclides. As a result, workers were not fully monitored for all anticipated radiological exposures.
- Multiple failures to comply with safety-review procedures used to evaluate the potential effect of proposed changes in nuclear facilities. DOE cited similar violations in the past for which corrective action did not prevent recurrence.

Some of the violations were identified by BWXTO. Additionally, DOE recognized the extent of the contractor's comprehensive corrective actions, which were taken after the deficiencies described in the July 2001 NOV became known. In light of these factors, DOE substantially reduced the potential civil penalty to the contractor from a potential fine of $275,000 to $137,500. BWXTO acknowledged the violations and paid the civil penalty.

Rocky Flats Contractor Cited for Continuing Nuclear Safety Violations — DOE Escalates Civil Penalty Because Contractor Failed to Take Effective Corrective Actions for Previously Identified Deficiencies

EA-2001-04

The Rocky Flats Environmental Technology Site, located approximately 15 miles northwest of Denver, Colorado, produced nuclear weapon pits at one time. The plant no longer has a production mission and is undergoing cleanup of nuclear and chemical contamination. Day-to-day site operations are performed by the Kaiser-Hill Company, L.L.C. (KH), a private company under contract with DOE to conduct the cleanup and closure activities. As operator of the site, KH is required to comply with DOE's nuclear safety requirements.

In early 2001, DOE investigated a number of occurrences at the site relating to nuclear safety. The findings of the investigation and subsequent deliberations led to an NOV and imposition of a $385,000 civil penalty to the contractor. DOE issued the NOV on July 17, 2001, describing the following deficiencies.

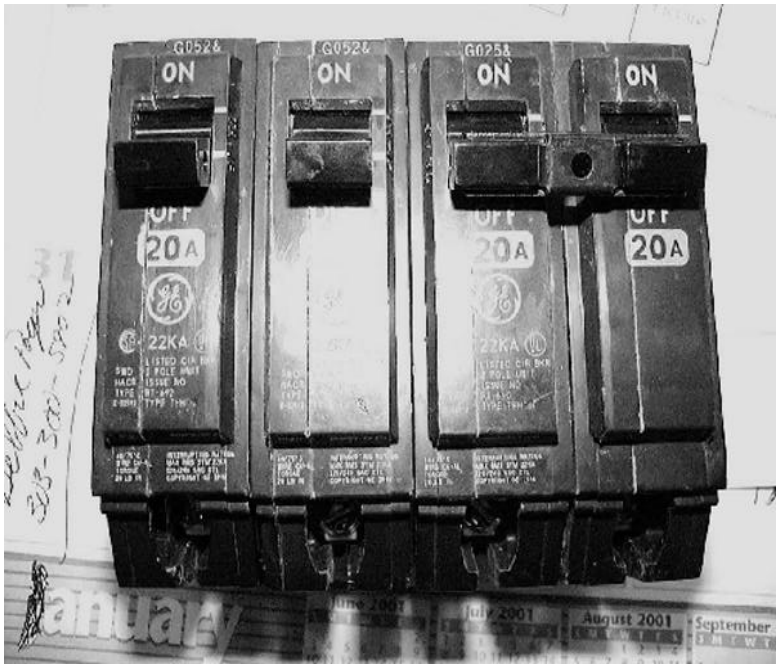
Repeated Failures to Assure the Quality of Materials Procured for Nuclear-related Work

Problems in the KH procurement program have been the subject of previous DOE enforcement actions over the past 2 years. These actions included two civil penalties and an Enforcement Letter. The July 2001 NOV cited an August 2000 event when the contractor procured 500 lids for 55-gallon drums. The drum lids were to be used in nuclear waste interim storage. The waste would eventually be shipped to the Waste Isolation Pilot Program in New Mexico. KH purchased the drum lids without conducting the mandatory quality assurance reviews required by their procedures. KH also failed to establish appropriate criteria for inspecting the lids once they were received. Ultimately, all 500 drum lids were rejected for use due to damage and defects.

Shortly following the enforcement conference for the procurement issues, KH identified another procurement-related problem. Specifically, KH had inappropriately placed into service suspect electrical circuit breakers (see Figure 2-1). The suspect circuit breakers were correctly identified by KH at receipt inspection as being suspect; however, KH failed to control the circuit breakers to ensure they would not be used. Because of the recurrent nature of procurement problems, and to emphasize the need to effectively resolve nuclear safety issues, DOE escalated the base civil penalties for the violations.

In response to these events, KH reorganized the Procurement Systems Department to report directly to the Chief Operating Officer. In addition, KH hired a replacement for the Procurement Systems Manager and strengthened internal procedures/requirements for documenting and disposing of suspect items that are identified during receipt inspections.

