Attachment 4

(DOT Spreadsheets for Tank V-1 used to calculate data for Option 3.)

Container ID # **INEEL Tank V-1 Solids (Total w/AVG)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: N/A

Description: 520 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 520 gallons with density of 1.02 g/cc

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
4426.40	2007.82	0.00	0.00	2007.82	#N/A	1.968

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

Note: Gross weight of contents = (520 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 4,426.4 lbs.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Cs-137	1.77E+01	4.60E+00	6.54E+11	3.26E+05	3.70E-02	1.77E+01	5.00E-01	1.31E+03	1.31E+00	0.00E+00	0.00E+00	6.52E-03	8.81E+06
Sr-90	1.55E+01	2.01E+01	5.73E+11	2.85E+05	3.70E-03	1.55E+02	1.00E-01	5.73E+03	5.73E+00	0.00E+00	0.00E+00	2.85E-02	7.71E+06
Ni-63	3.38E+00	1.46E-02	1.25E+11	6.22E+04	3.70E+00	3.38E-02	3.00E+01	4.16E+00	4.16E-03	0.00E+00	0.00E+00	2.07E-05	1.68E+06
Co-60	4.88E-01	1.59E-01	1.81E+10	9.00E+03	3.70E-01	4.88E-02	4.00E-01	4.52E+01	4.52E-02	0.00E+00	0.00E+00	2.25E-04	2.43E+05
Pu-241	4.09E-01	5.32E+00	1.51E+10	7.54E+03	3.70E-02	4.09E-01	1.00E-02	1.51E+03	1.51E+00	4.09E-03	0.00E+00	7.54E-03	2.04E+05
Eu-154	9.53E-02	2.48E-02	3.53E+09	1.76E+03	3.70E-01	9.53E-03	5.00E-01	7.05E+00	7.05E-03	0.00E+00	0.00E+00	3.51E-05	4.75E+04
Eu-152	7.08E-02	1.02E-02	2.62E+09	1.31E+03	3.70E-01	7.08E-03	9.00E-01	2.91E+00	2.91E-03	0.00E+00	0.00E+00	1.45E-05	3.53E+04
Am-241	4.30E-02	2.79E+01	1.59E+09	7.92E+02	3.70E-04	4.30E+00	2.00E-04	7.95E+03	7.95E+00	0.00E+00	2.14E+01	3.96E-02	2.14E+04
Pu-238	3.83E-02	2.49E+01	1.42E+09	7.05E+02	3.70E-04	3.83E+00	2.00E-04	7.08E+03	7.08E+00	2.25E-03	1.91E+01	3.53E-02	1.91E+04
Ru-103	3.75E-02	5.41E-03	1.39E+09	6.90E+02	3.70E-01	3.75E-03	9.00E-01	1.54E+00	1.54E-03	0.00E+00	0.00E+00	7.67E-06	1.87E+04
Ru-106	3.03E-02	1.97E-02	1.12E+09	5.59E+02	3.70E-02	3.03E-02	2.00E-01	5.61E+00	5.61E-03	0.00E+00	0.00E+00	2.80E-05	1.51E+04
Ce-144	2.59E-02	1.68E-02	9.58E+08	4.77E+02	3.70E-02	2.59E-02	2.00E-01	4.79E+00	4.79E-03	0.00E+00	0.00E+00	2.39E-05	1.29E+04
Pu-239	1.74E-02	1.13E+01	6.46E+08	3.22E+02	3.70E-04	1.74E+00	2.00E-04	3.23E+03	3.23E+00	2.81E-01	8.69E+00	1.61E-02	8.69E+03
Cm-244	1.27E-02	4.12E+00	4.69E+08	2.33E+02	3.70E-04	1.27E+00	4.00E-04	1.17E+03	1.17E+00	0.00E+00	0.00E+00	5.84E-03	6.31E+03
