

Annual Transportation Report for Radioactive Waste Shipments to and from the Nevada Test Site



Fiscal Year 2005

Prepared December 2005

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office



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ANNUAL REPORT - FY 2005

Radioactive Waste Shipments to and From the Nevada Test Site (NTS)

December 2005

**United States Department of Energy
National Nuclear Security Administration
Nevada Site Office
Las Vegas, Nevada**

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TABLE OF CONTENTS

| | | |
|-----|--|----|
| 1.0 | INTRODUCTION..... | 1 |
| 2.0 | SUMMARY OF WASTE SHIPMENTS (FY 2005)..... | 1 |
| | 2.1 Waste Transporters (Motor Carriers)..... | 3 |
| | 2.2 Shipments and Volume | 5 |
| | 2.3 Transportation Routes | 6 |
| | 2.4 Transportation Route Reporting..... | 10 |
| 3.0 | INCIDENT/ACCIDENT DATA..... | 10 |
| 4.0 | EVALUATION OF SHIPPING CAMPAIGNS | 11 |
| 5.0 | REFERENCES..... | 11 |
| 6.0 | POINTS OF CONTACT | 12 |
| 7.0 | ACRONYM LIST | 12 |
| 8.0 | DISTRIBUTION LIST..... | 13 |

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1.0 INTRODUCTION

In February 1997, the U.S. Department of Energy, Nevada Operations Office issued the Mitigation Action Plan which addressed potential impacts described in the “Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada” (DOE/EIS 0243). The U.S. Department of Energy, Nevada Operations Office committed to several actions, including the preparation of an annual report, which summarizes waste shipments to and from the Nevada Test Site (NTS) Radioactive Waste Management Sites (RWMSs) at Area 3 and Area 5. This document satisfies requirements with regard to low-level radioactive waste (LLW) and mixed low-level radioactive waste (MLLW) transported to or from the NTS during fiscal year (FY) 2005. In addition, this document provides shipment, volume, and route information on transuranic (TRU) waste shipped from the NTS to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. This outbound shipping campaign commenced in FY 2004.

This report has been prepared in accordance with the specifications contained in Section 4.1.1 (Commitments) of the “NTS Environmental Impact Statement, Mitigation Action Plan” (February 1997). Tabular summaries are provided which include the following data:

- Sources of and carriers for LLW and MLLW shipments to or from the NTS;
- Number and external volume of LLW and MLLW shipments;
- Identification of highway routes used by carriers; and
- Incident/accident data applicable to LLW and MLLW shipments.

2.0 SUMMARY OF WASTE SHIPMENTS (FY 2005)

In FY 2005, disposal of LLW/MLLW at the two NTS RWMSs consisted of 1,390 inbound offsite shipments, from 25 approved generators. These shipments were transported on 19 different approved motor carriers. A total of 2,066,827 ft³ of LLW was disposed of at the NTS by offsite generators in FY 2005. No MLLW was shipped to the NTS in FY 2005.

Two onsite generators disposed of 24,943 ft³ of LLW in FY 2005. This volume was transported in 50 onsite transfers. Motor carriers utilized for these shipments were government vehicle (Bechtel Nevada) and R&R Trucking. No MLLW was disposed of by onsite generators in FY 2005.

A total of 2,091,770 ft³ LLW was disposed of at the NTS in FY 2005.

Three outbound shipments (2,095 ft³) of MLLW were made from the NTS to Envirocare in Utah. Twenty-nine shipments of TRU waste (8,476 ft³) were made from the NTS to WIPP in FY 2005. Tabular information for these shipments is included in this report.

Table 1 provides a summary of inbound, outbound, and onsite shipments for FY 2005. Names and codes for approved generators and carriers used in this report are located in Tables 2 and 3, respectively.

Table 1. FY 2005 NTS Inbound, Outbound and On-site Shipment Summary Information

| Inbound | Offsite Generators | NTS Generators | Carriers | Shipments | Volume ft ³ |
|---------------|--------------------|----------------|-----------------|-----------|------------------------|
| LLW (offsite) | 25 | 0 | 19 | 1,390 | 2,066,827 |
| LLW (onsite) | 0 | 2 | 1 | 50 | 24,943 |
| MLLW | 0 | 0 | 0 | 0 | 0 |
| Outbound | Offsite Generators | NTS Generators | Carriers | Shipments | Volume ft ³ |
| LLW | 0 | 0 | 0 | 0 | 0 |
| MLLW | 0 | 1 | 1 ^{1/} | 3 | 2,095 |
| TRU | 0 | 1 | 2 ^{2/} | 29 | 8,476 |

^{1/} CAST Transportation was utilized for these MLLW shipments.

