

ANNUAL REPORT - FY 2002

Radioactive Waste Shipments To And From The Nevada Test Site (NTS)

January 2003

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

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SUMMARY OF WASTE SHIPMENTS (FY 2002)	1
	2.1 Waste Transporters (Motor Carriers).....	3
	2.2 Shipments and Volume	3
	2.3 Transportation Routes	4
	2.4 Transportation Route Reporting.....	9
3.0	INCIDENT/ACCIDENT DATA	11
4.0	EVALUATION OF SHIPPING CAMPAIGNS.....	11
5.0	REFERENCES	11
6.0	POINTS OF CONTACT	12
7.0	ACRONYM LIST.....	13
8.0	DISTRIBUTION LIST	13

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) 2002.

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 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 2002)

In FY 2002, disposal of LLW/MLLW at the two NTS RWMSs consisted of 1,674 inbound shipments, from 20 approved generators. These shipments were transported on 19 different motor carriers. Names and codes for approved generators and carriers used in this report are located in Tables 1 and 2, respectively.

1,642 inbound shipments received from 18 off-site generators totaled 2,275,862 cubic feet (ft³). Two NTS (onsite) generators made 24 shipments which resulted in 33,065 ft³ of LLW being received. These two onsite generators also made 8 shipments which accounted for 5,796 ft³ of MLLW.

A total of 2,314,723 ft³ of LLW/MLLW was disposed of in FY 2002 at the NTS.

One shipment (16 ft³) of MLLW was made late in the fiscal year to a treatment facility in Richland, Washington. This shipment arrived at its intended destination, incident free. The motor carrier utilized for this outbound shipment, RinChem, Inc., is also included in Table 2. As the one shipment of MLLW was made late in the fiscal year, no outbound shipments of treated MLLW were returned to the NTS in FY 2002.

No outbound shipments of LLW or Polychlorinated Biphenyl (PCB) contaminated LLW were made in FY 2002.

Table 1. List of Approved Generators Shipping In FY 2002

APPROVED GENERATOR, STATE	CODE
ABERDEEN PROVING GROUNDS, MD & TX	AP
BECHTEL NEVADA, NV	DP
BECHTEL JACOBS, TN	OR
BOEING ROCKETDYNE, CA	BN
BRITISH NUCLEAR FUEL LIMITED, TN	ET
RMI ENVIRONMENTAL SERVICES, OH	RM
FLUOR FERNALD, OH	WM
GENERAL ATOMICS, CA	BG
IDAHO NATIONAL ENERGY LAB, ID	IN
IT CORP LAS VEGAS, NV	IT
KAISER HILL (ROCKY FLATS), CO	RF
LAWRENCE LIVERMORE NATIONAL LAB, CA	LL
MIAMISBURG ENVIRONMENTAL MANAGEMENT PROJECT, OH	MD
PADUCAH GASEOUS DIFFUSION PLANT, KY	PD
PANTEX PLANT, TX	PX
PRINCETON PLASMA PHYSICS LAB, NJ	PL
SANDIA NATIONAL LAB-CA, CA	SL
SANDIA NATIONAL LAB-NM, NM	SA
WESTINGHOUSE SAVANNAH RIVER, SC	SR
WEST VALLEY DEMONSTRATION PROJECT, NY	WV

Table 2. List of Approved Motor Carriers Utilized in FY 2002

APPROVED MOTOR CARRIER	CODE
AUTUMN INDUSTRIES	AUII
T.F. BOYLE	BYLE
CAST TRANSPORTATION	COLO
DAVIS TRUCKING	DAVS
FLUID TRANSPORTS	FLD+
GOVERNMENT VEHICLE	GVT+
HITTMAN TRANSPORT	HITT
INTERNATIONAL WASTE REMOVAL	IWRI
LANDSTAR INWAY	LDWY
LANDSTAR LIGON	LIGS
LAKEWAY TRANSPORTATION	LKWT
LANDSTAR RANGER	LRGR
A.J. METLER	MEAJ
MP ENVIRONMENTAL	MPE+
RINCHEM, INC.	RINC
R & R TRUCKING	RRUK
SPECIALTY TRANSPORT	SPCN
TAG TRANSPORT	TAG+
TRIAD	TDTO
TRI-STATE MOTOR TRANSPORT	TSMT

