

**Attachments for**  
**Environmental Defense Institute**  
**Troy, Idaho 83871-0220**  
[www.environmental-defense-institute.org](http://www.environmental-defense-institute.org)

**Review**  
**of**  
**Naval Nuclear Propulsion Program**  
**Naval Reactors Facility**  
**Naval Spent Nuclear Fuel Handling**  
**and**  
**Radioactive Waste Management**  
**at**  
**U.S. Department of Energy**  
**Idaho National Laboratory**

**Submitted by**  
**Chuck Broschious**  
**on behalf of**  
**Environmental Defense Institute**

**November 14, 2015**  
Attachments to EDI-Review-NNPP.Final-6

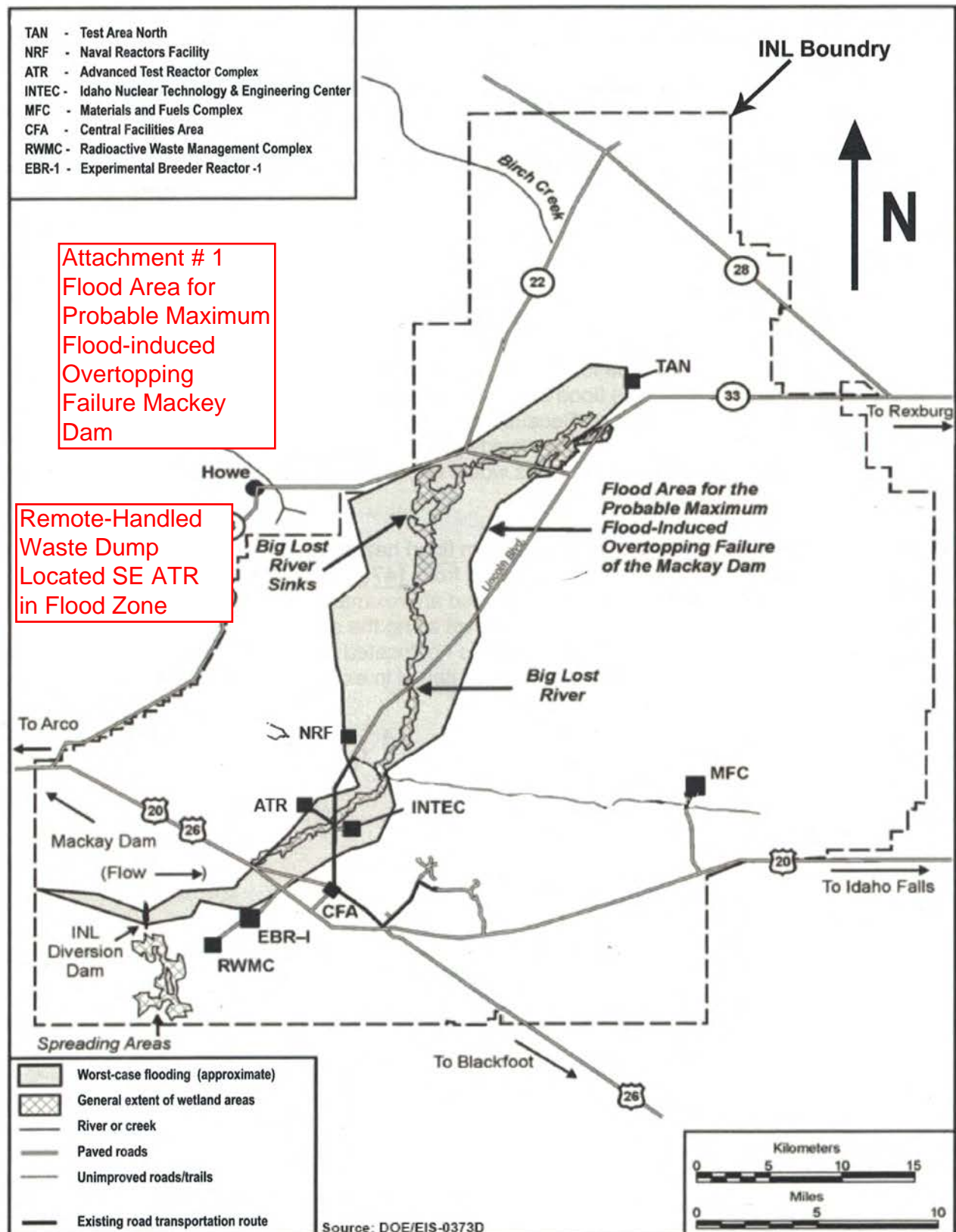
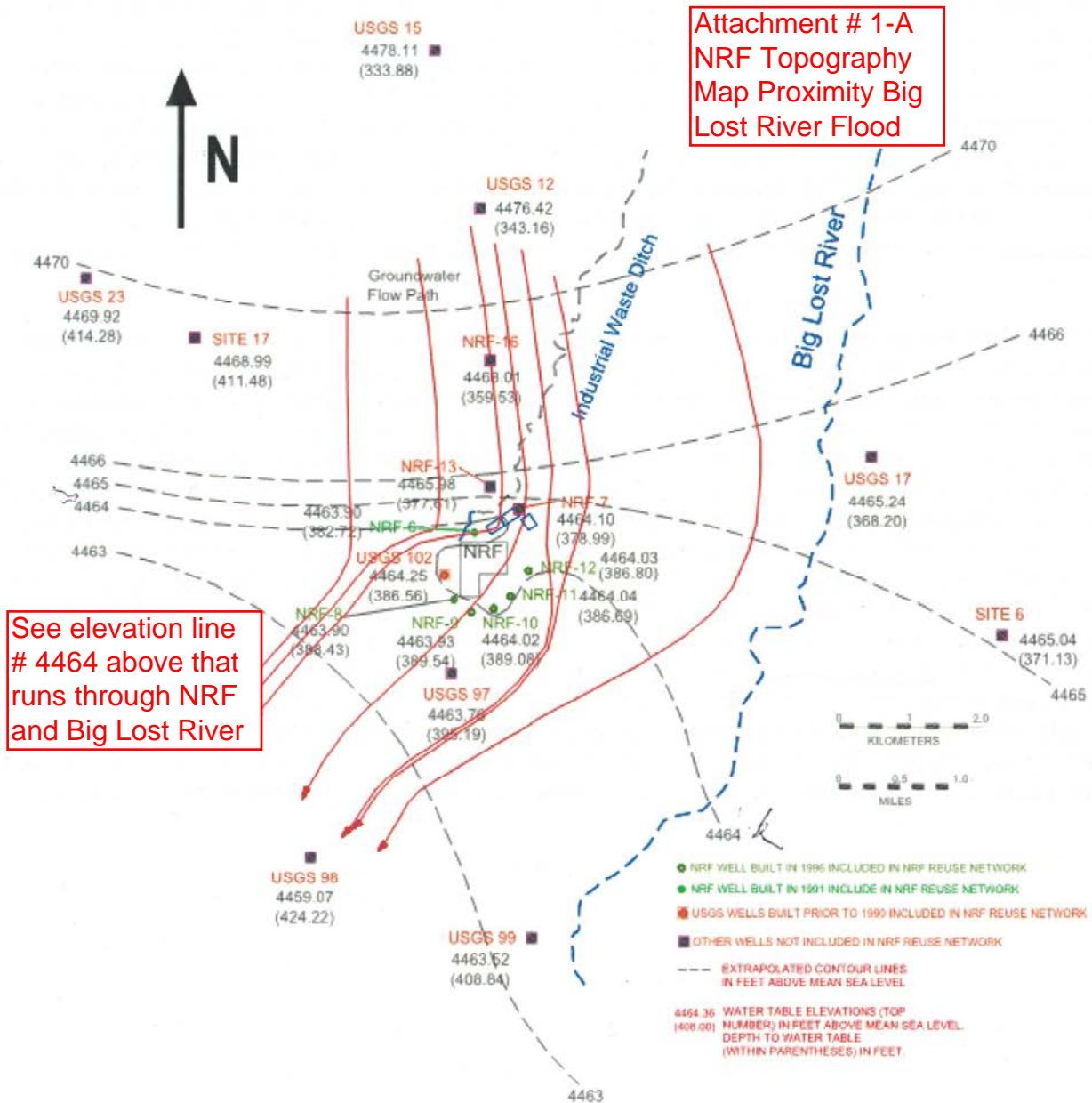


Figure 3.4-4: Surface Water Features, Wetlands, and Flood Hazard Areas at INL



Source: BMPC 2012

**Figure 3.4-6: Water Table Contour Map With Direction of Groundwater Flow for NRF****Perched Water****INL**

Perched water commonly occurs in the vadose zone (unsaturated zone between the ground surface and the aquifer) below the INL, in areas where a substantial surface recharge source is present. Deeper perched water zones are also known to exist. Perched water occurs when sediments or dense basalt with low permeability impede the downward flow of water to the aquifer. These perched water tables tend to slow the migration of pollutants that might otherwise quickly reach the SRPA. If the basalt surface that causes the perched water to form is sloped, then

