THE ENVIRONMENTAL PROTECTION AGENCY'S WASTE ISOLATION PILOT PLANT PROGRAM: STATUS REPORT

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ABSTRACT

On May 13, 1998, the United States (U.S.) Environmental Protection Agency (EPA) promulgated a final rulemaking (1) to certify that the U.S. Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) will comply with the radioactive waste disposal regulations set forth at 40 CFR Part 191 (2) and the WIPP Compliance Criteria set forth at 40 CFR Part 194 (3). The WIPP may become the nation's first deep underground disposal facility for transuranic (TRU) radioactive waste generated as a result of defense activities. The EPA's certification of compliance allows the emplacement of radioactive waste in the WIPP to begin, provided that all other applicable health and safety standards have been met. The purpose of this paper is to discuss the process that EPA undertook to reach its final decision, as well as the events that have taken place since the certification decision.

WHAT HAS EPA DONE WITH REGARD TO WIPP?

In the 1992 WIPP Land Withdrawal Act (4), as amended (5), Congress gave the Environmental Protection Agency (EPA or "the Agency") the important task of determining whether or not the Department of Energy's (DOE) Waste Isolation Pilot Plant, or "WIPP," located near Carlsbad, New Mexico, will be protective of human health and the environment over a 10,000-year time frame. Once certified by EPA, and when all other applicable environmental laws have been satisfied, DOE may begin disposal of approximately 6.2 million cubic feet of transuranic radioactive (TRU) waste in the WIPP. The EPA WIPP staff, as well as senior EPA management, took this task very seriously. After conducting a nearly six-year, exhaustive scientific review of DOE's hundreds of thousands of pages of technical materials, and thorough evaluation of thousands of public comments, EPA issued a "final certification decision" on May 13, 1998. This means that EPA believes that the WIPP is safe to contain TRU waste (contaminated tools, rags, glassware, protective clothing, etc.), and will comply with EPA's radioactive waste disposal regulations at 40 CFR Part 191. EPA's decision allows DOE to begin disposal of TRU waste in the WIPP, once all other applicable health and safety standards are met. The WIPP is the nation's first deep underground facility for disposing of radioactive waste generated as by-products of nuclear weapons production and disassembly.

EPA's certification of compliance for WIPP is based on: (1) a thorough review of DOE's compliance certification application (CCA); (2) additional information provided by DOE, at

EPA's request; (3) EPA's independent technical analyses, site audits and inspections; and (4) public comments.

EPA's final certification decision includes four conditions of compliance. EPA found it necessary for DOE to take additional steps to ensure that the measures actually implemented at WIPP are consistent with DOE's CCA and with the basis for EPA's decision. The four conditions are:

- Condition 1 - Panel closure system: DOE must implement the most robust design described in its CCA;

- Condition 2 - Quality assurance: EPA will separately approve quality assurance (QA) programs for TRU waste generator/storage sites;

- Condition 3 - Waste characterization: EPA will separately approve waste characterization programs for TRU waste generator/storage sites;

- Condition 4 -Passive institutional controls: DOE must submit more detailed implementation plans to deter future intruders.

In addition, DOE must report to EPA any planned or unplanned activities that deviate from what were described in the CCA and supporting information.

On July 17, 1998, EPA was sued in the District of Columbia Circuit Court. The lawsuits challenge the procedures followed and most of the conclusions made in EPA's final decision. The Court has set a schedule for final written materials to be submitted by both the plaintiffs and EPA. The date for hearing oral arguments in Washington, D.C. has been set for May 1999.

HOW CAN THE PUBLIC STAY INVOLVED IN EPA'S WIPP ACTIVITIES?

Following EPA's decision in May 1998 that the WIPP is safe to open and will comply with the radioactive waste disposal standards, the Agency will continue to monitor DOE's WIPP compliance with the EPA standards. EPA also requires DOE to report any planned or unplanned changes in activities or conditions on which EPA's decision was based.

DOE must report the following:

-- If conditions at WIPP change so that the level of radioactivity exceeds the standards set by EPA, DOE must stop disposing of waste in the WIPP and notify EPA within 24 hours;

-- Any significant changes to information on which the certification decision is based must be reported to EPA within ten days; and

-- Any other changes must be reported to EPA six months after the initial certification decision and annually thereafter.

DOE's first "Change Report" was due to EPA on November 13, 1998. EPA received the report and has been reviewing the changes to determine their significance. In some cases, EPA may request additional documentation regarding the changes. In addition, EPA may direct DOE to make adjustments based on the information provided. EPA may also conduct site inspections at any time to obtain additional information. DOE's reports and EPA's responses will be placed in the public docket.

EPA's SITE INSPECTION PROCESS

Why does EPA inspect DOE sites?

EPA performs independent inspections of DOE TRU waste generator/storage sites because when EPA certified the WIPP, the Agency included the condition that DOE waste generator/storage sites may not ship waste to the WIPP until:

1. EPA approves the site's quality assurance program for TRU waste characterization activities and assumptions; and

2. EPA approves the TRU waste characterization processes used at the site.

Quality assurance or "QA" refers to a program whereby all actions necessary are taken to provide adequate confidence that waste characterization processes will perform satisfactorily. In other words, a site's management must establish QA procedures for all processes and then, on a regular basis, monitor whether personnel are following those procedures.

Waste characterization refers to technical processes that each generator/storage site uses to determine the quantity and type of radioactive isotopes and other materials (e.g., rubber and metals) in the waste. For the most part, the TRU waste that will be put in the WIPP consists of such contaminated items as clothing, gloves, containers, and laboratory equipment.