2.1 Waste Transporters (Motor Carriers)

Generators often use more than one motor carrier to facilitate their shipments. Table 3 identifies each generator and the corresponding carrier(s) utilized for transport of LLW and MLLW to and from the NTS. Motor carriers operate in compliance with regulations found in Title 49 Code of Federal Regulations, "Transportation," and are selected by the generator.

Table 3. Waste Transporters Utilized by Generator

GENERATOR CODE	AUII	BYLE	COLO	DAVS	FLD+	GVT+	HITT	IWRI	LDWY	LIGS	LKWT	LRGR	MEAJ	MPE+	RINC	RRUK	SPCN	TAG+	TDTO	TSMT
AP		X																		X
DP						X									X*					
OR				X									X					X		
BN														X						
ET											X		X					X		
RM												X								
WM	X				X							X				X			X	X
BG																				X
IN																				X
IT						X	X													
RF			X										X							
LL						X				X		X		X		X				X
MD												X	X							
PD									X	X		X					X			
PX					X															
PL																				X
SL														X						
SA							X													
SR							X						X							
WV								X												

* Used to transport MLLW from NTS to Richland

2.2 Shipments and Volume

Table 4 provides a summary of all LLW and MLLW shipments, including volume, to and from the NTS during FY 2002.

Table 4. Shipments and Volumes of Waste Sent To and From the NTS (FY 2002)

Inbound Low Level Waste Shipments Generator Code	Shipments By Quarter					Volume (ft3)
	1st	2nd	3rd	4 th	Total	
AP	2	0	0	4	6	3,248
OR	9	0	0	24	33	38,670
DP	5	6	3	14	28	38,780
BN	0	1	2	1	4	3,522
ET	80	70	135	163	448	610,174
RM	3	0	1	1	5	6,601
WM	82	47	30	73	232	259,048
BG	0	0	19	9	28	15,280
RF	75	116	135	171	497	1,034,928
IN	0	0	2	4	6	2,184
IT	0	4	0	0	4	80
LL	25	5	20	151	201	85,840
MD	10	10	15	14	49	109,619
PD	25	10	0	0	35	23,647
PX	0	0	1	2	3	4,321
PL	2	25	16	9	52	26,337
SL	3	0	0	0	3	1,764
SA	3	4	1	4	12	18,184
SR	2	15	5	5	27	31,774
WV	1	0	0	0	1	722
Totals	327	313	385	649	1,674	2,314,723
Outbound Mixed Low Level Waste Shipments Generator Code	Shipments By Quarter					Volume (ft3)
	1st	2nd	3rd	4 th	Total	
DP	1	0	0	0	1	16
Totals	1	0	0	0	1	16