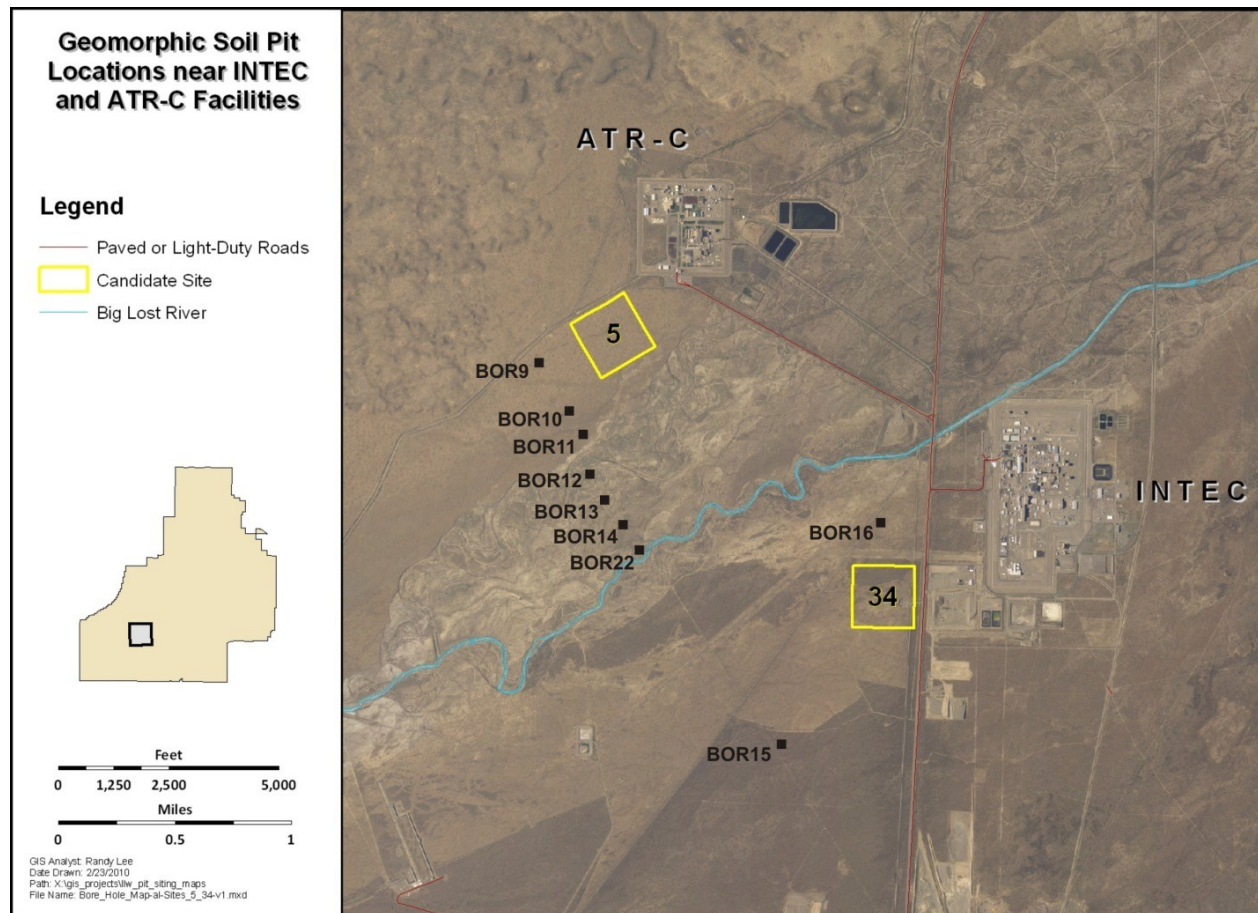


Figure 4. Soil pit locations for the geomorphic evaluation by Ostenaa et al. (1999). Yellow rectangles represent 45-acre areas. The proposed facility will occupy 5 acres within the outlined 45-acre area.

**Attachment # 1-B**

Yellow square 5 is the location for new Remote-Handled Waste Facility. Compare above yellow 5 location with Attachment # 1 flood hazard area for probable maximum flood-induced over-topping failure of Mackey Dam



**Attachment # 2 shows GTCC radioactive waste inventory of 159 mega (million) curies**

projects, and new nuclear power plants that have not yet been licensed by the U.S. Nuclear Regulatory Commission or constructed.

The estimated waste volumes and total radionuclide activities for the waste in Groups 1 and 2 are shown in Tables B-4 and B-7 of DOE-EIS (2011) and are reproduced in Table 2. The total waste volume is 11,700 m<sup>3</sup> and contains a total of 159 megacuries of radionuclide activity, mainly from decommissioning of commercial nuclear power reactors currently in operation.

Table 2. Radionuclide inventory evaluated in the GTCC EIS (modified from Table B-4 and B-7 of DOE-EIS 2011).

Radionuclide	Activated Metals (Ci)	Sealed Sources (Ci)	Other Waste (Ci)	Total (Ci)	Radionuclide	Activated Metals (Ci)	Sealed Sources (Ci)	Other Waste (Ci)	Total (Ci)
Hydrogen-3	2.40E+05	0.00E+00	4.06E+02	2.41E+05	Thorium-229	1.20E-02	0.00E+00	4.78E+00	4.79E+00
Carbon-14	3.37E+04	0.00E+00	2.82E+02	3.40E+04	Thorium-230	1.30E-04	0.00E+00	8.87E-01	8.87E-01
Magnesium-54	7.20E+04	0.00E+00	4.80E+01	7.20E+04	Protactinium-231	3.00E-02	0.00E+00	5.20E-02	8.20E-02
Iron-55	5.80E+07	0.00E+00	4.08E+01	5.80E+07	Thorium-232	3.20E-03	0.00E+00	1.28E+00	1.28E+00
Nickel-59	1.84E+05	0.00E+00	1.62E+02	1.84E+05	Uranium-232	1.40E+00	0.00E+00	5.58E+01	5.72E+01
Cobalt-60	7.30E+07	0.00E+00	1.26E+03	7.30E+07	Uranium-233	3.80E+00	0.00E+00	8.18E+02	8.22E+02
Nickel-63	2.55E+07	0.00E+00	9.59E+03	2.55E+07	Uranium-234	2.00E-01	0.00E+00	9.40E+01	9.42E+01
Strontium-90	2.50E+04	0.00E+00	1.89E+05	2.14E+05	Uranium-235	7.20E-02	0.00E+00	4.24E+00	4.31E+00
Molybdenum-93	1.57E+02	0.00E+00	5.50E-05	1.57E+02	Uranium-236	1.10E-01	0.00E+00	1.34E+00	1.45E+00
Niobium-94	8.70E+02	0.00E+00	1.27E-01	8.70E+02	Neptunium-237	6.70E-02	0.00E+00	5.02E+00	5.09E+00
Technetium-99	6.40E+03	0.00E+00	1.91E+02	6.59E+03	Uranium-238	8.40E-01	0.00E+00	1.43E+01	1.52E+01
Iodine-129	4.00E+00	0.00E+00	2.76E+00	6.76E+00	Plutonium-238	1.31E+02	1.20E+05	2.65E+04	1.47E+05
Cesium-137	3.60E+04	1.70E+06	4.91E+05	2.23E+06	Plutonium-239	6.60E+03	8.40E+03	5.36E+03	2.04E+04
Promethium-147	1.10E-01	0.00E+00	1.74E+05	1.74E+05	Plutonium-240	1.60E+02	2.20E+01	3.63E+03	3.81E+03
Samarium-151	1.70E+02	0.00E+00	2.40E+03	2.57E+03	Plutonium-241	2.53E+03	0.00E+00	6.25E+04	6.50E+04
Europium-152	6.60E+02	0.00E+00	6.81E+02	1.34E+03	Americium-241	7.84E+02	1.50E+05	1.48E+04	1.66E+05
Europium-154	2.40E+01	0.00E+00	2.80E+02	3.04E+02	Plutonium-242	1.40E-01	0.00E+00	1.36E+01	1.38E+01
Europium-155	1.40E+00	0.00E+00	2.09E+03	2.09E+03	Americium-243	1.10E+00	3.50E-01	1.78E+02	1.79E+02
Lead-210	3.30E-07	0.00E+00	4.12E-06	4.45E-06	Curium-243	1.40E-01	0.00E+00	6.49E+00	6.63E+00
Radium-226	1.50E-06	0.00E+00	9.10E+00	9.10E+00	Curium-244	8.00E+00	7.60E+01	1.02E+04	1.03E+04
Actinium-227	1.10E-02	0.00E+00	9.90E-02	1.10E-01	Curium-245	8.00E-04	0.00E+00	3.40E+02	3.40E+02
Radium-228	3.20E-04	0.00E+00	8.31E-01	8.31E-01	Curium-246	6.40E-05	0.00E+00	5.40E+01	5.40E+01

In the GTCC EIS, waste was considered to be in one of three waste types: (1) activated metals, (2) sealed sources, or (3) other waste as indicated in Table 2. The waste type determines the rate of release into the environment once contacted by infiltrating water. Assumptions used in the GTCC EIS by waste type are as follows:

- **Activated metal waste** was assumed to be released as the metals corrode. The radionuclide release fraction for activated metals was taken to be  $1.19 \times 10^{-5}$ /year in this analysis. This value was attributed to INL (DOE-ID 2007, Adler-Flitton et al. 2004).
- **Radionuclides in sealed sources** were assumed to partition between water and the sealed source matrix. The partition coefficient ( $K_d$ ) for the sealed source matrix was assumed to be equal to the  $K_d$  for the surface soil.
- **Radionuclides in other waste were assumed to be stabilized in a cementitious grout.** Grout was assumed to be effective for the first 500 years following facility closure, after which, the  $K_d$  of the grout was assumed to be the same as the surrounding surface soils.  $K_d$ s were taken from the smallest reported data in Kaplan (2006), considering the effects of oxidizing and reducing conditions and selecting the lower of the reported values.

## 5. CONCLUSIONS AND RECOMMENDATIONS

This report documents distribution of the NRF radionuclide source term across all documented NRF waste disposal shipments sent to the SDA during the HDT, RPT, and RPDT Supplement periods from 1953 through 1999. Best estimates from the three timeframes are presented in Table 5. The combined inventories shown in Table 5 are compiled from separate inventories presented in Sections 3 and 4.

This report presents best-estimate (Appendix A) and upper-bound (Appendix B) radionuclide inventories associated with NRF operations. Estimates are based on totals by waste stream provided by DOE-IBO (Appendix C). Technically defensible estimates of radionuclide activities for individual waste shipments from NRF to the SDA were developed from detailed investigations and reviews of shipping and waste records, nuclear material accountability forms, and extensive deterministic calculations using known irradiation histories of these waste streams.

Table 5. Summary of the Naval Reactors Facility best-estimate radionuclide inventories in waste sent to the Subsurface Disposal Area from 1953 through 1999.

Radionuclide	1953 through 1983 (Ci)	1984 through 1997 <sup>a</sup> (Ci)	1994 through 1999 <sup>b</sup> (Ci)	Total 1953 through 1999 (Ci)
Am-241	1.18E+01	1.07E-01	1.06E-03	1.19E+01
C-14	6.20E+01	1.08E+01	1.12E+00	7.40E+01
Cl-36	1.63E-01	4.49E-02	8.53E-03	2.16E-01
Co-60	5.77E+05	1.57E+05	1.52E+03	7.36E+05
Cs-137	1.15E+04	1.07E+01	9.95E-01	1.15E+04
H-3	1.66E+02	3.09E+01	1.37E+01	2.10E+02
I-129	8.30E-03	8.83E-04	8.99E-04	1.01E-02
Nb-94	2.55E+01	5.80E+00	2.34E-01	3.15E+01
Ni-59	1.48E+03	3.97E+02	2.36E+01	1.90E+03
Ni-63	1.49E+05	4.10E+04	2.81E+03	1.93E+05
Np-237	4.39E-03	6.54E-07	—	4.39E-03
Pu-238	1.89E+01	7.41E-02	4.55E-03	1.89E+01
Pu-239	4.67E+01	5.51E-02	1.38E-04	4.68E+01
Pu-240	4.07E+01	3.42E-02	1.40E-04	4.07E+01
Pu-241	3.20E+03	4.61E+00	7.38E-02	3.21E+03
Sr-90	6.93E+03	9.78E+00	4.87E-01	6.94E+03
Tc-99	2.65E+00	2.24E-01	2.37E-03	2.88E+00
U-233	3.66E-04	5.89E-05	—	4.25E-04
U-234	8.43E-02	9.63E-05	—	8.44E-02
U-235	1.66E-03	8.88E-07	2.98E-06	1.67E-03
U-236	1.19E-02	3.11E-06	—	1.20E-02
U-238	8.32E-02	3.42E-05	5.26E-08	8.33E-02

<sup>a</sup>Excludes waste stream NRF-MOD-10S.

