

TESTIMONY OF
JOHN T. CONWAY, CHAIRMAN
A. J. EGGENBERGER, VICE CHAIRMAN
JOHN W. CRAWFORD, Jr., MEMBER
JOSEPH J. DiNUNNO, MEMBER
HERBERT KOUTS, MEMBER
DEFENSE NUCLEAR FACILITIES SAFETY BOARD

FY 1997 DEFENSE AUTHORIZATION HEARING

SUBCOMMITTEE ON STRATEGIC FORCES
COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

MARCH 6, 1996

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

We appreciate the opportunity to appear before you to discuss the Board's role in ensuring that the health and safety of the public and the workers are adequately protected throughout the Department of Energy's (DOE) defense nuclear complex. The February 23, 1996, letter from Senators Lott and Exon inviting us to testify today advised that:

“The subject of the hearing will be the major recommendations of the Defense Nuclear Facilities Safety Board (DNFSB) over the past several years and whether they have been effective in promoting the safe accomplishment of the nuclear weapons and environmental missions of the U.S. Department of Energy. In particular, you should be prepared to comment on the Ahearne Report's recommendations on external regulation of DOE nuclear activities, and on the efficacy of all legislated DNFSB functions, including DNFSB Recommendation 94-1.”

In our testimony today, we will first attempt to summarize the Board's progress in fulfilling its public health and safety oversight responsibility for the nuclear weapons and environmental missions of the DOE.

STATUTORY MISSION OF THE BOARD

The Board's enabling statute, 42 U.S.C. § 2286, requires the Board to review and evaluate the content and implementation of health and safety standards, including DOE's Orders, rules, and other safety requirements, relating to the design, construction, operation, and decommissioning of DOE's defense nuclear facilities. The Board must then recommend to the Secretary of Energy any specific measures, such as changes in the content and implementation of those standards, that the Board believes should be adopted to ensure that the public health and safety are adequately protected. The Board is required to review the design of new defense nuclear facilities before construction begins, as well as modifications to older facilities, and to recommend changes necessary to protect health and safety. Board review and advisory responsibilities continue throughout the full life cycle of facilities, including shutdown and decommissioning phases. The Board is also required to investigate any event or practice at a DOE defense nuclear facility which it determines has adversely affected or may adversely affect public health and safety.

The Board has also undertaken the added responsibilities mandated by the National Defense Authorization Act for Fiscal Years 1992 and 1993 (Public Law 102-190) which amended the original law. These amendments, which added the assembly, disassembly, and testing of nuclear weapons to the scope of the Board's oversight responsibilities, increased the Board's workload substantially.

The Board has been in operation for 6 ½ years. The Board has assembled a talented staff with extensive experience in nuclear-chemical processing, conduct of operations, nuclear safety analysis, conventional and nuclear explosive technology and safety, nuclear weapons safety, storage of nuclear materials, nuclear criticality safety, and waste management and environmental restoration. Two full-time site representatives are stationed at the Pantex site to oversee the safe assembly and disassembly of nuclear weapons. Two site representatives are assigned to the Hanford Site to monitor waste characterization and stabilization and two full-time site representatives are stationed at the Rocky Flats Environmental Technology Site to monitor DOE's stabilization and storage of the large plutonium inventory at the site.

The terms of the statute setting up the Defense Nuclear Facilities Safety Board (Board) gave clear guidance of what Congress had in mind for the Board to do, and the way it was to operate. Oversight with action-forcing powers was chosen instead of making the Board a regulator. Congress expected the Board's oversight to have many of the same positive results as regulation; that is, assure that the Department of Energy was implementing a program for the safe management of the production and use of defense nuclear materials, a program that provides reasonable assurance of no undue risk to the workers and the public, and protects the environment. Congress was well aware that DOE had issued safety policies and standards of good practices. However,

Congress was also aware that they needed upgrading and that DOE and contractor operations in the past had left a residual of much contamination in buildings and the surrounding environment. DOE's problem appeared to be more one of failure to establish clear expectations by DOE of its contractors and to build safety compliance into the fabric of work planning and execution.