Figure 2-1



[ ] Safety and Work Controls

The NOV also cited multiple deficiencies in complying with [ ] safety and authorization basis requirements. These deficiencies included (1) failing to follow procedures when resizing [radioactive material] pieces into smaller pieces for packaging, (2) exceeding loading limits of containers, and (3) storing waste containers that exceeded facility limits when the nuclear material content was measured. While the safety significance of each individual event was relatively low, the recurring nature and supervisory involvement associated with several of the events required serious attention by the contractor.

In response to these findings, KH completed a "Safety Pause" in January – February 2001. During this time, waste management operations were suspended while a detailed review of work requirements and procedures was conducted and corrective actions were implemented. In recognition of the corrective actions, DOE reduced the penalty by 25 percent from the maximum amount associated with a violation of this nature.

Building 771 Radiation Safety Program

Building 771 is currently undergoing deactivation and decommissioning activities. Between August and October 2000, several events occurred in Building 771 involving deficiencies with the contractor's implementation of the building radiation safety program. The events included uptakes of [radioactive material] by four individuals, two of which resulted in significant doses, albeit below the DOE regulatory limit. Other events raised concerns regarding contractor compliance with radiological procedures, adequacy of work controls, and effectiveness of management oversight.

As a result of these events, DOE cited KH with three separate violations. KH acknowledged the violations and implemented a number of corrective actions designed to correct the deficiencies and prevent recurrence. In recognition of the corrective actions already taken by the contractor, DOE reduced the penalty by 25 percent from the maximum amount associated with a violation of this nature.

Quality Improvement Deficiencies

DOE specifically cited KH for its failure to take effective corrective actions for previously identified problems in the areas of procurement, [ ] safety,
and work controls. DOE determined that had effective corrective actions been taken, many of the deficiencies cited in the July 2001 NOV might have been avoided.

The University of California Cited for Violations at Los Alamos National Laboratory

Update on EA-2000-13

In the 2000 Annual Report, DOE reported that OE issued a formal recommendation to the National Nuclear Security Administration (NNSA) recommending that it cite the University of California, operator of LANL for violations at the Laboratory. During August 2000, OE conducted an investigation at LANL and identified several significant nuclear safety violations. The violations stemmed from several events, including an event in March 2000 in which eight workers were exposed to airborne [radioactive material] during a leak from a glovebox auxiliary system.

NNSA concurred with the recommendation and issued an NOV on January 19, 2001. In addition to the March 2000 occurrence, the NOV cited violations associated with several events at a second facility where workers perform experiments in nuclear [ ]. The investigation found deficiencies in work controls and with operating within the parameters established by the Laboratory.

LANL is exempt from civil penalty by statute. However, if LANL were not exempt, a civil penalty of $605,000 would have been assessed based on the safety significance of the violations. The contractor acknowledged the violations and developed corrective actions to address the deficiencies.

Additional details on the above enforcement actions can be found on the OE website at http://tis.eh.doe.gov/enforce.

3. CASES REFLECTING ENFORCEMENT DISCRETION

Introduction

In certain cases, it is important for DOE to communicate a particular message or view to a contractor regarding an event or condition that does not warrant formal enforcement action. In these cases, DOE may issue an Enforcement Letter. An Enforcement Letter highlights actions taken by the contractor that formed the basis for DOE's decision not to take more formal action and transmits DOE's expectations regarding correction of the problems. In CY 2001, DOE chose to issue Enforcement Letters in two instances.

Failure to Complete Corrective Actions Prompts Enforcement Letter to LANL Contractor

The Los Alamos National Laboratory (LANL), New Mexico, is operated by the University of California for the Department's National Nuclear Security Administration (NNSA). University of California personnel at LANL perform various functions for DOE, including research in nuclear physics, chemistry, metallurgy, radiochemistry, and the life sciences.

In January 2001, DOE issued a NOV to the contractor for violations relating to authorization basis and configuration management deficiencies at the Los Alamos Critical Experiments Facility (LACEF), TA-18. In response to the enforcement action, the contractor committed to implement a number of corrective actions, including in-depth training and evaluation of the design configuration requirements for the LACEF authorization basis. LANL reported to DOE that both corrective actions had been completed.

Subsequent to the reported completion of these corrective actions, failures to comply with technical safety requirements (TSR) continued to occur. For example, in July 2001, LANL personnel discovered that a TSR put in place by the contractor in September 1995 had never been performed. Moreover, on August 9, 2001, LANL informed OE that, contrary to prior representations to DOE, contractor personnel had not in fact completed an evaluation of the design configuration requirements for the LACEF authorization basis. In addition to the contractor's failure to complete a corrective action relating to design configuration requirements, the continuing TSR violations called into question the effectiveness of the contractor's corrective action for in-depth training.