Sb-125	1.23E-02	1.77E-03	4.53E+08	2.26E+02	3.70E-01	1.23E-03	9.00E-01	5.04E-01	5.04E-04	0.00E+00	0.00E+00	2.51E-06	6.10E+03
U-233	1.05E-02	1.37E+00	3.90E+08	1.94E+02	3.70E-03	1.05E-01	1.00E-03	3.90E+02	3.90E-01	1.09E+00	0.00E+00	1.94E-03	5.25E+03
Nb-95	1.00E-02	1.30E-03	3.70E+08	1.84E+02	3.70E-01	1.00E-03	1.00E+00	3.70E-01	3.70E-04	0.00E+00	0.00E+00	1.84E-06	4.98E+03
Eu-155	8.83E-03	5.74E-04	3.27E+08	1.63E+02	3.70E-01	8.83E-04	2.00E+00	1.63E-01	1.63E-04	0.00E+00	0.00E+00	8.14E-07	4.40E+03
Zr-95	8.83E-03	1.28E-03	3.27E+08	1.63E+02	3.70E-01	8.83E-04	9.00E-01	3.63E-01	3.63E-04	0.00E+00	0.00E+00	1.81E-06	4.40E+03
Co-58	4.54E-03	5.91E-04	1.68E+08	8.37E+01	3.70E-01	4.54E-04	1.00E+00	1.68E-01	1.68E-04	0.00E+00	0.00E+00	8.37E-07	2.26E+03
Zn-65	4.09E-03	2.66E-04	1.51E+08	7.53E+01	3.70E-01	4.09E-04	2.00E+00	7.56E-02	7.56E-05	0.00E+00	0.00E+00	3.77E-07	2.04E+03
Ag-110m	3.91E-03	1.27E-03	1.45E+08	7.20E+01	3.70E-01	3.91E-04	4.00E-01	3.61E-01	3.61E-04	0.00E+00	0.00E+00	1.80E-06	1.95E+03
Cs-134	3.13E-03	8.13E-04	1.16E+08	5.76E+01	3.70E-02	3.13E-03	5.00E-01	2.31E-01	2.31E-04	0.00E+00	0.00E+00	1.15E-06	1.56E+03
Ag-108m	2.22E-03	4.81E-04	8.22E+07	4.09E+01	3.70E-01	2.22E-04	6.00E-01	1.37E-01	1.37E-04	0.00E+00	0.00E+00	6.82E-07	1.11E+03
Mn-54	1.63E-03	2.11E-04	6.02E+07	3.00E+01	3.70E-01	1.63E-04	1.00E+00	6.02E-02	6.02E-05	0.00E+00	0.00E+00	3.00E-07	8.10E+02
Ra-226	1.21E-03	7.88E-03	4.48E+07	2.23E+01	3.70E-03	1.21E-02	2.00E-02	2.24E+00	2.24E-03	0.00E+00	0.00E+00	1.12E-05	6.04E+02
U-235	3.20E-04	0.00E+00	1.18E+07	5.89E+00	3.70E-03	3.20E-03	Unlimited	0.00E+00	0.00E+00	1.45E+02	0.00E+00	0.00E+00	1.59E+02
Th-234	1.74E-04	1.13E-04	6.44E+06	3.21E+00	3.70E+00	1.74E-06	2.00E-01	3.22E-02	3.22E-05	0.00E+00	0.00E+00	1.60E-07	8.67E+01
U-238	1.74E-04	0.00E+00	6.44E+06	3.21E+00	3.70E-03	1.74E-03	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E+01
Cm-242	1.50E-04	1.95E-03	5.56E+06	2.77E+00	3.70E-02	1.50E-04	1.00E-02	5.56E-01	5.56E-04	0.00E+00	0.00E+00	2.77E-06	7.49E+01
I-129	1.37E-04	0.00E+00	5.05E+06	2.52E+00	3.70E-05	1.37E-01	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.80E+01
Np-237	5.35E-05	3.48E-02	1.98E+06	9.86E-01	3.70E-04	5.35E-03	2.00E-04	9.90E+00	9.90E-03	0.00E+00	2.66E-02	4.93E-05	2.66E+01
Pa-233	5.35E-05	7.73E-06	1.98E+06	9.86E-01	3.70E+00	5.35E-07	9.00E-01	2.20E-03	2.20E-06	0.00E+00	0.00E+00	1.10E-08	2.66E+01
Total	3.79E+01	100.00%	1.40E+12	6.98E+05		1.84E+02		2.85E+04	2.85E+01	1.47E+02	4.92E+01	1.42E-01	1.89E+07