<sup>b</sup>Includes waste streams NRF-MOD-6S and NRF-MOD-10S.

Attachment # 4  
No. 1 Next to ATR  
is the location for  
the New Remote  
Handled Waste  
Dump W/I Flood  
Zone Big Lost  
River Between  
ATR and INTEC



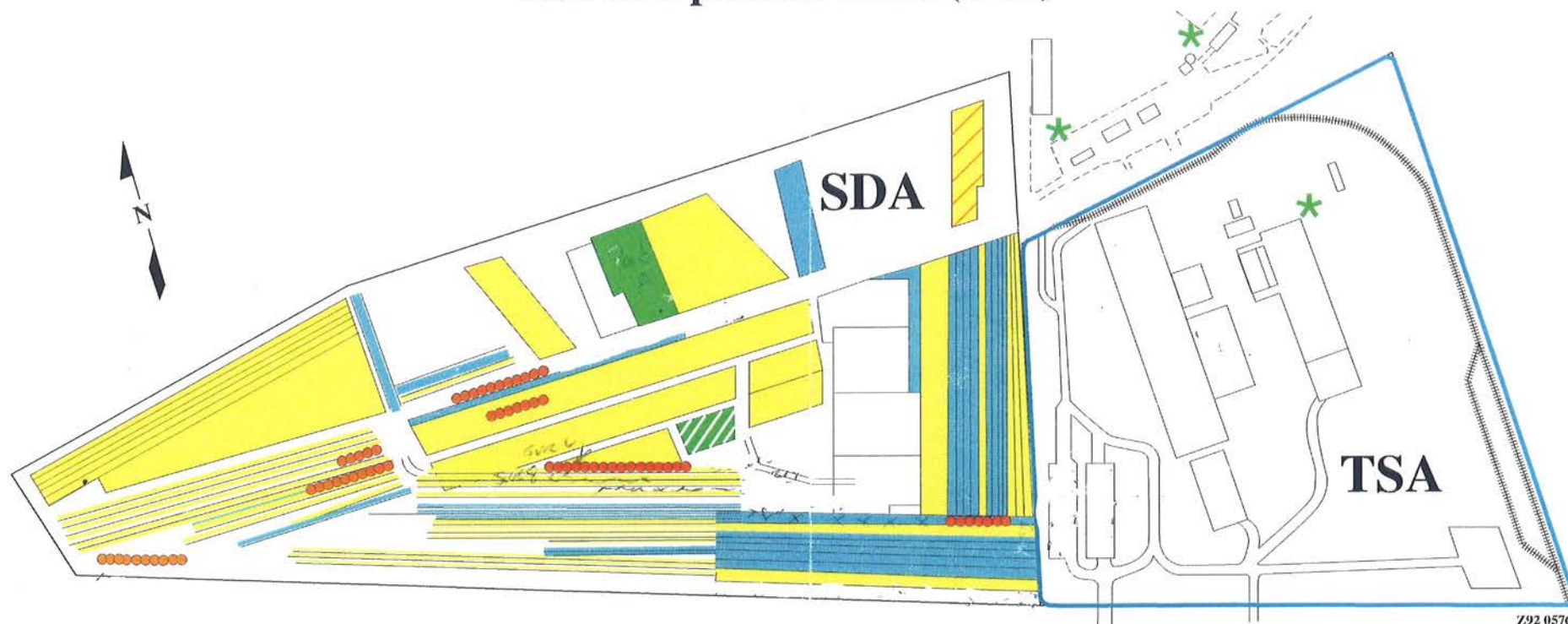
INTEC at the Left

Compare Remote  
Handled Waste  
Dump Location to  
Attachment # 1  
Figure 3.4-4  
Surface Water  
Features



ref

## The RWMC (WAG-7) Has Been Divided into 14 Operable Units (OUs)



Z92 0576

- |  |  |
|--|--|
| 7-01: SDA soil vaults                                | 7-08: Organic contamination in the Vadose Zone |
| 7-02: SDA acid pit                                   | 7-09: TSA releases                             |
| 7-03: Non-TRU contaminated pits and trenches         | 7-10: Pit 9 comprehensive demonstration        |
| 7-04: Air pathway                                    | 7-11: Septic tanks                             |
| 7-05: Surface water pathways and surficial sediments | 7-12: Pad A                                    |
| 7-06: Groundwater pathway                            | 7-13: TRU-contaminated pits and trenches       |
| 7-07: Vadose Zone (rad/metals)                       | 7-14: WAG-7 comprehensive ROD                  |



2-24

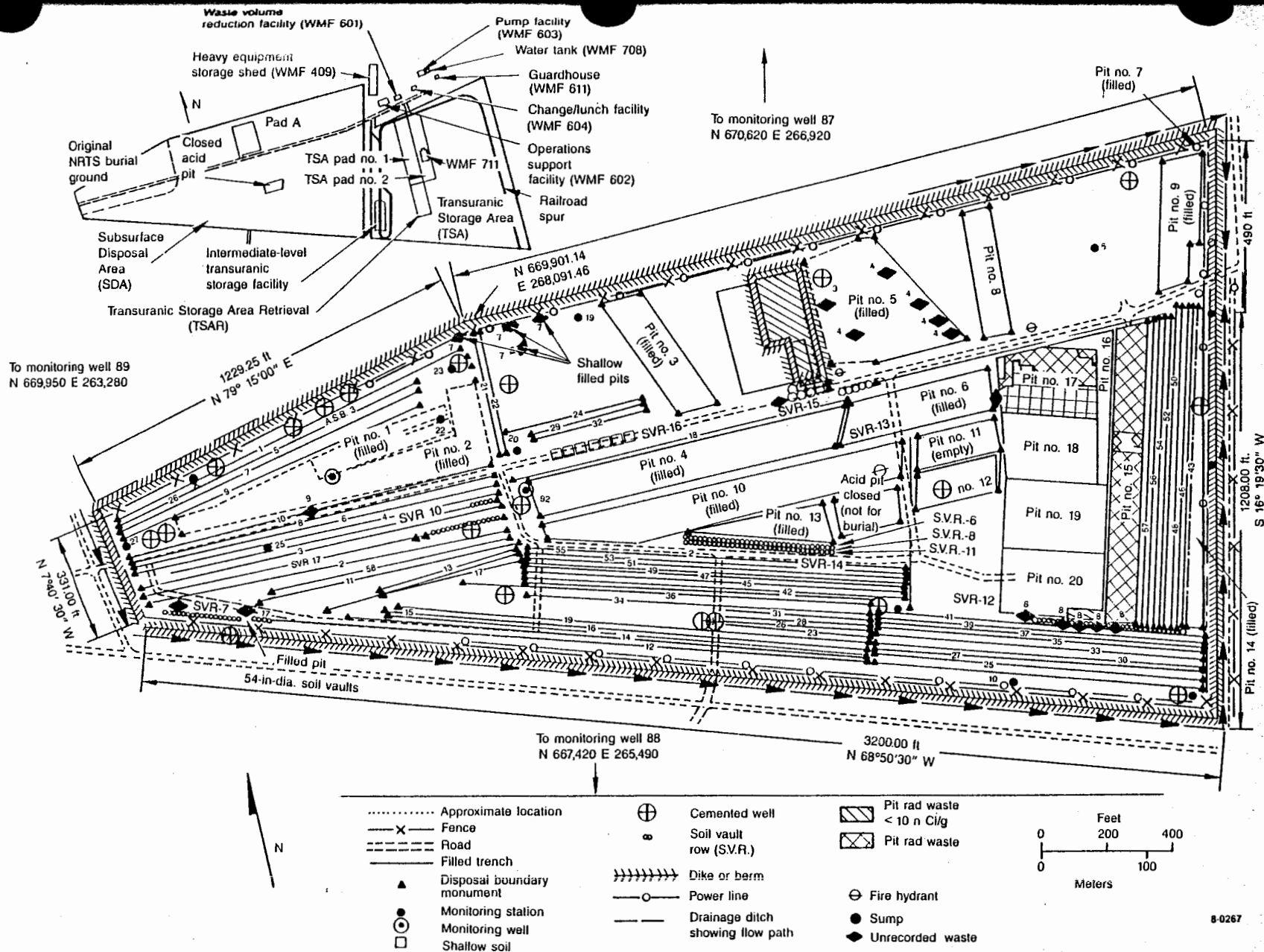
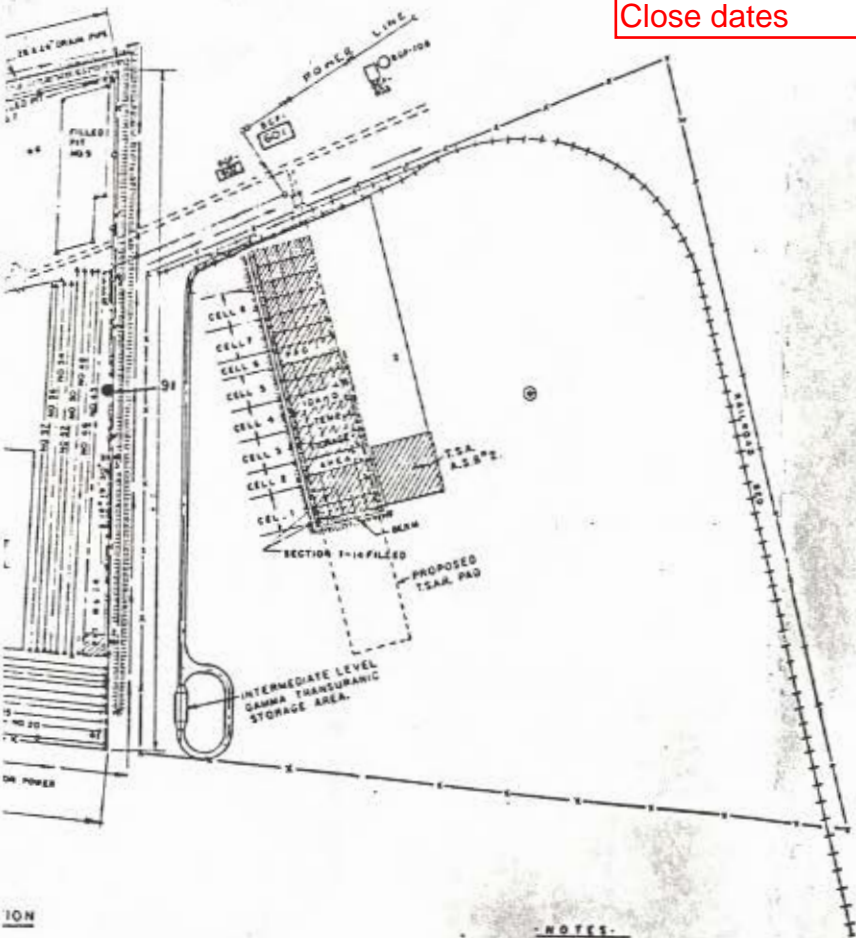


Figure 2-4. Location of the Acid Pit at the SDA.

