

WIPP'S HAZARDOUS WASTE PERMIT—THE NEXT STEP

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ABSTRACT

The DOE has been working with the State of New Mexico Environment Department (NMED) to obtain a permit to operate the Waste Isolation Pilot Plant (WIPP) as a hazardous waste storage and disposal facility. Hazardous waste regulated under the New Mexico Hazardous Waste Act are co-contaminants with much of the transuranic (TRU) waste that will be sent to the WIPP for disposal.

The Hazardous Waste Facility Permit, issued in October 1999, embodies the results of a significant amount of negotiation between the DOE and the NMED with regard to facility performance parameters, facility operational constraints, information collection and reporting, and other conditions deemed appropriate by the NMED to protect human health and the environment. Many of these conditions were imposed to instill confidence in the NMED with regard to the successful operation and closure of WIPP, especially in the areas of waste identification and characterization.

Many of the waste characterization requirements imposed by the permit go beyond what is typically expected in a permit issued under the Resource Conservation and Recovery Act (RCRA). These additional requirements indicate that WIPP's regulator has concerns that conventional compliance will be adequate to meet the NMED's hazardous waste program needs.

There are significant benefits to be realized by reducing waste characterization requirements. Specifically, waste generators could reduce occupational exposure and costs and increase throughput, should they be allowed to:

- Have more flexibility in the selection and implementation of sampling methods.
- Reduce sampling frequencies.
- Eliminate duplicative waste characterization activities.

The DOE and Westinghouse have begun a path forward towards achieving these benefits.

INTRODUCTION

On October 27, 1999, the Secretary of the New Mexico Environment Department (NMED) announced the issuance of a Hazardous Waste Facility Permit for the Waste Isolation Pilot Plant (WIPP).(1) It was a day of celebration for those at WIPP who had spent much of the last decade preparing, submitting, and revising the permit application, providing supporting documentation, commenting on two draft permits, and participating in public hearings. Although the receipt of the permit was a significant milestone, the permit did not come "ready to use". In fact, the permit came with requirements unprecedented in the hazardous waste disposal industry, particularly with regard to waste characterization. As a result, the Department of Energy (DOE) and Westinghouse (referred to by the NMED as the *permittees*) began immediate efforts to make the permit more workable without sacrificing protection of human health and the environment.

ISSUES

Many of the waste characterization requirements imposed by the permit went beyond what is typically expected in a permit issued under the Resource Conservation and Recovery Act (RCRA). During multiple evaluations of the WIPP repository and the underground hazardous waste disposal units, the DOE has demonstrated that there is no potential pathway for a release from the repository with the exception of the air pathway.(2) Under these conditions, minimal waste characterization is needed to ensure the health and safety of the public. The essential determinations the characterization program should be designed to make are:

- Determination that no prohibited items are present
- Determination that volatile organic compounds (VOCs) are within concentration limits.

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Information regarding the presence or absence of prohibited items in radioactive waste can be provided in accordance with the RCRA regulations by the use of acceptable knowledge (3). Acceptable knowledge can also provide information on the expected types of VOCs, semi-VOCs (SVOCs), metals, and other hazardous constituents in the waste.

To satisfy RCRA regulations and the unique performance standards established for WIPP as a miscellaneous unit, the minimum waste characterization program elements are as follows:

- Development of acceptable knowledge leading to the assignment of applicable hazardous waste codes.
- Measurement of VOC species and concentrations in container headspace on a representative portion of the waste streams.
- Determination of the absence of prohibited items.

Compare these minimal program requirements to the following characterization program elements required by the WIPP's permit:

- Development of acceptable knowledge leading to the assignment of applicable hazardous waste codes.
- Headspace gas sampling on 100% of the waste containers
- Statistical sampling of homogenous solids, soils and gravels
- Radiography on 100% of the containers (for retrievably stored waste)
- Visual Examination as a statistical quality control check of the radiography.(4)

In comparing the characterization program that is necessary and sufficient to satisfy RCRA regulations and the program mandated by the NMED for WIPP, we conclude that the main reason for the more stringent requirements is WIPP's regulator has minimal confidence in the DOE's reliance on acceptable knowledge. Therefore, any permit changes proposed in the future that seek to substantively reduce reliance on additional characterization requirements must address the underlying need to build the NMED's confidence in DOE's acceptable knowledge program.

PATH FORWARD

The DOE chose to challenge five of the permit's requirements in court. Most of the challenged requirements were onerous and others, while not particularly onerous were not necessary or were unclear. None of the challenged requirements were needed to protect human health and the environment.

Some of the permit's requirements are not clear or seem to be internally inconsistent. This led to numerous questions from the generator sites on how to interpret the permit conditions and drove the permittees to conduct an in-depth" clarification effort to demystify the permit's requirements.