2.3 Transportation Routes

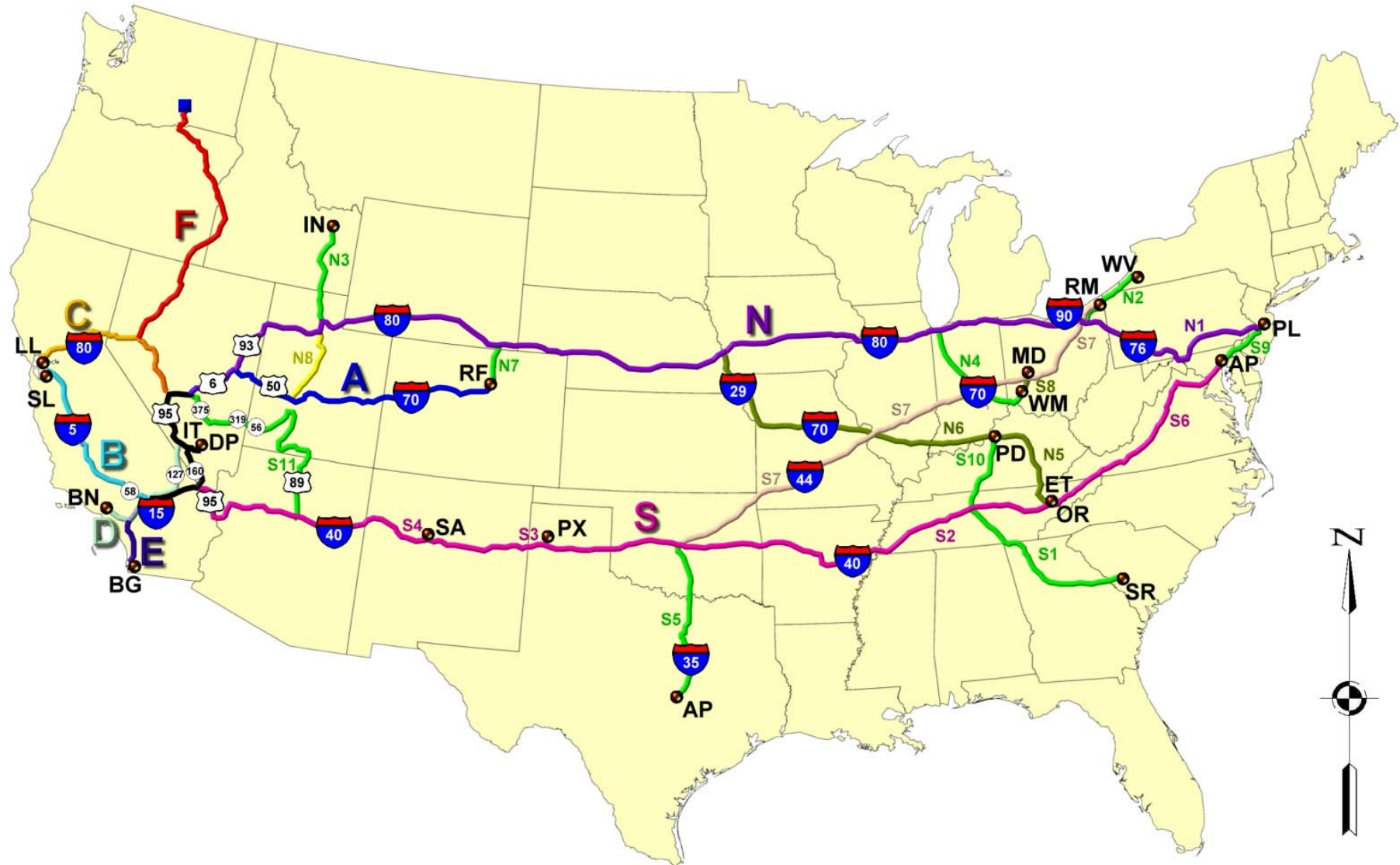
Motor carriers select routes in compliance with requirements found in applicable sections of 49 CFR 397.101. Bechtel Nevada and IT Corporation, Las Vegas (ITLV) LLW and MLLW shipments, usually generated on the NTS, are transported onsite (on highways that are not accessible to the general public).

Eighteen out-of-state generators shipped LLW to the NTS for disposal in FY 2002. General cross country transportation routes are displayed in Figure 1. More specific entry routes are displayed in Figure 2. Route identifier codes, route legends, and their corridor states are listed in Table 5. A listing of routes utilized by each generator and the number of shipments can be found in Table 6.

One shipment of MLLW was made by Bechtel Nevada in FY 2002. The route used is indicated in Table 5 as route "F".

Neither Bechtel Nevada nor ITLV made outbound shipments of LLW in FY 2002.