NED	DATE CLOSED	TSA #1	DATE OPENED	DATE CLOSED	PIT NO	DATE OPENED	DATE CLOSED	TRENCH NO	DATE OPENED	DATE CLOSED
		CELL 1	10-1-70	5-8-71	1	10-1-57	10-1-59	1	TR 1 MCN	74-52
		2	5-16-71	12-29-71	2	10-1-58	10-1-59	2	2	10-1-58
		3	12-15-71	6-1-72	3	12-15-71	1-1-53	3	36 TO 37	10-22-54
		4	8-5-72	1-18-73	4	1-1-53	1-1-53	4	36 TO 37	10-22-54
		5	12-22-72	8-20-73	5	8-20-73	12-22-74	5	36 TO 37	10-22-54
		6	9-24-73	11-7-73	6	9-24-73	10-12-74	6	36 TO 37	10-22-54
		7	11-7-73	1-23-74	7	1-23-74	10-12-74	7	36 TO 37	10-22-54
		8	10-30-74	10-17-75	8	10-30-74	10-17-75	8	36 TO 37	10-22-54
		TSA #2			ACID PIT			9	16 TO 20	12-23-54
		CELL 1			10	1-1-54	1-1-54	10	16 TO 20	12-23-54
					11	1-1-54	1-1-54	11	16 TO 20	12-23-54
					12	1-1-54	1-1-54	12	16 TO 20	12-23-54
					13	1-1-54	1-1-54	13	16 TO 20	12-23-54
					14	1-1-54	1-1-54	14	16 TO 20	12-23-54
					15	1-1-54	1-1-54	15	16 TO 20	12-23-54
					16	1-1-54	1-1-54	16	16 TO 20	12-23-54
					17	1-1-54	1-1-54	17	16 TO 20	12-23-54
					18	1-1-54	1-1-54	18	16 TO 20	12-23-54
					19	1-1-54	1-1-54	19	16 TO 20	12-23-54
					20	1-1-54	1-1-54	20	16 TO 20	12-23-54
					21	1-1-54	1-1-54	21	16 TO 20	12-23-54
					22	1-1-54	1-1-54	22	16 TO 20	12-23-54
					23	1-1-54	1-1-54	23	16 TO 20	12-23-54
					24	1-1-54	1-1-54	24	16 TO 20	12-23-54
					25	1-1-54	1-1-54	25	16 TO 20	12-23-54
					26	1-1-54	1-1-54	26	16 TO 20	12-23-54
					27	1-1-54	1-1-54	27	16 TO 20	12-23-54
					28	1-1-54	1-1-54	28	16 TO 20	12-23-54
					29	1-1-54	1-1-54	29	16 TO 20	12-23-54
					30	1-1-54	1-1-54	30	16 TO 20	12-23-54
					31	1-1-54	1-1-54	31	16 TO 20	12-23-54
					32	1-1-54	1-1-54	32	16 TO 20	12-23-54
					33	1-1-54	1-1-54	33	16 TO 20	12-23-54
					34	1-1-54	1-1-54	34	16 TO 20	12-23-54
					35	1-1-54	1-1-54	35	16 TO 20	12-23-54
					36	1-1-54	1-1-54	36	16 TO 20	12-23-54
					37	1-1-54	1-1-54	37	16 TO 20	12-23-54
					38	1-1-54	1-1-54	38	16 TO 20	12-23-54
					39	1-1-54	1-1-54	39	16 TO 20	12-23-54
					40	1-1-54	1-1-54	40	16 TO 20	12-23-54
					41	1-1-54	1-1-54	41	16 TO 20	12-23-54
					42	1-1-54	1-1-54	42	16 TO 20	12-23-54
					43	1-1-54	1-1-54	43	16 TO 20	12-23-54
					44	1-1-54	1-1-54	44	16 TO 20	12-23-54
					45	1-1-54	1-1-54	45	16 TO 20	12-23-54
					46	1-1-54	1-1-54	46	16 TO 20	12-23-54
					47	1-1-54	1-1-54	47	16 TO 20	12-23-54
					48	1-1-54	1-1-54	48	16 TO 20	12-23-54
					49	1-1-54	1-1-54	49	16 TO 20	12-23-54
					50	1-1-54	1-1-54	50	16 TO 20	12-23-54
					51	1-1-54	1-1-54	51	16 TO 20	12-23-54
					52	1-1-54	1-1-54	52	16 TO 20	12-23-54
					53	1-1-54	1-1-54	53	16 TO 20	12-23-54
					54	1-1-54	1-1-54	54	16 TO 20	12-23-54
					55	1-1-54	1-1-54	55	16 TO 20	12-23-54
					56	1-1-54	1-1-54	56	16 TO 20	12-23-54
					57	1-1-54	1-1-54	57	16 TO 20	12-23-54
					58	1-1-54	1-1-54	58	16 TO 20	12-23-54

Attachment # 7  
SDA List of Pits &  
Trenches Open/  
Close dates



\* DISTANCE FROM PREVIOUS TRENCH.  
\* TRENCH 55 STILL AVAILABLE ON EAST END FOR HIGH LEVEL WASTE.

Trench 55 still available  
on East end for High  
Level Waste

100-22056  
DWG-1230-825-  
101-1

Fig. 4 Map of the burial ground showing well sites, location of pits and trenches, and dates of opening and closing of pits and trenches.



AREA	T	R	D	DATE	TIME	DESC	VOLUME	WEIGHT	CURIES				
TYPE	#	VOL	U	DESC			LOCATION	DATE		NUCLIDE	CONC	CURIES	NO.
NRF618	S	R	O	09/18/69	810	50	5.777E+00	0.000E+00	1.000E-02				
BXC	17	12	F	007 RAD WASTE NOS		221	BGT502+55-65	09/18/69		UN-ID-B+G	0.000E+00	1.000E-02	
NRF618	S	R	O	09/22/69	810	5000	4.531E-01	1.179E+07	3.600E+04				
I	1	16	F	011 CORE+LOOP COMP.		222	UNKN UNKN	09/22/69		MFP	0.000E+00	3.599E+04	
										U-235	1.980E+00	4.237E-06	
NRF618	S	R	O	09/22/69	820	40	5.777E+00	0.000E+00	5.000E-02				
BXC	17	12	F	007 RAD WASTE NOS		223	BGT503+25-30	09/22/69		UN-ID-B+G	0.000E+00	5.000E-02	
NRF618	S	R	O	09/22/69	830	8	5.777E+00	0.000E+00	5.000E-03				
BXC	17	12	F	007 RAD WASTE NOS		224	BGT503+20-25	09/22/69		UN-ID-B+G	0.000E+00	5.000E-03	
NRF618	S	R	O	09/25/69	800	20	5.777E+00	0.000E+00	1.300E-02				
BXC	17	12	F	008 COMBUSTIBLES		226	BGT505+60-65	09/25/69		CO-60	0.000E+00	1.300E-02	
NRF618	S	R	O	09/25/69	810	20	5.777E+00	0.000E+00	1.800E-02				
BXC	17	12	F	008 COMBUSTIBLES		227	BGT503+70-80	09/25/69		CO-60	0.000E+00	1.800E-02	
NRF618	S	R	O	09/26/69	800	5000	4.531E-01	1.179E+07	1.800E+04				
I	1	16	F	011 CORE+LOOP COMP.		228	BGT508+10	09/29/69		UN-ID-B+G	0.000E+00	1.800E+04	
NRF618	S	R	O	09/29/69	800	90	5.777E+00	0.000E+00	6.000E-02				
BXC	17	12	F	007 RAD WASTE NOS		230	BGT504+25-30	09/29/69		UN-ID-B+G	0.000E+00	6.000E-02	
NRF618	S	R	O	09/29/69	810	20	5.777E+00	0.000E+00	7.000E-03				
BXC	17	12	F	007 RAD WASTE NOS		231	BGT504+30-35	09/29/69		UN-ID-B+G	0.000E+00	7.000E-03	
NRF618	S	R	O	10/01/69	800	4700	4.531E-01	7.257E+06	2.450E+04				
I	1	16	F	011 CORE+LOOP COMP.		232	BGT507+0	10/02/69		CO-60	0.000E+00	2.450E+04	
NRF618	S	R	O	10/02/69	810	15	5.777E+00	0.000E+00	3.000E-02				
BXC	17	12	F	008 COMBUSTIBLES		233	BGT504+60-70	10/03/69		MFP	0.000E+00	3.000E-02	
NRF618	S	R	O	10/02/69	820	12	5.777E+00	0.000E+00	2.000E-02				
BXC	17	12	F	008 COMBUSTIBLES		234	BGT504+55-60	10/02/69		MFP	0.000E+00	2.000E-02	
NRF618	S	R	O	10/06/69	810	15	5.098E-01	1.179E+07	2.000E+01				
I	1	18	F	011 CORE+LOOP COMP.		237	BGP10100E05SNJ	10/07/69		MFP	0.000E+00	2.000E+01	
NRF618	S	R	O	10/07/69	800	15	5.777E+00	0.000E+00	3.000E-04				
BXC	17	12	F	007 RAD WASTE NOS		235	BGT508+95-905	10/07/69		MFP	0.000E+00	3.000E-04	

1. DATA CONTAINED IN THIS LISTING ARE KNOWN TO BE INCOMPLETE AND CONTAIN INACCURATE NUCLIDE BREAKDOWNS. ANY ATTEMPTS TO MATCH PUBLISHED DOCUMENT NUMBERS WITH NUMBERS IN THIS LIST WILL RESULT IN DISCREPANCIES.