DOT regulated as Hazard Class 7 Radioactive Material

Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN

Type A quantity; requires Type B Packaging

Does NOT meet LTD QTY Exception; Check if LSA

Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN

>15 grams Fissile Material - use Radioactive material, fissile material, n.o.s. as PSN

This is a Low-level waste

Performed by: Gordon Harris Date: 9/25/01

Reviewed by: _____ Date: _____

96 4105

Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Am-241	4.30E-02	2.79E+01	2.79E+01
Pu-238	3.83E-02	2.49E+01	5.28E+01
Sr-90	1.55E+01	2.01E+01	7.29E+01
Pu-239	1.74E-02	1.13E+01	8.43E+01
Pu-241	4.09E-01	5.32E+00	8.96E+01
Cs-137	1.77E+01	4.60E+00	9.42E+01
Cm-244	1.27E-02	4.12E+00	9.83E+01
U-233	1.05E-02	1.37E+00	9.97E+01
Co-60	4.88E-01	1.59E-01	9.99E+01
Np-237	5.35E-05	3.48E-02	9.99E+01
Eu-154	9.53E-02	2.48E-02	9.99E+01
Ru-106	3.03E-02	1.97E-02	9.99E+01
Ce-144	2.59E-02	1.68E-02	1.00E+02
Ni-63	3.38E+00	1.46E-02	1.00E+02
Eu-152	7.08E-02	1.02E-02	1.00E+02
Ra-226	1.21E-03	7.88E-03	1.00E+02
Ru-103	3.75E-02	5.41E-03	1.00E+02
Cm-242	1.50E-04	1.95E-03	1.00E+02
Sb-125	1.23E-02	1.77E-03	1.00E+02
Nb-95	1.00E-02	1.30E-03	1.00E+02
Zr-95	8.83E-03	1.28E-03	1.00E+02
Ag-110m	3.91E-03	1.27E-03	1.00E+02
Cs-134	3.13E-03	8.13E-04	1.00E+02
Co-58	4.54E-03	5.91E-04	1.00E+02
Eu-155	8.83E-03	5.74E-04	1.00E+02
Ag-108m	2.22E-03	4.81E-04	1.00E+02
Zn-65	4.09E-03	2.66E-04	1.00E+02
Mn-54	1.63E-03	2.11E-04	1.00E+02
Th-234	1.74E-04	1.13E-04	1.00E+02
Pa-233	5.35E-05	7.73E-06	1.00E+02
U-235	3.20E-04	0.00E+00	1.00E+02
U-238	1.74E-04	0.00E+00	1.00E+02
I-129	1.37E-04	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Cs-137	1.77E+01	4.67E+01	Not applicable	Not applicable	8.98E+00
Sr-90	1.55E+01	4.09E+01	Not applicable	Not applicable	7.86E+00
Ni-63	3.38E+00	8.91E+00	Not applicable	Not applicable	1.71E+00
Co-60	4.88E-01	1.29E+00	Not applicable	Not applicable	2.48E-01
Pu-241	4.09E-01	1.08E+00	Not applicable	4.09E-03	2.08E-01
Eu-154	9.53E-02	2.52E-01	Not applicable	Not applicable	4.84E-02
Eu-152	7.08E-02	1.87E-01	Not applicable	Not applicable	3.60E-02
Am-241	4.30E-02	1.13E-01	Not applicable	Not applicable	2.18E-02
Pu-238	3.83E-02	1.01E-01	Not applicable	2.25E-03	1.94E-02
Ru-103	3.75E-02	9.89E-02	Not applicable	Not applicable	1.90E-02
Ru-106	3.03E-02	8.01E-02	Not applicable	Not applicable	1.54E-02
Ce-144	2.59E-02	6.84E-02	Not applicable	Not applicable	1.32E-02
Pu-239	1.74E-02	4.61E-02	Not applicable	2.81E-01	8.87E-03
Cm-244	1.27E-02	3.35E-02	Not applicable	Not applicable	6.44E-03
Sb-125	1.23E-02	3.23E-02	Not applicable	Not applicable	6.23E-03
U-233	1.05E-02	2.79E-02	Not applicable	1.09E+00	5.36E-03
Nb-95	1.00E-02	2.64E-02	Not applicable	Not applicable	5.09E-03
Eu-155	8.83E-03	2.33E-02	Not applicable	Not applicable	4.49E-03
Zr-95	8.83E-03	2.33E-02	Not applicable	Not applicable	4.48E-03
Co-58	4.54E-03	1.20E-02	Not applicable	Not applicable	2.31E-03
Zn-65	4.09E-03	1.08E-02	Not applicable	Not applicable	2.08E-03
Ag-110m	3.91E-03	1.03E-02	Not applicable	Not applicable	1.99E-03
Cs-134	3.13E-03	8.26E-03	Not applicable	Not applicable	1.59E-03
Ag-108m	2.22E-03	5.87E-03	Not applicable	Not applicable	1.13E-03
Mn-54	1.63E-03	4.29E-03	Not applicable	Not applicable	8.26E-04
Ra-226	1.21E-03	3.20E-03	Not applicable	Not applicable	6.16E-04
U-235	3.20E-04	8.45E-04	Not applicable	1.45E+02	1.63E-04
Th-234	1.74E-04	4.60E-04	Not applicable	Not applicable	8.84E-05
U-238	1.74E-04	4.60E-04	Not applicable	Not applicable	8.84E-05
Cm-242	1.50E-04	3.97E-04	Not applicable	Not applicable	7.64E-05
I-129	1.37E-04	3.61E-04	Not applicable	Not applicable	6.94E-05
Np-237	5.35E-05	1.41E-04	Not applicable	Not applicable	2.72E-05
Pa-233	5.35E-05	1.41E-04	Not applicable	Not applicable	2.72E-05

