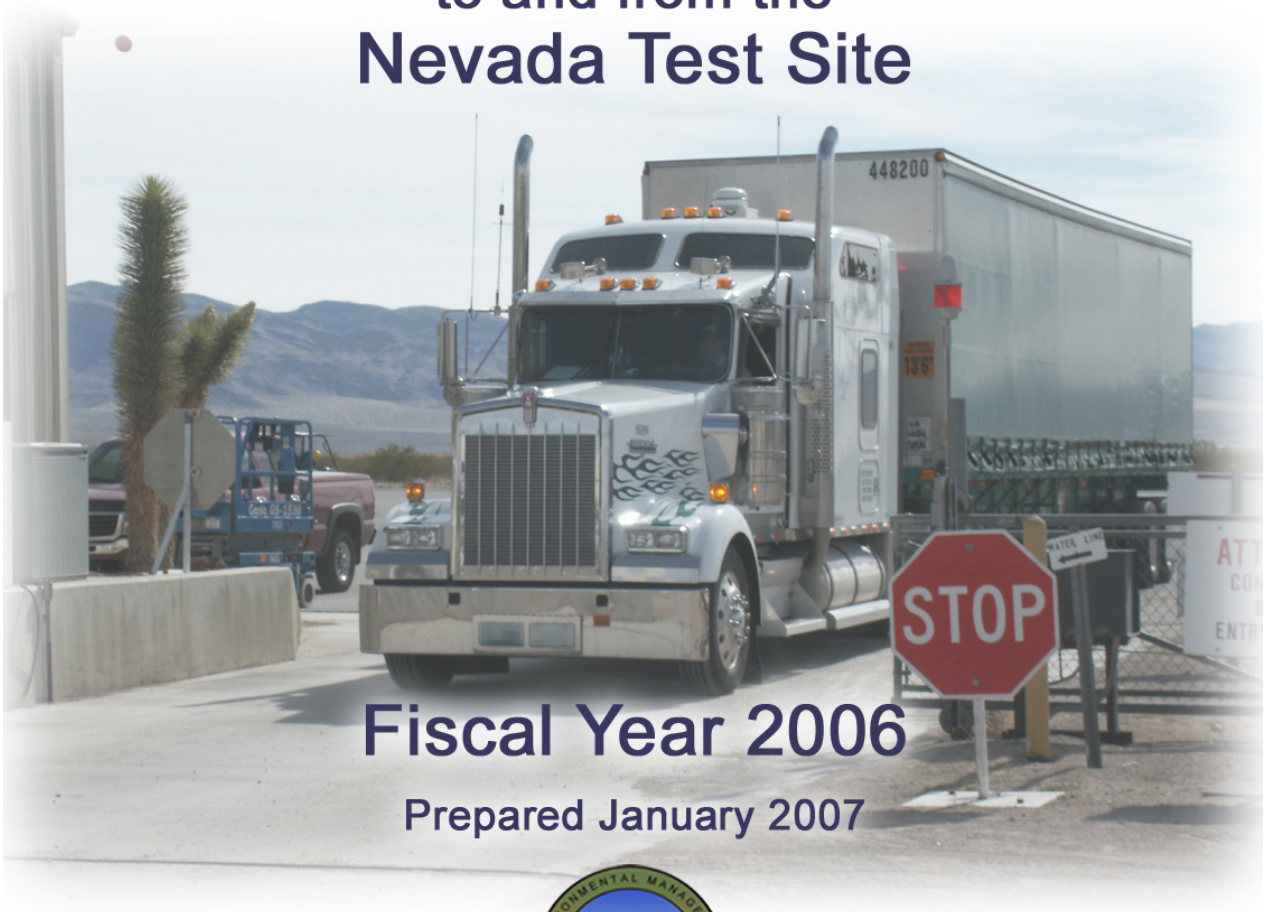
DOE/NV--1187

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



Fiscal Year 2006

Prepared January 2007

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

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DOE/NV -- 1187

ANNUAL REPORT - FY 2006

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

January 2007

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

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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 (RWMS) 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) 2006. 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) near 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 2006)

Inbound/Off-site LLW

A total of 1,103,624 ft^3 of LLW was disposed at the two NTS RWMS in FY 2006, consisting of 961 inbound/off-site shipments, from 22 approved generators. These shipments were transported on 18 approved motor carriers (including government vehicle).