Finally, while many of the characterization provisions are clear, they sometimes conflict with the guidance contained in standard Environmental Protection Agency (EPA) publications such as EPA's SW-846. The only way to address this type of requirement conflict is to obtain permit modifications.

From the issuance of the permit, the permittees' path forward was clear. The stage was set for litigation, clarification, modification and negotiation.

LITIGATION

The NMED Secretary's decisions relative to the final permit may be reviewed pursuant to Section 74-4-14.C of the Hazardous Waste Act (HWA).(5) This section specifically provides that any final administrative action of the Secretary may be set aside if it is: "(1) arbitrary, capricious or an abuse of discretion; (2) not supported by

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substantial evidence in the record; or (3) otherwise not in accordance with law.” In accordance with these criteria, on November 3, 1999 the United States of America on behalf of the Department of Energy filed a complaint against the State of New Mexico, New Mexico Environment Department.(6)

The following is a summary of the challenged provisions in the final permit:

- Westinghouse must provide liability coverage and financial assurance for closure and post-closure activities at the WIPP facility.
- Non-mixed waste must be characterized in accordance with the permit's Waste Analysis Plan (WAP). Also, TRU mixed waste may not be placed in the same underground hazardous waste disposal unit that contains non-mixed waste, not characterized in accordance with the Waste Analysis Plan (WAP).
- Generator sites must adopt an initial waste miscertification rate of 11 percent and apply this rate to each waste stream.
- DOE must take three subsamples from the core of homogeneous waste and analyze those subsamples for VOC's and other hazardous constituents.
- The permittees must monitor the groundwater in the vicinity of WIPP for gross alpha and beta radiation.

Since the time the complaint was filed, the WIPP legal team has met with the NMED on several occasions to discuss possible resolution of these issues without requiring a court decision. With these issues left in the hands of the legal team and NMED, the WIPP RCRA implementation team set out to tackle the remaining problematic permit conditions. This task would involve writing clarifications for the generator sites to use in interpreting characterization requirements and preparing permit modification requests necessary to make the permit conditions more workable.

CLARIFICATION

Beginning the month of October 1999, using the proposed final permit, the generator/storage sites requested the Carlsbad Area Office (CAO) to provide clarification on how to interpret over 300 requirements contained in the permit's WAP and WAP attachments.

The generator sites had significant concerns surrounding the interpretation of solids' sampling requirements, headspace gas sampling, radiography, and visual examination. In addition, they had questions on the following types of issues:

- Submission of data reports
- Data validation and verification
- Training and qualifications
- Equipment calibration, cleaning, and maintenance
- Acceptable Knowledge
- Chain-of-Custody
- Legal defensibility of procedures
- Non-conformance reporting
- Tentatively identified compounds
- Repackaging waste

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- Control charting

- Field Reference Standards

The WIPP RCRA team began reviewing the requests for clarifications in order to determine which questions could be answered to the satisfaction of the generators while withstanding legal scrutiny and to identify which concerns must be resolved by preparing permit modification requests.

The RCRA team, with representatives from Westinghouse, CAO, and other contractors with expertise in RCRA, chemistry and statistics, met with generator site representatives, via conference calls, on nearly a daily basis to discuss the latest draft clarifications and suggestions for permit modifications.

The team meticulously compared one section of the permit to other permit sections, and compared the permit to the application, to NMED's testimony, and to NMED's permit comment response document to determine how the unclear sections should be interpreted. CAO responded formally to the generator site requests for clarifications, on November 24, 1999.(7) In addition to writing clarifications, the RCRA team began assembling notifications of Class 1 permit modifications and requests for Class 2 permit modifications. Class 2 changes were prioritized based on the immediate needs of the generator sites and the time required for data collection necessary to justify the permit modifications.

MODIFICATION

In addition to minor corrections of typographical errors and updates to address minor WIPP facility and documentation changes, the permit needed to be modified to address the following generator site issues concerning reducing costs, reducing occupational exposures, and increasing throughput of waste to the WIPP facility:

- The need for more flexibility in selecting and implementing sampling methods.
- The need to relax sampling frequencies.
- The need to eliminate unneeded waste characterization activities.

The CAO and Westinghouse notified the NMED of a number of Class 1 changes to the permit on the following dates: November 10, November 15, and November 30, 1999, and January 7, and January 31, 2000. Under the HWA, a Class 1 permit modification does not require approval from the NMED prior to implementation.