^{2/} Tri-State Motor Transit and CAST Specialty Transport were utilized for these TRU shipments.

Table 2. List of Approved Generators Shipping To The NTS In FY 2005

| APPROVED GENERATOR, STATE | GENERATOR CODE |
|---|----------------|
| ABERDEEN PROVING GROUNDS | AP |
| BECHTEL JACOBS OAK RIDGE | OR |
| BECHTEL NEVADA (ONSITE ONLY) | DP |
| BOEING ROCKETDYNE | BN |
| BRITISH NUCLEAR FUELS, LTD. INC. | ET |
| BWXT Y-12 PLANT | BW |
| DURATEK OAK RIDGE | DR |
| FLUOR FERNALD | WM |
| GENERAL ATOMICS | BG |
| IDAHO ENGINEERING & ENVIRONMENTAL LAB | IN |
| KAISER HILL (ROCKY FLATS) | RF |
| LAWRENCE LIVERMORE NATIONAL LAB | LL |
| LOS ALAMOS NATIONAL LABORATORY | LA |
| MOUND APPLIED TECHNOLOGIES | MD |
| NUCLEAR FUEL SERVICES | NF |
| PADUCAH GASEOUS DIFFUSION PLANT | PD |
| PANTEX PLANT | PX |
| PORTSMOUTH GASEOUS DIFFUSION PLANT | PO |
| PRINCETON PLASMA PHYSICS LAB | PL |
| SANDIA NATIONAL LAB-CA | SL |
| SANDIA NATIONAL LAB-NM | SA |
| STOLLER-NAVARRO JOINT VENTURE (ONSITE ONLY) | IT |
| TT FOSTER WHEELER | FW |
| UT BATTELLE FOR DEFENSE NATIONAL STOCKPILE CENTER ^{3/} | TH |
| UT BATTELLE OAK RIDGE NATIONAL LABORATORY | OL |
| WEST VALLEY DEMONSTRATION PROJECT | WV |
| WESTINGHOUSE SAVANNAH RIVER | SR |

^{3/} UT Battelle shipped from sites in Curtis Bay, MD and Hammond, IN in FY 2005

Table 3. List of Approved Motor Carriers Utilized in FY 2005

| APPROVED MOTOR CARRIER | CARRIER CODE |
|--|--------------|
| AATCO | AADD |
| BUFFALO FUEL COMPANY | BFUI |
| CAST TRANSPORTATION | COLO |
| CAST SPECIALTY TRANSPORT ^{4/} | CAST |
| DAVIS TRUCKING | DAVS |
| FLUID TRANSPORTS | FLAI |
| GOVERNMENT VEHICLE | GT+ |
| HITTMAN TRANSPORT | HITT |
| LANDSTAR AMERICA EXPRESS | LEAM |
| LANDSTAR INWAY | LDWY |
| LANDSTAR LIGON | LIGS |
| LANDSTAR RANGER | LRGR |
| INTERSTATE VENTURES | ITSV |
| AJ METLER | MAJH |
| MP ENVIRONMENTAL | MPES |
| R&R TRUCKING | RRUK |
| SOUTHERN FREIGHT LOGISTICS | SFLG |
| SPECIALTY TRANSPORT | SPCN |
| TAG TRANSPORT | TAGD |
| TRI-STATE MOTOR TRANSIT ^{5/} | TSMT |

^{4/} CAST Specialty Transport is an approved TRU shipment carrier only.

^{5/} Tri-State Motor Transit is approved to transport both TRU and LLW shipments.

2.1 Waste Transporters (Motor Carriers)

Generators often use more than one motor carrier to facilitate their shipments. Table 4 identifies each generator and the corresponding carrier(s) utilized for transport of inbound, offsite LLW shipments. Table 5 identifies each generator and the corresponding carrier(s) utilized for transport of outbound, offsite shipments of TRU and MLLW. Table 6 identifies each generator and the corresponding carrier(s) utilized for transport of onsite transfers of LLW. Motor carriers operate in compliance with regulations located in Title 49 Code of Federal Regulations, "Transportation," and are selected by the generator.