Inbound/Off-site MLLW

Eleven MLLW inbound/off-site shipments were received at the NTS in FY 2006, from 4 approved generators, totaling of 6,515 ft^3. These shipments were transported on 4 approved motor carriers.

Total Inbound/Off-site LLW and MLLW

A total of 1,110,139 ft^3 LLW was disposed at the NTS in FY 2006 by 22 approved off-site generators in 972 shipments, transported on 18 approved motor carriers.

On-site LLW

Two approved on-site generators disposed 62,809 ft^3 of LLW in 157 on-site transfers during FY 2006. Government (contractor) vehicles were used in these transfers.

On-site MLLW
No MLLW was disposed by on-site generators in FY 2006.

Outbound/Off-site LLW
No outbound/off-site shipments of LLW were made in FY 2006.

Outbound/Off-site MLLW
Nine outbound shipments (2,141 ft^3) of MLLW were made from the NTS to Energy*Solutions* (formerly Envirocare) near Tooele, Utah.

Outbound/Off-site Transuranic (TRU) Waste
Six shipments of TRU waste totaling 1,554 ft^3 were made from the NTS to WIPP in FY 2006. Tabular information for these shipments is included in this report.

Table 1 provides a summary of inbound, outbound, and on-site shipments for FY 2006. Names and codes for approved generators and carriers used in this report are located in Tables 2 and 3, respectively.

Table 1. FY 2006 NTS Inbound, Outbound and On-site Summary Information

Inbound	Off-site Generators	NTS Generators	Carriers	Shipments	Volume ft^3
LLW (off-site)	**22**	**0**	**18**	**961**	**1,103,624**
LLW (on-site)		**2**	**1**	**157**	**62,809**
MLLW (off-site)	**4**	**0**	**4**	**11**	**6,515**
Outbound	**Off-site Generators**	**NTS Generators**	**Carriers**	**Shipments**	**Volume ft^3**
LLW		**0**	**0**	**0**	**0**
MLLW		**1**	**1** 1/	**9**	**2,141**
TRU		**1**	**1** 2/	**6**	**1,554**

1/ CAST Transportation utilized for MLLW shipments.
2/ Tri-State Motor Transit utilized for TRU shipments.

Table 2. List of Approved Generators Shipping To/From the NTS

APPROVED GENERATOR, STATE	GENERATOR CODE
ABERDEEN PROVING GROUNDS	AP
ARGONNE NATIONAL LABORATORY	AE
BECHTEL JACOBS OAK RIDGE	OR
BOEING ROCKETDYNE	BN
BROOKHAVEN NATIONAL LABORATORY	BR
BWXT Y-12 PLANT	BW
DURATEK, OAK RIDGE	DR
FLUOR FERNALD	WM
FOSTER WHEELER	FW
IDAHO NATIONAL LABORATORY	IN
LAWRENCE LIVERMORE NATIONAL LAB	LL
MOUND MIAMISBURG CLOSURE PROJECT	MD
NATIONAL SECURITY TECHNOLOGIES 3/	DP
NUCLEAR FUEL SERVICES	NF
PADUCAH GASEOUS DIFFUSION PLANT	PD
PANTEX PLANT	PX
PERMAFIX (M&CE)	PF
PORTSMOUTH GASEOUS DIFFUSION PLANT	PO
PRINCETON PLASMA PHYSICS LAB	PL
SANDIA NATIONAL LAB-NM	SA
STOLLER-NAVARRO JOINT VENTURE 4/	IT
UT BATTELLE OAK RIDGE NATIONAL LABORATORY	OL
WEST VALLEY DEMONSTARTION PROJECT	WV
WESTINGHOUSE SAVANNAH RIVER	SR

