

1. ANNUAL REPORT HIGHLIGHTS

Introduction

This document provides a report on the activities and accomplishments of the U.S. Department of Energy (DOE or Department) Price-Anderson Amendments Act (PAAA) nuclear safety Enforcement Program for calendar year (CY) 2000. This document also highlights program improvements planned for 2001.

The Office of Price-Anderson Enforcement (PA-Enforcement) is responsible for implementing the program to ensure compliance with DOE's nuclear safety requirements. Technical advisors from DOE Field and Program Offices, called PAAA Coordinators, are critically important to successful implementation of the Enforcement Program. Appendix A provides an overview of the DOE Enforcement Program for those who may not be familiar with the overall process.

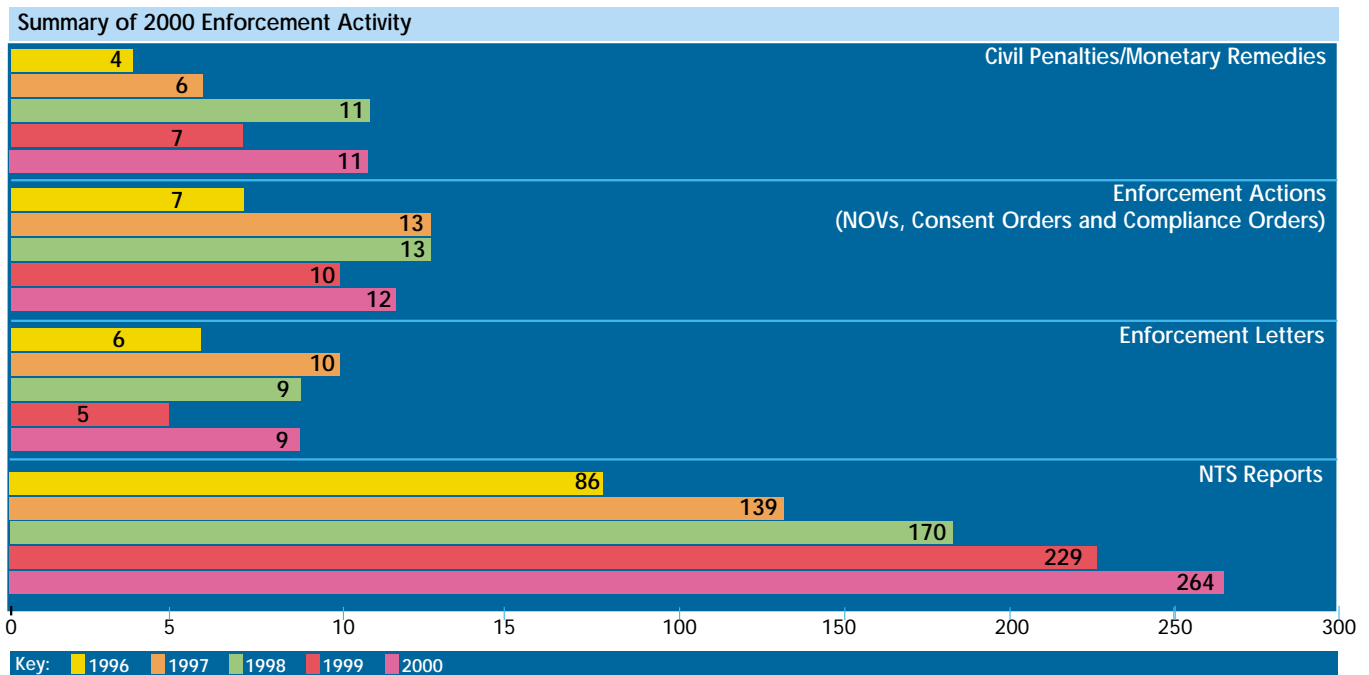
Procedural requirements and processes for the Enforcement Program are contained in Title 10 of the *Code of Federal Regulations*, Part 820 (10 CFR 820), and in Appendix A to 10 CFR 820. DOE enforces two substantive nuclear safety rules: 10 CFR 830 (which includes 830.120, *Quality Assurance*, and 10 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 Contractor Employee Protection Program*), DOE may also take enforcement action against contractors that are found to have retaliated against employees for raising nuclear safety concerns.

The goal of DOE's Enforcement Program is to provide incentives for voluntary compliance with nuclear safety require-

ments, 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, including the authority to issue a Notice of Violation (NOV) with civil penalties to the contractor when safety significant violations occur.

In CY2000 the Enforcement Program continued to address priority problems in the areas of work controls, procurement of quality items and services, quality improvement, worker radiological exposures, and compliance in Authorization Basis requirements. Overall, the workload of PA-Enforcement increased in

Figure 1-1



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complexity during CY2000. Also during this calendar year, Congress created a new organization, the National Nuclear Security Administration (NNSA), to oversee DOE laboratories and facilities that comprise the U.S. nuclear weapons complex. PA-Enforcement will continue to identify and investigate potential PAAA violations at these laboratories and facilities, in close coordination with NNSA, pursuant to a Memorandum of Understanding (MOU). The regulatory process is unchanged with one exception: the Administrator of NNSA will sign all formal Enforcement Actions.

DOE issued nine NOV's to DOE contractors, citing significant violations, and negotiated three Consent Orders in CY2000. Eight of the NOV's imposed civil penalties, and all three Consent Orders included monetary remedies. The civil penalties and monetary remedies collectively totaled \$1,916,250.¹ Figure 1-1 provides a summary of DOE's CY2000 enforcement activities.

Contractors self-reported 264 nuclear safety noncompliances into the Noncompliance Tracking System (NIS) for PA-Enforcement review. PA-Enforcement reviewed 627 additional issues that were not reported to the NIS for potential Price-Anderson applicability. Figure 1-2 summarizes this information (i.e., potential noncompliance issues that were not reported in the NIS) and compares it with activity from prior years. The civil penalties and monetary remedies imposed on contractors by the Department are shown in Figure 1-3. Other PA-Enforcement activities included the issuance of nine Enforcement Letters to contractors, completion of eight PAAA Program Reviews at selected sites, and

issuance of four Enforcement Guidance Supplements (EGS).

Examples of Significant Enforcement Actions

The following are examples of significant CY2000 enforcement actions.

Westinghouse Savannah River Worker Exposures

DOE cited Westinghouse Savannah River Company (WSRC), operator of DOE's Savannah River FB Line facility, for lax safety practices that led to a release of [radioactive material] from a defective weld on a [radioactive material] storage can and the resultant intakes of [radioactive material] by workers. The exposure to one of the workers exceeded DOE regulatory limits. The PA-Enforcement investigation identified several other violations that contributed to the event, including the following:

- o lack of adequate processes to ensure integrity of the welds,
- o failure to follow procedures during the work activity and in response to the release, and
- o lack of adequate radiological surveys.

The NOV also charged WSRC with failing to effectively correct safety problems known to exist following an incident in 1996, when a worker received an exposure in excess of the regulatory limit.

Civil Penalty - \$220,000

Figure 1-2

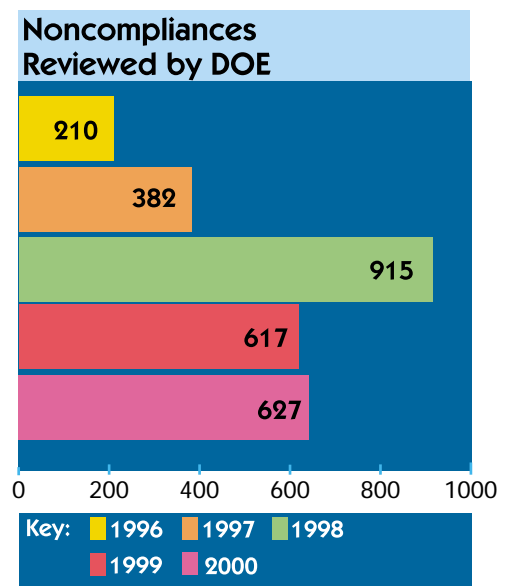
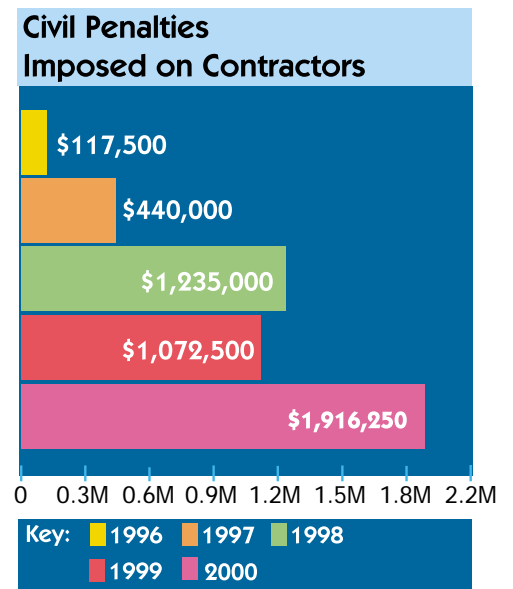


Figure 1-3



¹ Civil penalties imposed on contractors totaled \$1,691,250. Monetary remedies totaled \$225,000. Of the total civil penalty amount, \$137,500 was waived due to the statutory exemption for specific not-for-profit contractors.

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Lockheed-Martin Quality

Assurance Violation at Oak Ridge

DOE cited Lockheed-Martin Energy Systems (LMES), operator of the Y-12 facility at Oak Ridge, for multiple violations of nuclear safety requirements. The NOV included a civil penalty of \$1,045,000. The Administrator of DOE's NNSA issued the NOV after PA-Enforcement conducted an investigation. The investigation determined that numerous quality assurance violations took place in the following areas:

- o An explosion of sodium potassium liquid metal in [a facility] occurred on December 8, 1999, resulting in injury to 11 workers;

radiological material in adjacent areas of the facility was not affected. Violations involved failing to follow approved procedures, conducting certain activities without an approved procedure, and failing to identify and mitigate the explosive hazards associated with this material, despite a number of opportunities to do so.

- o Violations of criticality safety requirements and work process controls occurred, resulting in a DOE-ordered operational stand-down on November 5, 1999, and curtailment [radioactive material movements in a building] on December 14, 1999.
- o Significant deficiencies occurred in the design, procurement, and fabrication

of the new Hydrogen Fluoride Supply System (HFSS), a critical system required for resumption of [] operations. PA-Enforcement identified failures with virtually every phase of the project. Failures were identified in vendor qualification, configuration management, vendor oversight, tube and pipe welding, inspection and acceptance testing of welds and system components, system turnover, and operations.

