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Report to the Chairman, Committee on Commerce, House of Representatives

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DEPARTMENT OF ENERGY

DOE's Nuclear Safety Enforcement Program Should Be Strengthened

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Resources, Community, and
Economic Development Division

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The Honorable Thomas J. Bliley, Jr.
Chairman, Committee on Commerce
House of Representatives

Dear Mr. Chairman:

The Department of Energy (DOE) has a widespread complex of research and nuclear facilities that contain large quantities of nuclear materials. Some of the materials are in a deteriorated condition, not properly packaged for storage, and may pose a significant risk to workers, the public, and the environment. With few exceptions, DOE's facilities are not inspected or licensed by independent regulators to help ensure that operations are safe. Instead, since 1946, DOE and the agencies that preceded it have relied on their own staff to ensure the safety of these facilities.

Most of the work at DOE facilities is carried out by organizations under contract to DOE. Because of the risks inherent with handling nuclear materials, and the potential liabilities associated with inadvertent exposure for workers, the public, and the environment, the law authorizes DOE to indemnify, or agree to pay damages for, those contractors that could have an accident in handling nuclear materials, and whose actions could cause damage. In 1988, the Congress enacted legislation permitting DOE to hold its contractors accountable for meeting its nuclear safety requirements through a system of civil monetary penalties. DOE determined that to be able to assess civil penalties, existing safety requirements would have to be reissued as enforceable rules.[1] The legislation also named certain contractors as exempt from having to pay the penalties.[2] Concerned about DOE's efforts to implement its nuclear safety enforcement program, you asked us to determine

- what enforceable nuclear safety rules DOE has issued,
- which DOE facilities and contractors are covered by these rules,
- how DOE has enforced the nuclear safety rules, and
- whether there is a continued need for exempting certain contractors from paying penalties for violating nuclear safety rules.

[1]Rules that have gone through the rule-making process, including a published notice of proposed rule-making and the receipt of public comments, as specified in the Administrative Procedures Act, are considered enforceable.

[2]The Price-Anderson Amendments Act of 1988 (P. L. No. 100-408). The civil penalties provision is codified at 42 U.S.C. 2282a.

Results in Brief

Since 1988, DOE has issued enforceable rules covering only 2 of 11 safety areas originally proposed—radiation protection for workers and quality assurance issues that define how work is planned and carried out. The other nine safety areas not included in the rules, such as training and certification of employees performing vital operations, are still covered in DOE orders, and DOE generally includes compliance with them as part of its contracts. However, enforceable rules provide another mechanism to help DOE ensure safe nuclear practices. DOE officials said that finalizing safety rules has gone slowly for several reasons, including the need to work on other safety issues and internal discussions about how best to proceed. DOE currently has no definite schedule for issuing additional rules. Not elevating safety orders to the status of enforceable rules means that DOE has fewer options to ensure that contractors are meeting safety requirements and quickly correcting any deficiencies.

Nuclear safety rules are to be enforced at any DOE facility with the potential to cause radiological harm to workers, the public, or the environment. Although no problems have been identified with the application of the occupational radiation protection rule, DOE field offices have been inconsistent in the degree to which they have placed facilities under the quality assurance rule. For example, closed-down nuclear reactors are subject to the rule at DOE's Savannah River site in South Carolina, but not at the Hanford site in Washington State. Not properly classifying DOE facilities as subject to the rules could potentially affect the type of safety oversight carried out by contractors, as well as the enforcement activity undertaken by DOE.

DOE began its enforcement program in 1996 and concentrates its investigations and enforcement actions on those violations of nuclear safety rules that are the most significant. Since 1996, DOE has taken 33 enforcement actions and assessed more than $1.8 million in penalties. Violations have included such things as unnecessarily exposing workers to radioactivity and not following procedures intended to prevent an uncontrolled nuclear reaction from occurring. DOE has concluded that the enforcement program is a valuable tool for increasing the emphasis on nuclear safety. Our analysis indicates that the program makes nuclear safety issues more visible, places additional emphasis on corrective action, and is a relatively independent and objective approach to ensuring safe nuclear practices.

Of the $1.8 million in assessed penalties, certain nonprofit contractors did not pay about $605,000, or 33 percent, because they are exempt from civil

penalties. Although DOE recommended in March 1999 that the statutory exemption be continued and expanded to include all nonprofit contractors, subcontractors, and suppliers, the exemption may no longer be needed. DOE cited three reasons for continuing the exemption—nonprofit contractors' unwillingness to put their assets at risk for civil penalties, the effectiveness of existing contract mechanisms, and consistency with other regulatory agencies' treatment of nonprofit organizations. However, nonprofit contractors now have contract-related fees available that could be used to pay penalties, contract mechanisms have not been sufficient to address safety-related problems, and, in contrast to DOE, other regulatory agencies do collect penalties from nonprofit organizations. Because DOE is not externally regulated for nuclear safety, it must rely on its own system of oversight and controls to hold its contractors accountable. The enforcement program is an important complement to existing contract-related mechanisms for ensuring that contractors have safe nuclear practices.

In addition to suggesting that the Congress consider eliminating the provision for exempting some contractors from paying penalties when they commit safety violations, this report recommends that the Secretary of Energy strengthen DOE's nuclear safety enforcement program and ensure that field offices are consistent in applying it.

Background

DOE maintains nuclear facilities at 34 sites in 13 states.[3] These sites support, among other things, research, testing, and the production of nuclear weapons and, more recently, clean-up and environmental restoration activities. To carry out these missions, DOE relies on outside contractors. Under both the Department of Energy Organization Act and the Atomic Energy Act of 1954, as amended, it is DOE's responsibility to regulate its contractors and ensure public health and safety, as well as the safety of workers at these sites. DOE's primary approach to ensuring safe nuclear operations has been to require its contractors to follow DOE directives, including policies, orders, and standards, by incorporating these requirements into the contracts.

Since 1957, under the Price-Anderson Act,[4] a government-sponsored system of financial protection has been in place for both those in the business of handling nuclear materials and for the persons and property

[3]DOE's sites include numerous facilities and the activities conducted therein. For simplicity, we use the term "facilities" to refer to facilities or activities.

[4]Section 170 of the Atomic Energy Act of 1954 provided the authority for the indemnification.

that may be harmed by a nuclear incident. Under this law, DOE typically indemnified, or agreed to pay damages for, its eligible contractors under provisions in their contracts. However, nuclear incidents at two civilian reactors—Three Mile Island in 1979 and Chernobyl in the former Soviet Union in 1986—heightened concerns about protecting the public from radiation and the financial damages. When the Congress reauthorized the Price-Anderson Act in 1988, it expanded both the coverage and amount of statutory indemnification and made it mandatory for all DOE contractors at risk of public liability for a nuclear incident. In exchange for this increased protection from liability, the 1988 amendments also gave DOE the authority to impose civil monetary penalties on its contractors, and their subcontractors and suppliers, for violating the rules, regulations, or orders related to nuclear safety.

The 1988 amendments also named seven contractors at research laboratories, that, along with their subcontractors and suppliers, were subject to nuclear safety requirements but were specifically exempted from having to pay civil penalties. During the congressional debate on the act, several reasons were cited for exempting nonprofit contractors from paying civil penalties. The primary reason appears to have been that the contractors operating DOE's laboratories at the time received no fees in addition to their reimbursable costs and, therefore, had no contract-generated funds available to pay any penalties assessed. There was concern that the contractors that ran the national laboratories, mostly nonprofit educational institutions, would be unwilling to assume the financial risk of being subject to penalties and thus put the assets of their organizations at risk, and that these contractors may leave the research field rather than accept this financial exposure. The 1988 act also gave the Secretary the authority to determine whether other contractors that were nonprofit educational institutions should receive automatic exemption from paying any civil penalties. In a rule DOE issued in 1993 describing the procedures it would follow in carrying out the enforcement program, DOE specified that all nonprofit educational institutions would receive an automatic exemption from paying the penalties.[5]

When DOE began to implement the enforcement program, nuclear safety requirements were generally compiled in DOE orders—a system of documents that define requirements and procedures for work performed at DOE facilities. DOE determined that to make these requirements subject to the civil penalty provision, the requirements should be re-issued

[5]Some nonprofit DOE contractors are not educational institutions and are not specifically exempted by legislation. Those contractors would be subject to civil penalties—for example, Brookhaven Science Associates, Inc., at the Brookhaven National Laboratory.

through the rule-making process. Doing so would allow the affected contractors, as well as members of the public, to express their views and to clarify any ambiguities in the requirements, and would provide a stronger legal basis for DOE to assess penalties against its contractors.

