DOE/NV - - 947

ANNUAL REPORT - FY 2003

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

January 2004

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 (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) 2003.

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 2003)

In FY 2003, disposal of LLW/MLLW at the two NTS RWMSs consisted of 2,422 inbound shipments, from 21 approved generators. These shipments were transported on 22 different motor carriers. Names and codes for approved generators and carriers used in this report are located in Tables 1 and 2, respectively.

2,405 inbound shipments received from 21 off-site generators totaled 3,208,982 cubic feet (ft^3). Two onsite generators (Bechtel Nevada and IT Corporation) completed 16 onsite transfers of LLW consisting of 30,731 ft^3, and 1 MLLW transfer totaling 13 ft^3.

A total of 3,239,726 ft^3 of LLW/MLLW was disposed of at the NTS in FY 2003.

A shipment of MLLW from the NTS that was shipped to a treatment facility in Richland, WA during FY 2002 was treated to meet land disposal restrictions and returned to the NTS for burial as LLW in FY 2003. This inbound shipment and its volume information is reported as an onsite transfer of LLW in this report.

One outbound shipment (24 ft^3) of radioactively (below DOT regulatory limits) and Polychlorinated Biphenyl (PCB) contaminated soils and debris was made to a treatment facility in Oak Ridge, TN in FY 2003. Once treated, the material will be shipped directly to a disposal facility and will not return to the NTS. The motor carrier for this shipment was Richem. Tabular information concerning this shipment is not included in this report.
No outbound shipments of LLW or MLLW were made from the NTS in FY 2003.

Table 1. List of Approved Generators Shipping In FY 2003

APPROVED GENERATOR, STATE	CODE
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
LOVELACE RESPIRATORY	LV
MIAMISBURG ENVIRONMENTAL MANAGEMENT PROJECT, OH	MD
PADUCAH GASEOUS DIFFUSION PLANT, KY	PD
PORTSMOUTH GASEOUS DIFFUSION PLANT	PO
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 2003

APPROVED MOTOR CARRIER	CODE
AUTUMN INDUSTRIES	AUII
BUFFALO FUEL COMPANY	BFC+
CAST TRANSPORTATION	COLO
DAVIS TRUCKING	DAVS
FEDEX CUSTOM CRITICAL	FEDX
FLUID TRANSPORTS	FLD+
GOVERNMENT VEHICLE	GVT+
HITTMAN TRANSPORT	HITT
LANDSTAR AMERICA EXPRESS	LEAM
LANDSTAR INWAY	LDWY
LANDSTAR LIGON	LIGS
LANDSTAR RANGER	LRGR
A.J. METLER	MEAJ
MP ENVIRONMENTAL	MPE+
R & R TRUCKING	RRUK
RSB LOGISTICS	RSBI
SOUTHERN FREIGHT LOGISTICS	SFLG
SLT EXPRESS	SLXL
SPECIALTY TRANSPORT	SPCN
TAG TRANSPORT	TAG+
TRIAD TRANSPORT	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 located in Title 49 Code of Federal Regulations, "Transportation," and are selected by the generator.

Table 3. Waste Transporters Utilized by Generator

GENERATOR CODE	AUII	BFC+	COLO	DAVS	FEDX	FLD+	GVT+	HITT	LEAM	LDWY	LIGS	LRGR	MEAJ	MPE+	RRUK	RSBI	SFLG	SLXL	SPCN	TAG+	TDTO	TSMT
DP							X															
OR				X						X	X	X	X			X	X			X		
BN														X								
ET					X								X						X	X		
RM												X										
WM	X					X						X			X			X			X	X
BG														X								X
IN																						X
IT							X															
RF			X										X									
LL							X				X			X	X							X
LV						X		X														
MD												X	X									
PD								X				X	X				X					
PO												X										
PX						X																
PL																						X
SL														X								
SA						X	X	X														
SR									X			X	X									
WV		X																				

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 2003.

Table 4. Shipments and Volumes of Waste Sent To and From the NTS (FY 2003)

Inbound Low Level Waste Shipments	Shipments By Quarter					Volume
Generator Code	1st	2nd	3rd	4th	Total	(ft3)
BG	3	0	6	4	13	9,731
BN	1	2	5	135	143	91,154
DP	5	4	4	15	28	30,722
ET	86	118	189	48	441	601,050
IN	0	0	1	2	3	4,002
IT	0	0	1	2	3	24
LL	3	0	51	60	114	50,511
LV	0	0	0	3	3	6,481
MD	12	28	30	43	113	261,438
OR* #	16	26	46	135	223	208,597
PD	8	30	43	41	122	85,720
PL	0	0	0	1	1	899
PO	0	0	0	17	17	11,538
PX	0	0	0	3	3	3,446
RF	187	183	201	236	807	1,668,876
RM	0	1	0	2	3	493
SA	2	1	5	5	13	15,201
SL	0	1	0	0	1	1,187
SR	0	2	6	11	19	12,066
WM	36	63	83	156	338	163,136
WV	4	10	0	0	14	13,454
Totals	**363**	**469**	**671**	**919**	**2,422**	**3,239,726**
Outbound Mixed Low Level Waste Shipments	**Shipments By Quarter**					**Volume**
Generator Code	**1st**	**2nd**	**3rd**	**4th**	**Total**	**(ft3)**
DP	0	0	0	0	0	0
Totals	**0**	**0**	**0**	**0**	**0**	**0**

