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The Waste Isolation Pilot Plant Regulatory Compliance Program

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ABSTRACT

The passage of the WIPP Land Withdrawal Act of 1992 (LWA) (1) marked a turning point for the Waste Isolation Pilot Plant (WIPP) program. It established a Congressional mandate to open the WIPP in as short a time as possible, thereby initiating the process of addressing this nation's transuranic (TRU) waste problem. In addition, the LWA established the Environmental Protection Agency (EPA) as the regulator for the WIPP and provided a schedular framework in which the EPA is required to work. Finally, the Congress provided for the oversight of certain WIPP activities by numerous other federal agencies, the National Academy of Sciences (NAS), the state of New Mexico, and the Environmental Evaluation Group (EEG).

The DOE responded to the LWA by shifting the priority at the WIPP from scientific investigations to regulatory compliance and the completion of prerequisites for the initiation of operations. Regulatory compliance activities have taken four main focuses: 1) preparing regulatory submittals; 2) aggressive schedules; 3) regulator interface; and 4) public interactions.

Four major compliance submittals are being prepared including a supplement to the Environmental Impact Statement (SEIS), a hazardous waste permit application, a no-migration variance petition (NMVP), and a compliance certification application (CCA). The WIPP Disposal Decision Plan (DDP) (2) was issued in May 1994 to show the DOE's aggressive commitment to opening the WIPP in 1998. Regulatory agencies that are dealt with on a day-to-day basis include the Environmental Protection Agency (EPA) and the New Mexico Environment Department (NMED). More than a dozen stakeholder meetings have been conducted to discuss various aspects of the WIPP program and to obtain input from the public. The WIPP stakeholder list includes 2650 individuals and organizations. The DOE has been highly successful in its strategy, meeting all milestones and holding frequent technical exchanges with the regulators. The DOE anticipates a continuation of this success as it continues toward an April 1998 opening of the WIPP.

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INTRODUCTION

The DOE made a significant decision when it decided to abandon further on-site testing at the WIPP in favor of laboratory testing. This decision marked the transition from a facility for the collection of scientific information to an operating facility with the mission of disposing nearly 176,000 cubic meters of TRU waste. This transition was not easy. Experimental staffs had to be reduced as regulatory compliance staffs increased. Discussions with scientific organizations had to be augmented by discussions with regulatory organizations. These challenges notwithstanding, numerous factors contributed to the DOE's decision to proceed to operations. Among them were the LWA (1), the increasing emphasis on environmental remediation at DOE's weapons sites, and the general recognition that enough on-site testing had been done and further tests could be performed in laboratories.

THE TRANSITION TO DEMONSTRATING COMPLIANCE

The WIPP Land Withdrawal Act of 1992

When the LWA was passed in the waning days of the 102nd Congress, it received overwhelming approval. This had dual significance. First, it indicated that nuclear waste disposal is still a national priority and second, that Congress is anxious to see significant progress toward that end. While the LWA contained provisions for continued testing in support of the WIPP, that testing was required to be focused and relevant to demonstrating compliance with regulations applicable to the WIPP. One of the key features of the LWA is the schedules that Congress mandated. Key among these is Congress' intent that WIPP begin disposal operations within 7 years of initiating the on-site Test Phase. Even though the on-site Test Phase has been abandoned, the intent is clear--get on with disposal. Recent attempts in Congress in both the House and Senate to amend the LWA have, as a common element, the establishment of a date certain for WIPP's opening--clearly reiterating Congress' intent to open WIPP.

Another important aspect of the LWA was the establishment of the EPA as the final approval authority for compliance with the long-term performance regulations in 40 CFR 191 Subparts B and C. Congress did this by requiring the EPA to establish criteria for the "certification" of the DOE's compliance with 40 CFR Part 191. This action has initiated activity by both the DOE and the EPA to ensure that the EPA has sufficient information to perform its duties.

Finally, the LWA requires numerous rulemaking processes including input from the public.

Regulatory Framework Documents

The first step the DOE took was the preparation and issuance of several documents to define the framework within which WIPP compliance will be demonstrated. These included the Regulatory Criteria Document (RCD) (3) which establishes general policy for compliance for TRU waste repositories and makes key interpretations of those portions of the environmental regulations that apply to the unique nature of the WIPP as a mined geologic repository for TRU and TRU mixed waste. In addition, the RCD provides a common basis for the implementation of similar requirements in the various environmental standards. The RCD specifically addresses the radiation standards in 40 CFR Part 191 (4), the hazardous waste standards in 40 CFR Part 264 (5), and the Land Disposal Restrictions in 40 CFR Part 268 (6).