2. NO OFFICIAL INEL DOCUMENTS USE DATA FROM THIS DATA FILE.

Attachment # 8  
RWMIS P61SH090

AREA	T	R	D	DATE	TIME	DESC	VOLUME	WEIGHT	CURIES				
TYPE	#	VOL	U	DESC			LOCATION	DATE		NUCLIDE	CONC	CURIES	NO.
NRF618	S	R	O	10/07/69	810	80	5.777E+00	0.000E+00	2.000E-03				
BXC	17	12	F	007 RAD WASTE NOS		236	BGT509+20-25	10/07/69		MFP	0.000E+00	2.000E-03	
NRF618	S	R	O	10/08/69	810	15	5.098E-01	1.179E+07	2.000E+01				
I	1	18	F	011 CORE+LOOP COMP.		238	BGT507+75	10/09/69		MFP	0.000E+00	2.000E+01	
NRF618	S	R	O	10/09/69	800	2	5.777E+00	0.000E+00	5.000E-03				
BXC	17	12	F	007 RAD WASTE NOS		239	BGT508+00-10	10/09/69		MFP	0.000E+00	5.000E-03	
NRF618	S	R	O	10/09/69	810	3000	4.531E-01	1.179E+07	1.800E+04				
I	1	16	F	011 CORE+LOOP COMP.		240	BGT507+80	10/10/69		CO-60	0.000E+00	1.800E+04	
NRF618	S	R	O	10/13/69	800	12	5.777E+00	0.000E+00	4.000E-03				
BXC	17	12	F	007 RAD WASTE NOS		241	BGT507+75-80	10/13/69		MFP	0.000E+00	4.000E-03	
NRF618	S	R	O	10/13/69	810	30	7.646E+00	0.000E+00	5.000E-03				
O	1	270	F	010 METAL SCRAP		242	BGP10640E05SNJ	10/13/69		MFP	0.000E+00	5.000E-03	
NRF618	S	R	O	10/13/69	820	15	5.098E-01	1.179E+07	2.000E+01				
I	1	18	F	011 CORE+LOOP COMP.		243	BGT507+75	10/14/69		CO-60	0.000E+00	2.000E+01	
NRF618	S	R	O	10/15/69	800	10	5.098E-01	7.257E+03	2.000E+01				
I	1	18	F	011 CORE+LOOP COMP.		244	BGT507+40	10/17/69		UN-ID-B+G	0.000E+00	2.000E+01	
NRF618	S	R	O	10/16/69	810	400	5.777E+00	0.000E+00	4.000E-02				
BXC	17	12	F	003 PAPER METAL WOOD		245	BGT504+60-65	10/17/69		CO-60	0.000E+00	4.000E-02	
NRF618	S	R	O	10/16/69	820	250	5.777E+00	0.000E+00	2.500E-02				
BXC	17	12	F	003 PAPER METAL WOOD		246	BGT504+65-75	10/17/69		CO-60	0.000E+00	2.500E-02	
NRF618	S	R	O	10/17/69	800	95	7.646E+00	4.536E+06	3.000E-02				
O	1	270	F	010 METAL SCRAP		247	BGP10650E15SNJ	10/20/69		CO-60	0.000E+00	3.000E-02	
NRF618	S	R	O	10/20/69	800	5	5.777E+00	0.000E+00	9.000E-03				
BXC	17	12	F	007 RAD WASTE NOS		248	BGT505+00-05	10/21/69		MFP	0.000E+00	9.000E-03	
NRF618	S	R	O	10/20/69	810	15	5.098E-01	7.257E+06	2.000E+01				
I	1	18	F	011 CORE+LOOP COMP.		249	BGT507+65	10/22/69		CO-60	0.000E+00	2.000E+01	
NRF618	S	R	O	10/22/69	800	500	4.531E-01	7.257E+06	1.200E+04				
I	1	16	F	011 CORE+LOOP COMP.		250	BGT507+40-45SN	10/23/69		CO-60	0.000E+00	1.200E+04	

1. DATA CONTAINED IN THIS LISTING ARE KNOWN TO BE INCOMPLETE AND CONTAIN INACCURATE NUCLIDE BREAKDOWNS. ANY ATTEMPTS TO MATCH PUBLISHED DOCUMENT NUMBERS WITH NUMBERS IN THIS LIST WILL RESULT IN DISCREPANCIES.

2. NO OFFICIAL INEL DOCUMENTS USE DATA FROM THIS DATA FILE.

AREA	T R D	DATE	TIME	DESC	VOLUME	WEIGHT	CURIES					
TYPE #	VOL U	DESC	LOCATION	DATE	NUCLIDE	CONC	CURIES	NO.				
NRF618 S R O	08/26/69	800 1500 200	193	4.956E+00 0.000E+00 2.000E+00	UN-ID-B+G	0.000E+00	2.000E+00					
0 1 175 F 009 CELITE				BGP10325E25NS2 08/29/69								
NRF618 S R O	08/26/69	810 2500 300	219	4.956E+00 0.000E+00 2.500E-01	CO-60	0.000E+00	2.500E-01					
0 1 175 F 019 EMPTY				BGP10335E65NS2 09/19/69								
NRF618 S R O	08/27/69	800 70 5	194	3.823E+00 1.814E+06 7.000E-03	UN-ID-B+G	0.000E+00	7.000E-03					
0 1 135 F 027 METAL COMP.				BGP10235E35NS2 08/27/69								
NRF618 S R O	08/27/69	810 40 4	195	5.437E+00 0.000E+00 8.000E-03	CO-60	0.000E+00	8.000E-03					
BXC 16 12 F 008 COMBUSTIBLES				BGT502+10-20 08/28/69								
NRF618 S R O	08/27/69	820 100 10	196	5.777E+00 0.000E+00 1.400E-02	CO-60	0.000E+00	1.400E-02					
BXC 17 12 F 008 COMBUSTIBLES				BGT502+15-25 08/28/69								
NRF618 S R O	08/29/69	800 5000 350	197	4.531E-01 1.179E+07 1.800E+04	UN-ID-B+G	0.000E+00	1.800E+04					
I 1 16 F 011 CORE+LOOP COMP.				BGT508+35 08/29/69								
NRF618 S R O	08/29/69	810 250 75	198	1.699E+00 3.629E+05 2.500E-02	UN-ID-B+G	0.000E+00	2.500E-02					
0 1 60 F 009 CELITE				BGP10335E25NS2 08/29/69								
NRF618 S R O	09/02/69	810 60 5	199	5.777E+00 0.000E+00 3.000E-02	UN-ID-B+G	0.000E+00	3.000E-02					
BXC 17 12 F 007 RAD WASTE NOS				BGT502+30-35 09/02/69								
NRF618 S R O	09/02/69	820 0 0	200	2.549E+00 0.000E+00 1.000E-05	UN-ID-B+G	0.000E+00	1.000E-05					
0 1 90 F 010 METAL SCRAP				BGP10550E90SNJ 09/03/69								
NRF618 S R O	09/02/69	830 400 80	210	4.531E-01 0.000E+00 3.500E+03	MFP	0.000E+00	3.499E+03					
I 1 16 F 028 UNIRRAD. FUEL				UNKN UNKN 09/11/69								
					U-235	3.090E+00	6.613E-06					
NRF618 S R O	09/04/69	800 50 20	201	5.777E+00 0.000E+00 2.800E-02	CO-60	0.000E+00	2.800E-02					
BXC 17 12 F 003 PAPER METAL WOOD				BGT502+30 09/04/69								
NRF618 S R O	09/04/69	810 7 1	202	5.777E+00 0.000E+00 1.000E-02	CO-60	0.000E+00	1.000E-02					
BXC 17 12 F 003 PAPER METAL WOOD				BGT502+50 09/05/69								
NRF618 S R O	09/05/69	800 200 6	203	5.381E-01 1.179E+07 1.000E+03	CO-60	0.000E+00	1.000E+03					
0 1 19 F 027 METAL COMP.				BGT508+70 09/09/69								
NRF618 S R O	09/08/69	810 5 2	204	5.777E+00 0.000E+00 9.000E-03	UN-ID-B+G	0.000E+00	9.000E-03					
BXC 17 12 F 007 RAD WASTE NOS				BGT502+15-20 09/08/69								

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2. NO OFFICIAL INEL DOCUMENTS USE DATA FROM THIS DATA FILE.

## Attachment # 8

SCHEDULE NO. OLDF01

RADIOACTIVE WASTE MANAGEMENT INFORMATION SYSTEM  
SOLID MASTER DATABASE (P61SH090) LIST FOR 1954 TO 1970

RUN DATE: 03/29/89

PAGE NO. 518

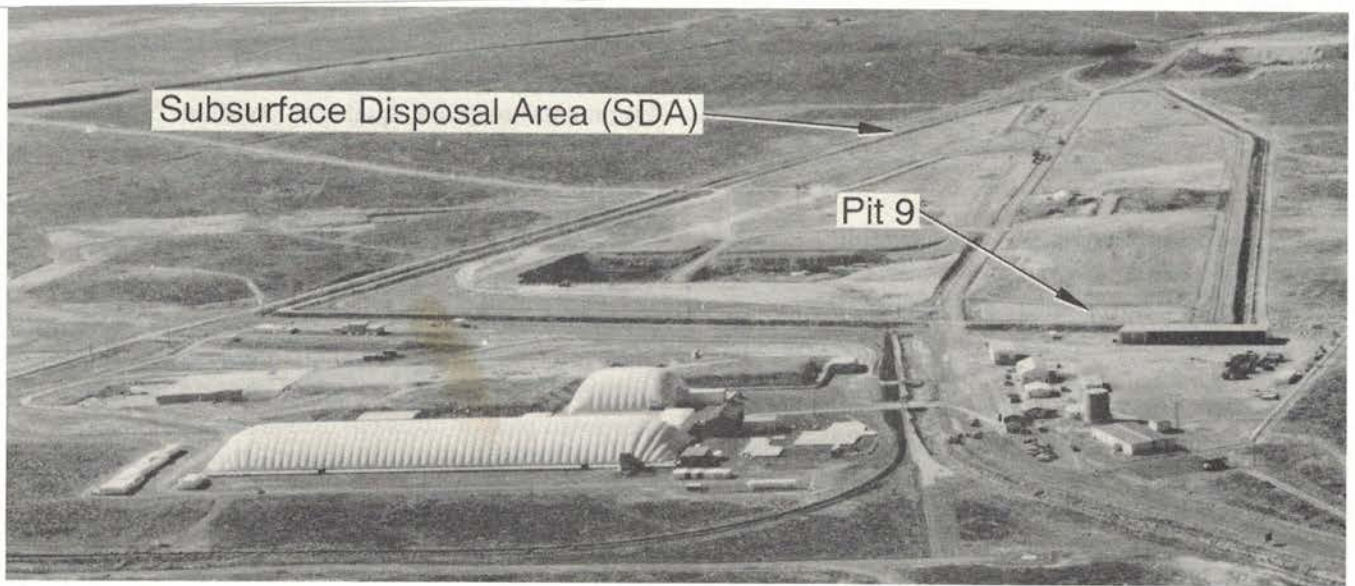
AREA	T R D	DATE	TIME	DESC	VOLUME	WEIGHT	CURIES					
TYPE #	VOL U	DESC	LOCATION	DATE	NUCLIDE	CONC	CURIES	NO.				
NRF618 S R O	09/08/69	820 150 15	205	5.437E+00 0.000E+00 2.500E-02	UN-ID-B+G	0.000E+00	2.500E-02					
BXC 16 12 F 007 RAD WASTE NOS				BGT502+20-25 09/08/69								
NRF618 S R O	09/09/69	800 100 20	206	9.940E+00 1.814E+06 1.000E-02	CO-60	0.000E+00	1.000E-02					
0 1 351 F 010 METAL SCRAP				BGP10317E50NS2 09/09/69								
NRF618 S R O	09/09/69	810 200 10	207	5.381E-01 1.179E+07 1.000E+03	CO-60	0.000E+00	1.000E+03					
0 1 19 F 027 METAL COMP.				BGT508+70 09/10/69								
NRF618 S R O	09/11/69	800 200 50	208	5.777E+00 0.000E+00 6.000E-02	CO-60	0.000E+00	6.000E-02					
BXC 17 12 F 003 PAPER METAL WOOD				BGT502+05-10 09/11/69								
NRF618 S R O	09/11/69	810 10000 800	211	4.531E-01 7.257E+06 1.660E+03	CO-80	0.000E+00	1.660E+03					
I 1 16 F 011 CORE+LOOP COMP.				BGT508+30 09/12/69								
NRF618 S R O	09/15/69	820 40 4	212	9.940E+00 1.814E+06 3.000E-02	UN-ID-B+G	0.000E+00	3.000E-02					
0 1 351 F 010 METAL SCRAP				BGP10560E60SNJ 09/15/69								
NRF618 S R O	09/15/69	830 400 40	213	5.777E+00 0.000E+00 1.330E-01	CO-60	0.000E+00	1.330E-01					
BXC 17 12 F 008 COMBUSTIBLES				BGT502+50-60 09/15/69								
NRF618 S R O	09/15/69	840 30 3	214	5.777E+00 0.000E+00 4.000E-02	CO-60	0.000E+00	4.000E-02					
BXC 17 12 F 008 COMBUSTIBLES				BGT502+45-50 09/15/69								
NRF618 S R O	09/15/69	850 3000 250	215	4.531E-01 1.179E+07 1.800E+08	UN-ID-B+G	0.000E+00	1.800E+08					
I 1 16 F 011 CORE+LOOP COMP.				BGT508+15 09/15/69								
NRF618 S R O	09/16/69	800 0000 4	216	4.531E-01 1.179E+07 4.500E+04	UN-ID-B+G	0.000E+00	4.500E+04					
I 1 16 F 011 CORE+LOOP COMP.				BGT508+20 09/16/69								
NRF618 S R O	09/16/69	810 800 100	229	1.133E+01 0.000E+00 6.000E-02	CO-60	0.000E+00	6.000E-02					
0 1 400 F 015 EVAP BOTTLES				BGP10592E50SNJ 09/29/69								
NRF618 S R O	09/17/69	800 15 1	217	4.531E-01 7.257E+06 7.500E+02	CO-60	0.000E+00	7.500E+02					
I 1 16 F 011 CORE+LOOP COMP.				BGT508+15 09/18/69								
NRF618 S R O	09/17/69	810 50 5	218	1.133E+01 0.000E+00 5.000E-03	CO-60	0.000E+00	5.000E-03					
0 1 400 F 019 EMPTY				BGP10345E65NS2 09/19/69								
NRF618 S R O	09/18/69	800 10 3	220	5.777E+00 0.000E+00 2.000E-02	UN-ID-B+G	0.000E+00	2.000E-02					
BXC 17 12 F 007 RAD WASTE NOS				BGT502+65-75 09/18/69								