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-1 All Sludge AVG
Cs-137	1	44	8.98E+00
Sr-90	0.04	150	7.86E+00
Ni-63	3.5	70	1.71E+00
Class A Sum of Fractions:			206.07
Class B Sum of Fractions:			0.28
			ClassB

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Container ID # **INEEL Tank V-1 Solids (52 gal/drum w/AVG)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: 55 Gallon Metal OH

Description: 52 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 52 gallons with density of 1.02 g/cc (94.5% of capacity)

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
492.64	223.46	50.00	22.68	200.78	0.261	0.197

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

Note: Gross weight of contents = (52 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 442.64 lbs.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Cs-137	1.77E+00	4.60E+00	6.54E+10	3.26E+05	3.70E-02	1.77E+00	5.00E-01	1.31E+02	1.31E-01	0.00E+00	0.00E+00	6.52E-03	8.81E+06
Sr-90	1.55E+00	2.01E+01	5.73E+10	2.85E+05	3.70E-03	1.55E+01	1.00E-01	5.73E+02	5.73E-01	0.00E+00	0.00E+00	2.85E-02	7.71E+06
Ni-63	3.38E-01	1.46E-02	1.25E+10	6.22E+04	3.70E+00	3.38E-03	3.00E+01	4.16E-01	4.16E-04	0.00E+00	0.00E+00	2.07E-05	1.68E+06
Co-60	4.88E-02	1.59E-01	1.81E+09	9.00E+03	3.70E-01	4.88E-03	4.00E-01	4.52E+00	4.52E-03	0.00E+00	0.00E+00	2.25E-04	2.43E+05
Pu-241	4.09E-02	5.32E+00	1.51E+09	7.53E+03	3.70E-02	4.09E-02	1.00E-02	1.51E+02	1.51E-01	4.09E-04	0.00E+00	7.53E-03	2.04E+05
Eu-154	9.53E-03	2.48E-02	3.53E+08	1.76E+03	3.70E-01	9.53E-04	5.00E-01	7.05E-01	7.05E-04	0.00E+00	0.00E+00	3.51E-05	4.75E+04
Eu-152	7.08E-03	1.02E-02	2.62E+08	1.31E+03	3.70E-01	7.08E-04	9.00E-01	2.91E-01	2.91E-04	0.00E+00	0.00E+00	1.45E-05	3.53E+04
Am-241	4.30E-03	2.79E+01	1.59E+08	7.92E+02	3.70E-04	4.30E-01	2.00E-04	7.95E+02	7.95E-01	0.00E+00	2.14E+01	3.96E-02	2.14E+04
Pu-238	3.83E-03	2.49E+01	1.42E+08	7.05E+02	3.70E-04	3.83E-01	2.00E-04	7.08E+02	7.08E-01	2.25E-04	1.91E+01	3.53E-02	1.91E+04
Ru-103	3.75E-03	5.41E-03	1.39E+08	6.90E+02	3.70E-01	3.75E-04	9.00E-01	1.54E-01	1.54E-04	0.00E+00	0.00E+00	7.67E-06	1.87E+04
Ru-106	3.03E-03	1.97E-02	1.12E+08	5.59E+02	3.70E-02	3.03E-03	2.00E-01	5.61E-01	5.61E-04	0.00E+00	0.00E+00	2.80E-05	1.51E+04
Ce-144	2.59E-03	1.68E-02	9.58E+07	4.77E+02	3.70E-02	2.59E-03	2.00E-01	4.79E-01	4.79E-04	0.00E+00	0.00E+00	2.39E-05	1.29E+04
Pu-239	1.74E-03	1.13E+01	6.46E+07	3.22E+02	3.70E-04	1.74E-01	2.00E-04	3.23E+02	3.23E-01	2.81E-02	8.69E+00	1.61E-02	8.69E+03