The second regulatory framework document prepared by the DOE is the WIPP Regulatory Compliance Strategy and Management Plan for Demonstrating Compliance to Long-Term Disposal Standards (RCSMP) (7). The RCSMP detailed the WIPP specific activities needed to reach compliance and discussed the interrelationships among the various elements of the compliance and the experimental programs. This strategy called for preparation of numerous documents and compliance submittals that now appear on the WIPP DDP.

In addition, the Format and Content Guide for Title 40 CFR 191 and Title 40CFR 268.6 Compliance Reports (FCG) (8) provides the framework for the documents that will be submitted to regulatory agencies. The DOE prepared the FCG as a means of assuring proper content and organization of the topics needed for a demonstration of compliance. Preparation was made with limited guidance from the EPA. The FCG has been useful in the preparation of the submittals that have been finished to date. The flexibility of the FCG has allowed the DOE to tailor the submittals to the specific regulations and regulators.

WIPP Disposal Decision Plan

The regulatory framework documents became the basis for preparing the WIPP DDP (2) which is shown in Figure I. The regulatory compliance schedule became the driver for the integration of other project activities such as experiments, waste characterization, public outreach programs and transportation system and facility readiness. The WIPP DDP is the tool for integrating these activities and for tracking progress. The DDP was most recently revised in October 1995 (Revision 2).

[FIGURE I goes here]

Establishment of the Carlsbad Area Office

In order to provide proper focus on the compliance programs and to provide a single contact with regulatory agencies and with stakeholders, the DOE established an area office in Carlsbad in early December 1993. The Carlsbad Area Office (CAO) has total responsibility for the WIPP Program and for the implementation of the National TRU Waste Program. This combination provides complete interaction and coordination among the various WIPP project elements (DOE, Sandia National Laboratories, Westinghouse, Generator Sites) and the public, including the City of Carlsbad, a staunch supporter of the WIPP Project. The improved communication and coordination inherent with a centralized administrative function is paramount to the successful progress of the WIPP in light of its aggressive schedule.

Systems Prioritization Method

The Systems Prioritization Method (SPM) (9) was developed as a decision-aiding tool to aid in the process of identifying and selecting those experimental activities that will facilitate compliance. The SPM integrated standard decision-making tools with the performance assessment tool developed by Sandia National Laboratories to evaluate experimental activities based on their expected outcomes. The result was the specification of eight activities that could be completed within the desired time frame and which provide high confidence that compliance will be demonstrated.

ELEMENTS OF THE REGULATORY COMPLIANCE PROGRAM

The DOE regulatory compliance program comprises four major elements. These elements have been defined by asking three fundamental questions. First, what has to be done, by whom, and when? Second, How are they to be prepared? Third, who is the audience? Each of these questions is discussed in the subsequent text.

What? Whom? When? Schedule and Resources

The first task for the DOE was to identify all of the submittals that were needed for compliance and the times by which the submittals must be in the hands of regulators to assure timely processing. Five required submittals were identified. Given the unique nature of the documents and the time frames over which final information would be available, the DOE decided that the best way to handle these five submittals was through the preparation of seven separate documents as shown on the WIPP DDP (Figure I). In addition, the DOE identified two other support documents that would facilitate the compliance process. A summary of these documents is presented below.

The DOE addressed the resource issues by forming a compliance integration committee made up of managers from the CAO, Westinghouse, Sandia National Laboratories, and the DOE's technical support contractor. This committee addressed schedule and resource issues and conflicts, and interfaced with DOE upper management to assure timely availability of needed resources. In addition, the committee dealt with compliance issues and provided guidance on addressing issues in compliance documents. Since the inception of the accelerated compliance program, funding of compliance activities has received priority.