3/ On-site and Outbound Only
4/ On-site Only

Table 3. List of Approved Motor Carriers Utilized in FY 2006

APPROVED MOTOR CARRIER	CARRIER CODE
AJ METLER	MAJH
AUTUMN INDUSTRIES	AUII
BILL JACOBSON TRUCKING (NON-REGULATED LLW)	JACO
BUFFALO FUEL COMPANY	BFUI
CAST TRANSPORTATION	COLO
FLUID TRANSPORTS	FLAI
GOVERNMENT VEHICLE	GT+
HITTMAN TRANSPORT	HITT
HUBBARD TRUCKING	HUB+
INTERSTATE VENTURES	ITSV
LANDSTAR RANGER	LRGR
MP ENVIRONMENTAL	MPES
R&R TRUCKING	RRUK
RSB LOGISTICS	RSBI
SOUTHERN FREIGHT LOGISITICS	SFLG
SPECIALTY TRANSPORT	SPCN
TAG TRANSPORT	TAGD
TRI-STATE MOTOR TRANSIT [5/]	TSMT

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, off-site LLW shipments. Table 5 identifies each generator and the corresponding carrier(s) utilized for transport of outbound, off-site shipments of TRU and MLLW. Table 6 identifies each generator and the corresponding carrier(s) utilized for transport of on-site 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

	AE	AP	BN	BR	BW	DR	FW	IN	LL	MD	NF	OL	OR	PD	PF	PL	PO	PX	SA	SR	WM	WV
AUII																					X	
BFUI																						X
COLO																					X	
FLAI																		X	X		X	
GT+									X													
HITT						X			X				X	X	X		X					
HUB+																	X					
ITSV																	X					
JACO									X													
LRGR		X								X										X		
MAJH					X							X	X				X					
MPES			X																			
RRUK									X								X				X	
RSBI				X																		
SFLG											X										X	
SPCN																	X					
TAGD					X		X						X				X					
TSMT	X				X			X	X				X	X		X	X				X	

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

	DP
COLO	X
TSMT	X

Table 6. Waste Transporters Utilized by NTS Generators for On-site Transfers

	DP	IT
GT+	X	X

2.2 Shipments and Volume

Table 7 provides a summary of all LLW, MLLW, and TRU waste shipments, including volume, to and from the NTS during FY 2006.

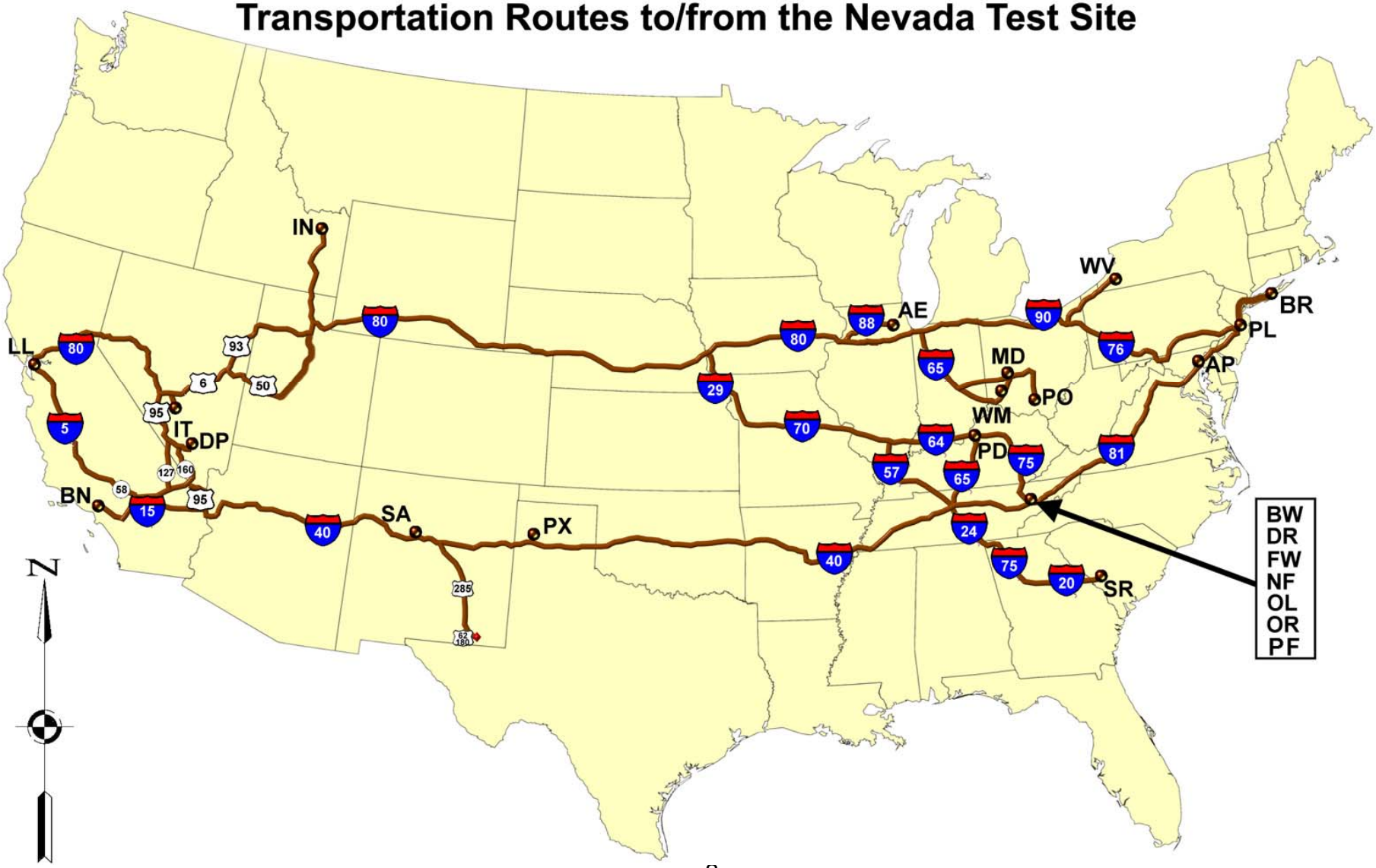
Table 7. Shipments and Volumes of Waste Sent To and From the NTS (FY 2006)