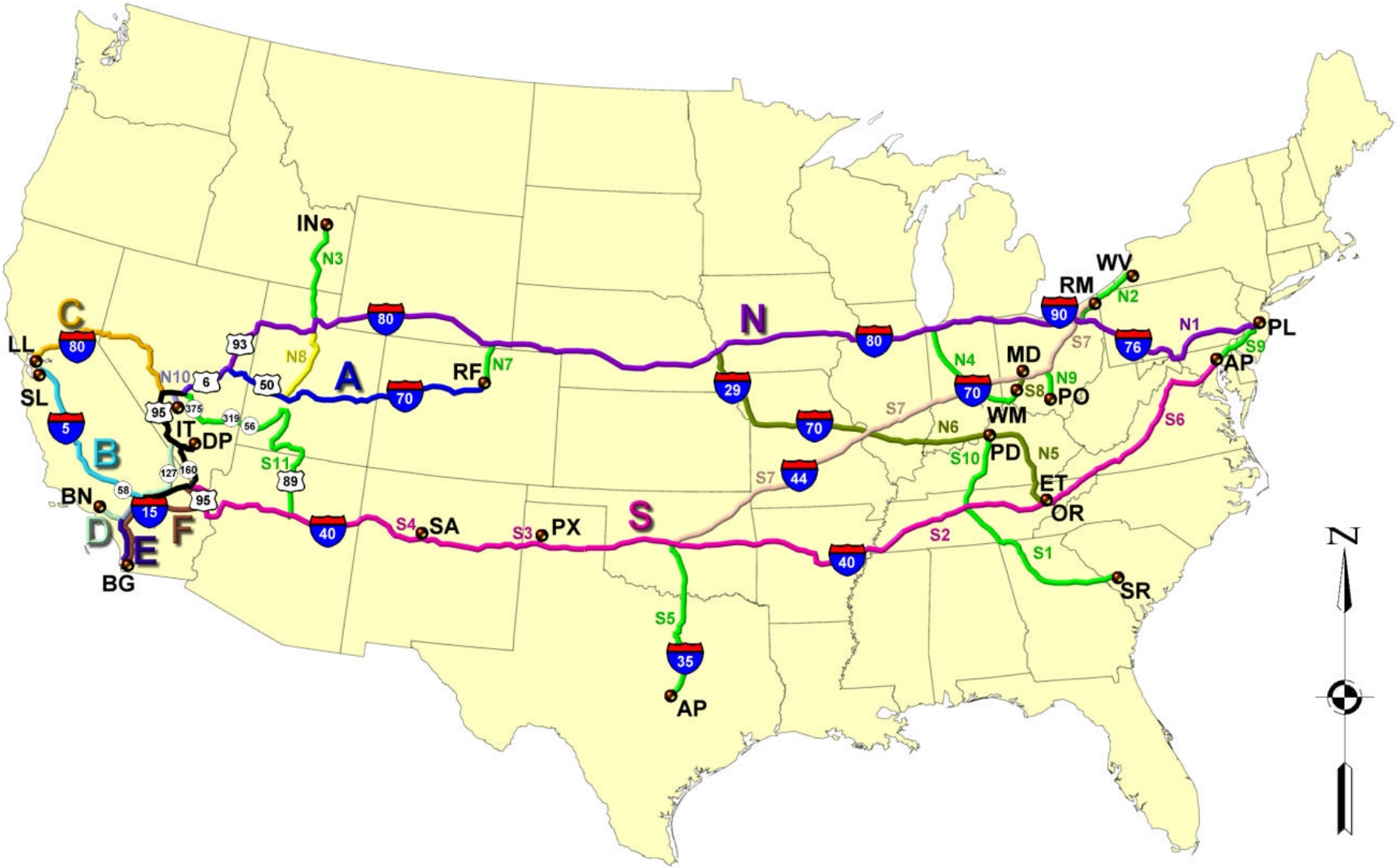
*** -- Due to equipment availability at the NTS four Bechtel Jacobs shipments were forwarded on to Envirocare in Clive, UT. Volumes for these shipments are not included in this annual report; however, inbound routing information is included since they do affect routing totals. The outbound shipments were completed by Bechtel Jacobs.**

 # -- Due to an issue with a lifting eye attachment bolt, one shipment was returned to Bechtel Jacobs.

2.3 Transportation Routes

Nineteen out-of-state generators shipped LLW to the NTS for disposal in FY 2003. 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.