How? The Application Process

One of the greatest challenges facing the DOE with regard to regulatory permitting and certifying at the WIPP facility is the lack of regulatory precedent. For example, there are no other permitted mined geologic repositories. There are no other permitted TRU waste repositories. There are no other disposal facilities seeking a variance from the land disposal restrictions. There are no permitted hazardous waste disposal facilities in the state of New Mexico. The EPA has never certified another federal agency's compliance with applicable regulatory requirements. This lack of precedence impedes the regulatory compliance program because both the WIPP and the regulators have to weigh each decision in light of the letter of the regulation, and where the letter of the regulation is unclear, in light of the spirit of the regulation. Unfortunately, in some instances, regulations conflict, or are inconsistent with each other.

In order to overcome some of the problems associated with the lack of precedent or with the conflict among regulations, the CAO has adopted an aggressive approach to compliance. One of the keys to the DOE's progress is the preparation of draft documents for review by regulators and the public. This allows for open discussion of issues in the context of the DOE's overall compliance strategy. While the number of comments becomes burdensome at times, the DOE treats each comment as a valid input into the application process.

With regard to application format, the DOE has used the FCG as the standard for applications. Since the FCG has roots in the NMVP process, it has proven to be acceptable to the EPA's Office of Solid Waste (OSW). Likewise, the EPA's Office of Radiation and Indoor Air (ORIA) considers the FCG an adequate framework for preparing the CCA. However, the actual content will have to conform to EPA's certification criteria to be promulgated as 40 CFR Part 194.

Whom?

The answer to this question is two fold--the regulators and the public. Both entities have a vested interest in the process and the outcome.

Regulator Interface

Interfacing with the regulators has been a major priority for the CAO. Three primary regulators involved are: the EPA ORIA, the EPA OSW, and the NMED, each with differing levels of familiarity with WIPP. Most of

the CAO's efforts have, to date, focused on ORIA, since it has not been previously exposed to the WIPP. On the average, bimonthly technical interchange meetings have occurred and have covered major topics such as geology, hydrology, numerical model development, scenario screening, waste characterization, and others.

The CAO has tried to focus on current issues and their resolution. However, historical issues are also of interest to the regulators and, consequently, these have also been discussed. For example, deep dissolution was debated for many years at WIPP. Dissolution-related features in the vicinity were investigated to determine their likelihood of occurring at the WIPP site. Features such as the Wink sink, which is generally accepted to be human induced dissolution associated with oil and gas production, were also studied. None were determined to be likely at WIPP due to the lack of fresh water aquifers in the vicinity. Nonetheless, with new regulatory agencies involved, and new personnel, these old questions resurfaced and must be addressed.

Stakeholder Interface

Interface with stakeholders is a key aspect of the aggressive regulatory compliance strategy. Stakeholder input is mandated by federal and state laws and implementing procedures. The CAO concluded that the sooner the process began, the better for achieving the schedule and for minimizing "surprises" during public comment periods. The CAO defines WIPP stakeholders as those persons or organizations who have a vested interest in the outcome of the permitting process. This includes the local population, many state and national organizations, individuals along transportation routes, populations at generator sites, and other interested parties. The WIPP stakeholder list includes 2650 individuals and organizations.

CAO stakeholder outreach has taken four forms. First, the DOE convenes general stakeholder outreach sessions to provide summaries of WIPP progress and to obtain general input. Second, the DOE has stakeholder meetings on specific topics to provide opportunities to inform and discuss specific technical issues of concern. Third, the DOE has formed stakeholder focus groups to obtain input on narrow issues. Fourth, stakeholders are asked to comment on numerous DOE documents prior to final issuance. In addition, stakeholders are kept informed about technical exchange meetings with the regulators and some stakeholders regularly participate in these meetings.

Of course, the success of the stakeholder outreach program lies in the CAO's ability to incorporate stakeholder views and comments into the WIPP program. While the CAO is still working toward a formal mechanism to do this, it is being done informally. During the SPM stakeholder meetings, numerous suggestions by stakeholders with regard to process, documentation, and content were provided and addressed by Sandia National Laboratories (9).

The CAO is committed to continue the stakeholder process. There are still plenty of topics to discuss, not the least of which will be the final conceptual models and the final data inputs used for compliance calculations.

ACCOMPLISHMENTS

The CAO has been able to maintain the aggressive schedule that it committed to in 1994. The following is a summary of the documents that have been published to date and the nature of the reviews that have been conducted.