DOE Has Issued Fewer Nuclear Safety Rules Than Initially Planned

DOE's progress in its efforts to re-issue existing nuclear safety requirements as enforceable rules has fallen far short of its original goal of converting all requirements into rules. Although DOE issued proposed rules covering a broad range of safety issues, only two areas of safety requirements have been addressed with completed rules. DOE largely suspended work on the nine remaining proposed rules because of work on other safety issues and internal discussions about how best to ensure nuclear safety.

Two of 11 Proposed Rules Issued

DOE issued several proposed safety rules beginning in December 1991.[6] These proposed rules included existing DOE orders on such matters as protecting workers from exposure to radiation, issuing safety analysis reports, reporting defective items and services, and reporting safety-related problems. In March 1993, DOE issued one more proposed rule dealing with the protection of the public and the environment from radiation. As table 1 shows, only two of the proposed rules have been issued as final rules.[7] After a public comment and review process, DOE issued the rule on radiation protection of occupational workers in December 1993 and the rule on quality assurance requirements in April 1994. The remaining rules have not been finalized.

[6]These proposed rules also included a procedural rule setting up the process that DOE would use to investigate potential violations of nuclear safety rules, issue notices of violation to the contractor, and assess penalties based on the severity level of the violation. After receiving comments and making revisions, DOE issued this procedural rule as a final rule in August 1993.

[7]In addition to these two substantive rules that directly relate to nuclear safety, DOE has identified other rules that are subject to enforcement, including accuracy of information and whistleblower protection.

Table 1: Status of Nuclear Safety Requirements Proposed as Rules by DOE

Title	Requirement
Rules issued	
Radiation protection for occupational workers	Requires that radiation doses to workers at DOE facilities be maintained within specified limits.
Quality assurance requirements	Requires the development and implementation of a quality assurance program at nuclear facilities to perform and assess work so that it meets requirements for accomplishing work safely and effectively.
Requirements proposed as rules but not issued	
Safety analysis reports	Requires reports that will document the design of each facility, and establish and evaluate the safety basis of the design.
Unreviewed safety questions	Addresses situations outside the bounds of the current safety analysis report for a nuclear facility, such as the discovery of a safety risk that could indicate the need for a change in the facility's design.
Defect identification and reporting	Requires contractors to identify, evaluate, and report defective items and services.
Conduct of operations at DOE nuclear facilities	Requires a program to control the conduct of operations at a nuclear facility, including operations organization, shift routines, and communications.
Technical safety requirements	Establishes and documents the facility's operating limits, surveillance requirements, administrative controls, and other requirements.
Training and certification	Ensures that employees whose performance is vital to the safe operation of DOE nuclear facilities are trained to conduct duties in a safe and effective manner.
Maintenance management	Develops a maintenance program that identifies all structures and systems performing a safety function, those responsible for maintenance, and inspection and testing programs.
Categorization, notification, reporting, and processing of operational occurrences at DOE nuclear facilities	Requires contractors to identify and report all occurrences exceeding defined safety thresholds.
Radiation protection of the public and the environment	Requires a contractor to establish a program to manage radioactive waste and to handle the decontamination and disposal of property in a way that limits exposure of the public and contamination of the environment.

Source: The Federal Register.

DOE Has Delayed Implementation of Other Proposed Rules

DOE received extensive comments from contractors and other interested parties on the remaining nine safety requirements proposed as rules. DOE's plan was to issue these remaining rules as final after it completed the analysis of the comments received. However, DOE's progress in doing so

has been slow. DOE officials said two major factors contributed to the slow progress:

- Work on other safety issues. During the years of the rule-making process, initiatives from both inside and outside DOE have necessitated action and, therefore, delayed finalizing the proposed rules. For example, Vice President Gore's National Performance Review in 1993, which focused on improving and streamlining government, stressed reducing the costs and increasing the effectiveness of government regulations. In response to that initiative, DOE conducted an extensive review of its system of safety standards. In addition, the Defense Nuclear Facilities Safety Board recommended that DOE make its rules more consistent with its changing mission and proposed that DOE review and combine its safety rules, orders, and other requirements into an integrated safety management program. DOE is currently implementing integrated safety management at its facilities.
- Discussions within DOE about how best to proceed with safety regulation. During the same period, there have been initiatives within DOE to determine the best way to achieve safety results across the DOE complex of facilities. These include an effort to develop an approach to safety that would recognize the differences in activities and related hazards at DOE facilities and allow safety procedures that are "necessary and sufficient" to address those hazards. In addition, there have been discussions within DOE on how best to ensure safety—whether by specifying detailed requirements or using an outcome-based approach that would state the desired objective and give the contractor greater flexibility on how to achieve the objective. Finally, some of DOE's program offices, such as the Office of Science, have expressed concerns about whether enforceable rules are the most effective approach to ensuring that contractors follow nuclear safety requirements, or whether using the existing contract mechanisms is sufficient. These discussions and initiatives caused DOE to defer work on the other proposed rules.

Although the Secretary concluded in a recent report to the Congress that the enforceable rules have been beneficial in improving contractors' safety performance,[8] the system of enforceable nuclear safety rules originally envisioned by DOE has not been fully realized. DOE's inaction in converting the many other aspects of nuclear safety into final published rules has limited the overall effectiveness of the enforcement program. Although DOE officials stated in April 1999 that there was a renewed effort within the

[8]Department of Energy Report to Congress on the Price-Anderson Act, (Mar. 1999).

Department to address the need for additional enforceable rules, DOE has no definite schedule for finalizing the remaining proposed rules.

Clarification Needed About Facilities to Which the Rules Apply

The two enforceable rules—concerning occupational radiation protection and quality assurance—have somewhat different criteria for determining which facilities should be subject to them, with the occupational radiation protection rule having broader coverage. Under the occupational radiation protection rule, DOE facilities are subject to its provisions if the activities conducted there have the potential to result in the occupational exposure of an individual to radiation or radioactive material. DOE field offices have so far determined that about 2,000 facilities meet this standard. The quality assurance rule adds a second test—a facility must be defined as "nuclear." To be a nuclear facility, a facility must have either a nuclear reactor or activities or operations that involve radioactive and/or fissionable materials in such a form and quantity that a nuclear hazard potentially exists to employees or the public. DOE field offices have so far determined that about 560 facilities are covered by this rule.

Although there are no apparent problems with the application of the occupational radiation protection rule, the number of facilities subject to the quality assurance rule may be somewhat understated. According to the 1998 annual report of DOE's Office of Enforcement and Investigation,[9] the office has identified a number of facilities that should have been included but were not. Our review of data on DOE facilities' classification confirmed that there are problems in applying the quality assurance rule. The classification of reactors at DOE's Savannah River site in South Carolina and Hanford site in Washington State is an example. Both sites have reactors that produced nuclear weapons material between the 1940s and 1980s. Although none of the reactors are currently operating, radiation exposure remains a potential problem, because, for example, all have reactor blocks or vessels in place that contain residual radioactive material. Nevertheless, Savannah River categorized its reactors as nuclear facilities, while Hanford did not. Therefore, only the Savannah River reactors would be subject to the quality assurance rule. According to DOE's Directors of the Office of Enforcement and Investigation and the Office of Nuclear Safety Policy and Standards, the reactors at both sites are nuclear facilities and should be subject to both the quality assurance and occupational radiation protection rules.