Off-site Inbound Low Level & Mixed Low Level Waste Shipments	Shipments by Quarter					Volume
Generator Code	1st	2nd	3rd	4th	Total	(ft3)
AP	4		3		7	17,134
AE			1	2	3	1,746
BN		1	1	2	4	2,308
BR				2	2	2,959
BW	3	3	15	36	57	53,961
DR				1	1	730
FW			3		3	5,114
IN	1	2	8	2	13	11,183
LL	6	11	20	10	47	40,697
MD				1	1	16
NF	7	4	6	11	28	14,951
OL			1	4	5	2,748
OR	42	24	17	17	100	96,272
PD	107	48	43		198	181,932
PF			4	1	5	2,791
PL				1	1	441
PO	38	130	225	25	418	601,405
PX		2	1	1	4	2,656
SA	1			6	7	8,112
SR			2	4	6	2,813
WM		1	8	2	11	13,907
WV	21	1	4	25	51	46,263
Totals	**230**	**227**	**362**	**153**	**972**	**1,110,139**
On-site Low Level Waste Transfers	Shipments by Quarter					Volume
Generator Code	1st	2nd	3rd	4th	Total	(ft3)
DP	3		1	148	152	57,585
IT	3	2			5	5,224
Total	**6**	**2**	**1**	**148**	**157**	**62,809**
Outbound Mixed Low-Level Waste Shipments	Shipments by Quarter					Volume
Generator Code	1st	2nd	3rd	4th	Total	(ft3)
DP	0	2	5	2	9	2,141
Total	**0**	**2**	**5**	**2**	**9**	**2,141**
Outbound Transuranic Waste Shipments	Shipments by Quarter					Volume
Generator Code	1st	2nd	3rd	4th	Total	(ft3)
DP	6	0	0	0	6	1,554
Total	**6**	**0**	**0**	**0**	**6**	**1,554**

2.3 Transportation Routes

Twenty-two out-of-state approved generators shipped LLW and MLLW to the NTS for disposal in FY 2006. Table 8 provides specific routes utilized by each generator and the number of shipments in FY 2006. Figures 1 and 2 provide graphical interpretations of the general cross country and regional transportation routes, respectively.