Compliance Status Report

The Compliance Status Report (CSR) (10) was completed in March 1994. It provides the status of the compliance program. The CSR is broad in scope and covers both the radioactive waste and hazardous waste components. It identifies over 40 issue areas needing additional research or the preparation of final documentation. It served the purpose of providing the framework for starting discussions with regulators and stakeholders. The CSR generated over 280 written comments. In addition, the DOE and the EPA have had

several technical exchanges to address these issues.

Project Technical Baseline

The Project Technical Baseline (PTB) (11) was conceived and prepared to be a compendium of established information regarding the WIPP site, with emphasis on information needed for environmental compliance documentation. It was issued early in the compliance program, as a draft in April 1994, to assure a level of consistency in documents being prepared for compliance. The latest revision is April 1995, although several changes are being processed at this time in preparation for the final NMVP and the CCA. The PTB is held under configuration control which means that it can only be changed with DOE's approval and after all users have had an opportunity to review the changes. It will be updated quarterly while applications are in process and probably less frequently after all regulatory submittals are complete. Documents that use the information in the PTB include the NMVP, the RCRA Permit Application, the Draft CCA and the CCA, the Safety Analysis Report (SAR), and the SEIS.

Biennial Environmental Compliance Report

The first Biennial Environmental Compliance Report (BECR) (12) was issued October 1994 to satisfy the LWA requirement for a biennial assessment of compliance. It addresses 24 separate federal laws and state of New Mexico counterparts. The BECR is currently being reviewed by the EPA.

Draft Compliance Certification Application

The Draft CCA (13) was issued to ORIA in March 1995 in nine volumes. It describes the 40 CFR Part 191 compliance program status as of March 1995 for requirements that model undisturbed performance. The Draft CCA was supplemented in July 1995 (14) for requirements that model disturbed performance. The Draft CCA uses the projected outcome of the experimental activities identified in the SPM. The EPA has provided general comments and more detailed comments on the Draft CCA are expected in early 1996. The Draft CCA is based on 40 CFR Part 191 and does not incorporate the proposed 40 CFR Part 194 criteria since it was not available in final form at the time the Draft CCA was prepared.

Phase I No-migration Variance Petition

The Phase I NMVP (15) was submitted to OSW in May 1995 in seven volumes. It principally addresses emission issues. The EPA provided public notice of the Phase I NMVP, however, it received no public comments.

Revision 5 of the RCRA Permit Application

The DOE submitted Revision 5 of the RCRA Permit Application to the NMED on May 1995 (16) in ten volumes. The application has been re-scoped for disposal phase operations and closure. Discussions with NMED are ongoing. A notice of deficiency covering any remaining technical issues is expected in February 1996. The notable issues that the DOE and the NMED are discussing are waste characterization, RH-TRU waste, and closure.

FUTURE ACTIVITIES

In order to finally obtain permits and approvals, several key future activities are anticipated. These will constitute final submittals, and, to some extent are awaiting either final data on experiments or final rules from the EPA or both.

Phase II No-migration Variance Petition

The Phase II NMVP is due to the EPA in June 1996 after Sandia National Laboratories finalizes the conceptual models, the shaft seal design, and the numerical codes. It will contain the long-term performance calculations required to demonstrate no-migration for 10,000 years. The same calculational methods that were developed for the radioactive components of the waste will be used, along with the same conceptual model of the disposal system. A final decision by the EPA is expected by June 1997.

Hazardous Waste Permit

A draft hazardous waste permit is expected in the spring of 1996. The public will be provided an opportunity to comment on the NMED's permitting proposal. It is likely that public meetings and hearings will be scheduled. A final permit decision is expected before the end of 1996.

Supplemental Environmental Impact Statement

In the Supplemental Environment Impact Statement (SEIS) prepared for the Test Phase, the DOE committed to issue another SEIS to support the decision to begin waste disposal operations. Current plans call for the draft SEIS to be issued in May 1996. After a public comment period including public hearings in June 1996, the final SEIS is expected in January 1997. A Record of Decision (ROD) is scheduled for issuance in March 1997. Among the issues being looked at are transportation, operational life, waste characterization, treatment to meet the waste acceptance criteria, backfill, and RH-TRU waste.

Final Compliance Certification Application

The DOE will prepare the CCA for submittal to the EPA in October 1996. However, the DOE needs the final data and conceptual models to prepare the CCA. These are due to be completed by March 1996. The CCA cannot be prepared prior to the issuance of final certification criteria, 40 CFR Part 194, by the EPA in February 1996. The proposed criteria were issued in January 1995 (17). The DOE has commented extensively on these proposed criteria (18, 19). In addition, the EPA is preparing a Compliance Application Guidance document to provide information relative to the level of detail expected in the CCA (20). An EPA certification is anticipated by October 1997.