Cm-244	1.27E-03	4.12E+00	4.69E+07	2.33E+02	3.70E-04	1.27E-01	4.00E-04	1.17E+02	1.17E-01	0.00E+00	0.00E+00	5.84E-03	6.31E+03
Sb-125	1.23E-03	1.77E-03	4.53E+07	2.26E+02	3.70E-01	1.23E-04	9.00E-01	5.04E-02	5.04E-05	0.00E+00	0.00E+00	2.51E-06	6.10E+03
U-233	1.05E-03	1.37E+00	3.90E+07	1.94E+02	3.70E-03	1.05E-02	1.00E-03	3.90E+01	3.90E-02	1.09E-01	0.00E+00	1.94E-03	5.25E+03
Nb-95	1.00E-03	1.30E-03	3.70E+07	1.84E+02	3.70E-01	1.00E-04	1.00E+00	3.70E-02	3.70E-05	0.00E+00	0.00E+00	1.84E-06	4.98E+03
Eu-155	8.83E-04	5.74E-04	3.27E+07	1.63E+02	3.70E-01	8.83E-05	2.00E+00	1.63E-02	1.63E-05	0.00E+00	0.00E+00	8.14E-07	4.40E+03
Zr-95	8.83E-04	1.28E-03	3.27E+07	1.63E+02	3.70E-01	8.83E-05	9.00E-01	3.63E-02	3.63E-05	0.00E+00	0.00E+00	1.81E-06	4.40E+03
Co-58	4.54E-04	5.91E-04	1.68E+07	8.37E+01	3.70E-01	4.54E-05	1.00E+00	1.68E-02	1.68E-05	0.00E+00	0.00E+00	8.37E-07	2.26E+03
Zn-65	4.09E-04	2.66E-04	1.51E+07	7.53E+01	3.70E-01	4.09E-05	2.00E+00	7.56E-03	7.56E-06	0.00E+00	0.00E+00	3.77E-07	2.04E+03
Ag-110m	3.91E-04	1.27E-03	1.45E+07	7.20E+01	3.70E-01	3.91E-05	4.00E-01	3.61E-02	3.61E-05	0.00E+00	0.00E+00	1.80E-06	1.95E+03
Cs-134	3.13E-04	8.13E-04	1.16E+07	5.76E+01	3.70E-02	3.13E-04	5.00E-01	2.31E-02	2.31E-05	0.00E+00	0.00E+00	1.15E-06	1.56E+03
Ag-108m	2.22E-04	4.81E-04	8.22E+06	4.09E+01	3.70E-01	2.22E-05	6.00E-01	1.37E-02	1.37E-05	0.00E+00	0.00E+00	6.82E-07	1.11E+03
Mn-54	1.63E-04	2.11E-04	6.02E+06	3.00E+01	3.70E-01	1.63E-05	1.00E+00	6.02E-03	6.02E-06	0.00E+00	0.00E+00	3.00E-07	8.10E+02
Ra-226	1.21E-04	7.88E-03	4.48E+06	2.23E+01	3.70E-03	1.21E-03	2.00E-02	2.24E-01	2.24E-04	0.00E+00	0.00E+00	1.12E-05	6.04E+02
U-235	3.20E-05	0.00E+00	1.18E+06	5.89E+00	3.70E-03	3.20E-04	Unlimited	0.00E+00	0.00E+00	1.45E+01	0.00E+00	0.00E+00	1.59E+02
Th-234	1.74E-05	1.13E-04	6.44E+05	3.21E+00	3.70E+00	1.74E-07	2.00E-01	3.22E-03	3.22E-06	0.00E+00	0.00E+00	1.60E-07	8.67E+01
U-238	1.74E-05	0.00E+00	6.44E+05	3.21E+00	3.70E-03	1.74E-04	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E+01
Cm-242	1.50E-05	1.95E-03	5.56E+05	2.77E+00	3.70E-02	1.50E-05	1.00E-02	5.56E-02	5.56E-05	0.00E+00	0.00E+00	2.77E-06	7.49E+01
I-129	1.37E-05	0.00E+00	5.05E+05	2.52E+00	3.70E-05	1.37E-02	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.80E+01
Np-237	5.35E-06	3.48E-02	1.98E+05	9.86E-01	3.70E-04	5.35E-04	2.00E-04	9.90E-01	9.90E-04	0.00E+00	2.66E-02	4.93E-05	2.66E+01
Pa-233	5.35E-06	7.73E-06	1.98E+05	9.86E-01	3.70E+00	5.35E-08	9.00E-01	2.20E-04	2.20E-07	0.00E+00	0.00E+00	1.10E-08	2.66E+01
Total	3.79E+00	100.00%	1.40E+11	6.98E+05		1.84E+01		2.85E+03	2.85E+00	1.47E+01	4.92E+01	1.42E-01	1.89E+07