[9] 1998 Annual Report, Price-Anderson Nuclear Safety Enforcement Program, (Jan. 1999).

DOE does not know how widespread this misclassification problem is, so its significance is difficult to determine. However, improper classification could potentially affect the type of safety oversight being done by contractors and DOE field offices, as well as the enforcement activity undertaken by the Office of Enforcement and Investigation. The different classification of some nuclear facilities initially occurred because of confusing guidance issued by various DOE offices. While DOE field offices and contractors were determining which facilities should be identified as being subject to the quality assurance rule, DOE headquarters published a notice in the Federal Register stating that DOE was considering not applying the rule to nuclear facilities that had only the most limited potential for nuclear hazards.[10] Some DOE field offices apparently used this rationale to exclude some of their nuclear facilities from the rule. DOE clarified this point in a subsequent ruling, but since then DOE headquarters has not taken steps to ensure that this ruling is being followed. According to the Office of Enforcement and Investigation, some contractors may have used the confusion over the guidance as a mechanism to avoid accountability under the quality assurance rule. (A listing of DOE's major contractors that are subject to the nuclear safety rules is included in appendix I.)

DOE's Enforcement of Nuclear Safety Rules Has Resulted in Penalties Against Contractors

In 1996, DOE established the enforcement program, which relies primarily on a system of self-reporting and corrective actions by its contractors, and concentrates its enforcement actions on those violations of nuclear safety rules that are the most significant. Since 1996, DOE has taken 33 enforcement actions with assessed penalties totaling $1.8 million. This enforcement program provides a tool in addition to contract mechanisms for DOE to ensure safe nuclear practices. The advantages of this program include conducting a relatively objective and independent review, following up to ensure that contractors take corrective action, and making information readily available to the contractor community and the public.

DOE's Enforcement Process

DOE modeled its enforcement program after that used by the Nuclear Regulatory Commission and determined as a matter of policy that it would

[10]DOE Order 5480.23 categorizes nuclear facilities using hazard classifications. Facilities with only the most limited potential for nuclear hazards are less significant than a Category 3 hazard classification, which DOE defines as having the potential for "only significant localized consequences."

rely on a system of self-reporting by its contractors,[11] as well as other oversight activities and organizations to identify potential violations of nuclear safety requirements. DOE concentrates its enforcement actions on those violations of nuclear safety rules that are the most significant, and on situations where the contractor has not aggressively identified, reported, and corrected the problem. The Office of Enforcement and Investigation, responsible for implementing the program, has a staff of four investigators in the Environment, Safety, and Health headquarters organization and a network of coordinators at DOE's field offices and contractor locations. The enforcement process is outlined in table 2.

[11]The level of contractor self-reporting may vary across the DOE complex. In January 1999, DOE's Office of Inspector General reported that at one site, potential instances of noncompliance were not being identified by the contractor and reported to DOE. Reporting at Oak Ridge of Potential Noncompliances With DOE Price-Anderson Amendments Act Implementing Rules, (DOE/IG-0438, Jan. 25, 1999).

Table 2: DOE's Process for Enforcing Nuclear Safety Rules

Identifying potential violations of the nuclear safety rules	The Office of Enforcement and Investigation reviews instances of potential noncompliance reported by the contractors; by DOE field office personnel, and from other sources, such as Office of Inspector General and Defense Nuclear Facilities Safety Board reports.
Evaluating and investigating potential violations	Potential cases are screened and evaluated to identify the most significant instances. DOE staff investigate the potential violation, and may hold a conference with the contractor to verify the facts and discuss appropriate corrective actions.
Determining severity level of violation	DOE categorizes violations by severity level: • level I, the most significant, are those violations that involve actual or high potential for an adverse impact on the safety of the public or workers at DOE facilities. • level II are those violations that show a significant lack of attention or carelessness by DOE contractors towards the responsibilities for the protection of the public or worker safety and that could, if uncorrected, lead to an adverse impact on public or worker safety. • level III are violations that are less serious but of more than minor concern and, if left uncorrected, could lead to a more serious condition.
Calculating civil penalty	DOE calculates the civil penalty based on the severity level of the violation,[a] with severity level I penalties set at 100 percent of the base civil penalty (currently $110,000 per violation per day). DOE may also consider other factors in determining the amount of the penalty, including how promptly the contractor reported a potential violation and initiated corrective action and whether a pattern of repeated violations exists.
Notifying contractors and public of results	When DOE issues a notice of violation and assesses a civil penalty, it also generally issues a press release providing the facts of the case to the public. In addition, the enforcement actions and press releases are made available on the Internet.[b]

[a] In addition to the civil penalties, DOE has the authority to refer potential criminal violations to the Department of Justice for consideration.

[b] DOE's Office of Enforcement and Investigation's home page can be found at http://tis.eh.doe.gov/enforce/.

In its March 1999 report to the Congress on the Price-Anderson Amendments Act,[12] DOE stated that its authority to impose civil penalties has proven to be a valuable tool for increasing the emphasis on nuclear safety and enhancing the accountability of its contractors. On the basis of our analysis of the results to date, we agree that DOE's enforcement program appears to be a good mechanism for increasing contractors'

[12]In the Price-Anderson Amendments Act of 1988, the Congress required DOE and the Nuclear Regulatory Commission to report by August 1, 1998, on the need for continuing or modifying the provisions of the act.

awareness of and accountability for nuclear safety requirements and complements existing contract mechanisms. We believe the advantages of the enforcement program include these:

- Independence: The Office of Enforcement and Investigation provides a relatively independent review and oversight of DOE contractors' operations. The director of the program reports directly to the Assistant Secretary, Office of Environment, Safety and Health. Since this office is organizationally separate from the program and field office structure, this helps provide a degree of independence. Such independence is important to improve the credibility of DOE's self-regulation efforts.
- Objectivity: DOE designed the investigation of potential violations to include a process of gathering and analyzing evidence, comparing it to the criteria in the rules, and discussing the facts in a meeting with the contractor. Therefore, the results are likely to be objective and fact-based.
- Corrective action: The Office of Enforcement and Investigation requires the contractor to identify the appropriate corrective action to address a violation of the rules and also ensures that the contractor has taken corrective action. DOE's practice is not to close out an enforcement action case until the corrective action has been verified by the DOE field coordinators and reviewed by the Office of Enforcement and Investigation.
- Visibility: When enforcement actions are finalized, the results of the enforcement action, including the amount of civil penalties assessed and the factors that affected the calculation of that amount, are generally issued in a press release. In addition, the details of the enforcement action and the press release are available through the Internet so that the contractor community and others can be aware of the types of problems that DOE considers to be significant, and lessons learned.

DOE's Use of Civil Penalties

During the 3 years that the program has been in effect, DOE has issued a total of 33 notices of violation and assessed penalties totaling $1.8 million. DOE issued 7 notices of violation in 1996, the first year of its enforcement program, and 13 each in 1997 and 1998. During the first year of the program, the highest penalty assessed was $37,500; the penalties became larger during the following 2 years, with the highest penalty assessed—$165,000—in November 1998. Since the program began, there have been only two severity level I violations—one against EG&G Inc., at DOE's Mound, Ohio, site for deficiencies in its radiation dosage monitoring program, and the other against the University of California at Lawrence Livermore National Laboratory in California for exposing workers to

unnecessary levels of radiation. Table 3 shows the enforcement actions with assessed penalties over $100,000. For a complete listing of the enforcement actions, see appendix II.