1. DATA CONTAINED IN THIS LISTING ARE KNOWN TO BE INCOMPLETE AND CONTAIN INACCURATE NUCLIDE BREAKDOWNS. ANY ATTEMPTS TO MATCH PUBLISHED DOCUMENT NUMBERS WITH NUMBERS IN THIS LIST WILL RESULT IN DISCREPANCIES.

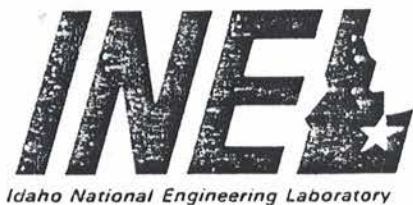
2. NO OFFICIAL INEL DOCUMENTS USE DATA FROM THIS DATA FILE.



Attachment # 9  
Radioactive Waste  
Management  
Complex SDA  
Dump



West view of Pit 9 in the Subsurface Disposal Area at the Radioactive Waste Management Complex.



Attachment # 10  
RWMIS

September 7, 1993

Mr. Paul H. Allen  
U.S. Department of Energy  
Idaho Operations Office  
785 DOE Place, MS 1146  
Idaho Falls, ID 83402-1562

NAVAL REACTOR FACILITY RECORD IN THE RADIOACTIVE WASTE MANAGEMENT  
INFORMATION SYSTEM - KM-37-93

Dear Mr. Allen:

Attached is the supporting documentation regarding a change to the Radioactive Waste Management Information System (RWMIS) database on a 1969 shipment from the Naval Reactor Facility (NRF) to the Radioactive Waste Management Complex (RWMC).

Data in the RWMIS are based on the original shipping manifests that accompany the waste. During Fiscal Year 1992, the RWMIS Best Available Data (1954-1970) and Historical Data (1971-1983) electronic databases for the inactive transurancic (TRU) and nonTRU pits and trenches at the RWMC subsurface disposal area at the Idaho National Engineering Laboratory were verified. Verification was performed by comparing the original shipping manifests that accompanied the waste shipments with fields on printouts of the RWMIS databases. Upon completion of the verification process, transcription errors were corrected in the RWMIS database.

Attached is a copy of the original shipping manifest that accompanied a 1969 NRF shipment. The original entry in the RWMIS database listed the curies for this shipment as  $1\text{E}+08$ . The attached form clearly shows the curie value for this shipment is  $1\text{E}+04$ . This transcription error was corrected in the RWMIS database during the verification process performed in Fiscal Year 1992.

Should you have any questions, please contact Jo Ferguson at 526-4865.

Sincerely,

Kliss McNeel, Manager  
Environmental Technical Support Unit

FEJ:ala

Attachments:  
As Stated



FORM ID-124  
(2-68)

REFERENCE  
IDM 0810

IDAHO OPERATIONS OFFICE  
WASTE DISPOSAL REQUEST AND AUTHORIZATION

SECTION I

ORIGINATING ORGANIZATION

DESCRIPTION OF WASTE: (ORIGINATING ORGANIZATION COMPLETE APPLICABLE PARTS)

LIQUID ☐ SOLID ☒ VOLUME 72 MT WEIGHT 25,000 LBS  
RADIOACTIVE: YES ☐ NO ☒ CURIES 1.5 x 10<sup>4</sup>  
MH/HR AT CONTAINER SURFACE 3,000 AT ONE METER 250  
COMPOSITION: SCRAP THERM 176 With Dimer Solvent and 95W Vene bonding  
from Disposal Effort

ASSOCIATED HAZARDS POLLUTION AND CONTAMINATION IN SOILS

SS MATERIAL TYPE NA AMOUNT: NET 175 ISOTOPE NA  
CLASSIFICATION: SECRET ☒ CONFIDENTIAL ☐ NA CATEGORY: 1 NA 11 NA 111 NA  
CAPITAL EQUIPMENT NO. NA DISPOSAL NO. NA

CONTAINER TYPE ROAD THERM CIST DESTROY ☐ SAVE ☒  
MODE OF TRANSPORTATION TRUCK

APPROVAL: SAFETY: BT Steinbo 9-15-69  
ORIGINATOR BT Steinbo Shift Eng. 9-15-69  
SS ACCOUNT REP. NA NA 9-15-69  
HF REP. BT Steinbo Natl. Eng. Tech. 9-15-69  
(SIGNATURE) (TITLE) (DATE)

SECTION II - (TO BE COMPLETED BY ID SS MATERIALS OFFICER ONLY IF SS MATERIALS ARE INVOLVED)

AUTHORIZATION NUMBER N/A  
(SIGNATURE) (TITLE) (DATE)

SECTION III - (FOR USE OF IDAHO OPERATIONS OFFICE)

METHOD OF DISPOSAL: TRENCH ☐ PIT ☐ OTHER             
PRESCRIBED PRECAUTIONS:           

APPROVAL:  
ENVIRONMENTAL BR.            (SIGNATURE)            (DATE)  
ANALYTICAL BR.            (SIGNATURE)            (DATE)  
HAZARDOUS CONTROL BR.            (SIGNATURE)            (DATE)

SECTION IV - (TO BE COMPLETED BY PERSON WITNESSING DISPOSAL)

DISPOSAL WAS MADE BY MEANS OF TRENCH - 50  
AT 8-15 (LOCATION) ON 9-15-69 (DATE)  
WBS (SIGNATURE) 9-15-69 (DATE)



SCHL 1. OLDRM

## RANIS SOLID MASTER DATABASE ---J FOR 1954 TO 1970

RAN DATE: 01/04/88  
PAGE NO. 452

AREA	Y	R	D	DATE	TIME	DESC	VOLUME	WEIGHT	CURIES	NUCLIDE	CONC	CURIES	NO.
TYPE	#	VOL	U	DESC			LOCATION	DATE					
NRF618	S	R	0	09/11/69	800	208	50	5.777E+00	0.000E+00	6.000E-02			
BXC	17	12	F	003	PAPER METAL MOOD	208	BGT502+05-18	09/11/69		CO-60	0.000E+00	6.000E-02	
NRF618	S	R	0	09/11/69	810	10000	800	4.531E-01	7.257E+06	1.660E+03			
I	1	16	F	011	CORE+LOOP COMP.	211	BGT508+30	09/12/69		CO-60	0.000E+00	1.660E+03	
NRF618	S	R	0	09/15/69	828	40	4	9.940E+00	1.814E+06	3.000E-02			
O	1	351	F	010	METAL SCRAP	212	BGP10560E60SNH	09/15/69		UN-ID-B+G	0.000E+00	3.000E-02	
NRF618	S	R	0	09/15/69	830	400	40	5.777E+00	0.000E+00	1.330E-01			
BXC	17	12	F	008	COMBUSTIBLES	213	BGT502+50-60	09/15/69		CO-60	0.000E+00	1.330E-01	
NRF618	S	R	0	09/15/69	848	30	3	5.777E+00	0.000E+00	4.000E-02			
BXC	17	12	F	008	COMBUSTIBLES	214	BGT502+45-50	09/15/69		CO-60	0.000E+00	4.000E-02	
NRF618	S	R	0	09/15/69	850	3800	250	4.531E-01	1.179E+07	1.800E+03			
I	1	16	F	011	CORE+LOOP COMP.	215	BGT508+15	09/15/69		UN-ID-B+G	0.000E+00	1.800E+03	
NRF618	S	R	0	09/16/69	800	0800		4.531E-01	1.179E+07	4.500E+04			
I	1	16	F	011	CORE+LOOP COMP.	216	BGT508+20	09/16/69		UN-ID-B+G	0.000E+00	4.500E+04	
NRF618	S	R	0	09/16/69	818	800	180	1.133E+01	0.000E+00	6.000E-02			
O	1	400	F	015	EVAP BOTTLES	229	BGP10592E50SNH	09/29/69		CO-60	0.000E+00	6.000E-02	
NRF618	S	R	0	09/17/69	800	15	1	4.531E-01	7.257E+06	7.500E+02			
I	1	16	F	011	CORE+LOOP COMP.	217	BGT508+15	09/18/69		CO-60	0.000E+00	7.500E+02	
NRF618	S	R	0	09/17/69	810	50	5	1.133E+01	0.000E+00	5.000E-03			
O	1	400	F	019	EMPTY	218	BGP10345E65NS2	09/19/69		CO-60	0.000E+00	5.000E-03	
NRF618	S	R	0	09/18/69	800	10	3	5.777E+00	0.000E+00	2.000E-02			
BXC	17	12	F	007	RAD WASTE NOS	228	BGT502+65-75	09/18/69		UN-ID-B+G	0.000E+00	2.000E-02	
NRF618	S	R	0	09/18/69	810	50	5	5.777E+00	0.000E+00	1.000E-02			
BXC	17	12	F	007	RAD WASTE NOS	221	BGT502+55-65	09/18/69		UN-ID-B+G	0.000E+00	1.000E-02	
NRF618	S	R	0	09/22/69	810	5000	300	4.531E-01	1.179E+07	3.600E+04			
I	1	16	F	011	CORE+LOOP COMP.	222	UNKN UNKN	09/22/69		HFP	0.000E+00	3.599E+04	
NRF618	S	R	0	09/22/69	820	40	7	5.777E+00	0.000E+00	5.000E-02			
BXC	17	12	F	007	RAD WASTE NOS	223	BGT503+25-30	09/22/69		U-235	1.980E+00	4.237E-06	
NRF618	S	R	0	09/22/69	830	8	1	5.777E+00	0.000E+00	5.000E-03			
BXC	17	12	F	007	RAD WASTE NOS	224	BGT503+20-25	09/22/69		UN-ID-B+G	0.000E+00	5.000E-03	
NRF618	S	R	0	09/25/69	800	20	2	5.777E+00	0.000E+00	1.300E-02			
BXC	17	12	F	008	COMBUSTIBLES	226	BGT505+60-65	09/25/69		CO-60	0.000E+00	1.300E-02	