Table 4. Waste Transporters Utilized by Generator for Inbound Shipments

| | AP | BG | BN | BW | DR | ET | FW | IN | LA | LL | MD | NF | OL | OR | PD | PL | PO | PX | RF | SA | SL | SR | TH | WM | WV |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|----|----|-----|----|
| AADD | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| BFUI | | | | | | | | | | | | | | | | | | | | | | | | | 42 |
| COLO | | | | | | | | | | | | | | | | | | | 452 | | | | | | |
| DAVS | | | | | | | | | | | | | | 7 | | | | | | | | | | | |
| FLAI | | | | | | | | | | | 4 | | | 2 | | | | 6 | | 7 | | 3 | | 1 | |
| GT+ | | | | | | | | | | 4 | | | | | | | | | | | | | | | |
| HITT | | | | | 1 | | 3 | | | | | | | 20 | 18 | | | | | | | | | | |
| ITSV | | | | | | | | | | | | | | 3 | | | | | | | | | | | |
| LDWY | | | | | | | | | | | 33 | | | | 1 | | | | | | | | 7 | | |
| LEAM | | | | | | | | | | | | | | | | | | | | | | | 2 | | |
| LIGS | | | | | | | | | | | 4 | | | 2 | | | | | | | | | 8 | | 1 |
| LRGR | | | | | | 1 | | | | | 77 | | | 1 | 5 | | | | | | | | 22 | | 1 |
| MAJH | | | | 3 | | | | | | | | | 1 | 5 | | | 10 | | | | | | 41 | | |
| MPES | | | 50 | | | | | | 10 | | | | | | | | | | | | | 1 | | | |
| RRUK | 4 | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | |
| SFLG | | | | | | | | | | | | 21 | | | | | | | | | | | | | |
| SPCN | | | | | | | | | | | | | | | | | 4 | | | | | | | | |
| TAGD | | | | | | | 4 | | | | | | | 24 | | | 16 | | | | | | | 258 | |
| TSMT | | 1 | | 7 | | | | 13 | | 9 | | | | 6 | 56 | 1 | 37 | | 66 | | | | | | |

Table 5. Waste Transporters Utilized by NTS Generators for Outbound Shipments

| | DP |
|-----------|----|
| COLO | 3 |
| CAST/TSMT | 29 |

Table 6. Waste Transporters Utilized by NTS Generators for Onsite Shipments

| | DP | IT |
|------|----|----|
| GT+ | 45 | 4 |
| RRUK | 1 | |

2.2 Shipments and Volume

Table 7 provides a summary of all LLW, MLLW, and TRU shipments, including volume, to and from the NTS during FY 2005.

Table 7. Shipments and Volumes of Waste Sent To and From the NTS (FY 2005)

| Offsite Inbound Low-Level Waste Shipments | Shipments by Quarter | | | | | Volume |
|---|----------------------|------------|------------|-----------------|--------------|------------------|
| Generator Code | 1st | 2nd | 3rd | 4 th | Total | (ft3) |
| AP | | | | 4 | 4 | 1,619 |
| BG | | | | 1 | 1 | 738 |
| BN | 40 | | 8 | 2 | 50 | 20,734 |
| BW | | | | 10 | 10 | 7,425 |
| DR | | | | 1 | 1 | 204 |
| ET | 1 | | | | 1 | 904 |
| FW | 6 | | 1 | | 7 | 2,283 |
| IN | 3 | 6 | 1 | 3 | 13 | 19,316 |
| LA | | | | 10 | 10 | 4,803 |
| LL | 5 | 5 | | 3 | 13 | 10,906 |
| MD | 30 | 19 | 39 | 30 | 118 | 178,484 |
| NF | | 1 | 13 | 7 | 21 | 10,080 |
| OL | | | | 1 | 1 | 2,643 |
| OR | 3 | 12 | 26 | 30 | 71 | 60,103 |
| PD | | | | 80 | 80 | 76,699 |
| PL | | | | 1 | 1 | 455 |
| PO | | 17 | 19 | 32 | 68 | 86,661 |
| PX | 1 | 1 | 2 | 2 | 6 | 5,485 |
| RF | 244 | 233 | 38 | 5 | 520 | 1,098,749 |
| SA | | 1 | 2 | 4 | 7 | 16,071 |
| SL | | | 1 | | 1 | 141 |
| SR | 13 | 28 | 37 | 5 | 83 | 42,725 |
| TH | 50 | 72 | 75 | 61 | 258 | 350,880 |
| WM | 1 | | | 2 | 3 | 2,087 |
| WV | 15 | | 4 | 23 | 42 | 66,632 |
| Totals | 412 | 395 | 266 | 317 | 1,390 | 2,066,827 |
| Onsite Low-Level Waste Shipments | Shipments by Quarter | | | | | Volume |
| Generator Code | 1st | 2nd | 3rd | 4 th | Total | (ft3) |
| DP | 3 | 1 | 6 | 36 | 46 | 24,732 |
| IT | 1 | 1 | 1 | 1 | 4 | 108 |
| Total | 4 | 2 | 7 | 37 | 50 | 24,840 |
| Outbound Mixed Low-Level Waste Shipments | Shipments by Quarter | | | | | Volume |
| Generator Code | 1st | 2nd | 3rd | 4 th | Total | (ft3) |
| DP | | 1 | | 2 | 3 | 700 |
| Total | | 1 | | 2 | 3 | 700 |
| Outbound Transuranic Waste Shipments | Shipments by Quarter | | | | | Volume |
| Generator Code | 1st | 2nd | 3rd | 4 th | Total | (ft3) |
| DP | 11 | 9 | 5 | 4 | 29 | 8,476 |
| Total | 11 | 9 | 5 | 4 | 29 | 8,476 |