DOT regulated as Hazard Class 7 Radioactive Material

Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN

≥ Type A quantity; requires Type B Packaging

Does NOT meet LTD QTY Exception; Check if LSA

Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN

Meets criteria for Fissile Excepted Package per 49 CFR 173.453

This is a Low-level waste

Performed by: Gordon Harris Date: 9/25/01

Reviewed by: _____ Date: _____

H8/105

Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Am-241	4.30E-03	2.79E+01	2.79E+01
Pu-238	3.83E-03	2.49E+01	5.28E+01
Sr-90	1.55E+00	2.01E+01	7.29E+01
Pu-239	1.74E-03	1.13E+01	8.43E+01
Pu-241	4.09E-02	5.32E+00	8.96E+01
Cs-137	1.77E+00	4.60E+00	9.42E+01
Cm-244	1.27E-03	4.12E+00	9.83E+01
U-233	1.05E-03	1.37E+00	9.97E+01
Co-60	4.88E-02	1.59E-01	9.99E+01
Np-237	5.35E-06	3.48E-02	9.99E+01
Eu-154	9.53E-03	2.48E-02	9.99E+01
Ru-106	3.03E-03	1.97E-02	9.99E+01
Ce-144	2.59E-03	1.68E-02	1.00E+02
Ni-63	3.38E-01	1.46E-02	1.00E+02
Eu-152	7.08E-03	1.02E-02	1.00E+02
Ra-226	1.21E-04	7.88E-03	1.00E+02
Ru-103	3.75E-03	5.41E-03	1.00E+02
Cm-242	1.50E-05	1.95E-03	1.00E+02
Sb-125	1.23E-03	1.77E-03	1.00E+02
Nb-95	1.00E-03	1.30E-03	1.00E+02
Zr-95	8.83E-04	1.28E-03	1.00E+02
Ag-110m	3.91E-04	1.27E-03	1.00E+02
Cs-134	3.13E-04	8.13E-04	1.00E+02
Co-58	4.54E-04	5.91E-04	1.00E+02
Eu-155	8.83E-04	5.74E-04	1.00E+02
Ag-108m	2.22E-04	4.81E-04	1.00E+02
Zn-65	4.09E-04	2.66E-04	1.00E+02
Mn-54	1.63E-04	2.11E-04	1.00E+02
Th-234	1.74E-05	1.13E-04	1.00E+02
Pa-233	5.35E-06	7.73E-06	1.00E+02
U-235	3.20E-05	0.00E+00	1.00E+02
U-238	1.74E-05	0.00E+00	1.00E+02
I-129	1.37E-05	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Cs-137	1.77E+00	4.67E+01	Not applicable	Not applicable	8.97E+00
Sr-90	1.55E+00	4.09E+01	Not applicable	Not applicable	7.86E+00
Ni-63	3.38E-01	8.91E+00	Not applicable	Not applicable	1.71E+00
Co-60	4.88E-02	1.29E+00	Not applicable	Not applicable	2.48E-01
Pu-241	4.09E-02	1.08E+00	Not applicable	4.09E-04	2.07E-01
Eu-154	9.53E-03	2.52E-01	Not applicable	Not applicable	4.84E-02
Eu-152	7.08E-03	1.87E-01	Not applicable	Not applicable	3.60E-02
Am-241	4.30E-03	1.13E-01	Not applicable	Not applicable	2.18E-02
Pu-238	3.83E-03	1.01E-01	Not applicable	2.25E-04	1.94E-02
Ru-103	3.75E-03	9.89E-02	Not applicable	Not applicable	1.90E-02
Ru-106	3.03E-03	8.01E-02	Not applicable	Not applicable	1.54E-02
Ce-144	2.59E-03	6.84E-02	Not applicable	Not applicable	1.31E-02
Pu-239	1.74E-03	4.61E-02	Not applicable	2.81E-02	8.86E-03
Cm-244	1.27E-03	3.35E-02	Not applicable	Not applicable	6.43E-03
Sb-125	1.23E-03	3.23E-02	Not applicable	Not applicable	6.22E-03
U-233	1.05E-03	2.79E-02	Not applicable	1.09E-01	5.35E-03
Nb-95	1.00E-03	2.64E-02	Not applicable	Not applicable	5.08E-03
Eu-155	8.83E-04	2.33E-02	Not applicable	Not applicable	4.48E-03
Zr-95	8.83E-04	2.33E-02	Not applicable	Not applicable	4.48E-03
Co-58	4.54E-04	1.20E-02	Not applicable	Not applicable	2.31E-03
Zn-65	4.09E-04	1.08E-02	Not applicable	Not applicable	2.08E-03
Ag-110m	3.91E-04	1.03E-02	Not applicable	Not applicable	1.98E-03
Cs-134	3.13E-04	8.26E-03	Not applicable	Not applicable	1.59E-03
Ag-108m	2.22E-04	5.87E-03	Not applicable	Not applicable	1.13E-03
Mn-54	1.63E-04	4.29E-03	Not applicable	Not applicable	8.26E-04
Ra-226	1.21E-04	3.20E-03	Not applicable	Not applicable	6.15E-04
U-235	3.20E-05	8.45E-04	Not applicable	1.45E+01	1.62E-04
Th-234	1.74E-05	4.60E-04	Not applicable	Not applicable	8.83E-05
U-238	1.74E-05	4.60E-04	Not applicable	Not applicable	8.83E-05
Cm-242	1.50E-05	3.97E-04	Not applicable	Not applicable	7.63E-05
I-129	1.37E-05	3.61E-04	Not applicable	Not applicable	6.93E-05
Np-237	5.35E-06	1.41E-04	Not applicable	Not applicable	2.72E-05
Pa-233	5.35E-06	1.41E-04	Not applicable	Not applicable	2.72E-05