SUMMARY

The DOE has successfully made the transition to demonstrating regulatory compliance at the WIPP. This transition is supported by an aggressive schedule that involves the DOE, its contractors, regulators, oversight organizations, and the public. The accelerated compliance process has been marked by numerous successes, including the resolution of issues and the identification of major topics to be addressed between now and the final submittal of applications. Major issues that are currently discussed include peer review, waste characterization, the use of engineered barriers, quality of old data, and computer code documentation. While many of these issues represent a significant amount of work, none appear to be obstacles to completing the compliance tasks in a timely manner.

REFERENCES

1. Congress, 1992. Waste Isolation Land Withdrawal Act of 1992, Public Law 102-579, October 30, 1992.
2. DOE, 1995a. Letter from George E. Dials, Manager to Distribution, Subject: Revision 2 to the WIPP Disposal Decision Plan (DDP), U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, October 10, 1995.
3. DOE, 1993. Regulatory Criteria Document for the Disposal of Defense Transuranic Mixed Waste in a

- Geologic Repository, U.S. Department of Energy, Washington, D.C., March, 1994.
4. CFR, 1995a. Environmental Radiation Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes, 40 CFR Part 191, U.S. Environmental Protection Agency, published in Code of Federal Regulations, July, 1995.
 5. CFR, 1995b. Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, 40 CFR Part 264, U.S. Environmental Protection Agency, published in Code of Federal Regulations, July, 1995.
 6. CFR, 1995c. Land Disposal Restrictions, 40 CFR Part 268, U.S. Environmental Protection Agency, published in Code of Federal Regulations, July, 1995.
 7. DOE, 1994a. WIPP Regulatory Compliance Strategy and Management Plan for Demonstrating Compliance to Long-Term disposal Standards, DOE/CAO-94-2003, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, May, 1994.
 8. DOE, 1994b. Format and Content Guide for Title 40 CFR 191 and Title 40CFR 268.6 Compliance Reports, DOE/CAO-94-2004, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, May, 1994.
 9. SANDIA, 1995. SPM-2 Report, Revision 1, prepared by Sandia National Laboratories for the Department of Energy, Waste Isolation Pilot Plant, Sandia National Laboratories, Albuquerque, NM, April 18, 1995.
 10. DOE, 1994c. Compliance Status Report for the Waste Isolation Pilot Plant, DOE/WIPP 94-019, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM
 11. DOE, 1995b. Waste Isolation Pilot Plant Project Technical Baseline for Regulatory Compliance, WIPP-CAO-95-1014, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, April 20, 1995.
 12. DOE, 1994d. Waste Isolation Pilot Plant Biennial Environmental Compliance Report, DOE/WIPP 94-021, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, October, 1994.
 13. DOE, 1995c. Draft 40 CFR 191 Compliance Certification Application for the Waste Isolation Pilot Plant, DRAFT-DOE/CAO-2056, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, March 31, 1995.
 14. DOE, 1995d. Draft 40 CFR 191 Compliance Certification Application for the Waste Isolation Pilot Plant, July 1995 Update, DRAFT-DOE/CAO-2056, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, July, 1995.
 15. DOE, 1995e. Draft No-Migration Variance Petition, DOE/CAO-95-2043, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, May, 1995.
 16. DOE, 1995f. Resource Conservation and Recovery Act Part B Permit Application, DOE/WIPP 91-005, Revision 5, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, May, 1995.
 17. EPA, 1995a. Criteria for the Certification and Determination of the Waste Isolation Pilot Plant's Compliance with Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Wastes; Proposed Rule, 60 FR 5766, January 30, 1995.
 18. DOE, 1995g. Letter from Thomas P. Grumbly, Assistant Secretary for Environmental Management, to Ms. Mary Nichols, Assistant Administrator for Air and Radiation, U.S. Environmental Protection Agency, Subject: Docket No. A-92-56, Air Docket. U.S. Department of Energy, Washington, D.C., May 5, 1995.
 19. DOE, 1995h. Letter from George E. Dials, Manager to Ms. Ramona Trovato, Director, Office of Radiation and Indoor Air, U.S. Environmental Protection Agency, no subject listed. U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, September 14, 1995.
 20. EPA, 1995b. Draft Compliance Guidance Document, Federal Register Draft, EPA 402-R-95-014, U.S. Environmental Protection Agency, Washington, D.C., September, 1995.