DOE relies extensively on the accuracy of a contractor's statements regarding implementation of corrective actions. An inaccurate representation of a corrective action being completed is a very serious matter. In this case, DOE determined that there was no indication that the contractor intentionally provided erroneous information to DOE. Rather, the contractor's review of the LACEF authorization basis requirements fell short of being thorough enough to include all TSR surveillance requirements. Upon learning of the problem, contractor personnel at LANL took the initiative to report the problems directly to OE and to conduct a crosswalk of all TSR surveillance requirements. Therefore, DOE determined that an Enforcement Letter was appropriate for this case.

Enforcement Letter Issued to Contractor at Hanford Tank Farms for Failure to Perform TSRs

The Hanford Site is located in southeastern Washington State. Currently the site is engaged in environmental cleanup activities. CH2M Hill Hanford Group is the DOE contractor responsible for the tank waste remediation system at the site's Tank Farm Facility. Three noncompliance reports by the CH2M Hill Hanford Group became the basis for an Enforcement Letter issued during CY 2001.

Two reports involved the contractor's failure to perform the flammable gas monitoring as required by the contractor's own safety commitment. The initial condition occurred in January 2000, when contractor personnel installed a zip cord in a catch tank without first monitoring for flammable gases. In August 2000, the contractor validated corrective actions associated with this event. The contractor filed a subsequent report describing additional failures to perform required flammable gas monitoring that involved work on a contaminated liquid observation well. These failures to adhere to the contractor's safety envelope called into question the effectiveness of the processes in place at the Tank Farms to correct deficiencies and prevent recurrence.

The third report described a failure to respond to a Limiting Condition for Operation (LCO) after a Tank Farm ventilation system failure. The ventilation system includes a continuous air monitor (CAM) and a differential pressure (DP) interlock system. At least one of these components must be operational. On October 15, 2000, the CAM was inoperable for a short period of time. Unknown to the contractor, personnel had incorrectly installed a valve on the DP interlock system on September 19, 2000, and the DP interlock system was inoperable on October 15 when the CAM was not functioning. The contractor did not learn of the incorrectly installed valve until November 17, 2000.

Action taken by CH2M Hill Hanford Group to identify and report its failure to enter the LCO was commendable. However, DOE had concerns that the contractor did not detect the valve misalignment problem prior to November 17th. DOE had discussions with contractor staff regarding this matter and learned of similar problems with misalignment with this type of valve. DOE also learned that the contractor failed to act on data it obtained during required checks of the system that indicated an anomaly within the system.

All three reports are indicators of deficiencies in the quality improvement processes at the Tank Farms. In addition, the problems with the Tank Farms DP interlock systems calls into question the training and qualifications of those personnel responsible for performing DP surveillances.

The events described above did not lead to any actual adverse safety consequences to the public, workers, or environment. Given the safety significance of the systems involved in these events, DOE resolved the matters by issuing an Enforcement Letter. Due to continuing concerns by OE and in consultation with DOE-ORP, OE issued a Special Report Order on October 22, 2001, requesting that CH2M-Hill provide a written response to specific questions and issues.

4. ACCOMPLISHMENTS

Program Activity

Enforcement Guidance Supplements

DOE's enforcement procedures [1] provide the opportunity for OE to issue clarifying guidance regarding the processes used in OE enforcement activities. The vehicle OE uses is the Enforcement Guidance Supplement (EGS). In 2001, DOE issued two EGSs. Copies of these EGSs are included in Attachment B, and those from prior years are available on the OE Web site.[2]

EGS 01-01 — Nuclear Weapon Program Enforcement Issues

EGS 01-01 was issued on October 15, 2001. OE prepared this EGS in response to questions from contractors and DOE regarding the applicability and scope of Part 830, *Nuclear Safety Management*, to nuclear weapon programs and how OE intended to apply enforcement discretion. The original Part 830, effective May 5, 1994, excluded "activities conducted under the Nuclear Explosive and Weapons Surety Program relating to prevention of accidental or unauthorized nuclear detonations." Some DOE contractors were confused by the exclusion's intended breadth. Therefore, DOE's Office of General Counsel (OGC) released Ruling 1995-1 in February 1996 (61FR4209). 10 CFR 820.51 gives the OGC exclusive jurisdiction to interpret nuclear safety regulations. OGC found that the exclusion was narrow and only applied to circumstances involving immediate actions to prevent an accidental or unauthorized detonation. All other aspects of the nuclear weapons program were subject to the jurisdiction of the nuclear safety rule.