- o Several other violations occurred involving failure to adhere to Operational Safety Requirements (OSR) and other Authorization Basis requirements.

Civil Penalty - \$1,045,000

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2. SIGNIFICANT ENFORCEMENT ACTIONS

Enforcement Actions

Multiple Radiological Exposures of Workers at Savannah River

DOE issued an NOV and fined WSRC \$220,000 on July 18, 2000, for violating DOE's nuclear safety rules at the Savannah River Site in Aiken, South Carolina. The NOV and penalty stemmed from a September 1999 event in which eight workers received intakes of [radioactive material] with one receiving a dose in excess of the regulatory limit. The workers were exposed to [the radioactive material] at the site FB-Line Facility while preparing [] storage containers for transfer to another onsite location. A defective weld in one of the containers allowed [the radioactive material] to be released, activating the alarm on an adjacent air monitor.

Although the exposure did not cause any immediate health consequences to the workers, one worker's exposure exceeded the Federal limit established in DOE's regulation, 10 CFR 835 (*Occupational Radiation Protection*). A PA-Enforcement investigation found that several factors contributed to the accident, including the following:

- o WSRC did not have effective processes in place to ensure the integrity of the welds on storage containers. Additionally, the contractor failed to formally analyze prior similar weld problems, representing a missed opportunity for potential process improvements.
- o During work and event response activities, operators did not follow approved work control procedures and did not adequately monitor the work being performed for radiation hazards. A required contamination survey of the [] storage containers was not performed before the operator handled the containers or removed them from the posted airborne radioactivity area. After airborne radiation alarms sounded in

the work area, workers assumed the alarms were false and failed to respond immediately. Required radiological surveys were not immediately performed on the highly contaminated operator who exited the posted airborne area (vault) after the alarm sounded. At least one worker, who was not present during the accident, was cross-contaminated as a result.

- o Management did not ensure that effective design features, such as adequate ventilation, were in place to ensure that exposures were as low as reasonably achievable (ALARA).

WSRC admitted the violations identified in the NOV and paid the \$220,000 civil penalty. The contractor also took rigorous corrective actions, including completing an inspection of all similarly welded containers for leaks and improving the welding and inspection processes.

Multiple Quality Assurance Violations at Oak Ridge Y-12 Site

On August 24, 2000, DOE issued an NOV to IMES, the operating contractor at DOE's Oak Ridge Y-12 site. The NOV cited 19 violations of nuclear safety requirements involving (1) the design, procurement, and fabrication of the new HFSS; (2) a sodium-potassium (NaK) explosion in [a] facility; (3) an operational shutdown and [radioactive] material movement shutdown in [a building]; and (4) violations of the site-wide Authorization Basis. The following is a brief description of each of these issues.

- o The new HFSS is intended to replace the existing system at Y-12. []
]. A leak or system failure could lead to a release of radiological material and/or HF, endangering workers or the public. In April 1998, DOE identified concerns with the

welds on the new HFSS that clearly did not meet installation requirements. In May 1999, additional welding defects were found, as were problems with other design and fabrication aspects of the HFSS. These problems were identified before the new HFSS became operational. PA-Enforcement conducted an investigation into the HFSS problems. The investigation revealed (1) deficiencies in the contractor's procurement control and vendor selection and qualification processes; (2) design problems related to design change control; (3) work control problems related to numerous procedural violations; (4) document and records problems related to weld results; (5) inspection and testing problems related to non-performance or improper performance of required tests; and (6) quality improvement problems related to inadequate trending of data, lack of follow-through by IMES on identified weld problems, and improperly processed nonconformances.

- o On December 1, 1999, workers in [a] facility were changing out the crucible in a skull caster furnace. An NaK liquid metal alloy cools this crucible, and the crucible change-out involved removing the NaK by draining it into a sump. Workers encountered difficulties in removing the NaK, resulting in several gallons of NaK being sprayed into the furnace. Over the next several days the contractor developed a plan to recover the spilled NaK. Then, on December 8, 1999, an explosion occurred while workers were attempting to remove the NaK from the interior surface of the crucible. The explosion injured 11 workers, and 3 of them required hospitalization. The explosion did not affect nuclear material in this nuclear facility, although such material was located in an adjacent area. The investigation into the NaK explosion revealed numerous quality assurance

Significant Enforcement Actions

breakdowns, including (1) work control problems associated with several procedure violations and performing work without approved procedural controls; (2) inadequate training of workers; and (3) failure of IMES to recognize and act on previous, related problems.

- o On November 5, 1999, DOE initiated an operational stand-down for [radioactive material operations in a building]. This stand-down resulted from issues DOE identified during a Readiness Assessment when demonstrating that [the organization] was able to safely resume additional activities in the facility following the 1994 shutdown of operations. DOE identified several activities that were being conducted without approved procedural controls or in violation of approved procedures. Then, on December 13, 1999, DOE discovered that [radioactive] material was stored in violation of criticality safety limits and requested IMES to investigate other storage areas. Following their investigation, IMES declared, that no other safety limit violations existed; however, DOE found additional violations of criticality safety limits. On December 14, 2000, DOE exercised a "Stop Work Authority" and suspended [radioactive] material movement activities in [the building]. The PA-Enforcement investigation of these actions revealed that (1) IMES failed to correct known deficiencies in [the building] when they were first identified by DOE; (2) workers were not adequately trained; and (3) workers had failed to follow written procedures on numerous occasions.
- o On June 10, 1999, PA-Enforcement issued a *Special Report Order* (SRO) to IMES directing the contractor to provide information about what actions IMES was taking to correct DOE-identified programmatic deficiencies related to violations of OSRs

(Operational Safety Requirements) and other authorization basis requirements. IMES did not propose any short-term actions to address the programmatic problem in their response to the SRO. PA-Enforcement investigated the OSR and Authorization Basis requirement violations after IMES responded to the SRO. PA-Enforcement found some improvement in this area, but also found that these problems continued to occur.

As a result of these four issues, DOE cited IMES for 19 Severity Level II violations of its quality assurance requirements, for a total civil penalty of \$1,045,000. DOE determined that mitigation was not appropriate or justified in calculating the civil penalty as the Department believed the various issues and numerous violations reflected a widespread weakness in the implementation of the Y-12 quality assurance program by IMES.

Kaiser-Hill Fails to Complete Corrective Actions to Resolve Prior Enforcement Issues

On January 24, 2000, DOE issued an NOV and a \$55,000 civil penalty to Kaiser-Hill Company, LLC (KHLL), operator of the Rocky Flats Environmental Technology Site (RFETS) in Colorado, for failing to adequately implement the aggressive corrective actions it had committed to in response to a previously issued NOV. This second NOV and civil penalty followed an \$82,500 civil penalty issued in August 1999 to KHLL for problems with its procurement processes. In the 1999 case, PA-Enforcement found that, among other violations, the contractor had purchased 69 defective nuclear waste containers. KHLL did not adequately evaluate the quality controls used by the supplier of the containers and failed to follow its own quality assurance controls. Thus, the containers, if used, were vulnerable to leaks or other structural failures. DOE decided to defer enforcement action on additional similar violations if KHLL took

effective corrective actions to prevent recurrence of the problems.

A later PA-Enforcement review found that the site continued to have problems in the area of procurement. For example, garments procured to protect workers from radioactive contamination were found to be defective and splitting at the seams. DOE issued the NOV and civil penalty to emphasize the need for KHLL to ensure that corrective action commitments are fully implemented and are sufficiently comprehensive to prevent recurrence. KHLL accepted the second NOV as well, paid the civil penalty, and committed to aggressive actions to prevent recurrence. The Department's action demonstrates its intent to ensure, not only that contractors comply with nuclear safety requirements, but also that the contractor is expected to correct those problems in a timely manner.

Defective Pipe at Hanford – Contractors Enter Consent Orders

In July 2000, Fluor Federal Services (FFS) and CH2M Hill Hanford Group (CHG) resolved an investigation of nuclear safety noncompliances at the DOE's Hanford Site in Washington State by separately entering into Consent Orders with DOE.² DOE agreed to resolve the issues using Consent Orders after determining that both companies promptly identified and investigated the issues and took prompt, thorough corrective actions. In lieu of civil penalties, the two companies paid monetary remedies of \$100,000 (FFS) and \$50,000 (CHG).

The Consent Orders describe quality assurance problems with the procurement of pipe intended for use in underground nuclear waste transfers. CHG manages the nuclear waste storage Tank Farm Facility at the Hanford Site, where the pipe was to be installed. FFS was a subcontractor to CHG and was responsible for ordering and installing the pipe. FFS ordered the pipe from Perma Pipe, a subcontractor. Perma Pipe delivered the pipe to FFS,

² DOE's authority for closure of investigative matters through the use of a Consent Order is provided in 10 CFR 820.23, *Consent Order*.

Significant Enforcement Actions

which conducted a receipt inspection and accepted the pipe for use. However, just before installing the pipe, observant FFS pipefitters discovered problems with pipe welds.

Both FFS and CHG conducted internal investigations of the pipe weld problems, and FFS underwent a supplier audit at the request of CHG. These investigations revealed that both contractors had problems with their quality assurance programs. PA-Enforcement conducted a review and determined that both contractors had conducted comprehensive reviews of the occurrence and had implemented appropriate and effective corrective actions. Due to the comprehensive nature of the contractors' investigations, DOE's confidence in the thoroughness of those reviews, and the contractors' prompt and broad corrective actions, DOE decided to exercise the Consent Order approach to realize benefits to both DOE and the contractors. Such an approach benefits PA-Enforcement because it reduces the level of resources required to bring an investigative matter to closure. These resources can then be focused on other contractors who are less aggressive in uncovering and correcting problems. The contractor benefits, as well, by (1) avoiding the demands of a full investigation by PA-Enforcement, (2) avoiding the formal enforcement closure process associated with an NOV, and (3) resolving the matter more expeditiously.