Figure 1
FY 2002 National Low-Level Waste Transportation Routes



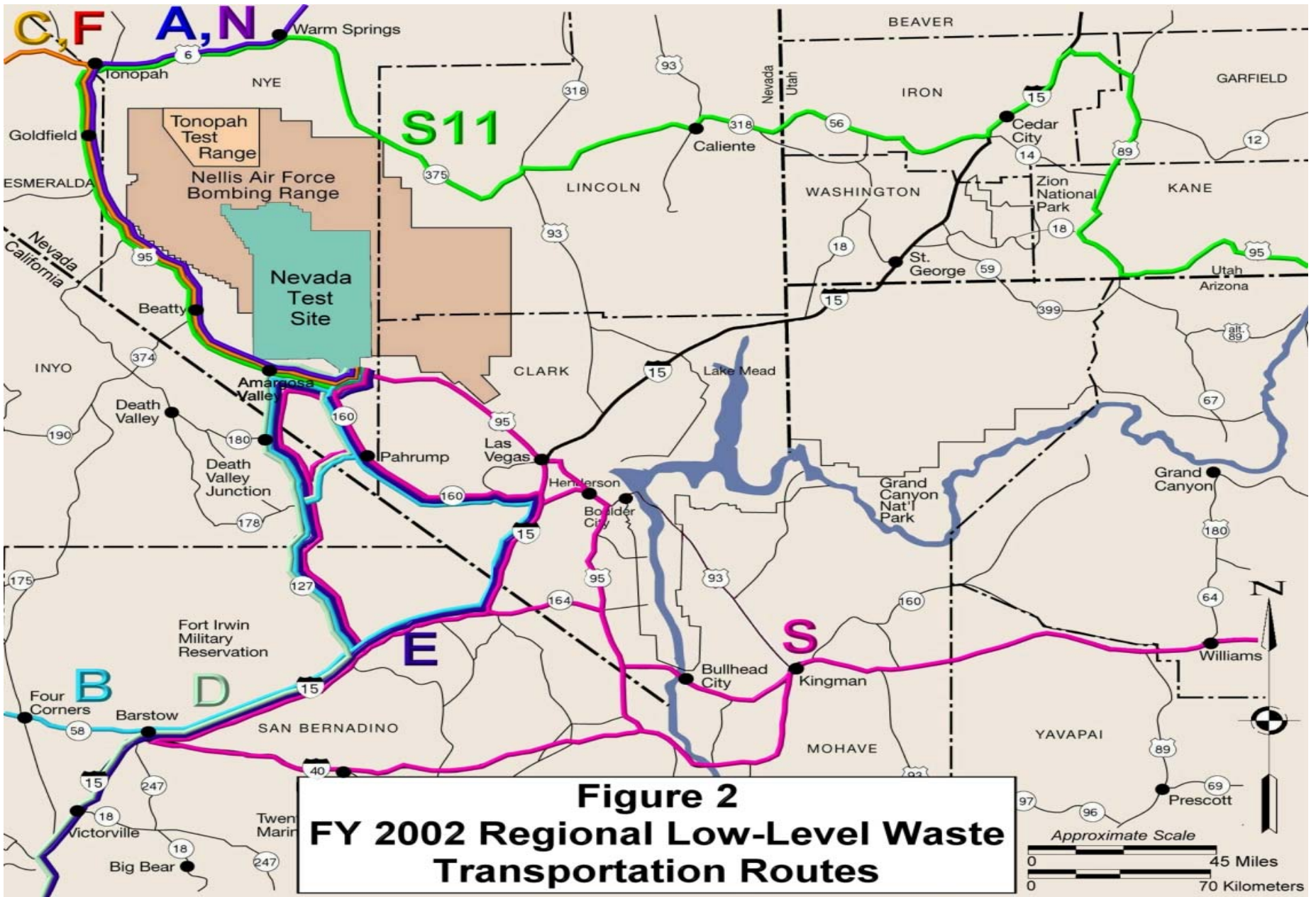


Table 5. Transportation Route Identification

Route “N” represents the Northern route (I-80) running from East to West. The Northern ancillary routes (N1-8) are feeder routes from generator sites to the main Northern route.