10 CFR Part 830 was amended on January 10, 2001, and completely removed this exclusion. Since then, OE has received numerous questions relating to the amended Part 830, including retroactive enforcement, actions during emergency response, contractor QA interfaces, QA noncompliance reporting, offsite weapons activities and predesign research and development work. In EGS 01-01, OE discusses its general enforcement approach to weapons-related potential violations, provides notification of implementation of a 90-day moratorium on enforcement of weapons-related issues, and addresses the six issues referenced above and any corresponding enforcement discretion for those issues. Refer to the EGS for further details and guidance. Refer to Part 830 for specific requirements in this area.

EGS 01-02 — Management and Independent Assessment

EGS 01-02 was issued December 17, 2001, in response to a need for improvement in contractor compliance with the Management Assessment and Independent Assessment requirements of the Quality Assurance Rule, 10 CFR Part 830, Subpart A, [in particular 830.122 (i) and (j)]. The rule requires that contractors conduct management assessments, which are typically management-led self-assessments, of their own activities. As an independent overlay on the management assessments, the rule also requires that independent assessments be conducted by contractors using individuals who are organizationally independent from the direct management responsible for the activity being assessed. Weaknesses noted by OE in meeting these requirements in individual cases have included the following:

1. lack of any assessment activity in some significant nuclear safety-related areas;
2. ineffective assessments in finding significant programmatic problems that were instead disclosed by an adverse event; and
3. weaknesses in implementing effective corrective actions to address assessment-identified problems and, instead, seeing recurrence of these assessment-identified problems.

These various deficiencies involved both management and independent assessment areas.

This EGS signals an increased OE emphasis in this area and describes the general approach OE will use in evaluating compliance of nuclear-safety-related Management and Independent Assessment Programs. In particular, the EGS concluded that OE will review contractor's assessment activity as the activity relates to a particular safety issue or event that is under investigation; will continue to monitor contractor reporting as it

relates to assessment program noncompliances or weaknesses; and will, as necessary, undertake specific assessment program investigations where contractor performance reflects a potential problem. Refer to the EGS for further details and guidance and refer to Part 830 for specific requirements in this area.

Program Reviews

During 2001, OE continued to conduct reviews of contractor PAAA screening and reporting processes. Program Reviews provide OE with first-hand information on program effectiveness and establish a mechanism for the feedback of program implementation lessons-learned.

By the end of 2001, DOE completed 18 Program Reviews, including 4 reviews conducted in 2001. These reviews included an evaluation of each contractor's processes for identifying, screening, and reporting potential violations of nuclear safety requirements and for managing corrective actions for the identified noncompliances. The Office provides each contractor with a Program Review Letter detailing observations, including strengths and weaknesses. These Program Reviews have provided assistance and real-time feedback, thereby helping to enhance the uniformity of PAAA noncompliance identification and reporting across the complex.

Last year, DOE issued EGS 00-02, which describes the approach taken by DOE in such reviews, the information needs of DOE to begin a Program Review, and the criteria for the reviews. A copy of that EGS is also available on the OE Web site. Copies of Program Review letters are also included on the Web site.

In the course of these reviews, the DOE review team evaluated particular events or problems that were not reported to DOE via the NTS. In some cases, DOE identified potential compliance problems, such as in processes for procurement control or quality problem resolution. In a few egregious cases, the noncompliances found by DOE led to a DOE enforcement action, although that was not the focus or intention of such reviews.

DOE intends to continue conducting such reviews in the coming fiscal year and will focus on those contractor programs that have not received such a review. Program Reviews give DOE better insight into contractor understanding and initiative in nuclear safety management.

Revised Part 830 Rule

Although OE had no hand in drafting the amendments to Part 830, the group is charged with its enforcement. Therefore, the following summary of such amendments is provided.

On January 10, 2001, DOE published a Final Rule amending Part 830 in the *Federal Register* (66 *FR* 1810), with an effective date of April 10, 2001. The rule change included several components: (1) minor revisions to the Part 830 general requirements; (2) clarification of changes to the Quality Assurance Rule (previously Part 830.120, now Subpart A); and (3) addition of Safety Basis requirements (Subpart B), including a documented safety analysis, TSRs, and an unreviewed safety question screening and review process. Further details about these areas may be obtained from the referenced *Federal Register* Notice and the particular nuclear safety requirements in the revised Part 830. The requirements of Part 830 apply to contractor-operated as well as government-operated nuclear facilities. Both Subpart A and Subpart B are nuclear safety requirements and are subject to the enforcement provisions of 10 CFR Part 820.

Very little has changed as a result of Subpart A with respect to the Quality Assurance requirements that contractors are to meet, but the breadth of the rule has been enlarged in two significant respects. First, as noted above, the nuclear explosive and weapons exclusion has been eliminated. Second, the rule now applies to DOE work wherever it takes place, without regard to whether it is at a DOE site or facility. The types of noncompliances being identified, as well as the content of quality-assurance-related NTS reports submitted by contractors, are generally similar in issues and frequency as before the rule change. Thus, the amended Quality Assurance Rule has had no substantive change on the focus or activity of OE relative to quality assurance matters.