Enforcement Cases Referred To NNSA For Signature

Significant Multiple Radiological Exposures and Other Problems at Los Alamos

On November 14–15, 2000, DOE held Enforcement Conferences with officials of the Los Alamos National Laboratory (LANL), New Mexico, to discuss serious nuclear safety problems occurring at

Technical Area 55 (TA-55) and Technical Area 18 (TA-18). Following the Enforcement Conferences, PA-Enforcement formally recommended that NNSA issue an NOV to LANL citing significant violations of DOE nuclear safety requirements.³

The University of California (UC), under a management and operations contract with DOE, manages LANL. TA-55 houses chemical and metallurgical processes for recovering, purifying, and converting [radioactive material] into many forms and compounds. TA-18 facilities are used for general-purpose criticality experiments. PA-Enforcement conducted an investigation and found numerous problems at TA-55 associated with a March 16, 2000, [radioactive material], multiple-intake event at TA-55 and a 1998, [radioactive material] intake at TA-55. PA-Enforcement also found numerous longstanding problems at TA-18 with Authorization Basis and configuration management compliance.

During the March 16, 2000, TA-55 event, eight workers were exposed to airborne [rad. mat.]. Five of the eight were later determined to have detectable intakes of [rad. mat.]. One of the workers had been conducting maintenance on a glovebox; the other workers were conducting other activities. Although final dose estimates have not been completed, it is apparent that one worker significantly exceeded the Department's regulatory annual exposure limit (reference 10 CFR 835), and two other workers may also have exceeded the limit. The safety significance of this event was high, as reflected by the number of workers involved and the magnitude of the resultant radiological exposures. A DOE Type A Investigation Board estimated the intakes to be among the 10 worst radiological intake events over the past 41 years within DOE and its predecessor agencies.⁴ PA-Enforcement's review at TA-55 concluded that the March 16, 2000, event also included various quality assurance issues, including procedure

violations, equipment labeling deficiencies, and quality improvement problems.

DOE also investigated a 1998 worker overexposure at TA-55, identified through routine bioassay program implementation. Additionally, the investigation evaluated several other more recent events, including a May 24, 2000, continuous air monitor alarm event and a July 11, 2000, unauthorized, gas-line venting event. These other events were found to reflect deficiencies in work control and formality of operations similar to those observed during the March 16, 2000, event. PA-Enforcement's investigation concluded that numerous violations of DOE's radiological protection (10 CFR 835) and quality assurance (10 CFR 830.120) rules occurred in these TA-55 events.

The violations that PA-Enforcement identified in its investigation of TA-18 activities included instances of inoperable safety equipment and instruments. For example, for over a year LANL operated the Flattop Critical Assembly without repairing a defective control device. In another instance LANL operated the Solution High Energy Burst Assembly (SHEBA) Critical Assembly with a misconfigured power indication instrument. As a result, the SHEBA Critical Assembly was operated at a power level approximately 10 times higher than permitted by the facility's experimental plan.

Additional problems with the SHEBA occurred when TA-18 management continued to operate the facility after obtaining information from an expert that the SHEBA could generate [an unanticipated hazard

]. Other examples of problems at TA-18 involve inadequate post-maintenance testing of safety-related instruments and inadequate completion of corrective actions for deficient conditions at the Critical

³ NNSA subsequently issued the NOV to LANL on January 19, 2001.

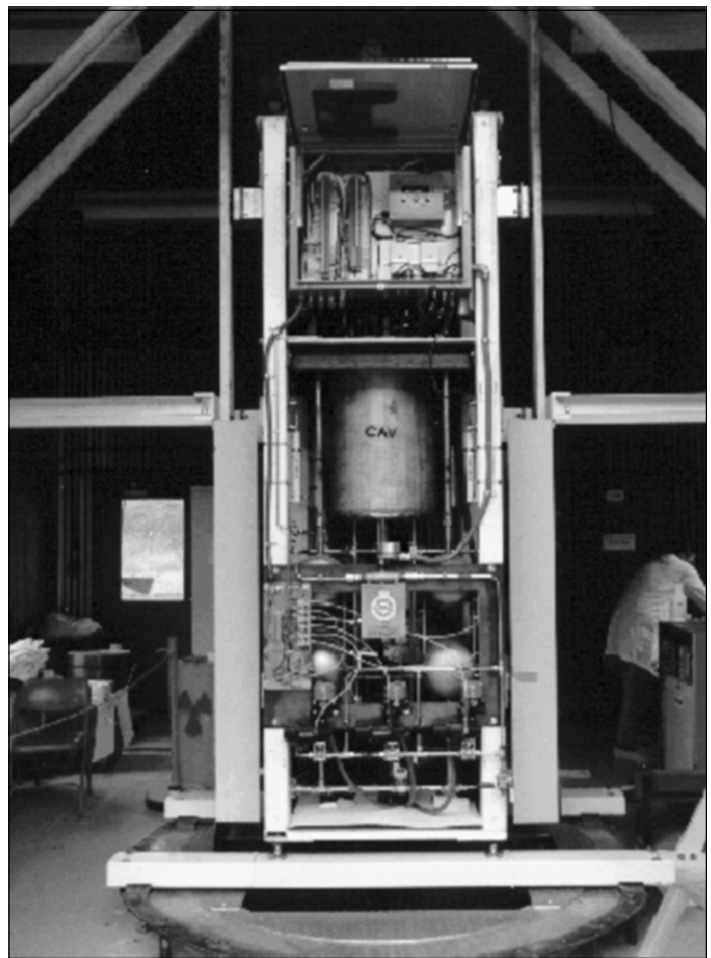
⁴ []

Significant Enforcement Actions

Assemblies. PA-Enforcement concluded that many of these deficiencies were longstanding and should have been identified during routine assessments and reviews of Authorization Basis documentation. PA-Enforcement's investigation concluded that violations of DOE's *Quality Assurance Rule* (10 CFR 830.120) occurred for these TA-18 events.

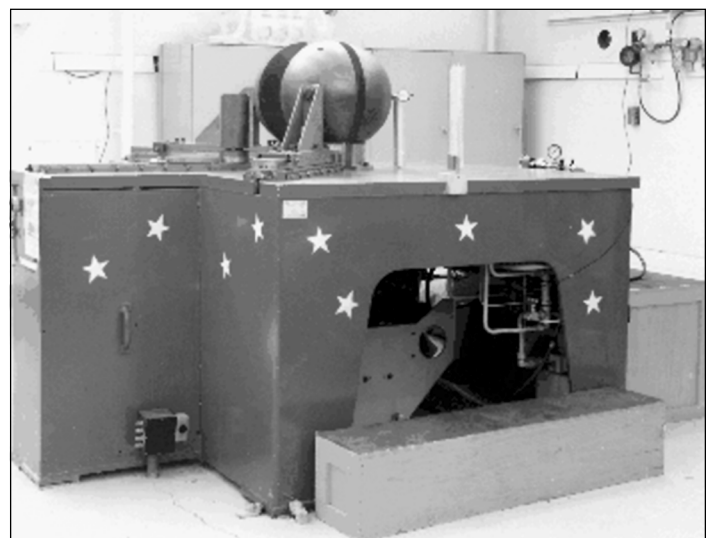
DOE was also concerned that many of these problems were similar to the programmatic problems found in a prior investigation and enforcement action for the Chemical and Metallurgy Research Facility (CMR) of September 1998.⁵ At that time, LANL committed to site-wide corrective actions to address the work control problems found at CMR. These problems involved failing to comply with procedures, conducting unauthorized work, and failing to stop work when it was being performed outside authorized conditions. PA-Enforcement concluded that the continuing work control deficiencies at TA-55 and TA-18 indicate that corrective actions undertaken in response to the earlier CMR work control issues have not been effectively implemented and translated to TA-55 and TA-18. This matter also was considered to represent a broader violation of the Part 830.120 quality assurance requirements pertaining to quality improvement.

Figure 2-1



Solution High Energy Burst Assembly (SHEBA) critical assembly

Figure 2-2



Flattop Critical Assembly

⁵ EA-98-10

3. CASES REFLECTING ENFORCEMENT DISCRETION

Introduction

DOE has the discretion to defer enforcement action under certain circumstances. DOE's use of this discretion serves as an incentive to contractor participation in the desired safety management culture. In CY2000, DOE chose to exercise this discretion in a number of instances. In many cases the Department deferred enforcement action because the contractor took the initiative in identifying and reporting noncompliances and in implementing comprehensive corrective actions prior to the occurrence of a significant event. In most cases when the Department declines to pursue enforcement action, PA-Enforcement will close the noncompliance after it confirms completion of comprehensive and timely corrective actions. The largest number of noncompliances by far are resolved in this manner during the course of the year. However, in some cases when DOE decides to defer enforcement action but believes that the issues warrant discussion on the record, DOE may issue an Enforcement Letter.

The following cases are examples of instances in which DOE chose to exercise enforcement discretion and issue Enforcement Letters to the contractor. These letters transmitted the Department's view of the issues and its expectations regarding resolution of the issues.

Quality Assurance and Radiation Protection Issues at WIPP

The DOE Waste Isolation Pilot Plant (WIPP) is located near Carlsbad, New Mexico. WIPP is licensed to store [radioactive] waste from DOE activities in an underground repository. WIPP began operations in March 1999 and is managed by the Westinghouse Waste Isolation Division under contract to DOE.

In 1999 and 2000, the contractor evaluated its work activities at the site. During these evaluations the contractor self-identified deficiencies in its ALARA program, as well as other programs, and reported the issues into the NTS. The specific issues identified and reported by the contractor are described below:

- o On September 7, 1999, the contractor reported programmatic deficiencies with the site ALARA program after it identified the deficiencies during an internal audit.
- o The contractor reported a noncompliance with site procedures that occurred on August 27, 2000, when facility ventilation was shifted from filtration to nonfiltration mode without appropriate notification to radiological control personnel. The contractor's investigation of this issue identified additional noncompliances in configuration management and work control associated with Continuous Air Monitor testing.
- o On May 25, 2000, the contractor reported noncompliances related to personnel entries into posted radioactive material areas.
- o On July 28, 2000, the contractor reported problems with procurement documentation.

In each of these matters, the contractor conducted a thorough review and developed and implemented comprehensive corrective actions. DOE concluded that the contractor had taken appropriate actions to self-identify and correct the noncompliances, and thus determined formal enforcement action was not warranted. Additionally, the contractor's corrective actions, coupled with its continued proactive efforts to identify, trend, and report noncompliances, were key factors in DOE's decision.

Savannah River Ecology Laboratory Fails to Use Appropriate Radiation Protection Controls After Receipt of Radioactive Environmental Samples from the Ukraine

The Savannah River Ecology Laboratory (SREL) is located at DOE's Savannah River Site near Aiken, South Carolina. Its mission is to conduct environmental studies in support of DOE operations and defense programs. SREL is operated by the University of Georgia and is funded primarily through a contract with DOE.