Figure 1 - FY 2006 National Low-Level, Mixed Low-Level, and Transuranic Waste General Transportation Routes to/from the Nevada Test Site



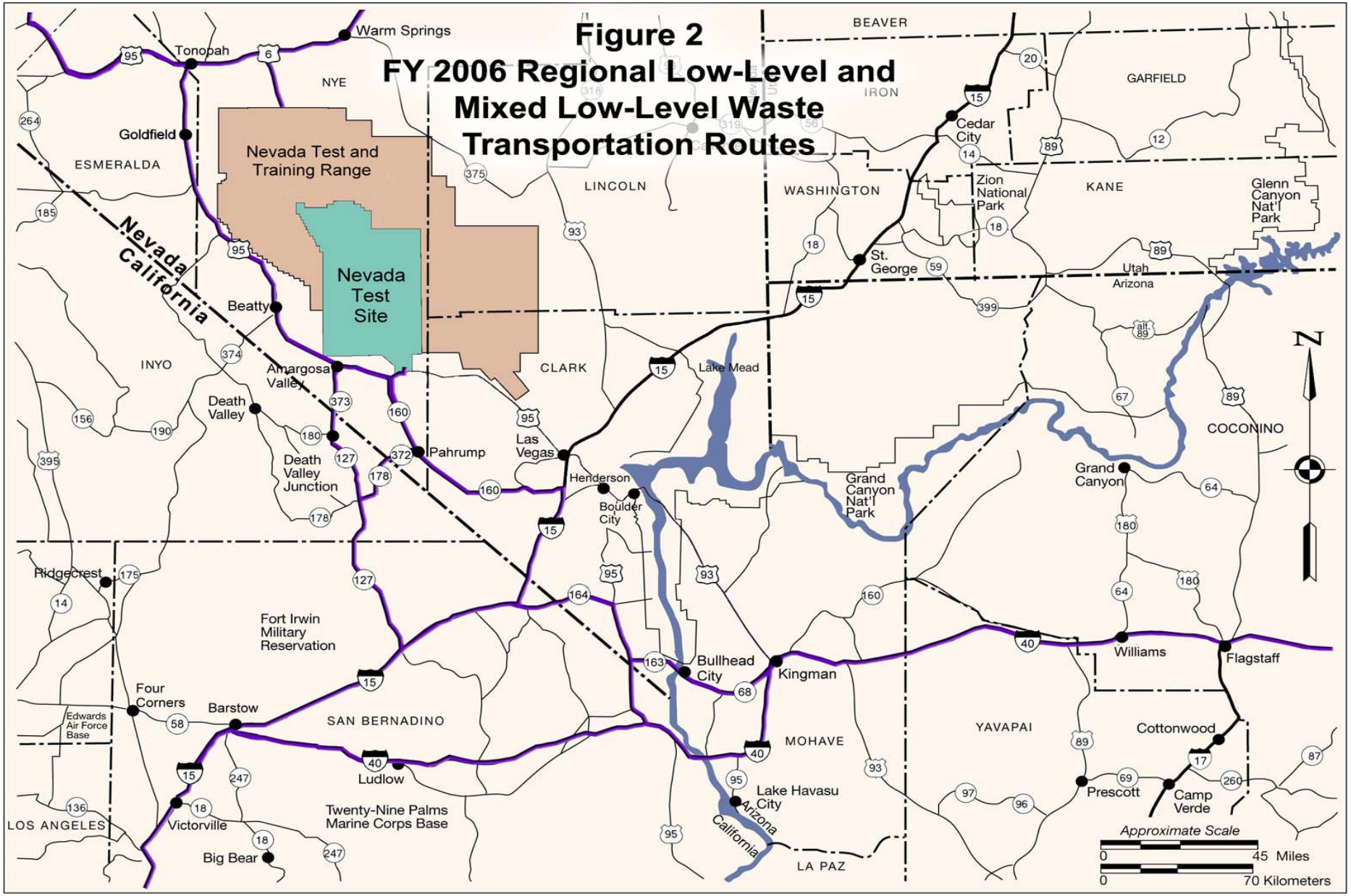


Figure 2
FY 2006 Regional Low-Level and Mixed Low-Level Waste Transportation Routes
Nevada Test and Training Range
Nevada Test Site
Nevada
California
Arizona
Utah
Warm Springs
Tonopah
Goldfield
Beatty
Amargosa Valley
Death Valley
Death Valley Junction
Pahrump
Las Vegas
Henderson
Boulder City
Lake Mead
Cedar City
St. George
Zion National Park
Glenn Canyon Nat'l Park
Grand Canyon Nat'l Park
Grand Canyon
Williams
Flagstaff
Cottonwood
Prescott
Camp Verde
Kingman
Bullhead City
Lake Havasu City
Ridgecrest
Fort Irwin Military Reservation
Four Corners
Barstow
Edwards Air Force Base
Ludlow
Victorville
Twenty-Nine Palms Marine Corps Base
Big Bear
NYE
ESMERALDA
INYO
LINCOLN
CLARK
BEAVER
IRON
WASHINGTON
GARFIELD
KANE
COCONINO
YAVAPAI
MOHAVE
SAN BERNADINO
LOS ANGELES
LA PAZ
N
Approximate Scale
0 45 Miles
0 70 Kilometers

