

MIXED WASTE DISPOSAL FACILITY AT THE NEVADA TEST SITE - Paul T. Dickman, Science Applications International Corporation, Las Vegas, NV; Eugene W. Kendall, Reynolds Electrical & Engineering Co., Inc., Las Vegas, NV

### Background

The Atomic Energy Act (AEA) of 1954 has been the basis for Department of Energy (DOE) self-regulation of radioactive wastes. Under the AEA, the term "by-product material" is defined as any radioactive material generated or made radioactive from the use or production of "special nuclear material" (e.g., plutonium, uranium). Under the "by-products rule," DOE was therefore responsible for self-management and regulation of spent reactor fuel, high-level, low-level, and transuranic wastes, and until 1984, mixed radioactive and hazardous wastes.

In 1984, a law suit brought against DOE by the Legal Environmental Assistance Fund (LEAF) resulted in the requirement that DOE be subject to regulation by the state and U.S. Environmental Protection Agency (EPA) for all hazardous wastes, including mixed wastes. Therefore, all DOE facilities generating, storing, treating, or disposing of mixed wastes will be regulated under the Resource Conservation and Recovery Act (RCRA).

In FY 1985, DOE Headquarters requested DOE low-level waste (LLW) sites to apply for a RCRA Part B Permit to operate radioactive mixed waste facilities. An application for the Nevada Test Site (NTS) was prepared and submitted to the EPA, Region IX in November 1985 for review and approval. At that time, the state of Nevada had not yet received authorization for hazardous wastes nor had they applied for regulatory authority for mixed wastes. A courtesy copy of the application was provided to the state in December 1986 (13 months after submission to EPA) with the assumption that the state would eventually become the regulatory agency for the NTS mixed waste facility.

In October 1986, DOE Nevada Operations Office was informed by the Rocky Flats Plant that some past waste shipments to NTS contained trace quantities of hazardous substances. Under Colorado law, these wastes are defined as mixed. A DOE Headquarters task force was convened by the Under Secretary to investigate the situation. The task force concluded that DOE has a high priority need to develop a permitted mixed waste site and that DOE Nevada Operations Office should develop a "fast track" project to obtain this site and all necessary permits. The task force also concluded that DOE should hold discussions with the state of Nevada.

### Status

When NTS applied for a permit, there was no direct involvement by the state of Nevada. A regulatory "limbo" existed as to the state's role because no authority had been granted to the state for mixed wastes. In

January 1987, DOE Nevada Operations Office entered into discussions with the state and requested the state to determine if it has authority for mixed wastes. In March, the state informed DOE Nevada Operations Office that they do have regulatory authority and that NTS will be regulated as a "commercial" mixed waste facility subject to disposal taxes and inspection fees.

In June, DOE Headquarters revised the by-products definition under the AEA. The new definition basically states that all radioactive wastes also containing RCRA-listed substances will be dually regulated by both AEA and RCRA. As a result of this change in the definition, DOE Nevada Operations Office submitted new Part A Applications for its defense waste management facilities in an effort to preserve interim status for these sites. The Part A Applications include the 732-acre Radioactive Waste Management Site in Area 5 and the 130-acre bulk waste disposal site in Area 3.

In July, DOE Nevada Operations Office formally submitted the 1985 version of the RCRA Part B Application to the state. At the time of submission, it was stated that NTS intended to revise the application to address issues and waste streams not identified in the 1985 draft. The purpose for submitting the 1985 draft was to establish a basis for discussions between DOE Nevada Operations Office and the state on implementation plans and requirements for mixed wastes at NTS. The Part B Application was formally submitted to the state on October 1, 1987.

The state has agreed to review the issue of Rocky Flats waste streams and may grant approval for receipt of mixed wastes on a case-by-case basis until the revised Part B Application is submitted.

#### Issues to be Resolved

NTS is planning a major modification to the NTS Part B Application to incorporate changes resulting from the Rocky Flats problem and the revised by-products definition. Over the next several months, we expect that several issues need to be resolved:

Strategic Alternatives Study: At the direction of the Under Secretary, DOE prepared a Strategic Alternatives Study (SAS) for management of DOE defense hazardous and mixed wastes. The draft report SAS calls for establishment of three DOE mixed waste disposal sites. Under SAS, the NTS would serve as the western regional site. How SAS will be implemented and its effect on NTS mixed waste plans is not yet defined.

Exemptions Requested: NTS has requested exemptions from the groundwater monitoring and trench liner requirements of RCRA. The state has indicated that it will support the NTS requests, but no assurances can be given that the exemption will be granted nor is their a schedule for determining if or when the requests would be

granted. Failure to obtain these exemptions would result in over \$2 million in additional design and construction costs for the mixed waste site and a major modification in the permit application.