In September 1999, SREL received radioactive samples from the Ukraine and failed to use appropriate labeling, monitoring, and controls for these samples. SREL reported these deficiencies into the NTS in March 2000.

A review of the events by PA-Enforcement noted that several violations of 10 CFR 835 probably occurred. PA-Enforcement was particularly concerned about the contractor's lack of timeliness in formally reporting the deficiencies to DOE. However, the review also determined that corrective actions taken and planned by SREL were generally comprehensive and that the radiological hazards (and thus potential consequences) associated with the event were small. Therefore, DOE refrained from taking formal enforcement action in this case and issued an Enforcement Letter on June 7, 2000.

Bioassay Program Deficiencies at Argonne National Laboratory-East

Argonne National Laboratory-East (ANL-E) is a DOE research laboratory located southwest of Chicago, Illinois. The University of Chicago operates ANL-E under contract to DOE.

In 1998, PA-Enforcement issued a memorandum to all DOE contractors describing potential weaknesses with

Cases Reflecting Enforcement Discretion

bioassay programs at DOE sites. The memorandum instituted a 120-day moratorium, during which PA-Enforcement would exercise enforcement discretion for any contractor internal dose evaluation program that complied with the following conditions:

1. The contractor undertook a comprehensive evaluation of their internal dosimetry evaluation program to ensure the deficiencies noted by DOE at several sites, as well as any other internal dosimetry program deficiencies, were identified.
2. The contractor reported deficiencies with its internal dosimetry evaluation program and associated corrective actions into the NIS for those that reach the NIS reporting threshold.
3. The contractor implemented these corrective actions within a reasonable period of time.

Following the conclusion of the moratorium (April 1, 1999), PA-Enforcement issued a supplemental memorandum summarizing the results of the moratorium by listing the deficiencies identified by contractors during the moratorium period.

On December 23, 1999, ANL-E submitted an NIS report to DOE describing bioassay program deficiencies at the laboratory identified during the moratorium period. A review of the NIS report by PA-Enforcement determined that significant deficiencies existed in the ANL-E internal dose evaluation program and that the comprehensive evaluation had not been performed within the time period granted by the moratorium.

In its deliberations regarding this matter, DOE considered recent fundamental changes in the contractor's approach to fulfilling its regulatory responsibilities

(resulting from an enforcement action with NOV on other matters that was issued in December 1999) and decided to defer enforcement action. DOE concluded that the fundamental changes in management attention to nuclear safety were being addressed and that progress was being made through corrective actions developed in response to the other enforcement action.

In this case DOE refrained from issuing citations describing the same underlying problem because the contractor was addressing the issues in an appropriate manner. DOE issued an Enforcement Letter in this case on February 24, 2000.

4. ACCOMPLISHMENTS

Program Activity

Enforcement Guidance Supplements

DOE's enforcement procedures⁶ provide the opportunity for PA-Enforcement to issue clarifying guidance periodically regarding the processes it uses in its enforcement activities. The vehicle used by PA-Enforcement is the Enforcement Guidance Supplement (EGS). In CY2000, PA-Enforcement issued four of these EGSs.

EGS 00-01, Enforcement Position Relative to the Discovery/Control of Legacy Contamination

EGS 00-01 was issued on May 4, 2000, in response to questions from contractors and DOE personnel on the extent to which enforcement action could be taken if legacy contamination were discovered. The term "legacy contamination" refers to radioactive contamination resulting from historical operations unrelated to current activities. Several contractors had advanced the argument that, because a prior contractor caused the contamination, the current contractors were not responsible for controlling the contamination in accordance with 10 CFR 835. The view was raised that they might refrain from discovering such contamination if they were to be held accountable for its care.

EGS 00-01 noted that Part 835 provides no exclusion for pre-existing conditions (including legacy contamination). Thus, the identification of any contamination above the applicable levels of 10 CFR 835, Appendix D, in an unposted and uncontrolled area represents a noncompliance with 10 CFR 835.

EGS 00-01 noted that discovery of such legacy contamination, and associated noncompliances, would not necessarily lead to an enforcement action. DOE

would generally apply enforcement discretion if the following were associated with the discovery:

- The contractor has an effective radiological survey program in place.
- Appropriate and timely corrective actions are taken when contamination is identified.
- It is unreasonable to expect that the contamination should have been identified earlier through an appropriate survey program, review of historical information, or prudent response to a prior contamination event.

It is incumbent upon contractors that legacy contamination be identified and controlled. The prudent application of discretion by PA-Enforcement encourages that outcome.

EGS 00-02, Price-Anderson Amendment Act (PAAA) Program Reviews

EGS 00-02 was issued on August 21, 2000. In 1999, PA-Enforcement began an initiative to conduct formal reviews of contractor programs for identifying, reporting, tracking, and closing PAAA noncompliances. The objective of the program was to encourage a minimum threshold of uniformity of PAAA programs across the DOE complex, assess these programs for contractors where DOE has not had substantial interaction through formal enforcement proceedings, and provide feedback and lessons learned on such identification and reporting processes. The results of reviews are documented in reports transmitted to contractors to enable them to calibrate their programs according to the expectations of DOE and the best practices across the complex.

EGS 00-02 outlined the DOE process for conducting such reviews, the standard documentation request for material obtained before the site visit, and the

detailed program review criteria used by DOE. PA-Enforcement expects that communication of such information will (1) help contractors conduct self-evaluations of their PAAA identification and reporting programs; (2) assist contractors in being better prepared when notified of PA-Enforcement's plans to conduct such reviews; (3) provide substantive information on the form and substance of effective PAAA identification and reporting programs; and (4) ensure that programs are in place that improve nuclear safety by enhancing root cause analysis and corrective action implementation.

EGS 00-03, Specific Issues on Applicability of 10 CFR 830

EGS 00-03 was issued on September 12, 2000, and clarified certain misperceptions in the contractor community about the scope of 10 CFR 830. In some cases PA-Enforcement noted that contractors perceived their responsibility and accountability for quality assurance involved only those activities or that equipment specifically identified in their Safety Analysis Report (SAR) or Technical Safety Requirements (TSR). EGS 00-03 reaffirmed that quality assurance requirements are not limited by any contractor-developed constraints, since the requirements are defined by the rules. The EGS noted that such documents similarly did not limit DOE's authority under 10 CFR 820 to take enforcement action for violations involving such requirements.

To further illustrate the safety logic for the broad application of 10 CFR 830 to activities pertaining to a nuclear facility, EGS 00-03 summarized various events and enforcement cases in which work that did not specifically involve safety systems or features could potentially lead to serious conditions, releases of radiological materials, and worker uptakes.

⁶ Operational Procedures for Enforcement, Enforcement of DOE Nuclear Safety Requirements Under Price-Anderson Amendments Act of 1988, June 1998.

Accomplishments

EGS 00-04, Factual Bases for Issuing Consent Orders Pursuant to 10 CFR 820.23 and Compliance Orders Pursuant to 10 CFR Subpart C

EGS 00-04 was issued on October 23, 2000. PA-Enforcement issued this document to provide a clearer understanding of the factual circumstances that would permit resolution of a noncompliance by a Consent Order, as well as the conditions that could warrant issuance of a Compliance Order. The EGS reaffirmed that a Consent Order may be used if DOE concludes that:

- o the contractor's investigation was appropriately aggressive and comprehensive;
- o the contractor focused on finding site-wide issues, and corrective actions were both appropriate and timely; and
- o DOE has confidence (developed over time) that the contractor has demonstrated an ability and commitment to implement a strong nuclear safety program.

A Consent Order has benefits both to DOE (through a more efficient investigation and closure of an investigation) and to the contractor (through avoiding the demands of a full investigation by PA-Enforcement and any enforcement proceeding).

EGS 00-04 also describes the circumstances in which a Compliance Order may be signed by the Secretary of Energy. This EGS describes both the substantial safety significance of the problem and DOE's lack of confidence in the contractor's ability to resolve the problems in a timely manner without a specific directive from DOE that would require issuance of a Compliance Order.

All four guidance documents (EGS 00-01, EGS 00-02, EGS 00-03, and EGS 00-04) are provided in Appendix B. Refer to that appendix for a complete discussion and guidance on these issues.

Memorandum of Understanding with National Nuclear Security Administration

Congress created the National Nuclear Security Administration (NNSA) to consolidate all DOE defense-related activities within the Department.⁷ NNSA began operation as a separate entity within DOE on March 1, 2000. Among other things, the NNSA legislation has two specific requirements pertinent to the Price-Anderson nuclear safety area in general, and the enforcement program in particular. One requirement is that NNSA, including its contractors, must comply with all existing laws and regulations that pertain to DOE activities. Therefore, the PAAA program applies to activities administered by NNSA. Second, the legislation requires that no DOE official (other than the Secretary of Energy or his Deputy) may issue direction to an NNSA employee or contractor. Thus, protocols needed to be established to ensure enforcement within the requirements of the enabling NNSA legislation. To establish a working relationship between NNSA and the Office of Price-Anderson Enforcement, a Memorandum of Understanding (MOU) was put in place.

The MOU continues the process of implementing the PAAA requirements and enforcement program for NNSA facilities and activities that preceded the establishment of NNSA. The MOU established the following principles:

1. The Administrator of NNSA is the responsible authority for PAAA enforcement actions in NNSA.
2. PA-Enforcement will continue to investigate noncompliances and will make recommendations on further enforcement actions to NNSA for NNSA activities.
3. NNSA personnel shall conduct all NNSA PAAA coordination activities.
4. PA-Enforcement will continue to have access to NNSA facilities for evaluation and investigation in the normal manner.

5. The cognizant site/area office NNSA manager will ensure that NNSA is satisfied with contractor corrective actions completed to resolve PAAA noncompliances.
6. Current processes and procedures will be used to the extent possible.
7. PA-Enforcement may continue to issue Enforcement Letters and Consent Orders in the same manner as for non-NNSA activities.
8. PA-Enforcement will notify the NNSA PAAA Coordinator before conducting any formal investigations or program reviews at NNSA facilities.
9. PA-Enforcement may still obtain information for screening and preliminary review of NNSA noncompliance issues without notifying the NNSA PAAA Coordinator.
10. Compliance Orders are still initiated by the Secretary of Energy.
11. NNSA will implement PAAA coordination programs similar to such programs for non-NNSA activities and will conduct oversight of contractor PAAA programs.