Route “S” represents the Southern route (I-40) running East to West. The Southern ancillary routes (S1-11) are feeder routes from generator sites to the main Southern route.

Route “A” represents the Central route utilized by Kaiser Hill (Rocky Flats).

Routes B-E represent routes utilized by California generators for shipments to the NTS.

Route “F” represents the route utilized for the outbound shipment of MLLW from the NTS to the Richland, WA treatment facility.

Route	Corridor States
N	Northern Route, I-80 Corridor
N1	NJ, PA, OH, IN, IL, IA, NE, WY, UT, NV
N2	NY, OH, IN, IL, IA, NE, WY, UT, NV
N3	ID, UT, NV
N4	OH, IN, IL, IA, NE, WY, UT, NV
N5	TN, KY, IL, MO, IA, NE, WY, UT, NV
N6	KY, IL, MO, IA, NE, WY, UT, NV
N7	CO, WY, UT, NV
N8	NJ, PA, OH, IN, IL, IA, NE, WY, UT, NV
S	Southern Route, I-40 Corridor
S1	SC, GA, TN, AR, OK, TX, NM, AZ, CA, NV
S2	TN, AR, OK, TX, NM, AZ, CA, NV
S3	TX, NM, AZ, CA, NV
S4	NM, AZ, CA, NV
S5	TX, OK, TX, NM, AZ, CA, NV
S6	MD, VA, TN, AR, OK, TX, NM, AZ, CA, NV
S7	OH, IN, IL, MO, OK, TX, NM, AZ, CA, NV
S8	OH, IN, IL, MO, OK, TX, NM, AZ, CA, NV
S9	NJ, DE, MD, VA, TN, AR, OK, TX, NM, AZ, CA, NV
S10	KY, TN, AR, OK, TX, NM, AZ, CA, NV
S11	NJ, DE, MD, VA, TN, AR, OK, TX, NM, AZ, UT, NV
A	CO, UT, NV
B	CA, NV
C	CA, NV
D	CA, NV
E	CA, NV
F	NV, OR, ID, OR, WA

Table 6. Transportation Routes Utilized by Generator

Inbound LLW																											
Route Designation >>> Generator Code	N	N1	N2	N3	N4	N5	N6	N7	N8	S	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	A	B	C	D	E	F
AP										X					X*	X											
OR	X					X				X		X															
DP																											
BN																									X		
ET	X					X				X		X															
RM										X							X										
WM	X				X					X							X	X									
BG																										X	
RF	X							X														X					
IN	X			X																							
IT																											
LL																							X	X			
MD	X				X					X							X										
PD	X						X			X										X							
PX										X			X														
PL	X	X							X	X									X		X						
SL																							X				
SA										X				X													
SR										X	X																
WV	X		X																								
Outbound MLLW																											
Generator	N	N1	N2	N3	N4	N5	N6	N7	N8	S	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	A	B	C	D	E	F
DP																											X

* One AP shipment originated from Ft. Hood, TX

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. No shipments were transported across Hoover Dam, while less than one percent (3 shipments) of all inbound and outbound shipments were transported through the Spaghetti Bowl in FY 2002.

As a result of 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 Operations Office (NNSA/NV) continues to engage in extensive discussions with the generators regarding the avoidance of the Spaghetti Bowl.

NNSA/NV 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/programs/xportmgmt/QuarterlyReport.htm> .

In summary, these reporting mechanisms and agreements by DOE management to avoid certain geographic and urban areas have continued a major shift in the overall routing of inbound LLW to the NTS.

Table 7 identifies specific routes utilized by generators to transport LLW to the NTS.