Permit Conditions: The manner of operation and types of materials to be disposed will be defined in the permit. The conditions of the permit are negotiated between the state and the permittee. The EPA has not yet fully developed health and safety standards applicable to waste disposal and, therefore, operating requirements are determined on a case-by-case basis. NTS has no assurances that the state will not impose additional restrictions which could impact planned operations and certification procedures.

Mixed Waste Certification Plans: The critical element in mixed waste facility planning is the permit process. The condition and limitations in the permit will determine the type of operation and acceptable waste materials and forms.

To achieve RCRA requirements, we do not believe any significant changes in disposal operations will be necessary; however, the greatest impact to us and our generators will be in waste characterization and certification.

NTS has prepared a draft of a Mixed Waste Acceptance Criteria (WAC). The WAC addresses the increased sampling, reporting, and quality assurance requirements necessary to meet RCRA. In the past, certification records for low-level wastes were designed primarily for radiological hazards. Under RCRA we will require additional data on chemical content, form, material type, generation source, treatment methods, and packaging and transportation.

The WAC will serve as a focal point for the certification and quality assurance programs. The WAC is currently still in draft form. We are awaiting the revisions to DOE Order 5820.2 before finalizing the WAC.

### Conclusion

The NTS mixed waste disposal site is still in the planning stages and progress will be necessarily limited until the revised Part B Application has been accepted by the state of Nevada. Originally, our plans called for having a fully operational and permitted mixed waste site by October 1, 1988. At this time, we believe it is still an achievable schedule, assuming the state approves the Part B in early 1988. The principal difficulty we have encountered has been due to the unfamiliarity of all parties regarding how to proceed. Mixed waste is basically a "new" waste type with dual regulatory requirements. There are no standard procedures for us to follow and therefore each step taken requires careful consultation with all parties involved. The

learning process for us, the state, and EPA is necessary and will eventually benefit other DOE facilities.

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**BRIEFING NOTES ON  
NTS MIXED WASTE ISSUES**

**ENVIRONMENTAL SCIENCES DEPARTMENT  
RADIOACTIVE WASTE MANAGEMENT PROJECT**

## CURRENT STATUS AND PLANS

- REEC<sub>o</sub> HAS PREPARED AN INTERIM DRAFT REVISION TO NTS WASTE ACCEPTANCE CRITERIA TO ADDRESS MIXED WASTE. AWAITING NEW DOE ORDER 5820.2 BEFORE ISSUING.
- REEC<sub>o</sub> ACQUIRED SUBCONTRACTOR SERVICES FOR PERFORMING MULTIPLE TASK ASSIGNMENTS. THESE INCLUDE:
  - PREPARATION OF REVISED AREA 5 PART B APPLICATION
  - DEVELOPMENT OF MW QA PLAN
  - LAND USE AND CONCEPTUAL OPERATING PLAN
- DOE/NV HAS OFFICIALLY TRANSMITTED NOVEMBER 1985 PART B APPLICATION TO STATE FOR REVIEW. STATE HAS GRANTED INTERIM STATUS FOR ROCKY FLATS SALTCRETE (SEPTEMBER, 1987)
- STATE WILL PROBABLY NOT GRANT FULL MW STATUS UNTIL REVISED PART B SUBMITTED. MAY CONSIDER INDIVIDUAL WASTE STREAMS ON AD HOC BASIS.
- MAJOR EFFORT WILL BE REQUIRED TO DEVELOP CERTIFICATION PROGRAM BY SEPTEMBER.

10/12/87

## REECO ROLE

REECO WILL SERVE AS MIXED WASTE FACILITY OPERATOR WITH RESPONSIBILITIES FOR INSPECTION AND CERTIFICATION OF WASTES, AND COMPLIANCE WITH PERMIT REQUIREMENTS.

PLANNING AND PREPARATION FOR FIVE MAJOR TASKS:

- REGULATORY COMPLIANCE AND ENVIRONMENTAL DOCUMENTATION
- WASTE SAMPLING AND CERTIFICATION PROGRAM
- DATA MANAGEMENT SYSTEMS
- MIXED WASTE DISPOSAL FACILITY DEVELOPMENT
- WASTE EXAMINATION FACILITY DEVELOPMENT

IMPLEMENTATION SCHEDULE AND FUNDS TO BE DETERMINED BY DOE/HQ AND NV. IN FY 88, \$3.6 MILLION HAS BEEN ALLOCATED FOR NTS MIXED WASTE FACILITY DEVELOPMENT.

10/12/87

STATE OF NEVADA AND RCRA

EPA REGION IX (SACRAMENTO) IS THE FEDERAL REGULATORY AUTHORITY FOR HAZARDOUS AND MIXED WASTES FOR NEVADA.

STATE OF NEVADA HAS BEEN GRANTED AUTHORITY FOR HAZARDOUS AND WILL REGULATE MIXED WASTE.