The Board's efforts in the past six years have been focused upon the examination of the standards identified by DOE as codes of good practices, the manner in which DOE defines for its contractor's what is expected of them in the performance of DOE's mission, and how such expectations once established as requirements are enforced. These elements are basic to any safety management program whether internally or externally driven. The most significant deficiencies noted by the Board in these basic elements have been communicated to DOE via the recommendation process set forth in our authorizing legislation. These recommendations not only describe the perceived deficiency, but also provide guidance as to what the Board believes is advisable for a solution. Details of plans for addressing the issues identified through the recommendation process are then submitted by the Secretary for Board approval. The Board follows the progress of the required action program until the planned action has been completed. To date the Board has issued 33 sets of recommendations containing 147 specific recommendations. These will be discussed in more detail later.

Not all Board action-forcing activities lead to formal recommendations. The Board's assigned functions also include the review of design, construction, operation, and decommissioning of defense nuclear facilities. For such activities the Board's charter allows it to satisfy a real need for DOE to get on with its work with a minimum of delay due to external oversight. The Board through assignment of our staff to monitor and review work, whether it is design, construction or readiness preparations for operations, has been able to keep its reviews in sync with DOE activities. Technical concerns that arise are frequently resolved by the technical staffs of DOE, the Board, and contractors without the need for action-forcing measures by the Board. If the Board determines there are unresolved safety issues that require resolution before proceeding, the Board can define the issue for the Secretary and recommend resolution before proceeding. In the case of operations at Rocky Flats, Congress specifically required the Board to certify readiness before resumption of operations could begin.

In addition to our reviews of the basic elements and structure of DOE's safety management program, the Board has given priority attention to facilities and activities believed to represent the greatest safety risks -- mainly those that now comprise the residual of the nuclear weapons complex devoted to stewardship, maintenance and surveillance of nuclear weapons, the storage of strategic and highly radioactive materials and the stabilization of hazardous residuals of weapons production. For

those facilities and operations representing significant hazards (e.g., those classified as hazard classes 1 and 2), the Board is pressing DOE to develop safety management programs that result in clearly defined systems and components important to safety, the technical specifications that define limiting conditions for operation, and the infrastructure needed to support maintenance and safety in operation. This has already been done in a number of cases. The extension of this effort to all high-risk facilities is the thrust of the Board's latest Recommendation 95-2. The end goal is to have safety management programs that are well defined but tailored to the diverse operations that make up the DOE complex, the hazards-specific nature of the activities involved and the aged nature of the facilities in which such operations must be conducted.

With respect to decommissioning of defense nuclear facilities, the Board has tended to focus its activities on those facilities in transition to cleanups or environmental restoration under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA). A substantial number of such facilities require considerable effort to remove radioactive materials, or otherwise deactivate them, before they can be considered safe for non-time critical remedial action. CERCLA and RCRA statutes are administered by the Environmental Protection Agency (EPA) and the States. The Board is working cooperatively with EPA and the States to smoothly effect this transition. The Board has recently

signed a cooperative agreement with the State of Colorado, EPA and DOE with respect to activities at the Rocky Flats Environmental Technology Site.

ADDITIONAL REGULATION OF DOE'S DEFENSE NUCLEAR FACILITIES

The Ahearne Report is a Report of The Advisory Committee on External Regulation of Department of Energy Nuclear Safety generally referred to as the Ahearne Committee, after one of the co-chairmen. The title of the report is "Improving the Regulation of Safety at DOE Nuclear Facilities." As the title implies, the Department of Energy already is regulated in most all of its activities by State and Federal Environmental Protection Agencies and by the Department of Transportation. By law it must comply with OSHA requirements and the nuclear safety of its weapon mission activities are under the external oversight and action-forcing powers of the Defense Nuclear Facilities Safety Board.

What advantages will accrue from adding another level of regulatory authority over DOE's activities? Justification for additional regulation is based on two suppositions, both of which we believe to be wrong.