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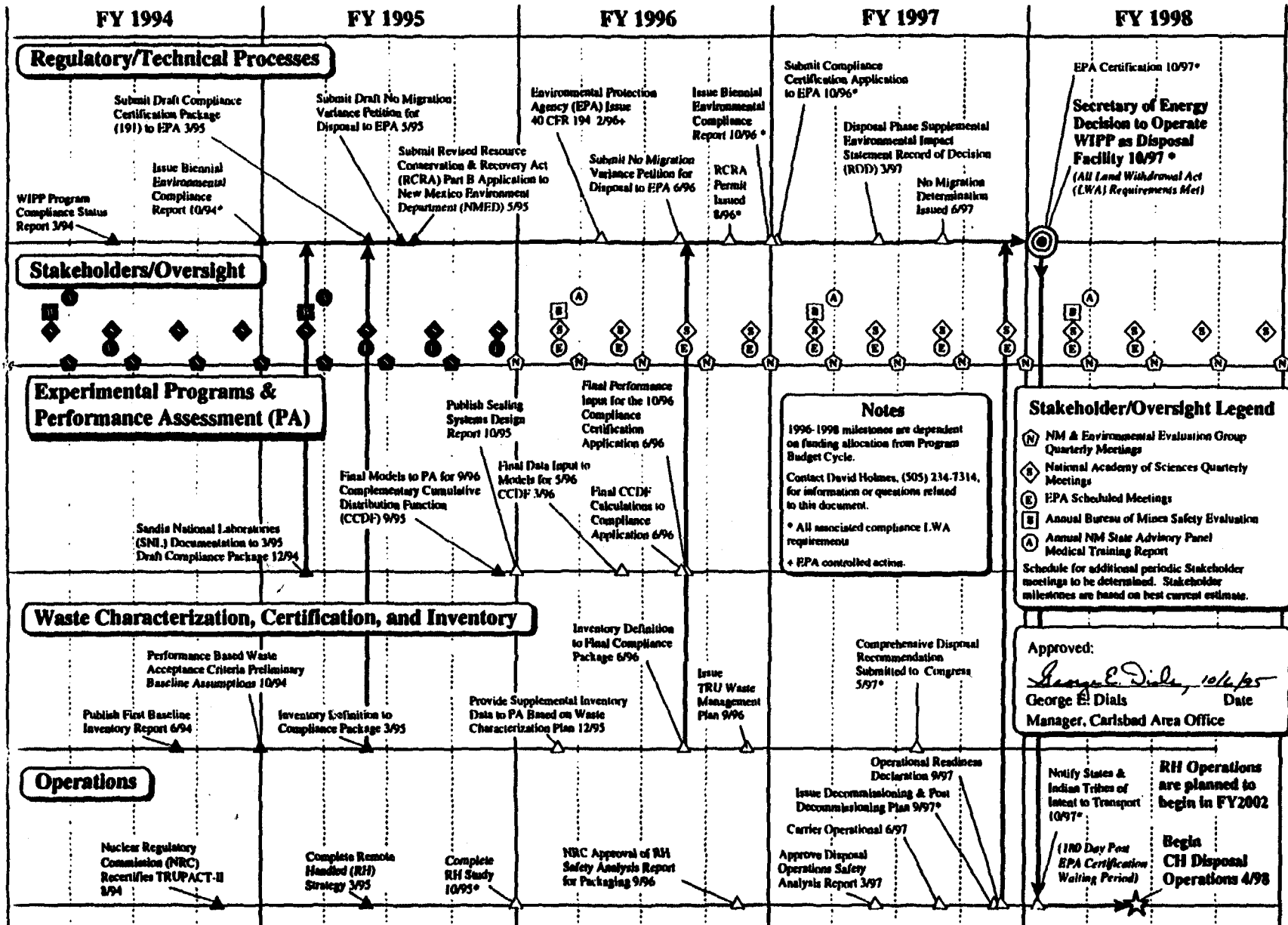


Figure I WIPP Disposal Decision Plan, Revision 2, October 1995