RADIOACTIVE WASTE MANAGEMENT INFORMATION SYSTEM  
 SOLID WASTE DATABASE (P61SHD90) LIST FOR 1954 TO 1970  
 BGT50 FOR NRF

AREA	T	R	D	DATE	TIME	DESC	VOLUME	WEIGHT	CURIES	NUCLIDE	CONC	CURIES	NO.
TYPE	#			U		DESC	LOCATION	DATE					
NRF618	S	R	0	09/02/69	810	60	5.777E+00	0.000E+00	3.000E-02	N/A	0.000E+00	3.000E-02	
BXC	17	12	F	007	RAD WASTE NOS	199	BGT502+30-35	09/02/69		UN-ID-B+G			
NRF618	S	R	0	09/04/69	800	50	5.777E+00	0.000E+00	2.800E-02	N/A	0.000E+00	2.800E-02	
BXC	17	12	F	003	PAPER METAL MOOD	201	BGT502+30	09/04/69		CO-60			
NRF618	S	R	0	09/04/69	810	7	5.777E+00	0.000E+00	1.000E-02	N/A	0.000E+00	1.000E-02	
BXC	17	12	F	003	PAPER METAL MOOD	202	BGT502+50	09/05/69		CO-60			
NRF618	S	R	0	09/08/69	810	5	5.777E+00	0.000E+00	9.000E-03	N/A	0.000E+00	9.000E-03	
BXC	17	12	F	007	RAD WASTE NOS	204	BGT502+15-20	09/08/69		UN-ID-B+G			
NRF618	S	R	0	09/08/69	820	150	5.437E+00	0.000E+00	2.500E-02	N/A	0.000E+00	2.500E-02	
BXC	16	12	F	007	RAD WASTE NOS	205	BGT502+20-25	09/08/69		UN-ID-B+G			
NRF618	S	R	0	09/05/69	800	200	5.380E-01	1.179E+07	1.000E+03	N/A	0.000E+00	1.000E+03	
O	1	19	F	027	METAL COMP.	203	BGT508+70	09/09/69		CO-60			
NRF618	S	R	0	09/09/69	810	200	5.380E-01	1.179E+07	1.000E+03	N/A	0.000E+00	1.000E+03	
O	1	19	F	027	METAL COMP.	207	BGT508+70	09/10/69		CO-60			
NRF618	S	R	0	09/11/69	800	200	5.777E+00	0.000E+00	6.000E-02	N/A	0.000E+00	6.000E-02	
BXC	17	12	F	003	PAPER METAL MOOD	208	BGT502+05-10	09/11/69		CO-60			
NRF618	S	R	0	09/11/69	810	10000	4.531E-01	7.257E+06	1.660E+03	N/A	0.000E+00	1.660E+03	
I	1	16	F	011	CORE+LOOP COMP.	211	BGT508+30	09/12/69		CO-60			
NRF618	S	R	0	09/15/69	830	400	5.777E+00	0.000E+00	1.330E-01	N/A	0.000E+00	1.330E-01	
BXC	17	12	F	008	COMBUSTIBLES	213	BGT502+50-60	09/15/69		CO-60			
NRF618	S	R	0	09/15/69	840	30	5.777E+00	0.000E+00	4.000E-02	N/A	0.000E+00	4.000E-02	
BXC	17	12	F	008	COMBUSTIBLES	214	BGT502+45-50	09/15/69		CO-60			
NRF618	S	R	0	09/15/69	850	3000	4.531E-01	1.179E+07	1.800E+04	N/A	0.000E+00	1.800E+04	
I	1	16	F	011	CORE+LOOP COMP.	215	BGT508+15	09/15/69		UN-ID-B+G			
NRF618	S	R	0	09/16/69	800	0000	4.531E-01	1.179E+07	4.500E+04	N/A	0.000E+00	4.500E+04	
I	1	16	F	011	CORE+LOOP COMP.	216	BGT508+20	09/16/69		UN-ID-B+G			

1. DATA CONTAINED IN THIS LISTING ARE KNOWN TO BE INCOMPLETE AND CONTAIN INACCURATE NUCLIDE BREAKDOWNS. ANY ATTEMPTS TO MATCH PUBLISHED DOCUMENT NUMBERS WITH NUMBERS IN THIS LIST WILL RESULT IN DISCREPANCIES.
2. NO OFFICIAL INEL DOCUMENTS USE DATA FROM THIS DATA FILE
3. NO SHIPMENT DETAILS ON CURIES OR NUCLIDES FROM ROCKY FLATS ARE AVAILABLE, THOSE LISTED IN THIS PRINTOUT ARE SIMPLY TO INDICATE THAT TRANSURANIC NUCLIDES ARE PRESENT IN THE SHIPMENT
4. URANIUM CURIES AND GRAMS QUANTITIES IN THIS PRINTOUT ARE KNOWN TO BE INCORRECT. THE CURIES AND/OR MASS ARE TOO LARGE.

## CORRECTION FOR DISPOSAL OF WASTE SHIPPED FROM

THE NRF TO THE RWMC ON 9/15/69

On 9/15/69 a disposal (#E-215) was made of material from the NRF ECF water pits to the RWMC in scrap insert #176. The waste was described on the ID-124 form (from storage box #17230) as "SCRAP INSERT 176 With Dummy Source and S5W Misc. hardware from Disposal effort". The volume was 16 CU FT., and the weight was listed as 26,000 LBS. It was transported by INC TRUCK, and the radiation at the container surface (cask surface) was given as 3,000 MR/HR and 250 MR/HR at one meter. The values on the database were identical to those on the ID-124 form indicating that the database values had been taken from this ID-124 form.

The radiation readings through the cask were comparable to readings for similar waste shipments that had curie contents lower by a few orders of magnitude than the shipment described above. In addition, the curie content listed ( $1.800\text{E}+08$ ) would amount to approximately 97% of the total curies shipped from the NRF to the RWMC during the years 1965 through 1970, which is not reasonable. These observations suggested that the value given on the database was incorrect.

*ie, 30 times the rest of the total*

The number of curies listed on the ID-124 form was a handwritten entry, whereas the rest of the entries on the form were typewritten. The typewritten entries on the ID-124 form from box #17230 were difficult to read, so that if the curie entry had also been difficult to read someone may have written in the exponent  $\text{E}+08$ , when it actually was a lower number. A records search produced another carbon copy of the same shipment (E-215) that was much clearer. On this copy from box 8463, the curie value was shown clearly as  $1.8 \times \text{E}+04$ , which is four orders of magnitude lower than the value currently shown on the database. Careful examination of the ID-124 form from box #17230 shows that the exponent  $\text{E}+08$  was written over another number, and the right leg of the 4 in  $\text{E}04$  can be seen under the  $\text{E}08$ .



## ADDENDUM TO 1995 SETTLEMENT AGREEMENT

The Parties to this Addendum, the State of Idaho, through the Governor and Attorney General, and the Departments of the Navy and Energy, through General Counsels and Director, Naval Nuclear Propulsion Program, hereby agree to the following Addendum to the 1995 Settlement Agreement and Consent Order in Public Service Co. of Colorado v. Batt, No. CV 91-0035-S-EJL (D. Id.) and United States v. Batt, No. CV-91-0054-S-EJL (D. Id.) (Hereinafter "1995 Agreement"):

### I. PURPOSE OF ADDENDUM:

This Addendum is executed for the purpose of governing the receipt and handling of shipments of Naval spent fuel as that term is defined in the 1995 Agreement and providing for enforceable commitments by the Navy to assure that Naval spent fuel is stored safely in Idaho and removed from Idaho with reasonable promptness as provided in this Addendum. This Addendum is necessary to provide definition to the Parties' relationship and to assure the ongoing mission of the Naval Nuclear Propulsion Program at the Idaho National Laboratory (INL).

### II. DEFINITIONS:

Unless otherwise expressly stated herein all terms used in this Addendum shall be used as defined in the 1995 Agreement.

### III. EFFECT ON 1995 AGREEMENT:

This Addendum relates only to the receipt and storage of Naval spent fuel at the INL after January 1, 2017 and January 1, 2035. Except as expressly provided for in this Addendum, all other provisions of the 1995 Agreement are unaffected by this Addendum.

### IV. EFFECTIVE DATE AND CONDITION ANTECEDANT:

The terms and conditions of this Addendum shall be effective on the date of the last signature to this Agreement. If on January 1, 2023, the Navy is in material breach of any mandatory and applicable provisions of the 1995 Agreement and/or this Addendum, this Agreement shall at the election of the State of Idaho be voidable unless the Court determines that material breach did not occur, or that such material breach was cured within 180 days from written notice by the State to the Navy of the material breach.