Table 3: Enforcement Actions Taken by DOE With Assessed Penalties Exceeding $100,000

Contractor	DOE site	Description of violation	Penalty assessed
Babcock & Wilcox	Mound, Ohio	Quality Assurance and Radiation Protection Rules: Numerous deficiencies in planning work and changing filters, which exposed workers to excessive radiation. Delays in notifying workers of exposure, repeated problems with internal dose evaluation program, and failure to report promptly and initiate corrective actions.	$165,000
University of California	Lawrence Livermore National Laboratory, California	Quality Assurance and Radiation Protection Rules: Radiation exposures of personnel exceeding limits at material shredder facility due to numerous failures to implement established radiological protection requirements and quality controls necessary to protect workers.	$159,375[a]
University of California	Lawrence Livermore National Laboratory, California	Quality Assurance Rule: Repeated violations of safety procedures designed to prevent uncontrolled nuclear reactions. Numerous failures to implement established quality assurance requirements and repeated failure to identify causes and initiate corrective actions.	$153,750[a]
Associated Universities, Inc.	Brookhaven National Laboratory, New York	Radiation Protection Rule: Inadequate training and certification of radiological control technicians. Exposure of personnel to unnecessary radiation. Inadequate controls over radioactive material. Repeated problems and failure to comply with procedures.	$142,500[a]
Fluor Daniel Hanford, Inc.	Hanford, Washington	Quality Assurance Rule: Multiple safety infractions of procedures designed to prevent uncontrolled nuclear reactions at the Plutonium Finishing Plant. Violations of radiological and work control requirements in connection with a May 1997 explosion at the Plutonium Reclamation Facility. Continuing failure to establish and implement safety standards.	$140,625

(continued)

Contractor	DOE site	Description of violation	Penalty assessed
Lockheed-Martin Idaho Technologies Company	Idaho National Engineering and Environmental Laboratory, Idaho	Quality Assurance and Radiation Protection Rules: Multiple failures to follow procedures for ensuring safety. Deficiencies in radiological control training. Continuing trend of failure to adhere to radiological work control requirements resulting in exposure of workers and contamination of the facility.	$125,000
Lockheed-Martin	Oak Ridge, Tennessee	Quality Assurance Rule: Multiple failures to follow work process controls, resulting in a reduction in the safety margin and in the operation of a reactor outside of the facility authorization basis requirements.	$123,750
EG&G, Inc.[b]	Mound, Ohio	Quality Assurance and Radiation Protection Rules: Failure to adequately ensure that the program for sampling workers' internal dosage levels was implemented in accordance with requirements. Deferring corrective actions multiple times and then cancelling them. Failure to ensure that workers were protected from exceeding annual radiation dose limits.	$112,500
University of California	Los Alamos National Laboratory, New Mexico	Quality Assurance and Radiation Protection Rules: Inadequate work controls and failure to follow procedures. Inadequate monitoring of radiological contamination. Repeated problems and inadequate corrective actions.	$112,500[a]

[a] The contractors were exempt from paying these penalties under the provisions of the Price-Anderson Amendments Act of 1988.

[b]EG&G's contract for the Mound, Ohio, site ended on September 30, 1997. The current contractor is Babcock & Wilcox.

Source: DOE's Office of Enforcement and Investigation.

Continuing to Exempt Nonprofit Contractors From Paying Civil Penalties May Not Be Warranted

Under the Price-Anderson Amendments Act of 1988, certain contractors are exempt from paying civil penalties primarily because these contractors received no fees in addition to their reimbursable costs and, therefore, had no contract-generated funds available to pay the penalties. Although DOE now generally pays a fee in addition to reimbursing allowable costs to its major contractors, including the nonprofit educational institutions, the Department recently concluded that the exemption from civil penalties should be continued and expanded to include all nonprofit contractors, subcontractors, and suppliers. DOE determined that it was not necessary to collect penalties from nonprofit contractors because the incentive

provisions in existing contracts were adequate to ensure that these contractors followed safety requirements. Although performance-based contracting can be an effective way to emphasize nuclear safety, DOE has not taken full advantage of this mechanism. Therefore, DOE has not made a convincing case that the nonprofit contractors should be exempt from civil penalties.

Certain Nonprofit Contractors Exempted From Paying Civil Penalties

Of the $1.8 million in civil penalties assessed by DOE from 1996 through 1998, the exempt contractors did not pay about $605,000, or 33 percent of the total penalties assessed. Table 4 shows the current DOE contractors that are exempted by statute from paying penalties, and examples of contractors exempted by administrative rule:

Table 4: DOE Contractors Exempt From Paying Penalties

Contractor	DOE site
Exempted by statute[a]	
University of Chicago	Argonne National Laboratory, Illinois
	Argonne West, Idaho
University of California	Los Alamos National Laboratory, New Mexico
	Lawrence Livermore National Laboratory, California
	Lawrence Berkeley National Laboratory, California
Universities Research Association, Inc.[b]	Fermi National Accelerator Laboratory, Illinois
Princeton University	Princeton Plasma Physics Laboratory, New Jersey
Batelle Memorial Institute	Pacific Northwest National Laboratory, Washington
Exempted by rule	
Stanford University	Stanford Linear Accelerator Center, California
Iowa State University	Ames Laboratory, Iowa
Southeastern Universities Research Association, Inc.[c]	Thomas Jefferson National Accelerator Facility, Virginia
University of Notre Dame	Notre Dame Radiation Laboratory, Indiana

[a]Two laboratory contractors named as exempt in the 1988 amendments are no longer performing those contracts—American Telephone and Telegraph Company at Sandia National Laboratories and the Associated Universities, Inc., at Brookhaven National Laboratory. Their successors are not nonprofit educational institutions exempted by rule, and, therefore, these laboratory contractors no longer have an exemption from paying civil penalties.

[b] Universities Research Association, Inc., is a consortium of 87 universities in the United States, Canada, Japan, and Italy. The U.S. universities are located in 33 states, including Alabama, Arizona, California, Colorado, Connecticut, Florida, Hawaii, Illinois, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Indiana, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, and Wisconsin.

[c] Southeastern Universities Research Association, Inc., is a consortium of 44 universities in 13 southeastern states and the District of Columbia. Member institutions come from the states of Alabama, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

Need to Continue Nonprofit Exemption Is Questionable

One part of DOE's March 1999 report on the Price-Anderson Amendments Act reassessed the merits of the enforcement program and the need to continue exempting nonprofit educational institutions from civil penalties. Although DOE concluded that the authority to impose civil penalties has

proven to be a valuable tool for increasing the emphasis on nuclear safety and for enhancing contractors' responsibility and accountability, DOE also concluded that the exemption for nonprofit contractors should be continued for the reasons discussed below.[13] Our analysis of DOE's reasons raises several questions about the merits of continuing the exemption.

- Fees available to pay civil penalties. DOE states that the exemption should be continued because major universities and other nonprofit contractors would be unwilling to put their assets at risk for contract-related expenses such as civil penalties. This argument presumes that the nonprofit contractors have no contract-related funds available to pay the penalties. For at least two reasons, however, penalties could be collected from available funds without threatening those assets. The first reason is that DOE is now implementing performance-based contracting, which includes making a fee available to its nonprofit contractors. This fee is in addition to the reimbursable costs under the contract. For fiscal year 1999, all but one of the contractors that manage and operate DOE facilities have the opportunity to earn a fee.[14] (See app. I.). This fee could be used to pay any civil penalties imposed on the contractor. The second reason is that in setting the amount of a civil penalty, the Secretary of Energy has the authority to consider factors such as the contractor's ability to pay and the effect of the fine on the contractor's ability to continue to do business. The Secretary could limit the amount of the penalty to no more than the amount of the available fee. Therefore, a situation should not occur where a nonprofit contractor had its assets at risk because of having to pay the civil penalty.
- Use of contract mechanisms. DOE states that contract provisions are a better mechanism than civil penalties for holding nonprofit contractors accountable for safe nuclear practices.[15] Although performance-based contracting can be an effective way to emphasize nuclear safety, DOE has not taken full advantage of this mechanism. For example, in 1999, DOE's Inspector General reported that major site and facility contracts may not include all pertinent safety requirements and that contracting officers may not be using existing contract mechanisms as effectively as possible to

[13]DOE also recommended changing the law to (1) eliminate the distinction between nonprofit educational institutions and other nonprofit organizations by extending the exemption to all nonprofit contractors and (2) eliminating the exemption for the for-profit subcontractors and suppliers of nonprofit DOE contractors.