Over the past year, OE has received a number of questions concerning potential noncompliances with Subpart B, *Safety Basis Requirements*. It is expected that as contractors continue to complete their safety basis upgrade work to comply with Subpart B, further questions and dialogue with OE will occur. Additionally, contractors filed a number of NTS reports pertaining to Subpart B in the past year. It is expected that with the issuance of the new rule, contractors will continue to file reports in this area. In general, Subpart B issues will not be enforceable in CY 2002.

EFCOG Lessons Learned Support

OE regularly participates in the industry Energy Facility Contractors Group (EFCOG) Price- Anderson Working Group sessions on Price-Anderson compliance. The Office's participation involves sharing lessons learned in the enforcement arena so similar problems can be avoided by other contractors. The Office's focus is on general problems identified by contractors and DOE, general approaches to enforcement, and lessons learned from particular closed cases. No discussion of ongoing or pending investigations or of enforcement deliberations occurs.

These EFCOG sessions also provide an opportunity for OE to ensure that all contractors are provided with a common understanding of DOE's expectations for implementing nuclear safety requirements. EFCOG has given OE a strong endorsement regarding the value of such interaction. Additionally, contractors pass along safety or compliance concerns and questions to OE in these sessions, providing valuable feedback to the Department on common compliance problems across the DOE Complex. OE will continue these EFCOG interactions, which benefit the entire Price-Anderson program.

Contractor Reporting

As reported in prior annual reports, DOE observed that some contractors were more meticulous than others in identifying PAAA noncompliances and reporting them in the NTS. Generally, DOE does not take enforcement action when a problem is identified by a contractor initiative such as a self-assessment. The exceptions involve problems that were identified by contractor initiative but were so significant and long-standing in nature that identification of the issue should have been made much earlier. Typically, in these cases the civil penalty is substantially reduced based upon the contractor's initiative. This approach is consistent with the safety philosophy communicated by DOE in the Enforcement Policy (Appendix A to 10 CFR Part 820).

DOE will continue to focus special attention on contractors that are not proactive in identifying, reporting and resolving noncompliances. Table 4-1 summarizes NTS reports generated by the major DOE contractors in 2001. These "major contractors" are contractors responsible for managing DOE's nuclear facilities. Some of these contractors manage large complex sites with many nuclear facilities. Others manage smaller sites or sites with few nuclear facilities or radiological activities, some of which are research facilities where it may be reasonable for fewer NTS reports to be input to the system. However, larger sites with many nuclear facilities or radiological hazards would be expected to enter multiple NTS reports if the contractor is aggressively identifying, reporting, and fixing problems. Thus, a relatively large number of NTS reports by a particular contractor could be indicative of positive contractor initiatives and would not necessarily lead to attention by OE. Accordingly, a direct comparison across all contractors is not appropriate. However, the table does show the wide variation in contractor use of the NTS. Contractors performing a substantial amount of nuclear-safety-related work activities but demonstrating a low NTS reporting frequency will receive special attention from OE.

Training

OE undertook several training activities in 2001 related to Price-Anderson requirements and the enforcement program. Specifically, OE undertook the following activities:

1. Conducted a 1-day intensive introductory session on Price-Anderson nuclear safety regulations, identification and reporting of noncompliances, fundamentals of the nuclear safety enforcement process, and expectations and responsibilities of Coordinators. This occurred in late November and was provided to both new DOE and contractor PAAA Coordinators.
2. Conducted a 2-day training course for DOE PAAA Coordinators. The course provided information on enforcement techniques, program changes, compliance expectations, enforcement action case reviews, reporting issues, and communication and coordination between Department offices and sites.
3. Provided input to an introductory Price-Anderson Web-based training module being developed by the EFCOG Price-Anderson Working Group. This training program is intended for general contractor and DOE workers at DOE sites.
4. Participated in several EFCOG training events throughout the year.

Awards

In 1996 the Department established the Price-Anderson Coordinator of the Year Award to recognize individual Department PAAA Coordinators for leadership and contributions to the Enforcement Program and, in turn, to nuclear safety in the DOE complex. Awards have been made each year since then. In 2001, Doug Minnema of NNSA was the recipient of this award. The Director of OE presented the award to Mr. Minnema for his contributions in developing protocols between OE and NNSA at the November 2001, 2-day DOE PAAA Coordinators training session (see Figure 4-1).