In addition to providing the NMED with updated information on activities at the WIPP site, correcting typographical errors, and making changes to render the permit internally consistent, the Class 1 modifications revised some of the requirements having the potential to negatively impact the generator sites. The following are a few of the Class 1 modifications initially made to the permit to remedy generator site concerns:

- The description of the coring tool required for solid sampling as well as the prescription for its use were modified to address safety concerns and to accommodate usage with varying materials.
- The requirement for sample containers was revised to allow the use of non-glass containers.
- The requirement for generator sites to include actual data tables including results of sampling, analytical or online batch data results was modified to allow the sites to simply reference the data tables in their data checklists.
- Requirements pertaining to Tentatively Identified Compounds were revised to be consistent with SW-846.
- The descriptions of payload container filters were revised to ensure that the permit is clearly interpreted as allowing multiple filter vents and that the placement of filters is not restricted to the drum lid.
- The allowable waste container descriptions were revised to allow the direct loading of waste into ten-drum overpacks and into 85-gallon (322-liter) drums.(8)

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Following submittal of the Class 1 changes, the WIPP RCRA team set about to finalize the first set of *priority one*, Class 2 permit modification requests. The changes had been prioritized by the level of impact the permit requirement would have on WIPP's waste characterization program and how long it would take to assemble the data necessary to justify the permit modifications. In some cases the modification requests were being prepared to address changes that WIPP had already requested from the NMED during the comment period on two draft permits previously issued by the NMED. Class 2 changes require the approval of the NMED prior to implementation.

The first Class 2 modification requests center primarily on quality assurance and quality control requirements for laboratory equipment. They also attempt to make the frequency for sampling and analysis consistent with the waste stream.

The following is a list of the first Class 2 changes that will be requested from the NMED:

- Align quality assurance/quality control laboratory procedures for VOCs and SVOCs (Cresols and Pyradine) in solid samples with standard laboratory practice.
- Reduce headspace gas sampling requirements for wastes that have been thermally processed or shown through Acceptable Knowledge to not contain VOCs.
- Allow use of traditional random sampling for repackaged homogeneous solids, instead of requiring control-charting.

The WIPP RCRA Permit team is now finalizing the first set of Class 2 permit modification requests and preparing for the public meetings required to support these Class 2 permit changes. The team is also continuing to sort through the remaining modification requests that must be submitted, but require further data collection.

NEGOTIATION

Because the WIPP is permitted under the regulations as a miscellaneous unit, strict technical standards are not imposed. Instead, environmental performance standards are mandated. The regulations intend that methods of achieving compliance be negotiated between the regulator and the permittee. Much negotiation occurred prior to WIPP's permit issuance. Still, much more is needed as DOE seeks to shape the permit into a program that eliminates excessive characterization. This negotiation will take place through submittal of permit modifications based on data collected under "real world" conditions. This will assure an open forum for considering changes that reduce significant requirements.

CONCLUSION

Since the lawsuit was filed, Congress has passed legislation relieving federal facilities managing TRU waste from the imposition of producing financial assurance instruments for closure and post closure costs.(9) DOE is continuing to address this important issue with the NMED.

The generator sites are continuing to finalize their characterization program to match the requirements in the permit for mixed TRU waste or to provide data as are necessary to convince the NMED that other characterization methods are appropriate. The DOE and Westinghouse intend to continue submitting permit modifications as necessary to reduce the budgetary and safety risk burdens imposed on the generator sites. The RCRA Permit journey is far from over. The DOE and Westinghouse will continue to negotiate with the NMED as allowable to attain a *more workable* permit that considers protection of human health, the environment, and taxpayer dollars.

REFERENCES

1. STATE OF NEW MEXICO, "Final Order of the New Mexico Environment Department", HRM 98-04(P), (October 27, 1999).
2. "Resource Conservation and Recovery Act Part B Permit Application", DOE/WIPP 91-005, Rev. 6.5, (November 1997).
3. "General Waste Analysis". 40 Code of Federal Regulations 264.13.

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4. NEW MEXICO ENVIRONMENT DEPARTMENT, "Hazardous Waste Facility Permit Issued to the Waste Isolation Pilot Plant", Identification No. NM4890139088, (October 27, 1999).
5. New Mexico Hazardous Waste Act. Chapter 74, Article 4, Section 14, "Administrative actions; judicial review". NMSA. (1978).
6. UNITED STATES OF AMERICA V. STATE OF NEW MEXICO, NEW MEXICO ENVIRONMENT DEPARTMENT, AND PETER MAGGIORE, No. Civ No. 99 1280M, (U.S.D.C., D.N.M.), (November 3, 1999).
7. DOE CARLSBAD AREA OFFICE MEMORANDUM TO DISTRIBUTION, "CAO Clarifications of RCRA Permit Requirements", (November 24, 1999).
8. DOE CARLSBAD AREA OFFICE LETTER, "Notification of Class 1 Permit Modifications to Hazardous Waste Facility Permit and Notice of Changes to the Hazardous Waste Facility Permit Contingency Plan, Permit Number: NM4890139088-TSDF", (November 15, 1999).
9. ONE HUNDRED SIXTH CONGRESS OF THE UNITED STATES, "Consolidated Appropriations Act". Public Law 106-113, 113 Stat. 1501, (November 29, 1999).