[14]Stanford University has a no-fee contract to operate the Stanford Linear Accelerator Center in California. According to DOE, the contractor wants no fee because a fee would be inconsistent with its role as a university research organization.

[15]However, DOE concluded that civil penalties are an appropriate mechanism to ensure safe nuclear practices by for-profit contractors.

maximize DOE's ability to promote and enforce safety requirements.[16] In addition, even when safety requirements are incorporated into a site contract, the effect of poor safety performance on the fee earned may be relatively small. For example, at the Lawrence Livermore National Laboratory in California, DOE's main contractor—the University of California—received 96 percent of its $6.4 million available fee in fiscal year 1998, even though it had significant nuclear safety deficiencies resulting in enforcement actions and $313,125 in civil penalties assessed. For fiscal year 1999, it will receive about $1.1 billion to operate the facility and up to $6.4 million in fees for meeting or exceeding performance goals, including compliance with health and safety requirements. If the contractor does not perform satisfactorily in the safety and health area, the most this fee could be reduced is $252,000, according to the agreement with DOE. In the overall context of the available fee, this potential reduction is relatively small. In contrast, there is no preset limit on civil penalties, which are established depending on the severity and duration of the violation.[17]

Our 1997 report on safety and health problems at the Brookhaven National Laboratory further illustrates weaknesses in DOE's use of contract mechanisms to ensure safe nuclear practices.[18] Tritium leaking from a nuclear fuel storage basin at the site contaminated the aquifer that provides drinking water to nearby residents. Although the contractor, Associated Universities, Inc., failed to properly carry out its safety and health responsibilities, the performance measures in the contract did not reflect a priority for safety and health issues. In the 1996 contract, only 7.5 percent of the performance evaluation criteria addressed safety and health activities. Furthermore, despite these safety problems, DOE consistently rated the contractor's performance on safety and health as either good or excellent. For its part, DOE failed to properly oversee the contractor's operations at the laboratory or to hold the contractor accountable for meeting all of its regulatory requirements. Eventually, DOE terminated its contract with Associated Universities, Inc.

Recent actions by DOE may help strengthen the impact of contract mechanisms on contractors' safety performance. In March 1999, DOE

[16]Inspection of Selected Issues Regarding the Department of Energy Accident Investigation Program, (DOE/IG-0442, Apr. 1, 1999).

[17]The statute allowed a maximum penalty of $100,000 per violation, with each day of a continuing violation considered a separate violation. In 1997, DOE adjusted the maximum civil penalty in accordance with the Federal Civil Penalties Inflation Adjustment Act of 1990. The base civil penalty amount is now $110,000 per violation.

[18]Department of Energy: Information on the Tritium Leak and Contractor Dismissal at the Brookhaven National Laboratory, (GAO/RCED-98-26, Nov. 4, 1997).

revised its acquisition regulation to increase the amount of a contractor's available fee that could be affected by poor safety performance. This was part of a broader initiative by the Secretary to strengthen DOE's capabilities to protect the safety and health of people who work at or live near its facilities. In a March 1999 memorandum to all DOE and contractor employees, the Secretary directed several actions, including holding a contractor's entire fee at risk for poor safety performance and improving the timely resolution of safety deficiencies identified by the Office of Oversight. In addition, DOE's Director, Office of Procurement and Assistance Management, provided additional guidance to contracting officers to better ensure that (1) contractors are held accountable for implementing an integrated safety management system and (2) work tied to specific incentive fees is evaluated for adherence to safety requirements as part of the assessment of the contractors' overall performance of the work.

It remains to be seen how aggressive DOE program and field offices will be in implementing these changes. For example, holding a contractor's entire fee at risk for poor safety performance may have to be incorporated into existing contracts as part of renegotiating those contracts in order to implement this provision. In addition, the above examples show that even when contractors have significant safety problems, DOE has paid substantial performance fees. In contrast, DOE's enforcement program is relatively independent from the program and field offices and from the process of negotiating contracts. Because DOE is not externally regulated for nuclear safety, it must rely on its own system of oversight and controls to hold its contractors accountable. The enforcement program is an important complement to any contract-related mechanisms for ensuring that contractors have safe nuclear practices.

- Consistency with other regulatory agencies. DOE states that its current approach is consistent with the Nuclear Regulatory Commission's treatment of nonprofit organizations. For example, the Commission imposes relatively low penalties on nonprofit organizations, which serve the purpose of publicizing lapses in safety. Similarly, DOE issues notices of violation to these nonprofit organizations without collecting penalties but can apply financial incentives or disincentives through the contracts. However, DOE's approach generally is not consistent with that of the Commission or other regulatory agencies. The Commission imposes penalties on any organization it regulates for violating safety requirements without regard to the profit-making status of the organization. In doing so, the Commission sets lower penalty amounts for nonprofit organizations

than for the for-profit organizations. Although this option is also available to the Secretary, DOE does not currently take this approach. In addition, the Commission has in the past assessed and collected penalties for violating nuclear safety requirements from an organization that DOE exempts from payment. In 1985, the Commission assessed and collected a penalty of $2,000 against Princeton University for a breakdown in safety practices that led to exposing an employee to excessive amounts of radiation. Other regulatory agencies also assess and collect penalties from some of the same nonprofit contractors that DOE exempts from payment. For example, the California State Department of Toxic Substances Control has assessed and collected administrative costs from the University of California for violating environmental laws at two DOE national laboratories—Lawrence Livermore and Lawrence Berkeley.[19] Because of violations of hazardous waste laws between 1989 and 1993 at those DOE laboratories, the University of California paid a total of over $88,000 in administrative costs to the state of California. Because of the contract agreement with DOE at the time, DOE reimbursed the University of California for those costs.

Conclusions

DOE is solely responsible for nuclear safety at its facilities. The nuclear safety rules complement other mechanisms that encourage safe nuclear practices, such as performance-based contracting, and are a valuable component of DOE's efforts to ensure that its contractors and their subcontractors and suppliers are following nuclear safety requirements. These rules provide DOE with a relatively objective, independent, and solution-oriented approach to ensuring that contractors meet safety requirements. However, over 10 years after the Congress authorized DOE to assess civil penalties when contractors violate nuclear safety requirements, DOE's original goal is far from being achieved. Requirements relating to many aspects of nuclear safety, including training and certification, maintenance, and operating procedures, carry no civil penalty for failing to follow them because they have not been issued as enforceable rules. In addition, DOE officials cannot fully agree on which facilities are covered by the few rules that exist. Completing the transition to enforceable rules and holding the contractors fully accountable for complying with those rules would provide added assurance that contractors are following safe nuclear practices.

[19]Prior to the Federal Facilities Compliance Act of 1992, states were not allowed to assess penalties against federal facilities. Therefore, the state of California characterized these amounts as "administrative costs.".

DOE has proposed that the statutory exemption from paying civil penalties for violating the rules, which now applies to contractors at only five DOE research laboratories and to nonprofit educational institutions, be expanded to include all nonprofit contractors, subcontractors, and suppliers. DOE's position is that contract mechanisms are sufficient to ensure safe nuclear practices by nonprofit contractors, but that the ability to assess civil penalties is a valuable tool to hold for-profit contractors accountable. Ample evidence exists, however, that shortcomings in DOE's implementation of performance-based contracting have limited the Department's ability to hold contractors accountable for safe nuclear practices. Therefore, it is unwise to limit any options that DOE has for ensuring safe nuclear practices by its contractors. DOE has not made a convincing case for doing so.

Recommendations

In order to strengthen DOE's nuclear safety enforcement program, we recommend that the Secretary of Energy

- expeditiously complete the process of issuing enforceable rules covering important nuclear safety requirements,
- ensure that field locations are properly following DOE's guidance in determining which facilities must comply with the nuclear safety rule on quality assurance, and
- eliminate the administrative exemption from paying civil penalties for violations of nuclear safety rules that DOE granted to nonprofit educational institutions.