### V. TERMS AND CONDITIONS:

- A. All Naval spent fuel shipped to Idaho after January 1, 2035, must meet the national security requirements required by paragraph D.1.a of the 1995 Agreement.
- B. Notwithstanding the provisions of paragraph C.1 of the 1995 Agreement, after January 1, 2035, the Navy may maintain a volume of Naval spent fuel at INL of not

more than nine (9) metric tons heavy metal (MTHM) for a timeframe reasonably necessary for examination, processing, and queuing for shipment to a repository or storage facility outside Idaho provided:

1. No portion of said nine MTHM Naval spent fuel provided for in paragraph V.B of this Addendum, shall consist of or be from shipments of Naval spent fuel arriving at the INL prior to January 1, 2026; and,
  2. After January 1, 2035, the Navy may ship a running average of no more than twenty (20) shipments per year of Naval spent fuel to INL. The term "running average" shall be defined as set forth in paragraph A.16 of the 1995 Agreement.
- C. Notwithstanding the provisions of paragraph E.8 of the 1995 Agreement, Naval spent fuel arriving at the INL after January 1, 2017 may be kept in water pool storage for a timeframe reasonably necessary for examination and processing not to exceed six (6) years. All Naval spent fuel located in water pool storage prior to January 1, 2017 must be removed from water pool storage by not later than January 1, 2023.
- D. In addition to the volume of Naval spent fuel provided for in paragraph V.B above, the Navy may maintain a volume of not more than 750 kilograms heavy metal of Naval spent fuel in archival wet or dry storage as necessary for comparison to support fuel designs under development or in use in the U.S. Navy fleet. The archival fuels provided for in this section are not subject to the limitation set forth above in paragraph V.C.
- E. After January 1, 2035 the Navy shall annually provide notice to the State of Idaho of: (1) the total quantity (in kilograms) of Naval spent fuel maintained for archival storage; (2) the actual number of shipments and actual number of metric tons of Naval spent fuel shipped to and from INL during the preceding calendar year; and (3) an estimate of the number of shipments and the number of metric tons of Naval spent fuel to be shipped to and from INL during the following calendar year.

## VI. REMEDIES:

- A. If the Navy fails to satisfy the substantive obligations or requirements it has agreed to in this Addendum or fails to meet deadlines for satisfying such substantive obligations or requirements, shipments of Naval spent fuel to INL shall be suspended unless and until the Parties agree or the Court determines that such substantive obligations or requirements have been satisfied.
- B. In addition to the remedy specified in paragraph VI.A above, in the event that the Navy fails to remove Naval spent fuel from pool storage as provided in paragraph V.C of this Addendum, then subject to the availability of the appropriations provided in advance for this purpose, the Navy shall pay to the State of Idaho \$60,000 for each day such requirement has not been met.



- C. The Court may enforce the rights, obligations and requirements assigned by this Addendum pursuant to all legal and equitable remedies available to the courts of the United States, including, but not limited to, use of the Court's contempt powers, provided, however, that in the event Idaho invokes the remedy specified in paragraph VI.A, and the Navy suspends shipments as stipulated therein, the Court's enforcement powers shall be limited to determining whether the substantive obligations or requirements alleged to have been breached have been satisfied. Nothing herein limits or shall be construed to limit the Court's powers to enforce this Addendum in the event the Navy refuses to cease shipments as specified herein.
- D. No provision of this Addendum shall compel any Party to act without due legal authority. Performance by every Party under this Addendum shall be subject to and comply with all applicable federal statutes, regulations and orders, including the Anti-Deficiency Act.
- E. In the event that any Party to this Addendum contends that any other Party has violated any terms of the Addendum, the Parties shall seek to resolve their differences informally before asking for resolution by the Court.

#### VII. CONSENT ORDER:

- A. The Parties agree they shall jointly present this Addendum to the U.S. District Court with a proposed Consent Order that will provide for the incorporation of this Addendum and continuing jurisdiction of the Court. This Addendum and Consent Order shall not preclude any Party from applying to the Court under Rule 60, of the Federal Rules of Civil Procedure, or the Court from granting relief thereunder.
- B. If the Consent Order is not entered by the Court, in accordance with paragraph VII.A above, within 45 days of lodging with the Court, then any Party to this Addendum may elect to terminate this Addendum, in which case this Addendum becomes null and void, and of no force or effect and all terms of the 1995 Agreement shall be fully enforceable as related to Naval spent fuel as though this Addendum had never been executed.


#### VIII. EFFECT ON PENDING LITIGATION AND ON OTHER LITIGATION AND PROCEEDINGS:

The Parties acknowledge the existence of pending litigation between the Department of Energy and the State of Idaho, United States v. Batt, 9th Circuit No. 06-35661. Neither this Addendum nor the fact of entering into this Addendum shall be used by the Parties as evidence or in argument in the named litigation at any stage of that litigation, or in any other litigation or administrative proceeding, except in proceedings to enforce or interpret this Addendum.

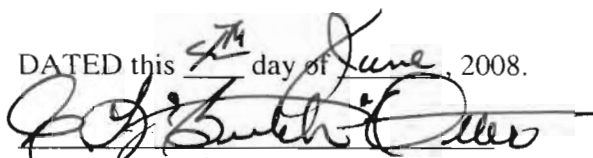
IX. DEPARTMENT OF ENERGY:

The obligations set forth in this Addendum are obligations of the Naval Nuclear Propulsion Program and, consistent with Paragraph K.1.b of the 1995 Agreement, are Navy obligations for purposes of enforcement. This Addendum neither creates nor imposes any liabilities or obligations on DOE, nor adds to the liabilities and obligations assumed by DOE in the 1995 Agreement. To the extent, however, that any activity subject to the terms of this Addendum is conducted or carried out by the DOE on behalf of the Navy, it shall be the obligation of the Navy to comply with the terms of this Addendum or any Court Order enforcing this Addendum in carrying out such activity.

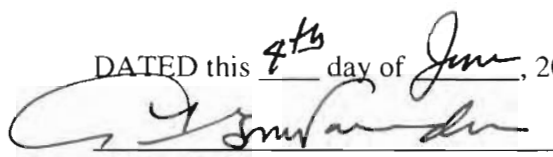
DATED this 4<sup>TH</sup> day of JUNE, 2008.

  
Admiral Kirkland Donald  
Director, Naval Nuclear Propulsion Program

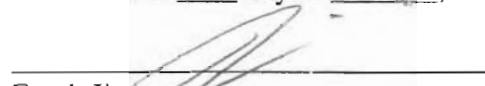
DATED this 2<sup>TH</sup> day of June, 2008.

  
C.L. "Butch" Otter  
Governor of Idaho

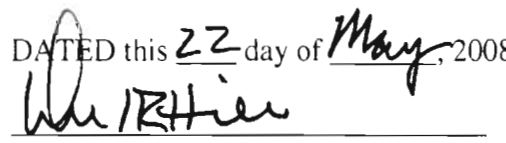
DATED this 4<sup>th</sup> day of June, 2008.

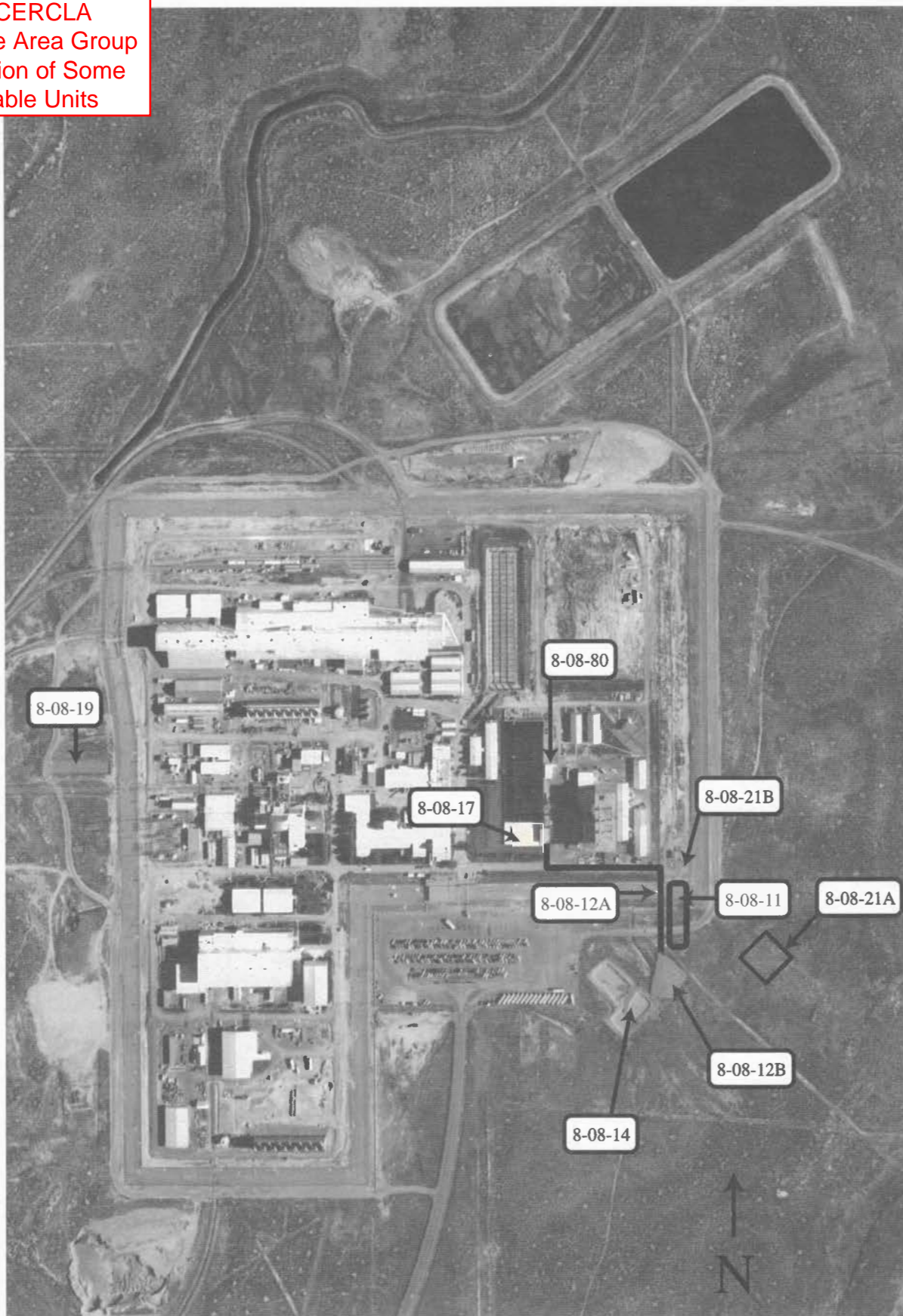
  
Lawrence Wasden  
Idaho Attorney General

DATED this 4<sup>th</sup> day of June, 2008.

  
Frank Jimenez  
General Counsel, Department of Navy

DATED this 22 day of May, 2008.

  
David Hill  
General Counsel, Department of Energy



**Figure 3.** Overhead Photograph of Sites of Concern at the Naval Reactors Facility