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-1 Sludge(52 gal/drum w/AVG)
Cs-137	1	44	8.97E+00
Sr-90	0.04	150	7.86E+00
Ni-63	3.5	70	1.71E+00
Class A Sum of Fractions:			205.86
Class B Sum of Fractions:			0.28
			ClassB

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Container ID # **INEEL Tank V-1 Solids (Total w/MAX)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: N/A

Description: 520 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 520 gallons with density of 1.02 g/cc

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
4426.40	2007.82	0.00	0.00	2007.82	#N/A	1.968

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

Note: Gross weight of contents = (520 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 4,426.4 lbs.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Cs-137	3.17E+01	5.32E+00	1.17E+12	5.85E+05	3.70E-02	3.17E+01	5.00E-01	2.35E+03	2.35E+00	0.00E+00	0.00E+00	1.17E-02	1.58E+07
Sr-90	2.87E+01	2.41E+01	1.06E+12	5.29E+05	3.70E-03	2.87E+02	1.00E-01	1.06E+04	1.06E+01	0.00E+00	0.00E+00	5.29E-02	1.43E+07
Ni-63	6.65E+00	1.86E-02	2.46E+11	1.22E+05	3.70E+00	6.65E-02	3.00E+01	8.20E+00	8.20E-03	0.00E+00	0.00E+00	4.08E-05	3.31E+06
Co-60	8.95E-01	1.88E-01	3.31E+10	1.65E+04	3.70E-01	8.95E-02	4.00E-01	8.28E+01	8.28E-02	0.00E+00	0.00E+00	4.13E-04	4.46E+05
Pu-241	6.27E-01	5.25E+00	2.32E+10	1.16E+04	3.70E-02	6.27E-01	1.00E-02	2.32E+03	2.32E+00	6.27E-03	0.00E+00	1.16E-02	3.12E+05
Eu-154	1.43E-01	2.40E-02	5.29E+09	2.63E+03	3.70E-01	1.43E-02	5.00E-01	1.06E+01	1.06E-02	0.00E+00	0.00E+00	5.27E-05	7.12E+04
Eu-152	1.06E-01	9.89E-03	3.93E+09	1.96E+03	3.70E-01	1.06E-02	9.00E-01	4.37E+00	4.37E-03	0.00E+00	0.00E+00	2.17E-05	5.29E+04
Ru-103	6.83E-02	6.36E-03	2.53E+09	1.26E+03	3.70E-01	6.83E-03	9.00E-01	2.81E+00	2.81E-03	0.00E+00	0.00E+00	1.40E-05	3.40E+04
Am-241	6.59E-02	2.76E+01	2.44E+09	1.21E+03	3.70E-04	6.59E+00	2.00E-04	1.22E+04	1.22E+01	0.00E+00	3.28E+01	6.07E-02	3.28E+04
Pu-238	5.26E-02	2.20E+01	1.95E+09	9.69E+02	3.70E-04	5.26E+00	2.00E-04	9.73E+03	9.73E+00	3.09E-03	2.62E+01	4.85E-02	2.62E+04
Ru-106	4.86E-02	2.04E-02	1.80E+09	8.95E+02	3.70E-02	4.86E-02	2.00E-01	8.99E+00	8.99E-03	0.00E+00	0.00E+00	4.48E-05	2.42E+04
Ce-144	4.38E-02	1.83E-02	1.62E+09	8.07E+02	3.70E-02	4.38E-02	2.00E-01	8.10E+00	8.10E-03	0.00E+00	0.00E+00	4.03E-05	2.18E+04
Nb-95	3.51E-02	2.94E-03	1.30E+09	6.47E+02	3.70E-01	3.51E-03	1.00E+00	1.30E+00	1.30E-03	0.00E+00	0.00E+00	6.47E-06	1.75E+04
Pu-239	2.29E-02	9.59E+00	8.47E+08	4.22E+02	3.70E-04	2.29E+00	2.00E-04	4.23E+03	4.23E+00	3.69E-01	1.14E+01	2.11E-02	1.14E+04
Sb-125	2.19E-02	2.04E-03	8.10E+08	4.03E+02	3.70E-01	2.19E-03	9.00E-01	9.00E-01	9.00E-04	0.00E+00	0.00E+00	4.48E-06	1.09E+04
U-233	2.09E-02	1.75E+00	7.73E+08	3.85E+02	3.70E-03	2.09E-01	1.00E-03	7.73E+02	7.73E-01	2.15E+00	0.00E+00	3.85E-03	1.04E+04