Thus, with respect to the DOE Price-Anderson Enforcement Program, transition to the NNSA will be seamless.

DOE Recommendation for 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 involves the risk of public liability. Specifically, Price-Anderson indemnification coverage indemnifies DOE contractors and all other persons for any legal liability arising or resulting from a nuclear incident associated with an activity conducted under a DOE contract.

⁷ Title 32 of the National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65.

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This indemnification provides very broad financial protection to compensate for damage and injury, as well as costs of a precautionary evacuation ordered by an authorized state or local official, if such incident or evacuation arose in the course of transportation to a DOE storage or disposal site or while at a DOE storage or disposal facility.

The PAAA of 1988 made three significant changes with respect to the DOE indemnification. It greatly increased the amount of indemnification; made indemnification mandatory in all DOE contracts; and established a system of nuclear safety 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 (the *Report*) documenting its position on DOE responsibilities pursuant to the Price-Anderson Act, and providing recommendations on continuation of Price-Anderson.⁸ In the *Report*, DOE stated that it was convinced the indemnification provisions applicable to its activities should be continued without any substantial change. The Department stated the following reasons for its position on Price-Anderson coverage: (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 (5) there are no satisfactory alternatives.

DOE also stated in the *Report* that elimination of the DOE indemnification would have a serious effect on the ability of DOE to perform its missions. Without

indemnification, DOE concluded that it would be difficult to obtain responsible, competent contractors, subcontractors, suppliers, and other entities to carry out work involving nuclear materials. Other means of indemnification have practical and legal limitations, do not provide automatic protection, and depend on cumbersome contractual arrangements.

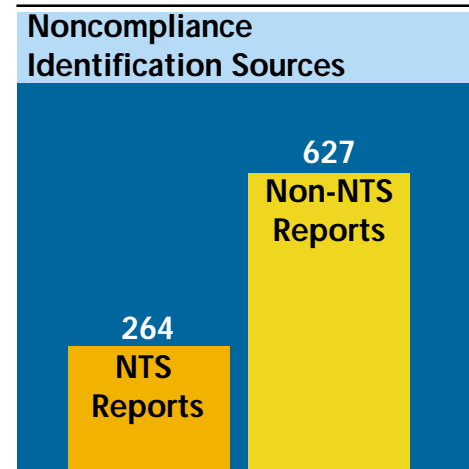
The *Report* further notes that private insurance is most likely not available for many DOE activities. Even when available, private insurance would be extremely expensive, limited, and restricted. Because the DOE indemnification operates as a form of self-insurance for claims resulting from nuclear incidents, DOE incurs no out-of-pocket costs for insurance. Moreover, thus far, it has not paid out significant amounts for claims pursuant to its indemnification authority.

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.

It is anticipated that legislation will be developed and debated in the upcoming (2001) congressional year.

Figure 4-1



Contractor Reporting

As reported in previous annual reports, PA-Enforcement observed that some contractors were less forthcoming in identifying and reporting PAAA noncompliances than others. Consistently, DOE has refrained from taking enforcement action when a contractor initiative, such as a self-assessment, identified the problem unless the matter was event driven. This approach is consistent with the safety philosophy that DOE communicated in its Enforcement Policy (Appendix A to 10 CFR 820). PA-Enforcement is pleased to report that the level of NIS reporting by contractors has substantially improved in 2000. This improvement appears to be due in part to the PAAA Program Review efforts.

PA-Enforcement will continue to focus special attention on contractors that do not display a high degree of proactivity in identifying, reporting and resolving noncompliances. Figure 4-1 summarizes the NIS reports prepared by the major DOE contractors in CY2000. These "major contractors" are direct managing and operating (M&O) or managing and integrating (M&I) contractors responsible for nuclear facilities.

⁸ Report to Congress on the Price-Anderson Act, submitted March 18, 1999

Accomplishments

Table 4-1

Contractor	Number of 1999 NIS Reports
Ames Laboratory	1
Argonne National Laboratory-East	5
Argonne National Laboratory-West	3
Bechtel BWXT Idaho, L.L.C.	30
Bechtel-Hanford, Inc.	5
Bechtel-Jacobs Company, L.L.C.	7
BNFL, Inc	6
Brookhaven National Laboratory	11
Bechtel-Nevada	4
Babcock & Wilcox of Ohio, Inc.	6
BWXT Y12	1
CH2M Hill Hanford Group, Inc.	18
Flour-Daniel Hanford	22
Flour Fernald, Inc.	6
Fermi National Accelerator Lab	2
Kaiser-Hill Company, L.L.C.	23
Los Alamos National Laboratory	18
Lawrence Livermore National Laboratory	12
Lockheed-Martin Energy Systems	8
Lockheed-Martin Hanford Corp.	2
Mason & Hanger	10
Notre Dame	1
Oak Ridge National Laboratory	12
Pacific Northwest National Laboratory	9
Princeton Plasma Physics Laboratory	2
Sandia National Laboratory	6
Savannah River Ecology Laboratory	1
Westinghouse Electric Corp.	3
Westinghouse Savannah River Company	29
West Valley Nuclear Services	1

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 laboratories facilities where it may be reasonable for fewer NIS reports to be input into the system. However, DOE expects NIS reports from larger sites, with many nuclear facilities or radiological hazards, when the contractor is aggressively identifying, reporting, and fixing problems. Thus a relatively large number of NIS reports by a particular contractor may be indicative of positive contractor initiatives. Accordingly, a direct comparison across all contractors is not appropriate. However, the table does show the wide variation in contractor use of the NIS. PA-Enforcement will give special attention to contractors performing activities with nuclear safety implications that have a history of low NIS reporting.

New 10 CFR 830 Rule

On October 10, 2000, DOE published an amendment to 10 CFR Part 830 in the *Federal Register*. The Interim Final Rule was effective on December 11, 2000.⁹ A Final Rule was published on January 10, 2001 (66 FR 1810). The Final Rule will amend the Interim Final Rule and will become effective on April 10, 2001. The Rule change includes several components: (1) minor revisions to the Part 830 general requirements; (2) clarifying changes to the Quality Assurance Rule (Subpart A); and (3) the addition of requirements for a documented safety analysis, technical safety requirements, and an Unreviewed Safety Question (USQ) screening and review process. Changes in each of these areas are summarized in this section. Additional details may be obtained from the referenced *Federal Register* Notice and the specific nuclear safety requirements in the revised Part 830. The requirements of Part 830 apply to contractor-operated as well as government-operated nuclear facilities.

⁹ *Federal Register* Notice, Vol. 65, No. 196, *Rules and Regulations*, October 10, 2000, page 60292.

Accomplishments

The revisions to existing Part 830 general requirements (1) clarified that the rule governs activities "that affect, or could affect, the safety of DOE nuclear facilities"; (2) added exclusions relating to certain activities, activities conducted under the Nuclear Waste Policy Act of 1982, and activities related to launch of nuclear energy systems into space; and (3) added and amended certain definitions. The changes to the quality assurance portions of Part 830 were made to convert the rule to "plain language," and reemphasize that work processes under the QA rule apply broadly to contractors, subcontractors, and suppliers, wherever they are located.

The principal substantive changes to Part 830 are the elimination of the narrow exclusion for certain activities conducted under the nuclear explosives and weapons safety program and the incorporation of additional safety basis requirements (Subpart B). Subpart B adds requirements for a documented safety analysis (e.g., SAR), TSRs, and a USQ determination process.

For existing facilities, the USQ procedure must be submitted to DOE for approval by April 10, 2001. The documented safety analysis and TSR procedures are to be submitted by April 10, 2003. Until those dates, and until DOE approves the final safety basis documents that comply with the Rule, contractors are required to meet the following criteria for existing facilities:

1. Comply with the existing USQ process.
2. Perform work in accordance with the safety basis (documented safety analysis and technical safety requirements) in effect on October 10, 2000, or as approved by DOE at a later date.

For new facilities, contractors are required to prepare a preliminary documented safety analysis for DOE approval before procurement of materials or construction. New facilities are also required to have a

DOE-approved USQ procedure, a documented safety analysis, and a set of TSRs before operation of the facility.

Enforcement activities associated with specific requirements of the changes to Part 830 will be contemplated only after the applicability date is reached for particular requirements, and, as before, only where the circumstances indicate a significant violation of nuclear safety requirements. In general, however, enforcement will continue to focus on event-related matters and programmatic breakdowns.

Training

In late November 2000, PA-Enforcement held 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. In addition, PA-Enforcement held a half-day introductory course for newly appointed DOE PAAA Coordinators. Contractor coordinators and personnel were invited to attend the half-day introductory training session as well. This PAAA introductory course focused on the background of the Enforcement Program and on the nuclear safety rules, enforcement process, expectations and responsibilities of Coordinators, and procedures for using the NIS.

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. Brenda Hawks of the Oak Ridge Operations Office and Dennis Riley of the Fermilab Area Office received this award for their contributions in 2000. The Director of PA-Enforcement presented the awards at the 2-day DOE PAAA Coordinators training session in November 2000.

Web Site

The Department maintains an Internet Web Site to provide information to Federal and contractor communities and to the general public.¹⁰ Relevant Federal regulations, standards, Office of General Counsel interpretations, program operating procedures, NOVs, Enforcement Letters, Press Releases, Enforcement Guidance Supplements, Program Review Letters, the most recently published Annual Report, and workshop information are available on the Web Site. The Department routinely and expeditiously posts this information on the Web Site to enhance communication with other contractors and the public on enforcement activity and information. The Web Site has had over 56,000 queries since its establishment, demonstrating that it serves a critical communications link in the DOE nuclear safety program.

Enforcement Activity

Cases Considered and Closed Without Action

In 2000, PA-Enforcement reviewed 891 issues for potential noncompliance with nuclear safety requirements. This number included 264 noncompliance reports filed by contractors as NIS reports and 627 issues developed from other sources. Figure 4-1 illustrates the number of issues reviewed by PA-Enforcement, sorted by NIS reports and non-NIS reports. Additionally, PA-Enforcement closed a total of 207 NIS reports. This number included NIS reports that had been reported in previous years, but remained open until all the corrective actions associated with the reports were implemented.

PA-Enforcement's reviews of the NIS reports and other sources of potential noncompliances 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

¹⁰ The Internet address for the PA-Enforcement Web Site is <http://tis.eh.doe.gov/enforce>.