Figure 4-1

Web Site

The Department maintains an Internet Web site to provide information to Federal and contractor communities and to the general public. Relevant Federal regulations, standards, Office of General Counsel interpretations, program operating procedures, NOVs, Enforcement Letters, Press Releases, EGSs, Program Review Letters, the most recently published Annual Report, and workshop information are all available on the Web site. The Department routinely and expeditiously posts this information on the Web site to enhance communication to other contractors and the public on enforcement activity and information and to promote lessons learned in the DOE Complex. Since OE established its Web site, visitors have accessed it over 65,000 times, demonstrating that the site is a critical communications link in the DOE nuclear safety program.

Enforcement Activity

Cases Considered and Closed Without Action

In 2001, OE reviewed 705 issues for potential noncompliance with nuclear safety requirements. This number includes 236 issues that contractors reported into the NTS and 469 issues that came to the attention of OE from other sources, such as assessment reports or Defense Nuclear Facilities Safety Board staff reports. Figure 4-2 illustrates the number of issues reviewed by OE, sorted by NTS reports and non-NTS reports. Additionally, OE closed a total of 237 NTS reports. This number included NTS reports that had been reported in prior years, but which remained open until all the corrective actions associated with the reports had been implemented.

OE conducted reviews of the NTS reports and other sources of potential noncompliances and focused on the safety significance of the issues, as well as the degree to which the contractor demonstrated aggressive self-identification, reporting, and corrective action. The vast majority of issues (over 99 percent in 2001) were closed without an enforcement action because the contractor took proper actions to identify, report, and correct the problems and/or because of low safety significance of the issue. When the Department was not satisfied that appropriate actions had been taken in a safety significant matter, OE conducted a more comprehensive review.

The decrease in the number of NTS reports filed in 2001 (236 in 2001 as compared to 264 in 2000) likely reflects a combination of a better understanding of DOE's reporting expectations. This decrease in reports is modest and is not believed to represent a noticeable shift in nuclear safety compliance across the DOE complex. Table 4-1 lists the number of NTS reports filed by contractors in 2001.

Notices of Violation

OE initiated formal enforcement action in six cases where the actual or potential safety consequences were sufficiently serious to warrant action. In these cases, the Department issued NOVs to clearly communicate DOE's expectations and to document significant violations of nuclear safety requirements. DOE transmitted the NOVs via letters that included a strong message about the Department's expectations for contractors to correct the behaviors and practices that led to the violations and for them to aggressively focus on a culture that self-identifies and corrects problems before they result in serious conditions. The six NOVs imposed penalties totaling $1,443,750, of which $880,000 was waived due to statutory exemption. Table 4-2 summarizes the enforcement actions issued in 2001.

Figure 4-2

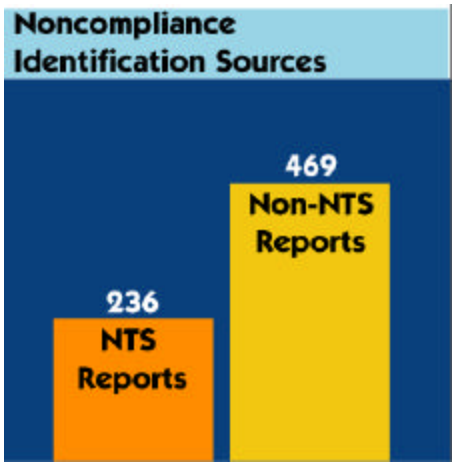


Table 4-1

Contractor	Number of 2001 NTS Reports
Ames Laboratory	1
Argonne National Laboratory – East	3
Argonne National Laboratory – West	6
Bechtel BWXT Idaho, L.L.C.	28
Bechtel-Hanford, Inc.	4
Bechtel-Jacobs Company, L.L.C.	13
BNFL, Inc.	5
Brookhaven National Laboratory	5
Bechtel National River Project	1
Bechtel-Nevada	4
Babcock & Wilcox of Ohio, Inc.	4
BWXP Pantex	8
BWXT (Y12)	9
CH2M Hill Hanford Group, Inc.	18
Fluor-Daniel Hanford	25
Fluor Fernald, Inc.	6
Kaiser-Hill Company, L.L.C.	11
IT – Nevada	1
Los Alamos National Laboratory	10
Lawrence Livermore National Laboratory	10
Mason & Hanger	4
Oak Ridge National Laboratory	22

Pacific Northwest National Laboratory	8
Princeton Plasma Physics Laboratory	1
Sandia National Laboratory	4
Savannah River Ecology Laboratory	1
Southeast University Research Association	1
Westinghouse Electric Corp.–WIPP	2
Westinghouse Savannah River Company	20
West Valley Nuclear Services	1