1. That it will enhance DOE credibility with the public, and
2. That it will improve safety.

We suggest the public's trust in DOE will not increase by setting up another federal government agency here in Washington,

DC to regulate its activities, whether the agency be the Defense Nuclear Facilities Safety Board or the U.S. Nuclear Regulatory Commission (NRC) or some combination of the two operating in a formal regulatory manner. Rather than by having more external regulation imposed upon it, DOE's credibility will improve by performing its responsibilities in an efficient and creditable manner. We believe DOE has made notable progress as regards cooperation and openness particularly in the formation and utilization of local citizen advisory boards. Trust and credibility are developed at the local levels, not by layering government agencies.

Will more regulation improve safety? If so, at what additional cost? The Ahearne Report acknowledges that regulation would require additional start up costs, but asserts that savings will result from having fewer DOE employees assigned to environmental safety and health issues. The NRC has advised that if it is to assume regulatory responsibility for DOE, the Commission would need an additional 1,100 to 1,600 full-time employees and an increase of \$150 million to \$200 million per year in its budget. How much of that addition in personnel and dollars cost would DOE save? We know of no organization, in government or in private industry, that reduces personnel or response costs when additional regulatory authorities are imposed on it. The opposite occurs. The Ahearne Report does not set forth how savings will accrue from its recommendation, nor does it specify what safety improvements will occur and how.

The Ahearne Report, in the interest of improving safety, would have OSHA formally regulate DOE, requiring many more full-time inspectors to cover thousands of DOE facilities. OSHA complains that it doesn't have sufficient inspectors to adequately meet its current responsibilities. In DOE nuclear defense activities, the actual work is done by employees of commercial organizations such as Westinghouse, Kaiser, Bechtel, etc. The managements of those companies are fully knowledgeable of OSHA requirements through their commercial activities. DOE owns the facilities and its line management should be alert to their obligations and make certain the contractors meet them. In some cases--such as at Rocky Flats--DOE doesn't directly manage the working contractors, but uses another commercial contractor to manage or "to integrate" those contractors who do the actual work.

Thus, to implement the Ahearne Recommendation, the Federal government could end up with an OSHA government agency worker enforcing safety rules at a federally owned work place through a DOE employee who then turns to the integrator contractor company to force the contractor doing the actual work to correct safety deficiencies or violations. The practical solution to the problem is to have DOE site personnel trained in OSHA safety regulations and then enforce those safety requirements on their contractors, who are required to comply with these requirements in their normal commercial work.

The Ahearne Report makes a very pertinent and important

observation when it notes that “No outside authority or authorities could or should be considered a substitute for an effective internal safety management structure and program.” Regulation by itself cannot assure safety is a maxim long known by those experienced in hazardous occupations.

A number of individual recommendations in the Ahearne Report, in our opinion, are directed toward the ability of intervenors to delay the construction or operation of needed facilities and other activities through use of the court of law and extended appellate reviews and if implemented would increase this ability. The Ahearne Report recommended legislative changes to the Atomic Energy Act that would provide greater intervention rights than that which exists in the civilian nuclear field to those opposed to DOE’s production and uses of special nuclear materials for defense purposes.

Another recommendation of the report is to grant authority to the States to set more stringent facility safety standards providing those standards “do not unduly hinder DOE in performance of its missions.” Who is to determine what is unduly? Lawyers will have a “field day” with that one in the courts up to and including the Supreme Court before a resolution is reached. States will be competing with each other as to which one is more conservative in nuclear safety issues at DOE nuclear defense facilities.

The Report barely acknowledges the existence of the national security elements of the Atomic Energy Act, and it does not explain how national security will be impacted by the actions of an independent regulatory agency.

When Secretary O'Leary, in January 1995, created the Advisory Committee on External Regulation of Department of Energy Nuclear Safety and appointed Dr. Ahearne to be co-chairman, she requested the Defense Nuclear Facilities Safety Board to participate in the work of the Committee. Mr. Joseph DiNunno, a member of our Board and a recognized nuclear safety expert knowledgeable in environmental regulatory matters, volunteered. Throughout the past year Mr. DiNunno devoted a great deal of time and effort to the undertaking. Mr. DiNunno and a number of others who participated in the study did not concur in many of the recommendations set forth in the report.