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majority of issues (over 98 percent) are closed without an enforcement action, after confirmation that appropriate corrective actions have been completed. If the Department was not satisfied that appropriate actions had been taken and determined that the safety significance of the issue warranted further investigation, it conducted a more comprehensive review.

The number of NIS reports from 1999 to 2000 increased by about 7 percent, which reflects a greater attentiveness by certain contractors and a better understanding of DOE's reporting expectations for certain

other contractors. It is not believed to represent a weakened compliance problem in the DOE complex.

Notices of Violation/Consent Orders

PA-Enforcement initiated formal enforcement action in 12 cases where the actual or potential safety consequences were sufficiently serious to warrant action. In 9 of the 12 cases, the Department issued NOVs that clearly communicated DOE's expectations and documented significant violations of nuclear safety requirements. In the remaining three cases, Consent Orders were deemed appropriate. DOE

transmitted the NOVs with 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 to aggressively focus on a culture that self-identification problem resolution before serious consequences are experienced. Eight of the NOVs carried civil penalties totaling \$1,691,250. Three Consent Orders resulted in monetary remedies in lieu of civil penalties totaling \$225,000. Table 4-2 summarizes the enforcement actions issued in 2000.

Table 4-2

EA No.	Contractor	Type	Sev Lev	Date Issued	CP Amount
EA-2000-01	KHLL (RFEIS)	PNOV	II	01/24/00	\$55,000
EA-2000-02	WSRC (SRO)	PNOV	II	03/06/00	\$110,000
EA-2000-03	MOTA (ANL-E)	PNOV	II	04/17/00	\$55,000
EA-2000-04	I4 (ID)	PNOV	I	05/19/00	N/A
EA-2000-05	KHLL (RFEIS)	PNOV	II	05/19/00	\$41,250
EA-2000-06	BHI (RL)	PNOV	II	05/19/00	\$82,500
EA-2000-07	M&H (ALO)	CO*	N/A	06/21/00	\$75,000
EA-2000-08	WSRC (SR)	PNOV	II	07/18/00	\$220,000
EA-2000-09	CHG (RP)	CO*	N/A	07/25/00	\$50,000
EA-2000-10	FFS (RL)	CO*	N/A	08/01/00	\$100,000
EA-2000-11	LMES (ORO)	PNOV	II	08/25/00	\$1,045,000
EA-2000-12	LLNL (OAK)	PNOV	II	09/27/00	\$82,500

* CP waived due to statutory exemption.

5. CHANGES AND IMPROVEMENTS

Introduction

DOE gained valuable experience in the first 5 years of the Enforcement Program, leading to important lessons learned. As in prior years, DOE continually reviews its Enforcement Program to find opportunities to improve nuclear safety. Improvements instituted during CY2000 are described in Chapter 4 of this Annual Report. The principal areas for planned changes and improvements in the Enforcement Program in 2001 are discussed in this chapter.

Areas of Increased Focus by PA-Enforcement

Over the first 5 years of the DOE PAAA Enforcement Program, DOE emphasized two areas: (1) events with serious safety significance and (2) encouraging contractors to more aggressively identify nuclear safety noncompliances, promptly report them to DOE, and implement corrective actions in a timely manner. PA-Enforcement emphasized these areas by conducting event-specific investigations, Program Reviews, and noncompliance evaluations and by issuing Enforcement Letters. Additionally, PA-Enforcement focused on communication to the broader DOE complex through general access to NIS reports and by providing information to all contractors via the PA-Enforcement Web page. While investigating events, DOE found that particular quality assurance provisions pertaining to safety management were frequently a contributing cause of the events. Namely, problems in the areas of work controls and problems with effective corrective actions to preclude recurrence have been the dominant issues cited often in enforcement actions. Also a number of cases involved violations of procurement control requirements. To a lesser extent, PA-Enforcement also noted problems with accuracy and completeness of documents and records, with training irregularities, and with deficiencies in inspections and tests.

DOE's approach – to take enforcement action in these matters of high safety significance and to focus emphasis on major programmatic breakdowns – is intended to encourage contractors to correct their problems in a timely manner. Transmittal letters accompanying enforcement actions articulate DOE's expectations for correcting problems. This approach is appropriate for the particular programmatic problems that are disclosed by the events. However, if DOE is not confident that contractor management is shifting the culture of their organizations to be proactive in finding the underlying programmatic problems before the problems lead to an adverse event, it is prepared to implement the appropriate enforcement remedy.

Our investigations consistently find that the broad work control, quality improvement, or other quality assurance problems that led to the serious events were discoverable before the event. Closer management attention to specific problems in work planning or execution of work controls, and more rigorous evaluation of precursor conditions and events, can uncover these underlying problems without waiting for a serious event. Similarly, in most cases, more comprehensive evaluation of problems identified and of precursor events, with corresponding effective corrective actions to preclude recurrence, would have prevented the more serious subsequent event. In some cases PA-Enforcement noted that prior corrective actions, if properly completed, would have prevented the problems. Proper attention to these areas is mandated by quality assurance provisions pertaining to *Management Assessment*, *Independent Assessment* and *Quality Improvement*, and the 10 CFR Part 820.11 requirements on accuracy of information.

Because of these weaknesses in some contractors' programs, which are detrimental to nuclear safety, PA-Enforcement

will devote increased attention to these areas in 2001. The following briefly summarizes these areas.

Management and Independent Assessment

PA-Enforcement will evaluate contractors' management and independent assessment activities, required by 10 CFR Part 830.120, focusing on the adequacy of assessment activities in identifying and correcting nuclear safety issues. Consideration will be given to determining which deficiencies could have been found by such assessment activities. Where DOE finds that such assessment activities failed to identify problems, that the assessment activities were not properly comprehensive in their scope and focus, and that the problems should reasonably have been discovered, the Department may consider enforcement action related to the assessment sections of the *Quality Assurance Rule*. The contractor may need to apply more effective assessment focus and methods to identify these underlying cultural, procedural, and technical problems that lead to the various observed violation conditions. Additionally, if DOE's investigation activities determine that a contractor failed to conduct management assessments or independent assessments of particular nuclear facilities or work for that facility, DOE may take enforcement action for failure to comply with 10 CFR 830.120. This attention will ensure that contractor management is placing due emphasis on the quality and effectiveness of their management and self-assessment activities.

Corrective Action Completion and Verification

Based on experience, PA-Enforcement found that improved attention to timely completion of planned corrective actions might have prevented a subsequent more serious event. Additionally, PA-Enforcement found that a more thorough evaluation and determination of causes for a precursor event, with commensurate

Changes and Improvements

corrective actions, might similarly have prevented a subsequent more serious event. Accordingly, in 2001 PA-Enforcement will place increased focus on contractor corrective action or quality problem-resolution processes. PA-Enforcement plans to increase its focus in these areas in several ways:

- o In the course of conducting PAAA Program Reviews, PA-Enforcement will review the contractor's quality problem-resolution process for adequacy of controls in these areas and for evidence that comprehensive steps are being implemented with respect to the noted concerns.
- o In investigating particular events or significant noncompliances, PA-Enforcement will increase emphasis on the evaluation of prior events when there is a relationship between them. This evaluation will include a review of the comprehensiveness of contractor evaluation and cause determination efforts, scope of corrective actions, and steps to verify that the corrective actions were in fact completed.
- o When DOE finds indicators that a contractor is not developing and completing comprehensive corrective actions, DOE will consider appropriate enforcement response.
- o PA-Enforcement will review the accuracy of the contractor's representations regarding implementation of corrective actions. Where PA-Enforcement identifies accuracy of information issues, it may consider appropriate enforcement action.

PAAA Program Reviews

During 2000, PA-Enforcement conducted eight PAAA screening and reporting process reviews. These reviews included an evaluation of the contractors' processes for identifying, screening, and reporting potential violations of nuclear safety requirements and for managing corrective actions for the identified noncompliances. PA-Enforcement provided each contractor with a Program Review Letter detailing observations, including a description of program strengths and weaknesses identified by the review team.

As noted in Chapter 4, DOE issued EGS 00-02, which describes the approach taken by DOE in such reviews, the information DOE needs to begin a Program Review, and the criteria for the reviews. A copy of that EGS is included in Appendix B.

Additionally, in the course of these reviews, the DOE review team evaluated particular events or problems that were either not reported or were inadequately reported in the NIS. In some cases, DOE identified potential compliance problems, such as deficiencies in the contractor's process for procurement control or quality problem resolution. These findings resulted in appropriate enforcement responses, including Enforcement Letters or other enforcement action.

DOE will continue these reviews in the coming fiscal year, in particular for contractors who had not received a review by PA-Enforcement in the prior year. Program Reviews give DOE better insight into contractor understanding and initiative in nuclear safety management. They also better calibrate contractors to

the Department's expectations, and allow the Department to take enforcement action for potentially significant problems that were not properly identified or reported.

Inspection/Compliance Reviews by EH-Oversight

The 1999 General Accounting Office (GAO) Report on DOE's Enforcement Program¹¹ recommended a general strengthening in the DOE Enforcement Program. Rather than increasing the number of enforcement staff, the Department chose to strengthen the linkage between the existing activities of the Office of Enforcement and the Office of Independent Oversight (EH-Oversight). Departmental emphasis, however, remains on the contractor implementation of sufficiently comprehensive and aggressive self-assessment and identification processes, which are the compliance mechanisms established in PAAA rules that set forth the Enforcement Program.

In strengthening this linkage, EH-Oversight designated an EH-Oversight PAAA Coordinator within its office. The EH-Oversight PAAA Coordinator will serve as the point of contact with PA-Enforcement on PAAA matters, including potential violations that may be identified in the course of its oversight activities. EH-Oversight also launched a program of inspections of departmental activities subject to a wide variety of ES&H requirements (environmental, occupational and public safety and health, fire protection, transportation, nuclear and radiological) of which PAAA is a subset. The inspection process is capable of identifying potential violations of ES&H requirements from multiple sources, including PAAA rules. As a complement to existing compliance mechanisms, independent processes within EH-Oversight enable identification of potential compliance issues when contractors fail to identify these issues on their own initiative.

¹¹ DOE's Nuclear Safety Enforcement Program Should Be Strengthened, General Accounting Office, June 1999.