Table 4-2

EA No.	Contractor	Type	Sev Lev	Date Issued	CP Amount
EA-2000-13	University of California	NOV*	I & II	1/19/01	$605,000*
EA-2001-01	ANL – West	NOV*	II & III	2/28/01	$110,000*
EA-2001-02	BNFL	NOV	II & III	3/19/01	$41,250
EA-2001-03	BWXT – Ohio	NOV	II	7/11/01	$137,500
EA-2001-04	KHLL	NOV	II	7/17/01	$385,000
EA-2001-05	ANL – East	NOV*	II	8/14/01	$165,000*

5. CHANGES AND IMPROVEMENTS

Introduction

The first 6 years of experience in applying the Enforcement Program, as well as experience gained from enforcement actions, has led to some important lessons learned. As in prior years, DOE continued to review its Enforcement Program. In 2001, the Department instituted the changes noted in Chapter 4 to improve the effectiveness of the program. This chapter provides information on the principal areas where changes to and improvements in the Enforcement Program are planned for 2002.

Areas of Increased Focus by The Office of Enforcement

Management and Independent Assessment

During 2001 OE issued an EGS that provided information on how OE would view various deficiencies in the areas of management and independent assessment. This EGS outlines the types of problems or deficiencies that would be considered as potential violations, summarizes how the Office would evaluate a contractor's assessment function during an enforcement evaluation or investigation, and describes the emphasis OE will apply to this area. In 2002, OE will place increased emphasis on this area as part of its routine investigations and in its reviews of potentially significant conditions.

OE does not plan to conduct broad reviews or evaluations of assessment programs. In general OE will:

1. review a contractor's assessment activity as it relates to a particular safety issue or event that is under investigation;
2. continue to monitor contractor reporting as it relates to assessment program noncompliances or weaknesses; and,
3. as necessary, undertake specific assessment program investigations where performance indicators reflect a potential problem.

Safety Basis Compliance

With the October 2000 issuance of the revised Part 830, which includes requirements pertaining to safety bases, OE has experienced increased dialogue with contractors on these matters. Frequently OE receives requests concerning whether particular conditions represent violations of the Safety Basis provisions of Subpart B to Part 830. OE anticipates continued inquiries as contractors proceed with completion of actions to come into compliance with Subpart B.

OE does not plan any focused reviews or investigations aimed at compliance with the Subpart B requirements. However, where a contractor's work activity violates its current authorization basis documentation and the violations are associated with a significant or potentially significant conditions, DOE may take enforcement action under the Work Controls provisions of Part 830.122. These decisions would be consistent with past practices. Due to the extended implementation dates associated with the majority of the Subpart B Safety Basis requirements, enforcement actions that cite violations of Subpart B are expected to be infrequent in 2002.

Weapons Quality Assurance

OE will continue to focus on contractor nuclear weapon programs consistent with enforcement initiatives that began in late 2000.

In October of 2001, OE in coordination with NNSA, issued EGS 01-01, *Nuclear Weapon Program Enforcement Issues,* to clarify the applicability of PAAA rules to nuclear weapon programs and to describe how OE intends to apply its enforcement discretion (see Chapter 4). During development of the EGS, it became clear that several contractors had not included nuclear weapon components and activities within the scope of their PAAA programs. This omission was largely due to previously noted and unresolved misunderstandings regarding the scope of the weapons exclusion to 10 CFR 830. As a result, neither the self-regulatory aspects of contractor PAAA programs (identification, reporting, and correcting noncompliances), nor rule-required contractor plans and processes, was applied to the respective nuclear weapon activities.

To resolve this issue, OE implemented a 90-day moratorium on enforcement actions in concert with the issuance of the weapons EGS. The general intent was to provide an opportunity for contractors to review the guidance in the EGS, and if necessary, to address any PAAA rule noncompliances with ongoing nuclear weapon activities. Contractor-identified, contractor-reported, and contractor-corrected noncompliances reported in the moratorium period would not be subject to enforcement actions.

With the nuclear weapons enforcement moratorium ending in January of 2002, OE will shift its focus to reviewing newly issued NTS reports, their corrective actions, and other contractor PAAA-related initiatives associated with the nuclear and radiological safety of weapon activities. OE will also be working with NNSA to improve the integration of PAAA reporting processes with nuclear weapons activities. This work will include the development of more specific weapons-related reporting thresholds and a more formalized process for handling classified and sensitive nuclear weapons information associated with PAAA issues.

Additionally, OE will continue to review other sources of nuclear weapon program quality-problem information as it currently does with non-weapons activities. PAAA noncompliances will be reviewed, and potentially significant violations will be subject to a formal investigation and enforcement action when warranted. For example, OE and NNSA are jointly reviewing the circumstances highlighted in a recently issued DOE IG [Office of the Inspector General] Report, *Management of the Stockpile Surveillance Program's Significant Finding Investigations*. The IG review concluded that NNSA contractors are not complying with established processes for evaluating and resolving identified defects and malfunctions in nuclear weapons. OE is concerned that failing to follow these required processes may result in unresolved safety concerns and potentially may represent violations of the quality improvement section of the PAAA Quality Assurance (QA) Rule.