EPA must inspect DOE TRU waste generator/storage sites because it is at those sites where waste characterization takes place. DOE made certain assumptions about the nature of TRU waste in its computer modeling of the WIPP's performance. For example, DOE assumed that no more than a maximum limit of plutonium and minimum limit of ferrous and non-ferrous metals would be placed in the WIPP. As long as the TRU waste in the WIPP falls within the specified limits, the WIPP is reasonably expected to meet EPA's standards. Consequently, DOE must characterize the waste to show that limits are consistent with the regulatory requirements.

What Happens at a Site Inspection?

An inspection takes place in three stages: planning, performance, and follow-up. During the planning stage, EPA arranges the dates of an inspection with DOE's Carlsbad Area Office

(CAO), which coordinates all WIPP activities. Prior to the inspection, the EPA team visits CAO to review prior records of CAO's QA at the site. EPA may also conduct preliminary, fact-gathering inspections solely for the purpose of learning about the sight. From these two activities, EPA may identify a sample of important areas for review during the subsequent full-scope inspection.

During the performance stage of the inspection at the site, the EPA inspection team meets with personnel who perform QA and waste characterization activities. The team reviews documents for completeness and correctness, questions personnel about their familiarity with requirements, and observes how waste characterization activities are actually conducted. The team records any area(s) in which the site does not conform to the requirements and commitments contained in DOE's WIPP compliance certification application.

After the inspection, in the follow-up stage, the team prepares a report with two sections—one for quality assurance and one for waste characterization. The report describes EPA's inspection of each area and lists any non-conformance(s), or *finding(s)*. Findings may be significant, insignificant, or indicative of a pattern. DOE must respond to each finding either by showing how a finding was corrected, or will be corrected. When all issues are adequately resolved, the Agency will approve the site to ship TRU waste. A site may ship only the TRU waste that is characterized using the process(es) approved by EPA. If the site introduces new processes or new types of TRU waste, then EPA must conduct a follow-up inspection.

What Inspections has EPA Completed So Far?

Los Alamos National Laboratories (LANL) in New Mexico is the only DOE waste generator site inspected and approved by EPA to ship waste to the WIPP as of the WIPP's certification in May 1998. LANL may only ship transuranic waste that may be characterized using EPA-approved processes. Since the WIPP was certified, EPA has performed inspections at the Rocky Flats Environmental Technology Site (RFETS) in Colorado and Idaho National Environmental and Engineering Laboratories (INEEL) in Idaho. EPA has also performed a preliminary fact-finding inspection at the Nevada Test Site in Nevada.

What Inspections Will Happen in the Future?

There are approximately 20 major waste generator/storage sites across the country that store transuranic radioactive waste. The DOE Carlsbad Area Office determines which sites are eligible to ship waste to the WIPP and audits them for compliance with DOE requirements. As CAO certifies each site, EPA will inspect the site to determine if it also meets EPA requirements. In addition, EPA will periodically conduct inspections at DOE TRU waste generator/storage sites even after the site receives initial approval from EPA, to ensure continued compliance.

How Can the Public Get Involved in the Inspection Process?

The public may submit comments to EPA about any site that EPA plans to inspect to ensure that the conditions of EPA's WIPP certification decision are met. Once an inspection is scheduled, EPA announces it in the *Federal Register*, on the WIPP HomePage, and on the WIPP Hotline. In that or another *Federal Register* notice, EPA will open a 30-day public comment on the site's quality assurance and waste characterization plans. These plans, as well as EPA's final inspection reports and letters of decision, will be made available to the public in EPA's docket.

CONCLUSION: EPA's CONTINUING REGULATORY ROLE

EPA will continue to regulate WIPP throughout the waste emplacement phase, which DOE estimates could take as long as 35 years. Throughout the next year, EPA will conduct inspections of the quality assurance and waste characterization programs at TRU waste generator/storage sites before shipment of waste to WIPP can occur. In addition, EPA will monitor all activities within EPA's purview, such as evaluation of DOE's Biennial Environmental Compliance Report; DOE Change Reports; and annual maintenance audits at WIPP, DOE's Carlsbad Area Office and DOE's primary support contractors.

The certification process has not been easy. EPA staff spent thousands of hours evaluating highly complex technical data, as well as reviewing sincere personal concerns. The public at large provided both kinds of information. EPA learned that identifying the affected public stakeholders and involving them early and continuously in the process, facilitated the WIPP certification process. EPA will continue to involve the public in EPA's WIPP activities throughout the WIPP's operational life.

REFERENCES

1. U.S. ENVIRONMENTAL PROTECTION AGENCY, "Criteria for the Certification and Recertification of the Waste Isolation Pilot Plant's Compliance With the 40 CFR Part 191 Disposal Regulations: Certification Decision; Final Rule." Published in the Federal Register on May 18, 1998 (Vol. 63, No. 95, pp. 27354-27406).

2. U.S. ENVIRONMENTAL PROTECTION AGENCY, "Environmental Radiation Protection Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes: Final Rule." Codified at Chapter 40 of the Code of Federal Regulations, Part 191 (40 CFR Part 191). Published in the Federal Register on September 19, 1985 (Vol. 50, No. 182, pp. 38066-38089) and December 20, 1993 (Vol. 58, No. 242, pp. 66398-66416).

3. U.S. ENVIRONMENTAL PROTECTION AGENCY, "Criteria for the Certification and Re-certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations." Codified at Chapter 40 of the Code of Federal Regulations, Part 194 (40 CFR Part 194). Published in the Federal Register on February 9, 1996 (Vol. 61, No. 28, pp 5224-5245).

4. WIPP Land Withdrawal Act of 1992. Pub. L. No. 102-579.

5. 1996 WIPP LWA Amendments. Pub. L. No. 104-201.