We have attached a copy of Mr. DiNunno's separate views as Attachment III. Also in view of his special insight as to the workings of the Committee under the chairmanship of Dr. Ahearne, we have attached a copy of a presentation Mr. DiNunno recently made to the local section of the American Nuclear Society, which we believe you will find to be both thoughtful and informative (Attachment IV). Mr. DiNunno's basic conclusion after one year of intense involvement and careful consideration of the issues examined by the Committee is that ". . . taken as a whole the recommendations represent a regulatory model that will exacerbate

DOE's problems, not help solve them."

RECOMMENDATIONS TO THE SECRETARY OF ENERGY

During the past six years of operation, the Board has advised the Secretary of Energy and other senior DOE officials on a wide variety of specific health and safety matters within the DOE weapons complex. In general, the Board's Recommendations have emphasized:

- identifying, assessing the adequacy of, and applying appropriate design and operating standards;
- selecting, training, qualifying, and retaining technically competent operations, maintenance, and technical support personnel;
- applying the principles of systems engineering in evaluating the design of new facilities and in upgrading existing facilities;
- conducting timely and comprehensive Operational Readiness Reviews (ORR's);
- improving the Department's radiation protection program, including measures for control of radioactive sources and contamination;

- assigning well-qualified DOE Facility Representatives at defense nuclear facilities;
- resolving expeditiously many pressing issues surrounding the stabilization and safe storage of fissionable materials and production residues; and
- integrating various modalities for binding requirements, such as Rules, Orders and Contract provisions.
- establishing well-defined safety management programs, tailored to the specific hazards of the work, as a requisite for authorization to conduct such work.

Sixteen sets of recommendations have been fully closed or subsumed by later recommendations. The remaining seventeen are in various stages of implementation. Attachment I lists key milestones associated with the Board's Recommendations.

The Board's Recommendations result from: (1) site visits by the Board, staff, and outside technical experts; (2) review of documentation concerning particular problems at the site; (3) review of staff or Board contractor reports in appropriate cases; (4) briefings by DOE officials and DOE contractors; and (5) deliberation and technical review by the Board. In 1995 alone, the Board Members, its staff, or its contractor experts made 173 site visits to DOE's defense nuclear facilities. These visits

focused primarily on selected facilities that both the Board and DOE consider to be most important to DOE's mission, primarily those the Savannah River Site, the Pantex Plant, the Hanford Site, the Rocky Flats Plant, the Idaho National Engineering Laboratory, the Oak Ridge Y-12 Complex, the Los Alamos National Laboratory, and the Nevada Test Site.

In addition, since its formation the Board has held a total of 49 public meetings/briefings, the majority of which were held in the vicinity of selected DOE defense nuclear facilities, to listen to DOE managers, their contractors, and the public, and discuss the status of ongoing health and safety reviews.

HEALTH AND SAFETY IMPROVEMENTS RESULTING FROM BOARD ACTIONS

During 1995, a number of Board initiatives, some undertaken in previous years, were completed or advanced significantly. A representative sample of these accomplishments is summarized below.

- The Board issued a landmark recommendation urging DOE to improve the process used in development, review, and approval of authorization bases for facility operation or conduct of potentially hazardous activities, based on two pivotal technical reports prepared by the Board (Recommendation 95-2).

- Based on the guidance contained in the technical reports

supporting Recommendation 95-2, the Board's staff completed assessments of authorization bases for a representative sample of high priority defense nuclear facilities and activities, demonstrating the soundness and adaptability of the concepts included in the reports and setting the groundwork for future reviews of authorization bases prepared by DOE and its contractors.

- In response to Recommendation 94-1, plutonium residues remaining from metal casting at RFETS have been successfully stabilized during the summer of 1995, and by mid-November 1995, all plutonium in contact with plastic had been repackaged.
- Also in response to Recommendation 94-1 and a Board technical report, DOE modified its previous plans for dry storage of deteriorating reactor fuel in storage basins at the Savannah River Site and is now planning to stabilize the fuel by processing it in F-Canyon.
- Largely as a result of the Board's attention to the problems associated with deteriorating fuel at the Hanford Site, DOE officials responsible for the K Basins are now focused on expeditiously stabilizing this fuel and removing it from wet storage. In addition, the K Basins now have in place most of the elements of an adequate authorization basis, including an updated

Safety Analysis Report, revised Operational Safety Requirements, a corresponding Safety Evaluation Report prepared by DOE, a Standards/Requirements Identification Document, and revised facility procedures.