Matter for Congressional Consideration

To ensure that both nonprofit and for-profit contractors are held fully accountable for meeting nuclear safety requirements, the Congress should consider eliminating the statutory and administrative exemptions from paying civil penalties for violating nuclear safety rules.

Agency Comments

We provided a draft of this report to DOE for review and comment. DOE generally agreed with the report's conclusions and recommendations. DOE agreed with our recommendation that it needs to complete the process of issuing enforceable rules covering important nuclear safety requirements and outlined its strategy for doing so. DOE also agreed with our recommendation to clarify the scope of coverage of the quality assurance rule and described the steps it has taken and will take to clarify the application of this rule to its facilities.

Regarding our recommendation that the Secretary eliminate the administrative exemption from paying civil penalties that DOE granted to nonprofit educational institutions, the Department commented that the issue of exemption from civil penalties is ultimately one for the Congress to decide. We agree that Congress has the authority to determine whether to continue the statutory exemption in the Price-Anderson Amendments Act of 1988, and our report suggests that the Congress consider eliminating the statutory and administrative exemptions. In the meantime, however, the Secretary currently has the authority to determine whether nonprofit educational institutions should continue to be exempted by rule. We believe that, as a first step, the Secretary should eliminate the existing administrative exemption to provide DOE an additional tool to hold its nonprofit contractors accountable for nuclear safety.

DOE also suggested several technical clarifications that we have incorporated as appropriate. Appendix III includes the full text of DOE's comments.

Scope and Methodology

To determine the enforceable nuclear safety rules that DOE has issued since 1988, we reviewed the proposed and final rules as published in the Federal Register, the Code of Federal Regulations, and other documentation provided by DOE's Office of Enforcement and Investigation and Office of General Counsel. In addition, we interviewed the Director of the Office of Enforcement and Investigation, the Director of the Office of Nuclear Safety Policy and Standards, and officials in DOE's Office of the Assistant General Counsel for Civilian Nuclear Programs.

To determine the DOE facilities and contractors covered by the nuclear safety rules, we reviewed the enforceable nuclear safety rules contained in the Code of Federal Regulations and DOE's operational procedures for the enforcement program. We also interviewed the Director of the Office of Enforcement and Investigation, and the Deputy Assistant Secretary, Office of Oversight, Environment, Safety, and Health. We obtained a listing of contractors from DOE's Office of Procurement and Assistance Management. To develop a listing of facilities subject to nuclear safety rules, we contacted the Price-Anderson Amendments Act coordinators at DOE sites for the total number of facilities at each site and the number that were categorized as radiological or as nuclear facilities. We did not attempt to validate the information provided by the coordinators. We also reviewed the implementation plans for the quality assurance rule that had been filed with the Office of Enforcement and Investigation. In addition,

we obtained documentation from the Office of Enforcement and Investigation and selected DOE field locations to determine what criteria were being used to classify nuclear facilities.

To determine how DOE has implemented and enforced the nuclear safety rules, we reviewed the June 1998 operational procedures developed by DOE's Office of Enforcement and Investigation for enforcing the Department's nuclear safety requirements under the Price-Anderson Amendments Act of 1988 and for identifying, reporting, and tracking nuclear safety noncompliances. We also reviewed the annual reports for 1996 through 1998 that include the enforcement actions taken by the Office of Enforcement and Investigation. In addition, we interviewed the Director of the Office of Enforcement and Investigation and reviewed other documentation he provided. We also reviewed the January 1999 DOE Inspector General report on contractors' reporting of instances of noncompliance at the Oak Ridge, Tennessee, site, and attended a December 1998 conference of Price-Anderson Amendments Act coordinators.

To determine the reasons for and against continuing to exempt certain contractors from paying penalties for violating nuclear safety rules, we reviewed the legislative history of the 1988 re-authorization of the Price-Anderson Act and other reports on the act that outline the reasons for the exemption from penalty for certain contractors. In addition, we interviewed officials in DOE's Office of the Assistant General Counsel for Civilian Nuclear Programs, and the Director of the Office of Enforcement and Investigation. We also reviewed the December 31, 1997, notice of inquiry in the Federal Register that requested public comments on issues associated with the future re-authorization of the Price-Anderson Act, the comments received by DOE from various contractors and others, and DOE's March 1999 report to the Congress on the Price-Anderson Act. To understand the contract mechanisms, we relied on our previous work on performance-based contracting, which dealt mainly with for-profit contractors. We also reviewed the Department of Energy Acquisition Regulation and interviewed the Deputy Assistant General Counsel, Procurement and Financial Assistance. To gain perspective on how the contract mechanisms have worked at a nonprofit contractor, we interviewed the Associate Manager for Site Management and the Contracting Officer with DOE's Oakland Operations Office and reviewed the contract with the University of California for the Lawrence Livermore National Laboratory and other supporting documentation.

We performed our review from November 1998 through May 1999 in accordance with generally accepted government auditing standards.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this report. At that time, we will send copies to the Honorable Bill Richardson, Secretary of Energy. We will also make copies available to others on request. Please call me at (202) 512-3841 if you or your staff have any further questions. Major contributors to this report were William R. Swick, Margaret L. Armen, Carole J. Blackwell, Araceli C. Hutsell, and Stan G. Stenersen.

Sincerely yours,

(Ms.) Gary L. Jones
Associate Director, Energy,
Resources, and Science Issues

Contents

Abbreviations

DOE Department of Energy

Major DOE Contractors, Fiscal Year 1999 Budget and Fee Amounts

One or more of the nuclear safety rules applies to any contractor that has been indemnified from liability for possible damages caused by working with nuclear materials, as well as to its subcontractors and suppliers. A wide range of DOE contractors are indemnified from such liability, including for-profit organizations such as Lockheed Martin and Fluor Daniel (operators of DOE's Oak Ridge and Hanford sites, respectively) and nonprofit organizations such as the University of California and the University of Chicago (operators of the Lawrence Livermore and Argonne National Laboratories, respectively). Although the total number of subcontractors and suppliers benefiting from indemnification is unknown, it likely runs into the thousands.[20]

Contractor	Site/facility	FY 1999 budget	FY 1999 fee available to contractor
For-profit contractors			
Lockheed Martin	Sandia National Laboratory, New Mexico	$1,500,000,000	$15,900,000
	Idaho National Engineering and Environmental Laboratory, Idaho	$638,835,367	$40,246,965
	Oak Ridge Site (Y-12), Tennessee	$599,507,000	$30,000,000
	Oak Ridge National Laboratory, Tennessee	$583,163,000	$8,600,000
Westinghouse	Savannah River, South Carolina	$1,436,400,000	$61,500,000
	West Valley Demonstration Project, New York	$121,948,000	$10,377,800
	Waste Isolation Pilot Plant, New Mexico	$96,000,000	$10,400,000
Fluor Daniel	Hanford, Washington	$889,800,000	$45,800,000
	Fernald, Ohio	$263,551,000	$18,652,652
Kaiser-Hill	Rocky Flats, Colorado	$611,000,000	$17,945,000
Bechtel	Oak Ridge, Tennessee	$449,156,000	$18,985,347
	Nevada Test Site, Nevada	$285,000,000	$18,250,000
	Hanford , Washington	$137,000,000	$10,143,200
Allied Signal FM&T	Kansas City Plant, Missouri	$359,800,000	$21,800,000
Mason & Hanger Corporation	Pantex Plant, Texas	$270,000,000	$21,100,000
TRW	National Civilian Radioactive Waste Program, Nevada	$244,425,000	$12,630,000

(continued)

[20]For example, the University of Chicago has about 3,600 subcontracts for the Argonne National Laboratory. Not all subcontractors are performing work that involves nuclear materials, and those that are may have more than one subcontract. Accordingly, the number of subcontractors subject to the rules is probably lower than this figure.