THE STATE HAS DETERMINED THAT AN NTS MIXED WASTE FACILITY WILL BE REGULATED AS A "COMMERCIAL" SITE SUBJECT TO SEVERANCE TAXES, DISPOSAL AND INSPECTION FEES.

10/12/87



## NTS LOW-LEVEL WASTE OPERATIONS

### AREA 5

PACKAGED WASTE DISPOSED IN EXCAVATED PITS AND TRENCHES.

APPROXIMATELY 500,000 CUBIC FEET ANNUALLY RECEIVED FROM 17 DEFENSE GENERATORS. AVERAGE 4-5 TRUCKLOADS PER DAY.

OVER 2.5 MILLION CUBIC FEET OF WASTE DISPOSED SINCE 1961.

PROVIDE REMOTE HANDLING SYSTEM FOR SHIELDED CASK SHIPMENTS AND STORAGE SITE FOR LLNL TRANSURANIC WASTES.

### AREA 3

LANDFILL OPERATION AT U3AXBL SUBSIDENCES.

BULK WASTES FROM CLEANUP OF OLD ATMOSPHERIC TEST SITES.

APPROXIMATELY 4 MILLION CUBIC FEET DISPOSED.

ALSO RECEIVE BULK CONTAMINATED SOILS FROM JOHNSTON ATOLL AND GA TECHNOLOGIES, SAN DIEGO.

10/12/87

## DOE AND RCRA

PRIOR TO 1984, DOE'S POSITION WAS TO MEET THE INTENT OF RCRA. EPA AND STATES TO HAVE INPUT, NOT REGULATORY ROLES.

IN 1984, DOE LOST LAWSUIT BROUGHT ON BY LEGAL ENVIRONMENTAL ASSISTANCE FOUNDATION (LEAF) AND NATIONAL RESOURCE DEFENSE COUNCIL (NRDC) WITH STATE OF TENNESSEE AS "PLAINTIFF INTERVENER."

THE "LEAF DECISION" REQUIRES DOE TO FULLY COMPLY WITH RCRA AND GIVES EPA AND STATES REGULATORY AUTHORITY OVER DOE FOR HAZARDOUS AND MIXED WASTES.

IN JUNE 1987, DOE MODIFIES DEFINITION OF "BY-PRODUCT" UNDER ATOMIC ENERGY ACT OF 1954 TO EXCLUDE ALL RADIOACTIVE WASTES ALSO CONTAINING RCRA LISTED SUBSTANCES.

NEW BY-PRODUCTS DEFINITION REQUIRES DUAL REGULATION FOR ALL DOE MIXED WASTES.

10/12/87

ROCKY FLATS MIXED WASTE PROBLEM

IN OCTOBER 1986, ROCKY FLATS NOTIFIED DOE/NV THAT PAST LLW SHIPMENTS TO NTS CONTAINED TRACE QUANTITIES OF HAZARDOUS MATERIALS.

UNDER COLORADO LAW, WASTES MUST BE DECLARED MIXED. THEREFORE, ROCKY FLATS AND NTS WERE OUT OF COMPLIANCE WITH FEDERAL REGULATIONS.

TASK FORCE CONVENED BY UNDER SECRETARY RECOMMENDS ROCKY FLATS CEASE ALL WASTE SHIPMENTS AND NTS "FAST TRACK" DEVELOPMENT OF MIXED WASTE FACILITY.

10/12/87

NTS MIXED WASTE PERMIT APPLICATION

- IN JUNE 1985, DOE/HQ REQUESTED ALL FIELD OFFICES APPLY FOR MIXED WASTE PERMITS.
- NTS SUBMITTED PART B BY NOVEMBER 1985 TO EPA WITH COURTESY COPY TO STATE. EXEMPTIONS FOR TRENCH LINERS AND GROUND-WATER MONITORING REQUESTED.
- DUE TO CHANGE IN BY-PRODUCTS RULE, DOE/NV SUBMITTED NEW PART A's FOR AREA 5 AND 3 LLW SITES. PART A's ADDRESS ALL RADIOACTIVE WASTE STORAGE AND DISPOSAL OPERATIONS.
- A NEW PART B FOR AREA 5 IS BEING PREPARED FOR SUBMISSION TO STATE BY NOVEMBER 1987.

10/12/87

DOE/NV POSITION ON MIXED WASTE FACILITY

UNTIL DIRECTED BY HQ OR RCRA PERMIT IS RECEIVED, NV PLANS TO ADHERE TO PRESENT POLICY OF NOT ACCEPTING MIXED WASTES.

NV HAS TAKEN THE POSITION THAT DOE MUST DESIGNATE AT LEAST ONE ADDITIONAL MW FACILITY TO BE DEVELOPED.

10/12/87