- As a result of Board emphasis on the need for comprehensive readiness reviews, substantial improvements were made in systems and practices at the F-Canyon and FB-Line at the Savannah River Site, leading to the timely availability of these facilities for stabilization of plutonium solutions.
- In early 1995, the Board issued Recommendation 95-1 after its staff found that many cylinders containing depleted uranium hexafluoride in outdoor storage at the three gaseous diffusion plants were handled and stored under conditions that could lead to high deterioration rates. As a result, DOE initiated a program for repairing the affected cylinders and for improving storage conditions.
- Due in large part to the Board's intensive review, agreements between DOE and the FAA have been reached that will eventually eliminate most aircraft flights over the Pantex Plant, thereby significantly reducing the risk of an airplane crash into the Plant.

- Board attention to technical staffing of DOE's Amarillo Area Office and the Y-12 Site Office at Oak Ridge led to hiring of a number of technically competent engineering professionals in Amarillo and of eight new technical staff members in the Y-12 Site Office, yielding substantial improvements in operations at both locations.
- In response to Recommendation 94-4, DOE took immediate steps to correct safety deficiencies at the Y-12 Plant at Oak Ridge and then validated the corrections through a formal restart process.
- The Board's staff played a substantial role in helping prepare a needed standard for storing highly enriched uranium at the Y-12 Plant at Oak Ridge. None had existed prior to the summer of 1995.
- In response to an earlier Recommendation (92-6), which called for improved guidance for timing, staffing and content of operational readiness reviews, DOE had developed a new order and a new DOE standard. Both were revised in 1995 to respond to a number of Board comments suggesting improvements in both documents.
- The Board reviewed the safety of the Replacement Tritium

Facility at the Savannah River Site, and in discussions with DOE established a basis for operating limits providing an acceptable level of safety. This process was followed in direct discharge of the Board's statutory responsibilities. A similar process is under way for the facilities being started up at Savannah River for processing high level nuclear waste to disposable forms.

- Responding to the Board's Recommendation 93-6, DOE has instituted a program to recover and preserve information vital to safety of nuclear weapons, their surveillance, and their future dismantlement. This information is, for instance, that possessed by weapons designers who have recently retired or who will retire in the near future.

SAFETY ASPECTS OF NUCLEAR WEAPONS STOCKPILE STEWARDSHIP AND MANAGEMENT

The continuing national commitment to dismantle approximately 2,000 nuclear weapons per year has challenged and will continue to challenge the DOE weapons complex, which is experiencing a concurrent erosion of technical capability and limitation in physical plant capacity. The Board must continue to pay close attention to the safety of assembly and dismantlement activities, and to those activities needed to meet the requirements of the enduring stockpile, so as to ensure that an appropriate risk

management strategy is applied while meeting national security commitments.

DOE's "Stockpile Stewardship" efforts will involve nuclear research and experimental activities at the weapons laboratories and at Nevada Test Site (NTS). The Board is working with DOE and the weapons laboratories to tailor integrated safety management strategies for these types of activities. The initiation of "sub-critical experiments" at NTS in FY 1996, to continue throughout FY 1997 and beyond, will require additional Board oversight resources. In addition, full implementation of integrated safety management systems for research activities at the weapons laboratories is proceeding slowly, and is anticipated to require continuing Board attention.

SAFELY MANAGING SURPLUS NUCLEAR MATERIAL AND WASTE

The halt in production of nuclear weapons and materials to be used in nuclear weapons froze the DOE manufacturing pipeline in a state that, for safety reasons, should not be allowed to persist unremediated. The Board concluded in early 1994 from observation and technical discussions with others experienced in plutonium handling that imminent hazards could arise within two to three years unless certain problems are corrected. The Board was especially concerned about specific liquids and solids containing fissile materials and other radioactive substances in spent fuel storage pools, reactor basins, reprocessing canyons, processing lines, and various buildings once used for processing and weapons

manufacture.