Table 7. Shipment Summary of Inbound and Outbound Regional Routes for FY 2002

ROUTE DESCRIPTION	AP	OR	DP	BN	ET	RM	WM	BG	RF	IN	IT	LL	MD	PD	PX	PL	SL	SA	SR	WV	TOTALS
I-15, CA-127, CA-178, NV-372, NV-160, US-95				2								183					3				188
I-15, CA-127, NV-373, US-95				2				24				10									36
I-15, NV-160, US-95								4				2									6
I-40, I-15, CA-127, NV-373, US-95	1				1																2
I-40, US-95, NV-164, I-15, CA-127, CA-178, NV-372, NV-160, US-95	1				3		1									1					6
I-40, US-95, NV-164, I-15, CA-127, NV-373, US-95	3	6			30	1	42						22	1	1	14			5		125
I-40, US-95, NV-164, I-15, NV-160, NV-372, CA-178, CA-127, NV-373, US-95																			1		1
I-40, US-95, NV-164, I-15, NV-160, US-95		15			291	4	47						11	28	1	21		9	21		448
I-40, US-95, US-93, I-515, I-215, NV-146, I-15, NV-160, US-95																1					1
I-40, US-95, US-93, I-515, US-95 (Spaghetti Bowl)	1																				1
I-80, US-50-ALT, US-50, US-95 (Reno)												6									6
I-80, US-93-ALT, US-6, US-95		6			28		141		1	6			15	3		10				1	211
US-50, US-6/50, US-6, US-95									496							1					497
US-93, AZ-68, NV-163, US-95, NV-164, I-15, CA-127, CA-178, NV-372, NV-160, US-95		1																			1
US-93, AZ-68, NV-163, US-95, NV-164, I-15, CA-127, NV-373, US-95		2			41																43
US-93, AZ-68, NV-163, US-95, NV-164, I-15, NV-160, US-95		3			54								1	3	1	2		3			67
US-93, AZ-68, NV-163, US-95, US-93, I-515, I-215, I-15, US-95 (Spaghetti Bowl)																1					1
US-93, AZ-68, NV-163, US-95, US-93, I-515, US-95 (Spaghetti Bowl)							1														1
UT-56, NV-319, US-93, NV-375, US-6, US-95																1					1
US-95, I-80, US-95, I-84, I-82, US-395				1																	1
ON-SITE			28								4										32
TOTALS	6	33	29	4	448	5	232	28	497	6	4	201	49	35	3	52	3	12	27	1	1,675

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 requested to notify the NNSA/NV Assistant Manager of Environmental Management whenever a discrepancy, non-compliance, or inadequate performance is identified; or if a transportation incident or emergency situation occurs.

Bechtel Nevada personnel control waste receipt and disposal activities at the NTS and are responsible for notifying appropriate DOE 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.

In FY 2002, no transportation incidents occurred as defined above. However, there were four package related discrepancies identified by Bechtel Nevada personnel during offloading operations. These isolated discrepancies were reported to both NNSA/NV as well as the appropriate generators. Corrective actions were implemented by the generators, with no further occurrences noted or reported during FY 2002.

- Four successive British Nuclear Fuels Inc., Ltd. shipments (received in the same week) contained breached supersacks. The breaches did not result in loss of the material.
- Two British Nuclear Fuels Inc., Ltd. shipments had holes in tarps covering the packages.
- One Princeton Plasma Physics Lab shipment had two holes in one tarp covering packages.
- A small hole was detected in the bottom of one drum in a Fernald shipment.

4.0 EVALUATION OF SHIPPING CAMPAIGNS

None of the 1,643 off site inbound and outbound shipments experienced an incident while in transit. No carrier vehicular accidents were reported. 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/NV correspondence and through personal communication with NNSA/NV 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/NV.

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

The following are points of contact for questions concerning the transportation of radioactive waste at the NTS or for requests for information relating to waste management and NNSA/NV operations.

WASTE MANAGEMENT

E. Frank DiSanza, Director
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Nevada Operations Office
Waste Management Division
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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
ITLV	IT Corporation, Las Vegas
LLW	Low-level radioactive waste
MLLW	Mixed Low-Level Radioactive Waste
NNSA/NV	U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office
NRC	U.S. Nuclear Regulatory Commission
NTS	Nevada Test Site
PCB	Polychlorinated Biphenyls
RWMSs	Radioactive Waste Management Sites
WMD	Waste Management Division

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