2.3 Transportation Routes

Twenty-five out-of-state approved generators shipped LLW to the NTS for disposal in FY 2005. Table 8 provides specific routes utilized by each generator and the number of shipments in FY 2005. Figures 1 and 2 provide graphical interpretations of the general cross country and local/regional transportation routes, respectively.

Figure 1
FY 2005 National Low-Level Waste General Transportation Routes



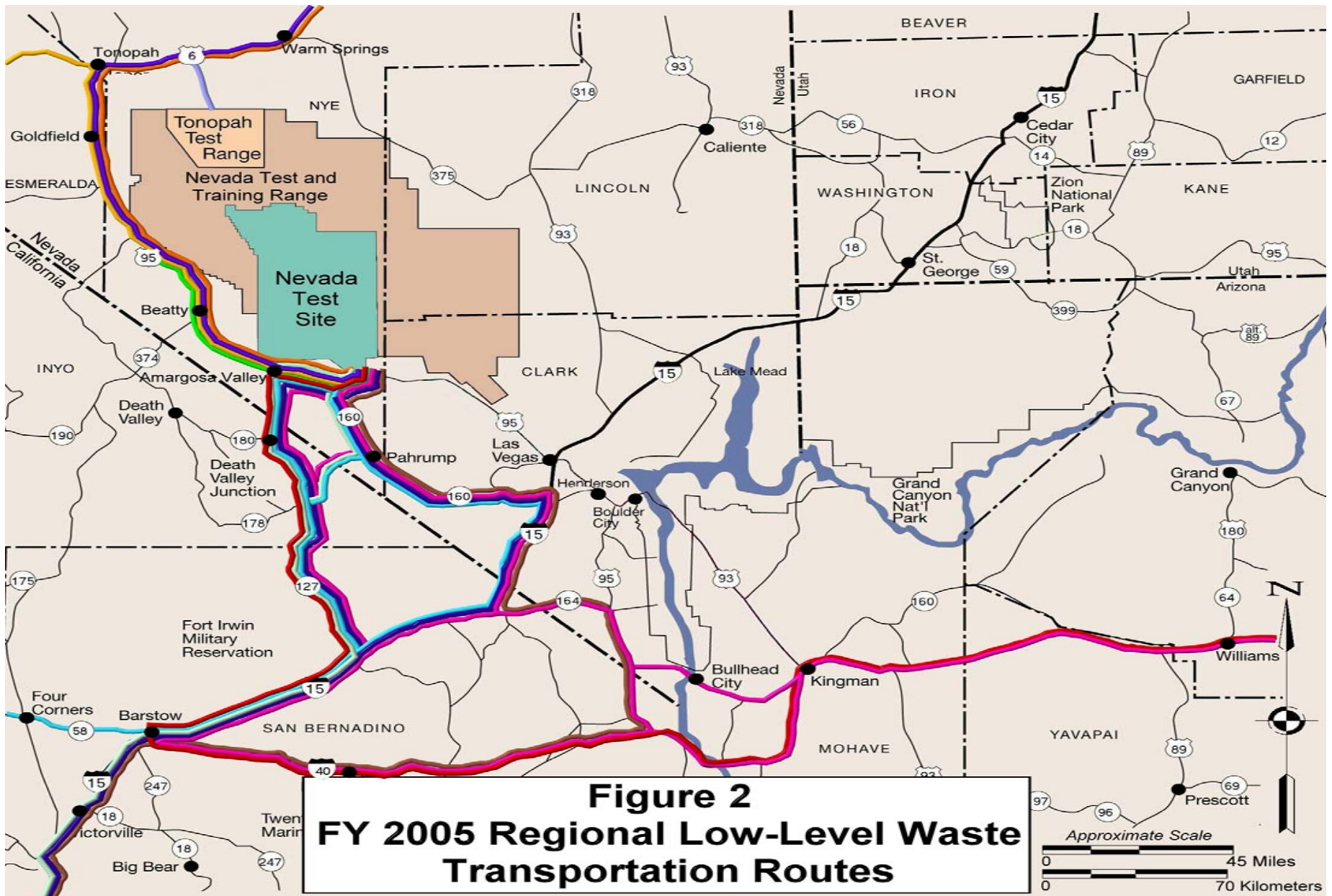


Table 8. Shipment Summary of Offsite Inbound and Outbound Regional Routes for FY 2005

| DESCRIPTION | AP | BG | BN | BW | DP | DR | ET | FW | IN | IT | LA | LL | MD | NF | OL | OR | PD | PL | PO | PX | RF | SA | SL | SR | TH | WM | WV |
|--|----|----|----|----|----|------------------|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| I-15, CA-127, CA-178, NV-372, NV-160, US-95 | | | 50 | | | | | | | | | 2 | | | | | | | | | | | 1 | | | | |
| I-15, CA-127, NV-373, US-95 | | | | | | | | | | | | 9 | | | | | | | | | | | | | | | |
| I-15, NV-160, US-95 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| I-40, I-15, CA-127, NV-373, US-95 | | | | | | | | 1 | | | | | 1 | | | 3 | | | | | | | | | | | |
| I-40, I-15, NV-160, US-95 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| I-40, US-93, AZ-68, NV-163, US-95, NV-164, I-15, CA-127, NV-373, US-95 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| I-40, US-93, AZ-68, NV-163, US-95, NV-164, I-15, NV-160, US-95 | | | | | | | | 1 | | | | | 3 | | | 6 | 17 | | 31 | | | | | 3 | | | |