ACRONYMS

ALARA	as low as reasonably achievable
ANL-E	Argonne National Laboratory - East
CFR	Code of Federal Regulations
CHG	CH2M Hill Hanford Group
CMR	Chemical and Metallurgy Research Facility
CY	Calendar Year
DOE	Department of Energy
EGS	Enforcement Guidance Supplement
EUO	Enriched Uranium Operations
FES	Fluor Federal Services
HFSS	Hydrogen Fluoride Supply System
KHLL	Kaiser-Hill Company, LLC
LANL	Los Alamos National Laboratory
LMES	Lockheed-Martin Energy Systems
MOU	Memorandum of Understanding
NNSA	National Nuclear Security Administration
NOV	Notice of Violation
NTS	Noncompliance Tracking System
OSR	Operations Safety Requirements
PAAA	Price-Anderson Amendments Act
PA-Enforcement	Office of Price-Anderson Enforcement
RFEIS	Rocky Flats Environmental Technology Site
SAR	Safety Analysis Report
SHEBA	Solution High Energy Burst Assembly
SREL	Savannah River Ecology Laboratory
SRO	Special Report Order
TSR	Technical Safety Requirements
UC	University of California
USQ	Unreviewed Safety Question
WIPP	Waste Isolation Pilot Project
WSRC	Westinghouse Savannah River Company

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APPENDIX A – DOE ENFORCEMENT PROGRAM OVERVIEW

Introduction

This section provides an overview of the Department of Energy (DOE) Enforcement Program for those readers who may not be familiar with the overall process. Further details on the process may be obtained from the DOE Enforcement Program procedures referenced within this section or by logging onto the Office of Price-Anderson Enforcement Web Site at <http://tis.eh.doe.gov/enforce/>

Background

DOE has implemented a congressionally mandated mechanism to apply sanctions to its contractors for unsafe actions or conditions that violate nuclear safety requirements for protecting workers and the public. The Department provides positive incentives for contractors to strive for an enhanced nuclear safety culture through attention to compliance with requirements and self-identification of problems and by reporting noncompliances to DOE and initiating timely and effective corrective actions. The Price-Anderson Amendments Act (PAAA) Enforcement Program is part of DOE's overall Safety Management Program, which focuses on line management responsibility for safety, comprehensive requirements, competence commensurate with responsibilities, and independent oversight and enforcement, and which integrates with DOE's Integrated Safety Management System.¹

The 1988 Price-Anderson Amendments Act² extended indemnification to DOE operating contractors for the consequences of a nuclear incident. At the

same time, Congress required DOE to begin undertaking enforcement actions against those contractors that violate nuclear safety rules. The PAAA, in effect, required DOE to establish an internal self-regulatory process.

DOE's statutory basis for its Enforcement Program is set forth in 42 USC 2271, *et seq.* Regulatory procedures to fulfill this statutory mandate are published in 10 CFR Part 820, *Procedural Rules for DOE Nuclear Activities*. Enforcement actions may include issuance of Notices of Violation (NOV) and, where appropriate, civil monetary penalties.

Such enforcement actions require the formal promulgation of substantive rules in accordance with the Administrative Procedure Act, including adequate procedures for public notice and comment. To date, two substantive rules have become enforceable as final rules – *Occupational Radiation Protection and Nuclear Safety Management*.³ Additionally, DOE rules on *Contractor Employee Protection*, and *Accuracy of Information*⁴ have been identified as nuclear safety requirements that are enforceable under the statute.

DOE's released its first PAAA enforcement action in April 1996.⁵ Since then DOE has routinely applied its Enforcement Program by issuing Program Review Letters, Enforcement Letters, Consent Orders, and NOV's, and, in some circumstances, by imposing civil penalties. DOE may also, from time to time, issue a Compliance Order to a particular contractor.

Administration

The Department's Enforcement Program is administered by the relatively small staff in the Office of Price-Anderson Enforcement (PA-Enforcement) at DOE Headquarters, linked with PAAA Coordinators in Field and Program Offices, and supported by technical experts from both Headquarters and field elements. The program is structured to use existing resources across DOE to assist in evaluating noncompliances and the adequacy of corrective actions. However, the program relies on the independent judgment by PA-Enforcement personnel with respect to issues of compliance, safety significance, corrective actions, and enforcement actions.

The PA-Enforcement staff includes the Director, 7 full-time enforcement personnel, a Docket Clerk and an administrative assistant; 2 to 3 contractor technical experts; and over 50 Field and Program Office Coordinators, assisted by numerous other DOE technical specialists. Figure A-1 illustrates the DOE enforcement organization network.

Noncompliance Identification and Reporting

DOE expects contractors to implement appropriate steps to ensure that their activities comply with nuclear safety requirements. DOE also expects contractors to self-identify and report noncompliances. Contractors are permitted to track and close noncompliances below the Department's reporting threshold using their own tracking system. These noncompliances are subject to periodic

¹ Safety Management Principles from October 1994 DOE letter to the DNFSB. Requirement to integrate QA criteria with ISM contained in 10 CFR Part 830.121(c)(2).

² 42 U.S.C. 228a.

³ 10 CFR Part 835 and 10 CFR Part 830.200 (which includes Quality Assurance and Safety Basis Requirements), respectively.

⁴ 10 CFR Part 708 and 10 CFR Part 820.11, respectively.

⁵ EA 96-01.

Appendix A – Overview

review and audit by DOE Field Office Coordinator personnel. DOE expects that noncompliances meeting the reporting thresholds⁶ will be reported into the Department’s Noncompliance Tracking System (NIS). Most cases are closed at this stage without an independent investigation, based on positive contractor initiative or low safety significance and completion of actions to correct the noncompliance condition and prevent recurrence.

Noncompliances also may be identified independently through: DOE Field Office input; Headquarters reviews; the Defense Nuclear Facility Safety Board (DNFSB) activities; DOE PAAA Coordinators; DOE’s Office of Independent Oversight; or through reviews conducted by PA-Enforcement staff. Workers with noncompliance issues may also directly contact PA-Enforcement staff confidentially or contact the site DOE PAAA Coordinator.

PA-Enforcement staff, in cooperation with Field and Program Office management, decide which noncompliances have the requisite level of safety significance to warrant an investigation.

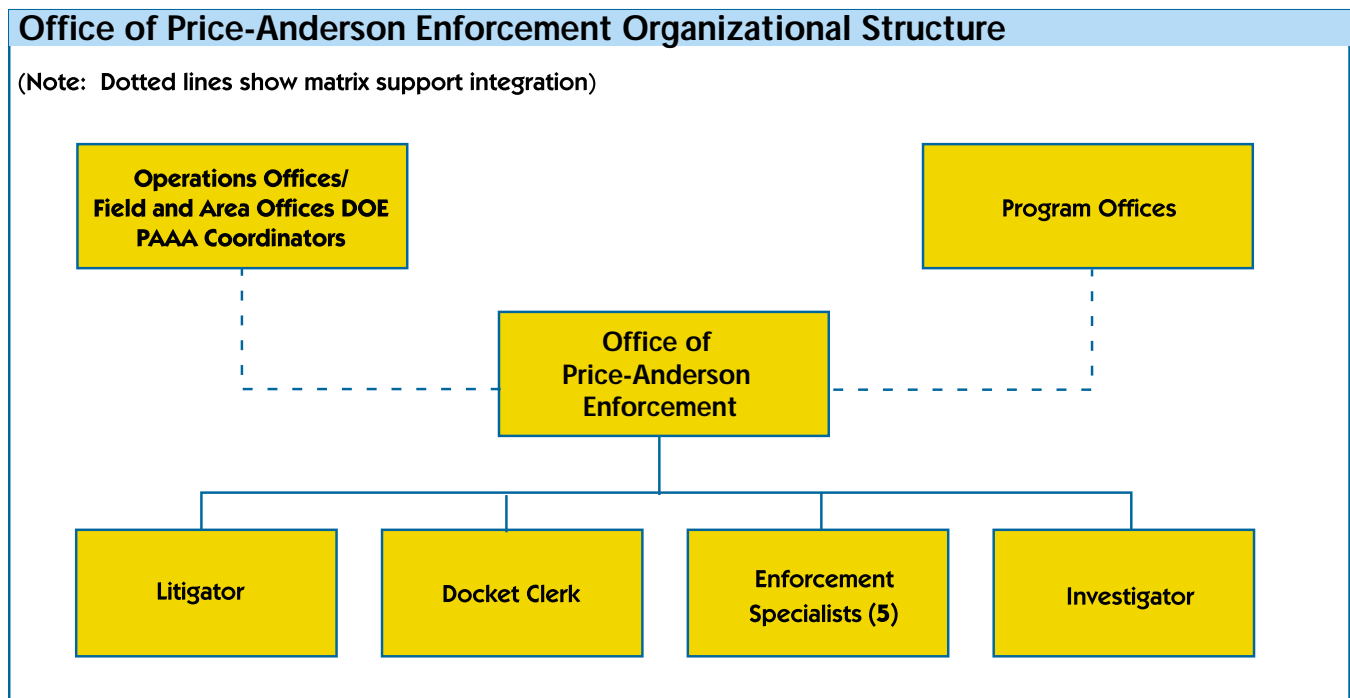
An investigation usually involves review of documentation from the contractor, assistance from DOE Field Office personnel, and in some cases, onsite visits to gather facts about the noncompliance, conduct interviews, and understand contractor actions in response to the noncompliance.⁷ When appropriate, a Special Report Order may be issued (under the authority of 10 CFR 820.8) to obtain the required information. DOE also is empowered to issue subpoenas to obtain required information, if necessary. Results of the investigation are documented in an Investigation Summary Report, which is provided to the contractor.

Enforcement Decisions

The primary consideration in determining whether to take enforcement action is the actual or potential safety significance of a violation coupled with a determination of how aggressively the contractor identified, reported, and corrected the problem. The potential for mitigation of enforcement actions in particular cases provides additional positive incentive for contractors to implement the desired safety culture.

PA-Enforcement works closely with DOE Field and Program Office management in making decisions about the magnitude of enforcement response to each particular circumstance. An Enforcement Conference may be held with senior contractor management, along with DOE Field and Program Office management, to review the circumstances of the noncompliance, the mitigating factors, and the timeliness and

Figure A-1



⁶ DOE’s reporting thresholds are contained in Operational Procedures, Identifying, Reporting and Tracking Nuclear Safety Noncompliances under Price-Anderson Amendments Act of 1988.