Figure 1
FY 2003 National Low-Level Waste Transportation Routes



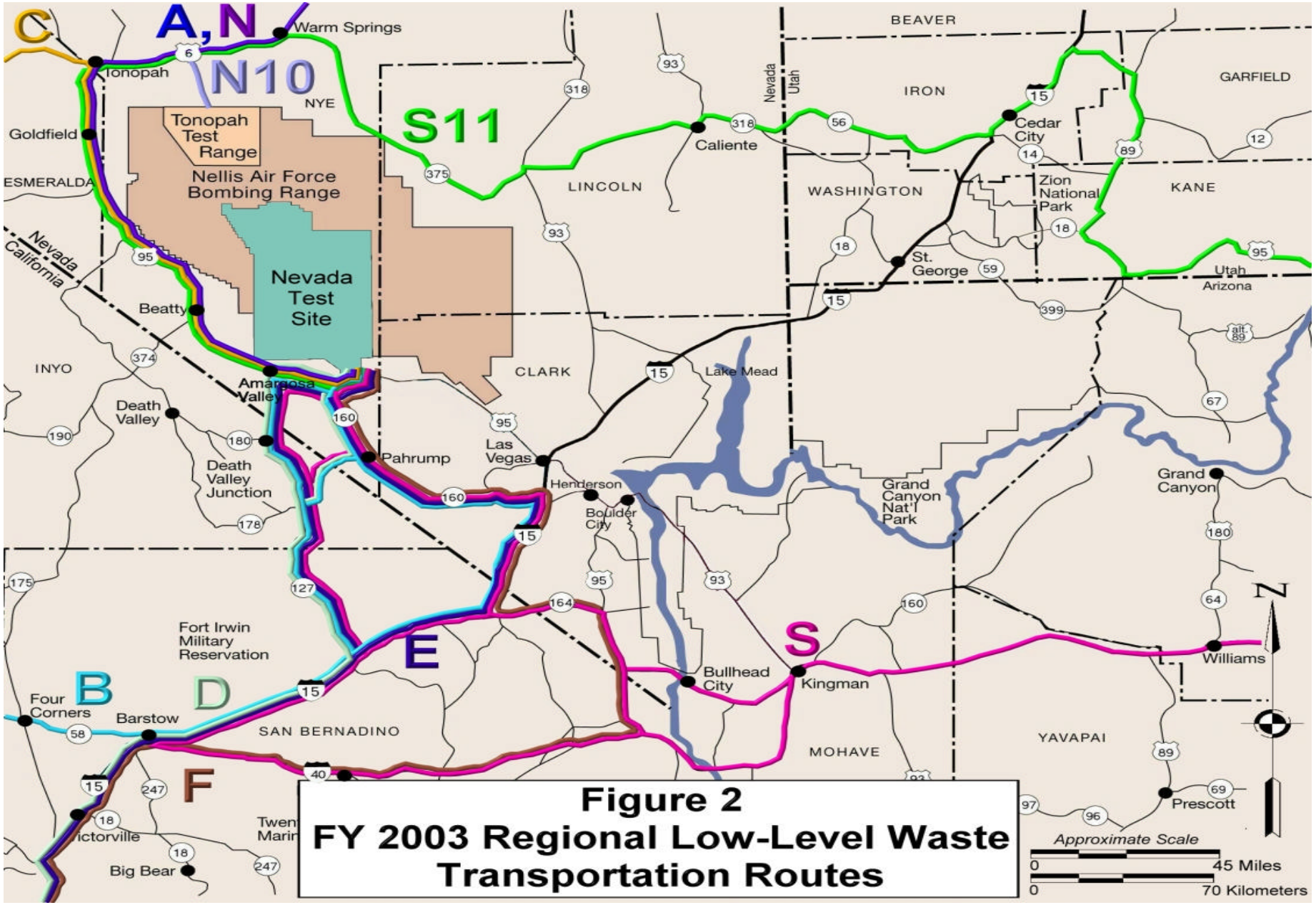


Figure 2
FY 2003 Regional Low-Level Waste Transportation Routes

Table 5. Transportation Route Identification

Route "N" represents the Northern route (I-80) running from East to West. The Northern ancillary routes (N1-10) 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"-"F" represent routes utilized by California generators for shipments to the NTS.