Early in 1994, the Board issued Recommendation 94-1, calling for an improved schedule for remediation of such materials throughout the complex, and specifically recommending that DOE take specific actions at several DOE sites on a high priority basis. Attachment II presents the complete text of Recommendation 94-1 to the Secretary of Energy. DOE's progress in implementing this recommendation is summarized as follows:

Stabilization of Fissionable Residues at the Rocky Flats Environmental Technology Site -- In Recommendation 94-1, the Board recommended that DOE expedite its efforts to characterize and stabilize a wide variety of production residues remaining in process lines and storage containers which were continuing to degrade, creating an increasing hazard. Although the problem exists at several facilities in the defense nuclear complex, it is especially acute at the Rocky Flats Environmental Technology Site (RFETS).

During the summer of 1995, impure material remaining from metal casting, which constituted one of the highest risk sources of plutonium-bearing residues at RFETS, was successfully stabilized. In addition, by mid-November 1995, plutonium metal in contact with plastic at RFETS had been repackaged in accordance with DOE's implementation plan. Moreover, processing and safe interim storage of other plutonium residues and oxides are

proceeding, albeit not on the schedule set forth in DOE's implementation plan.

DOE completed the venting of 2,696 solid residue drums in December 1995, nine months ahead of schedule. These residue drums were vented as a safeguard to prevent pressurization and flammable gas accumulation and ensure worker safety.

Nuclear Material Stabilization at the Savannah River Site --
At the Savannah River Site, Recommendation 94-1 applies to stabilization of solutions containing plutonium and trans-plutonium elements in F-Canyon, plutonium metal in storage, and irradiated fuel and target assemblies in basins. In accordance with its implementation plan, DOE has expedited processing of plutonium solutions in F-Canyon and FB-Line, in addition to reassessing its earlier plans for deteriorating fuel and target material.

As part of the material stabilization effort, the Board has insisted that each facility to be used for stabilization undergo a thorough operational readiness review, including reviews of operator training and procedures, verification of equipment operability, and definition and control of the facility's authorization basis. This process has resulted in: (1) augmented steps to protect against radioactive material release, including the isolation of an F-Canyon tank that contains highly radioactive americium and curium; (2) modifications to the FB-Line ventilation

system to provide exhaust filtration through a sand filter; (3) additional controls in F-Canyon and H-Canyon to prevent an explosion similar to the accident at the Tomsk facility in the former USSR; and (4) reductions in the size and number of contaminated areas in both F-Canyon and the FB-line.

Spent Nuclear Fuel at the Savannah River Site -- In Recommendation 94-1, the Board also urged DOE to expedite processing of deteriorating reactor fuel stored in basins at the Savannah River Site. In its implementation plan, DOE committed to begin stabilizing this aluminum-clad highly-enriched fuel by November 1996. Only weeks after these revised plans were issued, one of the storage containers began to leak, demonstrating anew the lack of stability of the fuel under the prevailing conditions of chemical corrosion and attack.

The Board identified problems with pursuing dry storage plans for aluminum-clad highly-enriched uranium fuel, and pointed out certain rapidly corroding nondefense fuel that had been previously predicted by DOE to remain stable for another ten years. In a subsequent technical report, DNFSB/TECH 7, *Stabilization of Deteriorating Mark 16 and Mark 22 Aluminum-Alloy Spent Nuclear Fuel at the Savannah River Site*, the Board's staff established the technical basis for concluding that stabilization of this fuel by chemical separation is the better alternative.

The Board's attention to this matter caused DOE to refocus

its previous dry storage plans, and, as a consequence, DOE now is examining means to expedite conversion of the fuel into more manageable components (i.e., feed for the Defense Waste Processing Facility and low-enriched uranium).

Had the Board not alerted DOE to the rapidly corroding but incorrectly categorized fuel, it is likely that DOE would have continued wet storage for at least the next decade, based on its assumption of stability.