⁷ Pursuant to 10 CFR Part 820, the Director, Office of Price-Anderson Enforcement, may obtain information or evidence for the full and complete investigation of any matter related to a DOE nuclear activity, including classified, confidential, and controlled information.

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adequacy of corrective actions. DOE classifies violations as either Severity Level I (most significant, with actual or potential significant consequences to workers or the public), Severity Level II (significant lack of attention or carelessness which could lead to adverse impact to the public or worker), or Severity Level III (greater than minor significance), based on an assessment of the unique facts of each case.

Enforcement Process

DOE's process and the regulatory authority for enforcement actions are embodied in a regulation (10 CFR 820, *Procedural Rules for DOE Nuclear Activities*), supplemented by the *Enforcement Policy* (Appendix A to 10 CFR 820) and PA-Enforcement procedures.⁸ Figure A-2 summarizes the enforcement process.

Following an investigation and, if required, an Enforcement Conference, DOE may pursue a path that includes any of the following, based on the facts and significance of the noncompliance.

- o No further action
- o Enforcement Letter⁹
- o NOV with no civil penalty
- o NOV with a civil penalty
- o Consent Order
- o Compliance Order
- o Referral to the Department of Justice for criminal investigation

Decisions concerning the severity level, appropriate enforcement action, and magnitude of any civil penalty will be dependent on safety significance, initiative by the contractor in identification and reporting, and timeliness and

effectiveness of corrective actions. With appropriate identification, reporting, and corrective actions by the contractor, the Department can waive all or part of the civil penalty and, in some cases, refrain from further action entirely. Civil penalties are limited by statute to a maximum of \$110,000 per violation per day.¹⁰ Severity Level I violations are set at 100 percent of the statutory limit per violation per day (i.e., \$110,000). Severity Level II violations are set at 50 percent of the statutory limit (i.e., \$55,000) per violation per day, and Severity Level III violations are set at 10 percent of the statutory limit (i.e., \$11,000) per violation per day.¹¹

The PAAA statute provides exemption of specifically named DOE not-for-profit entities from any liability for civil penalties, and 10 CFR Part 820 extended this exemption to all not-for-profit DOE contractors that are education institutions. However, DOE is authorized to issue NOVs to all such not-for-profit contractors. Additionally, certain activities are excluded from DOE's nuclear safety regulations and from enforcement action by DOE. These activities include those regulated by the Nuclear Regulatory Commission or under the authority of the Director, Naval Nuclear Propulsion Program. In response to an NOV, contractors are required to document specific corrective actions taken and planned to prevent recurrence of similar events.

Another vehicle authorized by the nuclear safety procedural rules is the Consent Order. In 10 CFR 820.23, DOE is authorized to issue Consent Orders in appropriate cases. A Consent Order is an agreement signed by DOE that stipulates the (1) conclusions of fact or law, (2) monetary remedy to be paid by the contractor, and

(3) corrective actions to be taken by the contractor. DOE may choose to use such an approach to resolve a case if the issue was identified by the contractor and reported in a timely way; has comprehensive corrective actions; has received a thorough and objective investigation by the contractor; and, most importantly, if the contractor has demonstrated a consistent track record of such discovery and response to compliance issues.

The Consent Order approach benefits the contractor by avoiding the burden of supporting a DOE investigation and has the potential to involve lower penalties than would have been experienced from a full DOE investigation and enforcement action.

Another regulatory option available to DOE is the Compliance Order, issued pursuant to DOE's authority under subpart C of 10 CFR 820, sections 820.40 – 820.43. A Compliance Order is a Secretarial directive requiring a contractor to take certain specified actions within a specific period of time to remedy a problem or to come into compliance. The actions in a Compliance Order are nuclear safety requirements and are independently enforceable under 10 CFR 820. Thus, failure to meet the actions specified could lead to issuance of an NOV with civil penalties, if applicable. Compliance Orders are used when the following elements are present:

- o Conditions indicate problems of substantial safety importance or broad programmatic breakdown.
- o A violation condition must be corrected or prevented.
- o Generally, but not solely, when a contractor has had sufficient opportu-

⁸ *Operational Procedures for Enforcement, Enforcement of DOE Nuclear Safety Requirements Under Price Anderson Amendments Act of 1988*, June 1998.

⁹ An Enforcement Letter may be used when DOE concludes that a particular noncompliance is not of the level of significance warranted for issuance of a Preliminary NOV, but it is an issue of concern to DOE. The letter puts the contractor on notice that the problem needs to be corrected. The Enforcement Letter notifies the contractor that DOE will close the noncompliance report when verification is received that corrective actions have been implemented.

¹⁰ On October 2, 1997, DOE amended its Part 820 to increase the maximum civil penalty from \$100,000 to \$110,000 per violation. This increase was accomplished in accordance with the Debt Collection Improvement Act of 1996.

¹¹ On November 7, 1997, DOE amended its General Statement of Enforcement Policy to simplify the method by which these civil penalties are calculated. (The previous policy based a civil penalty on the type of nuclear facility where the violation occurred.) Under the new policy civil penalties are based solely on the safety significance of the violation.

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nity to correct the condition but has not acted promptly.

- o DOE does not have confidence that the contractor will correct the condition in a timely manner.

It is expected that the use of Compliance Orders will be limited and that generally they will be used in very serious cases with the above attributes.

The contractor's commitments on corrective actions and schedules for completion for any enforcement action become part of the enforcement proceeding record. Commitments on corrective actions and their completion

schedule are entered into and tracked on the NIS system. Field Office personnel verify completion of corrective actions before a case is closed.

Information on a particular enforcement proceeding is available to the public once a Preliminary NOV is issued. The Docket Clerk maintains records at DOE Headquarters.¹²

DOE's approach to enforcement involves some relatively innovative methods to avoid large inspection forces and to better motivate contractor ownership of compliance and safety. This approach is expected to result in a more effective and

efficient regulatory process that, in conjunction with other elements of the DOE Safety Management Program, will improve the health and safety of the public and workers engaged in DOE activities.

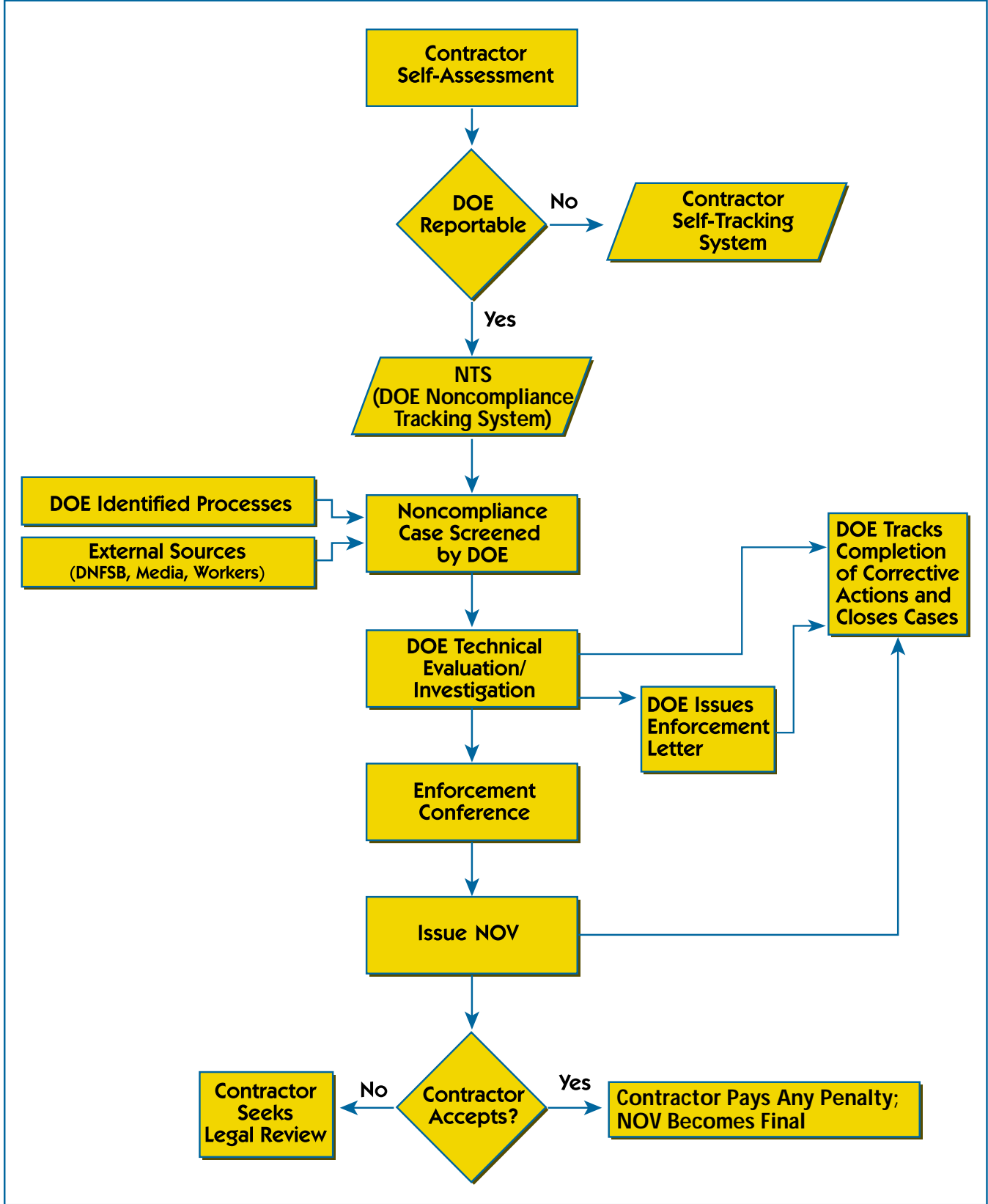
Further guidance on DOE's PAAA enforcement process may be found in *Operational Procedures for Enforcement, Enforcement of DOE Nuclear Safety Requirements Under Price Anderson Amendments Act of 1988*, June 1998. Guidance is also found in 10 CFR Part 820, *Procedural Rules for DOE Nuclear Activities* (subpart B), and its Appendix A, *General Statement of Enforcement Policy*.

¹² Office of the Docket Clerk, Office of Price-Anderson Enforcement (EH-10), Room 3041, 20030 Century Blvd., Germantown, MD 20874-1290; (301) 903-0112.

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Figure A-2

Summary of DOE Enforcement Process



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