Contractor	Site/facility	FY 1999 budget	FY 1999 fee available to contractor
Nonprofit contractors			
University of California	Los Alamos National Laboratory, New Mexico	$1,200,000,000	$8,000,000
	Lawrence Livermore National Laboratory, California	$1,100,000,000	$6,400,000
	Lawrence Berkeley National Laboratory, California	$320,000,000	$1,600,000
University of Chicago	Argonne National Laboratory, Illinois/Idaho	$490,000,000	$3,500,000
Batelle Memorial Institute	Pacific Northwest National Laboratory, Washington	$469,000,000	$7,100,000
Brookhaven Science Associates	Brookhaven National Laboratory, New York	$426,655,000	$7,000,000
University Research Associates	Fermi Laboratory, Illinois	$277,000,000	$2,800,000
Stanford University	Stanford Linear Accelerator Center, California	$174,579,000	[a]
Princeton University	Princeton Plasma Physics Laboratory, New Jersey	$58,000,000	$10,000
Iowa State University	Ames National Laboratory, Iowa	$25,000,000	$100,000

[a]Stanford University has a no-fee contract to manage and operate the Stanford Linear Accelerator Center.

Source: DOE's Office of Procurement and Assistance Management.

Enforcement Actions 1996 Through 1998

Contractor (subcontractor)	Site	Date of enforcement action	Severity level[a]	Description of violation	Penalty assessed
University of California	Los Alamos National Laboratory, New Mexico	12/18/96	III	Quality Assurance Rule: Unauthorized modification of monitors that alert workers to a tritium (radioactive isotope of hydrogen) release to minimize potential exposures. Procedures for review of design changes not followed.	None
		09/21/98	II, III	Quality Assurance and Radiation Protection Rules: Inadequate work controls and failure to follow procedures. Inadequate monitoring of radiological contamination. Reflected repeated problems and inadequate corrective actions.	$112,500
	Lawrence Livermore National Laboratory, California	03/09/98	I, II	Quality Assurance and Radiation Protection Rules: Radiation exposures of personnel exceeded limits at material shredder facility due to numerous failures to implement radiological protection requirements and quality controls necessary to protect workers.	$159,375
		07/28/98	II	Quality Assurance Rule: Repeated violations of safety procedures designed to prevent uncontrolled nuclear reactions. Numerous failures to implement established quality assurance requirements and repeated failure to identify causes and initiate corrective actions.	$153,750
Lockheed Martin	Idaho National Engineering and Environmental Laboratory, Idaho	02/27/97	II	Quality Assurance and Radiation Protection Rules: Inadequate radiological monitoring of the workplace and failure to implement adequate work controls resulting in unnecessary internal radiation exposure of five workers.	$25,000
		09/19/97	III	Quality Assurance Rule: Failure to follow established operational safety requirements, resulting in operating nuclear facilities outside of their safety authorization basis.	None

(continued)

Contractor (subcontractor)	Site	Date of enforcement action	Severity level[a]	Description of violation	Penalty assessed
		06/04/98	II	Quality Assurance and Radiation Protection Rules: Multiple failures to follow procedures for ensuring safety. Deficiencies in radiological control training. Continuing trend of failure to adhere to radiological work control requirements resulting in exposure of workers and contamination of facility.	$125,000
(MAC Isotopes)		06/04/98	II	Quality Assurance and Radiation Protection Rules: Failure to ensure that radiological hazards were identified and communicated to workers and prime contractor. Multiple failures to follow established safety procedures. Resulted in exposure of workers and contamination of facility.	$25,000
		09/21/98	II	Quality Assurance Rule: Unauthorized disabling of safety system designed to automatically shut down reactor if seismic movement is detected. Failure to properly conduct pre-start up activities, and preparation of false records showing that work had been done.	$55,000
	Oak Ridge, Tennessee	09/21/98	III	Radiation Protection Rule: Deficiencies in the administration of subcontractor's program to monitor internal radiation doses to workers. Repeated failures to identify that workers had received significant intakes of radiation and failure to notify workers of exposure.	None
(MK-Ferguson)		09/21/98	III	Radiation Protection Rule: Failure to implement an internal dose evaluation program to ensure that all radiation exposure considered when determining compliance with annual exposure limits. Resulted in failure, on multiple occasions over a 2-year period, to identify significant intakes of radioactive material by two workers.	None

(continued)

Contractor (subcontractor)	Site	Date of enforcement action	Severity level[a]	Description of violation	Penalty assessed
		11/16/98	II	Quality Assurance Rule: Multiple failures to follow work process controls, resulting in reduction in safety margin and operation of a reactor outside of the facility authorization basis requirements.	$123,750
	Sandia National Laboratory, New Mexico	08/14/96	II	Radiation Protection Rule: Failure to control access and provide necessary radiation warnings to preclude inadvertent entry of workers into high and/or very high radiation areas. Repeated failure to property control radiological work and take corrective actions.	$5,000
		08/14/97	II, III	Radiation Protection Rule: Multiple radiological work control deficiencies resulting in workers being exposed to highly radioactive particle while sorting waste material. Workers performing hazardous radiological activities without adequate planning and controls. Conflicting instructions resulted in workers continuing operations in area while airborne radiation monitoring alarms sounding.	$56,250
		08/14/97	II	Quality Assurance Rule: Multiple failures to follow established procedures for shutdown and subsequent restart of research reactor. Destruction of records that covered the unauthorized restart and operation of the reactor.	None
Westinghouse	Savannah River, South Carolina	11/24/97	III	Quality Assurance Rule: Failure to adequately review safety systems procured from nonqualified vendor to ensure compliance with design requirements. Failure to require vendor to comply with installation requirements. Failure of quality control program to identify inadequate welds and take corrective actions.	None

(continued)

Contractor (subcontractor)	Site	Date of enforcement action	Severity level[a]	Description of violation	Penalty assessed
		12/05/97	II	Radiation Protection Rule: Multiple failures to follow radiological work control procedures during decontamination and removal of equipment. Failure to stop work and evacuate workers after determining that radioactivity in work area exceeded the stop work level of the permit by about 100 times. Resulted in unnecessary exposure of worker to plutonium.	$93,750
		09/21/98	II	Quality Assurance Rule: Repeated failures of quality control program to determine whether corrective actions had been effective in remedying identified problems. Failure of work processes and controls to ensure that workers following radiation dosage monitoring programs.	$75,000
	Hanford, Washington	07/16/96	II	Radiation Protection Rule: Inadequate controls over radiological work processes. Failure to follow established work processes. Lack of adequate monitoring equipment to protect workers. Resulted in exposure of worker during removal of device from high-level radioactive waste storage tank.	$37,500
Babcock & Wilcox	Mound, Ohio	11/16/98	II	Quality Assurance and Radiation Protection Rules: Numerous deficiencies in planning work and changing filters that exposed workers to excessive radiation. Delayed notifying workers of exposure, had repeated problems with internal dose evaluation program, and failed to report promptly and initiate corrective actions.	$165,000

(continued)

Contractor (subcontractor)	Site	Date of enforcement action	Severity level[a]	Description of violation	Penalty assessed
Fluor Daniel	Hanford, Washington	03/26/98	II	Quality Assurance Rule: Multiple safety infractions of procedures designed to prevent uncontrolled nuclear reactions at the Plutonium Finishing Plant. Violations of radiological and work control requirements in connection with the May 1997 explosion at the Plutonium Reclamation Facility. Continuing failure to establish and implement safety standards.	$140,625
	Fernald, Ohio	07/29/97	III	Quality Assurance Rule: Failure to effectively complete corrective actions for deficiencies in records of inspections to determine structural integrity of nuclear material storage containers. Corrective actions taken not adequate to prevent recurrence of deficiencies.	$10,000
Kaiser-Hill	Rocky Flats, Colorado	10/07/96	II	Quality Assurance and Radiation Protection Rules: Repeated failures to follow radiological work controls resulting in exposure of workers. Failure to report exposure in timely manner. Failure to take corrective actions Failure to ensure that subcontractor follows established work controls.	$37,500
(Safe Sites of Colorado)		10/07/96	II	Quality Assurance and Radiation Protection Rules: Failure to follow established radiological protection program resulting in exposure to workers to plutonium. Failure to stop work to limit exposure to workers. Inadequate monitoring of operations.	$37,500
		06/06/97	III	Radiation Protection Rule: Inadequate radiological work and contamination control processes. Problems identified during DOE on-site review rather than by contractor. Reflects series of problems with no corrective actions.	None