Spent Nuclear Fuel Stored in the K Basins at the Hanford Site

-- At the beginning of 1994, DOE pursued a vaguely defined course of action to resolve recognized safety issues with severely deteriorated spent fuel stored in leaking basins located next to the Columbia River. A Tri-Party Agreement involving DOE, the Environmental Protection Agency, and the State of Washington had been reached to remove the fuel from the basins by the end of the year 2002. DOE-HQ expressed reservations about the feasibility of meeting the agreed-upon completion date. Meanwhile, the contractor expended considerable resources, but made little progress, on an interim effort to encapsulate (in the basin water) all of the fuel in the K-East Basin.

In early 1994, the Board pointed out the lack of a technical basis for DOE's planned course of action and urged DOE to identify engineering alternatives, the criteria for selecting an alternative, and the anticipated radiological consequences of

proposed actions. In May 1994, the Board issued Recommendation 94-1, specifically recommending that the program be accelerated to place the deteriorating reactor fuel in a stable configuration for interim storage until an option for ultimate disposition is chosen.

As a result of intense interactions between DOE and the Board's staff, DOE's implementation plan committed DOE to begin fuel removal by the end of 1997, and to complete fuel removal by December 1999. In addition, this implementation plan reflected results of recently performed engineering studies identifying stabilized dry storage as the best interim storage for the type of fuel stored in the K-Basin.

The Board's involvement with these issues resulted in a technically sound path forward and an expedited schedule for resolving the safety and environmental vulnerabilities associated with the leaking fuel. The Board was instrumental in steering both the contractor and DOE toward a system where all activities associated with the stabilization of the fuel in the K-Basins are conducted on a separate project basis.

Spent Nuclear Fuel Stored at the Idaho National Engineering Laboratory -- During 1993, the Board highlighted the weaknesses in actions by DOE to develop a systems engineering plan to address the spent fuel problems, and noted that actions at Idaho to address problems with severely corroding fuel were neither timely

nor in accordance with proper procedures. DOE responded by preparing a systems engineering plan for the spent fuel program and taking corrective actions at INEL. This progress at Idaho was acknowledged in the Recommendation 94-1.

Operational Readiness Reviews at the Idaho National Engineering Laboratory -- Late in 1992, questions from the Board's staff prompted DOE to conduct a more comprehensive operational readiness review for the New Waste Calcining Facility, and led to improvements in the safety of calciner operations. Similar scrutiny was given to preparations to restart the denitrator process at Idaho, where preparation by line management and conduct of the operational readiness review adequately demonstrated readiness to restart operations. The Board believes that INEL needs to continue to make improvements in the operational readiness review process and the staff will continue to monitor their efforts.

Development of Required Standards -- At the Y-12 Plant, the nation's repository for highly enriched uranium (HEU), DOE plans to consolidate much of the HEU from other sites in the complex. This will involve receipt, processing, and storage of uranium in many different forms. Historically, no standard existed for uranium storage. This past summer, DOE approved a standard for storing HEU at the Y-12 Plant. The Board's staff played a key role in the creation of this standard through on-site reviews and detailed technical comments on the initial drafts.

The Board has also actively promoted the development of two standards for safe storage of plutonium. Subsequent to issuance of Recommendation 94-1, two such DOE standards have been issued, one applying to 50-year storage of plutonium metal and oxide, and another covering 20-year storage of plutonium-bearing scraps and residues. DOE is procuring a new system of equipment for stabilization and packaging of plutonium metal and oxide to meet the 50-year storage standard. Initial installation of prototype equipment at Rocky Flats is scheduled for 1996, with probable future deployment at Hanford and Savannah River.

Thank you for the opportunity to report to you on the Board's progress in meeting the challenges before us. We will be happy to answer any questions you may have.

ATTACHMENTS:

ATTACHMENT I -- Recommendations Tracking Calendar

ATTACHMENT II -- Board Recommendation 94-1

ATTACHMENT III -- Additional Views of Joseph J. DiNunno Relative
to The Report of the Advisory Committee on External Regulation

ATTACHMENT IV -- External Regulation of DOE Nuclear Safety,
A Different Point of View, Joseph DiNunno, February 27, 1996