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
N9	OH, IN, IL, IA, NE, WY, UT, NV
N10	NV (TTR)
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	CA, NV

Table 6. Transportation Routes Utilized by Generator

Inbound LLW																												
Route >>> Generator	N	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	S	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	A	B	C	D	E	F
BG																											X		
BN																											X		X
DP	X										X																		
ET												X		X															
IN	X			X																									
IT																													
LL																								X	X				
LV												X				X													
MD	X				X							X								X								
OR	X					X						X		X															
PD												X										X							
PL												X									X								
PO	X									X													X*						
PX												X			X														
RF	X							X															X						
RM												X							X										
SA												X				X													
SL																								X					
SR												X	X										X				X+		
WM	X				X							X								X									
WV	X		X																										
Outbound MLLW																													
Generator	N	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	S	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	A	B	C	D	E	F
DP																													

+ --2 Savannah River Site shipments originated from San Diego, CA.

*** --16 Portsmouth Gaseous Diffusion Plant shipments originated at the Cisco, UT intermodal station (CSX-UPR-LRGR).**

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 or through the Spaghetti Bowl in FY 2003.

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 Site Office (NNSA/NSO) continues to engage in extensive discussions with the generators regarding the avoidance of the Spaghetti Bowl.

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/programs/xportmgt/QuarterlyReport.htm .

Use of intermodal transportation for shipments of LLW was utilized for the first time in FY 2003. Portsmouth Gaseous Diffusion Plant in Piketon, OH employed intermodal containers to transport seventeen shipments of LLW via railroad to an intermodal facility in Cisco, UT. Upon arrival at the Cisco facility the containers were loaded onto trucks for delivery to the NTS. The Cisco to NTS movements utilized the existing I-70, US-6/50, US-93, US-6, US-95 route used by Rocky Flats for their LLW truck shipments. It is estimated that the volume of intermodal shipments to the NTS will increase in FY 2004.

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 2003

DESCRIPTION	BG	BN	DP	ET	IN	IT	LL	LV	MD	OR	PD	PL	PO	PX	RF	RM	SA	SL	SR	WM	WV	TOTALS
I-15, CA-127, CA-178, NV-372, NV-160, US-95	3	136					104															243
I-15, CA-127, NV-373, US-95	8	2					7											1				18
I-15, I-40, US-95, NV-164, I-15, NV-160, US-95 (FLOOD ROUTE)		3																				3
I-15, NV-160, US-95	2	2					2												2			8
I-40, I-15, CA-127, NV-373, US-95				120					1													121
I-40, I-15, NV-160, US-95				1																		1
I-40, US-95, NV-164, I-15, CA-127, CA-178, NV-372, NV-160, US-95									1													1
I-40, US-95, NV-164, I-15, CA-127, NV-373, US-95				9					29	4	2					2				52		98
I-40, US-95, NV-164, I-15, NV-160, NV-372, CA-178, CA-127, NV-373, US-95											1									1		2
I-40, US-95, NV-164, I-15, NV-160, US-95				251				2	70	89	99	1		2		1	13		13	63		604
I-80, US-93-ALT, US-6, US-95					1				7	111			1		4					217	14	355
I-80, US-95 (RENO)							1															1
US-50, US-6/50, US-6, US-95										1			16		803							820
US-6, US-95 (TTR)			14																			14
US-93, AZ-68, NV-163, US-95, NV-164, I-15, CA-127, NV-373, US-95																				2		2
US-93, AZ-68, NV-163, US-95, NV-164, I-15, NV-160, US-95				60				1	5	18	20			1					3	3		111
US-93, US-6, US-95					2																	2
UT-56, NV-319, US-93, US-6, US-95																			1			1
ON-SITE			14			3																17
TOTALS>>>	**13**	**143**	**28**	**441**	**3**	**3**	**114**	**3**	**113**	**223**	**122**	**1**	**17**	**3**	**807**	**3**	**13**	**1**	**19**	**338**	**14**	**2,422**

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/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.

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.

No transportation incidents occurred in FY 2003. However, below is a list of issues observed during unloading operations during FY 2003. These issues are reported to the generators who then implement appropriate corrective actions to prevent recurrence.

- Four delivery vehicles were found to be contaminated. The contaminated parts were removed from the trailers and buried with the shipments.
- Two drums were found to have bulging lids. No breach or contamination detected.
- Two shipments contained drums with holes in their sides, no contamination detected.
- Metal banding on four separate packages was broken, no breach or contamination detected.
- A trailer dropped off the 5th wheel at the NTS causing load to shift, however no breach or contamination was detected.

Additional clerical errors were also observed and reported to generators.

4.0 EVALUATION OF SHIPPING CAMPAIGNS

None of the 2,405 off site inbound/outbound shipments experienced an incident while in transit. 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

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/NSO operations.

WASTE MANAGEMENT

E. Frank DiSanza, Director
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Waste Management Division
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7.0 ACRONYM LIST

ft^3	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/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site 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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