Table 8. Shipment Summary of Off-site, Inbound Regional Routes for FY 2006

DESCRIPTION	AE	AP	BN	BR	BW	DP	DR	FW	IN	LL	MD	NF	OL	OR	PD	PF	PL	PO	PX	SA	SR	WM	WV
I-15, CA-127, CA-178, NV-372, NV-160, US-95			4							22													
I-15, CA-127, NV-373, US-95		1								16													
I-15, NV-160, US-95										2													
I-40, I-15, CA-127, NV-373, US-95										3													
I-40, I-15, NV-160, US-95															2								
I-40, US-93, AZ-68, NV-163, US-95, NV-164, I-15, NV-160, US-95					16			1						22	33	1		329					
I-40, US-95, NV-164, I-15, CA-127, NV-373, US-95																			1			5	
I-40, US-95, NV-164, I-15, NV-160, US-95					41		1	2		1	1	28	5	78	163	4		83	3	7	5	1	
I-80, US-50/95-ALT, US-50, US-95		2																					
I-80, US-50-ALT, US-50, US-95		2																					
I-80, US-93-ALT, US-6, US-95	2								13								1	6			1	5	51
I-80, US-95	1	2								3													
US-50, US-6/50, US-6, US-95				2																			

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, MLLW, or TRU en-route to the NTS were transported through the Spaghetti Bowl in FY 2006.

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/quarterlyreports.aspx

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 were no U.S. Department of Transportation reportable transportation incidents in FY 2006.

National Security Technologies, LLC (NSTec), formerly 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. NSTec 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 2006. These issues are reported to the generators who then implement appropriate corrective actions to prevent recurrence.

- Contamination was found on the trailer floor after off-loading a shipment. The trailer was decontaminated to meet DOE release limits. External contamination was found on a box. There as no visible breach in the box.
- There were two instances where boxes were found to have dose rates higher than the rates listed on the Package, Storage, and Disposal Request (PSDR).
- Two shipments arrived with only the 540 and 541 manifests. PSDRs and Certification Statements were not with shipping paperwork. After a pre-entry survey was done, trailer was opened and Certification Statements and PSDR's were found inside the trailer.
- Two shipments were received with leaking drums. Both trucks were decontaminated and released. Packages were determined to have small breaches and were diapered and then disposed.
- A shipment arrived on site with no PSDR.
- A shipment arrived with three packages missing NV-211 labels (Package Certification Labels) and NTS barcode labels.
- A shipment was received with no manifest numbers recorded on 14 of the 20 PSDR's.
- A significant radionuclide was not listed on the PSDR for a package.
- An incorrect PSDR was sent with shipment paperwork.
- A shipment arrived with box numbers transposed on the Certification Statement.
- Three shipments arrived without Certification Statements.
- A shipment arrived with the NV-211 (Package Certification Label) stickers missing.

4.0 EVALUATION OF SHIPPING CAMPAIGNS

None of the 972 off-site inbound or 15 off-site outbound shipments experienced incidents while in transit to/from the NTS. None of the 157 on-site transfers experienced incidents while being transported on 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 NSTec Waste Management Program, who manages the NTS RWMS 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 NSTec and NNSA/NSO correspondence and through personal communication with NNSA/NSO managers,

NSTec 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 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, Federal Project 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

ft^3	Cubic Feet
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
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
NSTec	National Security Technologies, LLC
NTS	Nevada Test Site
PSDR	Package, Storage, and Disposal Request
RWMS	Radioactive Waste Management Sites
TRU	Transuranic Waste
WIPP	Waste Isolation Pilot Plant

8.0 DISTRIBUTION LIST

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