| I-40, US-95, NV-164, I-15, CA-127, CA-178, NV-372, NV-160, US-95 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I-40, US-95, NV-164, I-15, CA-127, NV-373, US-95 | | | | | | | | 4 | | | | | 1 | | | 1 | | | | | | | | | 3 | | |
| I-40, US-95, NV-164, I-15, NV-160, US-95 | | | | 10 | | 1 | 1 | 1 | | | 10 | | 110 | 21 | 1 | 51 | 63 | | 34 | 6 | | 7 | | 78 | 19 | 4 | 3 |
| I-80, US-50/95-ALT, US-50, US-95 | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | |
| I-80, US-93-ALT, US-6, US-95 | 2 | | | | | 3 ^{6/} | | | 13 | | | | | | | 10 | | | 3 | | 2 | | | 2 | 61 | | 42 |
| US-50, US-6/50, US-6, US-95 | | | | | | | | | | | | | 1 | | | | | 1 | | | 51 | | | | | | |
| US-95, NV-373, CA-127, I-15, I-40, US-285, SR-200, US-180/62 | | | | | | 29 ^{7/} | | | | | | | | | | | | | | | | | | | | | |

6/ Outbound MLLW shipments to Envirocare.

7/ Outbound TRU shipments to WIPP.

2.4 Transportation Route Reporting

As a result of obligations made by former DOE Secretary Richardson, the transportation of inbound LLW shipments through the Las Vegas I-15 and US-95 Interchange (“Spaghetti Bowl”) and across Hoover Dam have substantially decreased since FY 2000.

Due to the events of September 11, 2001, tractor trailers are no longer allowed to travel across Hoover Dam. The U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO) continues to engage in discussions with the generators regarding the avoidance of the Spaghetti Bowl. The NTS Waste Acceptance Criteria has been updated to include wording requiring generators to notify their carriers to avoid Hoover Dam and the Spaghetti Bowl.