(continued)

Contractor (subcontractor)	Site	Date of enforcement action	Severity level[a]	Description of violation	Penalty assessed
(Rocky Mountain Remediation Services)		06/06/97	III	Radiation Protection Rule: Failure to follow radiological work controls. Inadequate monitoring of work activities and area to detect contamination. Failure to promptly identify radiation release.	None
		04/14/98	None[b]	Radiation Protection Rule: Unnecessary exposure of workers to radiation at three separate times over 2 years. Collectively indicated significant weaknesses in the controls necessary to perform work safely. Rather than issue notice of violation, DOE chose to use a consent order as allowed in the procedural rule. The consent order reflects agreement between DOE and the contractor on the corrective action to be taken, and includes a schedule for completion.	$100,000
Associated Universities, Inc.	Brookhaven National Laboratory, New York	12/18/97	II	Radiation Protection Rule: Inadequate training and certification of radiological control technicians. Exposure of personnel to unnecessary radiation. Inadequate controls over radioactive material. Repeated problems and failure to comply with procedures.	$142,500
(Petsco & Son, Inc.)		12/18/96	II	Radiation Protection Rule: Failure to follow radiological warning signs established by prime contractor. Failure to ensure that workers had adequate training and protective clothing prior to entering contamination areas.	$37,500
EG&G, Inc.	Mound, Ohio	10/21/97	I, II	Quality Assurance and Radiation Protection Rules: Failure to adequately ensure that the program for sampling worker internal dosage levels was implemented in accordance with requirements. Corrective actions were deferred multiple times and then cancelled. Failure to ensure that workers were protected from exceeding annual radiation dose limits.	$112,500

(continued)

Contractor (subcontractor)	Site	Date of enforcement action	Severity level[a]	Description of violation	Penalty assessed
Mason & Hanger Corporation	Pantex, Texas	06/05/97	III	Accuracy of Information Provided to DOE (Procedural Rule)[c]: Falsification of work proficiency records that reflect whether worker properly trained and certified to dismantle nuclear weapons.	None
Batelle Memorial Institute	Pacific Northwest National Laboratory, Washington	04/03/96	III	Quality Assurance Rule: Failure to properly respond to a high-level alarm condition, which was part of a safety feature designed to prevent uncontrolled nuclear chain reactions. Lack of controls to ensure that workers recognized the alarm condition as a safety problem.	None
Bechtel	Hanford, Washington	09/19/97	III	Radiation Protection Rule: Inadequate monitoring of the workplace to detect changes in radiological condition. Inadequate work controls allowed workers to continue under conditions that exceeded radiological work permit "stop work" limits. Resulted in two incidents where workers unnecessarily exposed to radiation.	None
Total penalties					$1,830,000

[a] Severity level I, the most significant, are those violations that involve actual or high potential for an adverse impact on the safety of the public or workers at DOE facilities; level II are those violations that show a significant lack of attention or carelessness towards the responsibilities of DOE contractors for the protections of the public or worker safety and that could, if uncorrected, potentially lead to an adverse impact on public or worker safety; level III violations are less serious but of more than minor concern and, if left uncorrected, could lead to a more serious condition.

[b] Since this was not considered a notice of violation of the rule, there was no severity level assigned. In addition, the $100,000 was not considered a civil penalty, but instead was categorized as a "monetary remedy."

[c] In addition to the quality assurance and radiation protection rules, DOE determined that certain other requirements would be considered enforceable, such as accuracy of information provided to DOE in regards to nuclear safety.

Source: DOE's Office of Enforcement and Investigation.

Comments From the Department of Energy

Department of Energy
Washington, DC 20585

May 17, 1999

Ms. Gary L. Jones
Associate Director
Energy Resources and Science Issues
U.S. General Accounting Office
Washington, DC 20548

Dear Ms. Jones:

The Department of Energy (DOE) has reviewed your draft report, *"DEPARTMENT OF ENERGY: DOE's Nuclear Safety Enforcement Program Should Be Strengthened."* Overall, we found the report to be an accurate and thorough review of the enforcement program at DOE. With regard to the GAO's specific recommendations, our comments are as follows:

Recommendation One: Expeditiously complete the process of issuing enforceable rules covering important nuclear safety requirements.

The Department agrees that it needs to complete the process of issuing enforceable rules covering fundamental nuclear safety requirements. As the report mentions, there is a renewed effort within DOE to do this. This effort will consider ongoing efforts to implement Integrated Safety Management to ensure that the rulemaking does not hinder or impede ISM development. Further rulemaking will need to ensure the compatibility of enforceable rules with the Department's efforts on ISM. The Department expects to make a final decision on the rules by October 1999 and issue them by January 2000.

Recommendation Two: Ensure that field locations are properly following DOE guidance in determining which facilities must comply with the nuclear safety rule on quality assurance.

The Department agrees that the scope of the Department's regulatory quality assurance (QA) provisions in 10 CFR 830.120 has been unclear. However, it should be emphasized that contractor QA programs are still required by contractual provisions in the DOE QA Order 414.1. The ambiguity has been whether QA is required as a regulatory program that can be subject to the PAAA enforcement provisions. Since the GAO report was drafted, the Department has taken steps to clarify what nuclear facilities must comply with the regulatory QA provisions. First, the 1998 Annual Report for the Office of Enforcement provided further guidance as to the scope of the provisions of 10 CFR Part 830 to include all reactor and nonreactor nuclear facilities. Second, the Office of Enforcement will issue a formal Enforcement Guidance Memorandum to all

field sites to further clarify the scope of Part 830. Lastly, the further rulemaking effort mentioned in response to Recommendation One will provide additional clarity regarding the regulatory scope of all Part 830 provisions, including QA.

Recommendation Three: Eliminate the administrative exemption from paying civil penalties for violations of nuclear safety rules that DOE granted to non profit educational institutions.

The issue of exemption from civil penalties for not-for-profit or educational institutions has been one of considerable debate since the passage of the Price-Anderson Amendments Act in 1988. While the Secretary has made a recommendation in his report to Congress, this is ultimately an issue for the Congress to decide. Should the Congress eliminate the statutory exclusion from paying civil penalties, the Department would issue civil penalties to the not-for-profit or educational institutions in a manner similar to that currently used by the Nuclear Regulatory Commission.

Additional technical corrections are attached. We appreciate the opportunity to comment on the report and on the fair and objective manner in which the investigation was conducted.

Sincerely,

David Michaels, PhD, MPH
Assistant Secretary
Environment, Safety and Health

Additional Comments
General Accounting Office Report, RCED-99-146, "Department of Energy: DOE's Nuclear Safety Enforcement Program Should be Strengthened,"

Comments from Office of Environment, Safety and Health

1. Page 18 of the Draft Report, in the first bulleted item, states that "for fiscal year 1999, all of the contractors that manage and operate DOE facilities have the opportunity to earn a fee. This statement is not accurate. Stanford does not get a fee under the new SLAC contract.

2. That same section on page 18 refers to appendix I. The non-profit section begins on page 27, and does not include Stanford University as the M & O for SLAC. In fact, it does not mention SLAC at all.

3. On page 21 of the Draft, first paragraph, reads "For example, the California State Department of Toxic Substances Control,,," That sentence and the next one are not accurate. Suggest revising those two sentences to read:

   "For example, the California State Department of Toxic Substances Control has collected administrative costs from the University of California for violating environmental laws at two DOE national laboratories--Lawrence Livermore and Lawrence Berkeley. Because of violations of hazardous waste laws between 1989 and 1993 at those DOE laboratories, the University of California paid a total of over $88,000 in administrative costs to the State of California."

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