Other Areas of Improvement

PAAA Program Reviews

Chapter 4 provides an overview of the process used by OE in conducting PAAA Program Reviews and the status of reviews conducted to date. During 2002, OE expects to complete its "baseline review" of PAAA Program implementation by conducting PAAA Program Reviews of the remaining larger contractor organizations. In conducting these activities, OE will review the contractor's PAAA noncompliance screening and reporting functions and its corrective action and closure processes. A site visit of 2 or 3 days is generally required, and a Program Review Letter will be issued to the contractor.

Additionally, this year OE plans to undertake a limited Program Review initiative for smaller DOE contractors that are required to maintain Radiological Program Plans and Quality Assurance Plans. The structure of these reviews has not been finalized. A site visit may not be required for such

limited scope reviews of these smaller labs and contractors. Rather, OE expects it can accomplish the reviews through information requests. OE also expects that these reviews will result in a Program Review Letter that will be posted on the OE web site.

Anticipated Changes in External Factors

Continuation of PAAA

Congress enacted the Price-Anderson Act in 1957 as an amendment to the Atomic Energy Act of 1954, to encourage the development of the nuclear industry and to ensure prompt and equitable compensation in the event of a nuclear incident. DOE is required to provide Price-Anderson indemnification coverage through August 1, 2002, for any contractor conducting activities under a DOE contract that involve the risk of public liability. Specifically, the Price-Anderson system indemnifies DOE contractors and all other persons for any legal liability arising out of or resulting from a nuclear incident associated with an activity conducted under a DOE contract. The Price-Anderson Amendments Act of 1988 made three significant changes with respect to the DOE indemnification. The 1988 Amendments Act greatly increased the amount of indemnification; made indemnification mandatory in all DOE contracts; and established a system of civil penalties for DOE indemnified contractors, subcontractors, and suppliers.

With the impending expiration in Price-Anderson coverage after August 1, 2002, DOE prepared a report to Congress documenting its position on DOE responsibilities pursuant to the Price-Anderson Act, and providing recommendations on continuation of Price-Anderson[1] indemnification provisions. In its report, DOE stated it was convinced that the indemnification provisions applicable to its activities should be continued without any substantial change for the following reasons:

1. It is essential to DOE's ability to fulfill its statutory missions involving defense, national security and other nuclear activities.
2. It provides omnibus coverage of DOE contractors and all other persons (including members of the public) that might be affected by DOE's nuclear activities.
3. It indemnifies fully all legal liability up to the statutory limit on such liability (approximately $9.43 billion for a nuclear incident in the United States).
4. It is cost-effective, and there are no satisfactory alternatives.

Specifically, DOE made five recommendations in its report to Congress:

1. The DOE indemnification should be continued without any substantial change;
2. The amount of the DOE indemnification should not be decreased.
3. The DOE indemnification should continue to provide broad and mandatory coverage of activities conducted under contract for DOE.
4. DOE should continue to have authority to impose civil penalties for violations of nuclear safety requirements by for-profit contractors, subcontractors and suppliers.
5. The Convention on Supplementary Compensation for Nuclear Damage should be ratified and conforming amendments to the Price-Anderson Act should be adopted.

OE expects that legislation will be forthcoming to extend this indemnification. Various versions of this legislation have also included the removal of the exemption from civil penalty for certain DOE Laboratories. If this change to PAAA is included, it is not expected to have any practical implication on the enforcement program, other than actual application of fines where these previously have been specified but waived due to the standing exemption.

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[1] *Report to Congress on the Price-Anderson Act*, submitted March 18, 1999.

ACRONYMS

ALARA	as low a reasonably achievable
ANL–E	Argonne National Laboratory – East
ANL–W	Argonne National Laboratory – West
BWXTO	BWX Technologies of Ohio
CAM	Continuous Air Monitor
CFR	Code of Federal Regulations
CY	Calendar Year
DNFSB	Defense Nuclear Facility Safety Board
DOE	Department of Energy
DP	differential pressure
EFCOG	Energy Facility Contractors Group
EGS	Enforcement Guidance Supplement
KH	Kaiser-Hill Company, LLC
LACEF	Los Alamos Critical Experiments Facility
LANL	Los Alamos National Laboratory
LCO	limiting condition of operation
NNSA	National Nuclear Security Administration
NOV	Notice of Violation
NTS	Noncompliance Tracking System
OCG	Office of the General Counsel
OE	Office of Price-Anderson Enforcement
PAAA	Price-Anderson Amendments Act
TSR	Technical Safety Requirements