No shipments of LLW were transported through the Spaghetti Bowl in FY 2005.

NNSA/NSO continues to honor an additional obligation made by former Secretary Richardson, and endorsed by the current administration, by preparing quarterly reports disclosing which routes transporters used to reach the NTS. These reports may be found on the Internet at

<http://www.nv.doe.gov/emprograms/environment/wastemanagement/twg.htm> .

3.0 INCIDENT/ACCIDENT DATA

For the purpose of this report, an incident is defined as a traffic-related accident, a load shift, or a reported leaking/breached package which occurs during transportation.

Generators are instructed to notify the NNSA/NSO Assistant Manager of Environmental Management whenever a discrepancy, non-compliance, or inadequate performance is identified; or if a transportation incident or emergency situation occurs. There was one transportation incident reported in FY 2005.

On July 18, 2005 a CH2M Hill Mound shipment was involved in a minor traffic accident near Winslow, Arizona. There was no damage to the trailer, or breach of the containers.

Bechtel Nevada personnel control NNSA/NSO waste receipt and disposal activities at the NTS and are responsible for notifying appropriate personnel regarding any non-compliant or refused radioactive waste shipments. Bechtel Nevada personnel also immediately notify generators in the event of any shipping paper discrepancies.

Below is a summary of issues observed during waste receipt and disposal activities in FY 2005. These issues are reported to the generators who then implement appropriate corrective actions to prevent recurrence.

- A broken drum ring was discovered on 55-gallon drum. No contamination detected.
- A BN Heavy Equipment Operator backed a front-end loader into, and breached, a SeaLand container containing LLW. There was no release of removable

contamination, no injuries, and no equipment damage aside from the breached SeaLand as a result of this event.

- On one shipment, barcode labels had fallen off three of the five packages.
- Various minor clerical errors were observed and reported to generators.

4.0 EVALUATION OF SHIPPING CAMPAIGNS

One of the 1,422 off site inbound/outbound shipments experienced incidents while in transit to the NTS. All generator shipping campaigns were considered successful.

5.0 REFERENCES

The primary sources of shipment information in this report were records kept by the Bechtel Nevada Waste Management Program, who manages the NTS RWMSs at Area 3 and Area 5. These records provided detailed information on each shipment of LLW and MLLW (dates received, generators, number and type of waste packages, volumes, weight, carrier, and final disposition of shipments). In addition, incident and accident information was gathered by reviewing other Bechtel Nevada and NNSA/NSO correspondence and through personal communication with NNSA/NSO managers, Bechtel Nevada management and program personnel, representatives from the waste generator facilities, and carrier personnel. Route information was gathered from quarterly routing reports generated by NNSA/NSO.

The following source documents are incorporated by reference:

- U.S. Department of Energy, Nevada Operations Office, "Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada" DOE/EIS 0243, Las Vegas, Nevada, August 1996.
- U.S. Department of Energy, Nevada Operations Office, "Mitigation Action Plan - Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada" DOE/EIS 0243, Las Vegas, Nevada, February 1997.
- U.S. Department of Transportation (DOT) Regulations, 49 CFR, "Transportation," *Code of Federal Regulations*, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC, 1998

6.0 POINTS OF CONTACT

Please contact the following personnel for questions concerning the transportation of radioactive waste at the NTS or for requests for information relating to waste management and NNSA/NSO operations.

WASTE MANAGEMENT

E. Frank DiSanza, Director
U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Waste Management Project
P.O. Box 98518
Las Vegas, NV 89193-8518
(702) 295-5855

7.0 ACRONYM LIST

| | |
|-----------------------|---|
| ft³ | Cubic Feet |
| CFR | Code of Federal Regulations |
| DOE | U.S. Department of Energy |
| DOT | U.S. Department of Transportation |
| dpm | Disintegrations per minute |
| EPA | U.S. Environmental Protection Agency |
| FY | Fiscal Year |
| LLW | Low-level radioactive waste |
| MLLW | Mixed Low-Level Radioactive Waste |
| NNSA/NSO | U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office |
| NRC | U.S. Nuclear Regulatory Commission |
| NTS | Nevada Test Site |
| RWMSs | Radioactive Waste Management Sites |
| WMP | Waste Management Project |

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