Cm-244	1.93E-02	4.05E+00	7.15E+08	3.56E+02	3.70E-04	1.93E+00	4.00E-04	1.79E+03	1.79E+00	0.00E+00	0.00E+00	8.91E-03	9.63E+03
Zr-95	1.75E-02	1.63E-03	6.49E+08	3.23E+02	3.70E-01	1.75E-03	9.00E-01	7.21E-01	7.21E-04	0.00E+00	0.00E+00	3.59E-06	8.74E+03
Eu-155	1.36E-02	5.70E-04	5.04E+08	2.51E+02	3.70E-01	1.36E-03	2.00E+00	2.52E-01	2.52E-04	0.00E+00	0.00E+00	1.25E-06	6.78E+03
Co-58	8.77E-03	7.35E-04	3.25E+08	1.62E+02	3.70E-01	8.77E-04	1.00E+00	3.25E-01	3.25E-04	0.00E+00	0.00E+00	1.62E-06	4.37E+03
Zn-65	7.31E-03	3.06E-04	2.70E+08	1.35E+02	3.70E-01	7.31E-04	2.00E+00	1.35E-01	1.35E-04	0.00E+00	0.00E+00	6.73E-07	3.64E+03
Ag-110m	6.97E-03	1.46E-03	2.58E+08	1.28E+02	3.70E-01	6.97E-04	4.00E-01	6.44E-01	6.44E-04	0.00E+00	0.00E+00	3.21E-06	3.47E+03
Cs-134	5.84E-03	9.79E-04	2.16E+08	1.08E+02	3.70E-02	5.84E-03	5.00E-01	4.32E-01	4.32E-04	0.00E+00	0.00E+00	2.15E-06	2.91E+03
Ag-108m	3.77E-03	5.27E-04	1.40E+08	6.96E+01	3.70E-01	3.77E-04	6.00E-01	2.33E-01	2.33E-04	0.00E+00	0.00E+00	1.16E-06	1.88E+03
Mn-54	3.03E-03	2.54E-04	1.12E+08	5.59E+01	3.70E-01	3.03E-04	1.00E+00	1.12E-01	1.12E-04	0.00E+00	0.00E+00	5.59E-07	1.51E+03
Ra-226	2.25E-03	9.42E-03	8.32E+07	4.14E+01	3.70E-03	2.25E-02	2.00E-02	4.16E+00	4.16E-03	0.00E+00	0.00E+00	2.07E-05	1.12E+03
U-235	6.34E-04	0.00E+00	2.35E+07	1.17E+01	3.70E-03	6.34E-03	Unlimited	0.00E+00	0.00E+00	2.88E+02	0.00E+00	0.00E+00	3.16E+02
I-129	2.85E-04	0.00E+00	1.05E+07	5.25E+00	3.70E-05	2.85E-01	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E+02
Th-234	2.29E-04	9.59E-05	8.47E+06	4.22E+00	3.70E+00	2.29E-06	2.00E-01	4.23E-02	4.23E-05	0.00E+00	0.00E+00	2.11E-07	1.14E+02
U-238	2.29E-04	0.00E+00	8.47E+06	4.22E+00	3.70E-03	2.29E-03	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E+02
Cm-242	2.25E-04	1.88E-03	8.32E+06	4.14E+00	3.70E-02	2.25E-04	1.00E-02	8.32E-01	8.32E-04	0.00E+00	0.00E+00	4.14E-06	1.12E+02
Np-237	7.91E-05	3.31E-02	2.93E+06	1.46E+00	3.70E-04	7.91E-03	2.00E-04	1.46E+01	1.46E-02	0.00E+00	3.94E-02	7.29E-05	3.94E+01
Pa-233	7.91E-05	7.37E-06	2.93E+06	1.46E+00	3.70E+00	7.91E-07	9.00E-01	3.25E-03	3.25E-06	0.00E+00	0.00E+00	1.62E-08	3.94E+01
Total	6.93E+01	100.00%	2.56E+12	1.28E+06		3.36E+02		4.42E+04	4.42E+01	2.91E+02	7.04E+01	2.20E-01	3.45E+07

DOT regulated as Hazard Class 7 Radioactive Material

Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN

≥ Type A quantity; requires Type B Packaging

Does NOT meet LTD QTY Exception; Check if LSA

Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN

>15 grams Fissile Material - use Radioactive material, fissile material, n.o.s. as PSN

This is a Low-level waste

Performed by: Gonda Harris Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Am-241	6.59E-02	2.76E+01	2.76E+01
Sr-90	2.87E+01	2.41E+01	5.17E+01
Pu-238	5.26E-02	2.20E+01	7.37E+01
Pu-239	2.29E-02	9.59E+00	8.33E+01
Cs-137	3.17E+01	5.32E+00	8.86E+01
Pu-241	6.27E-01	5.25E+00	9.39E+01
Cm-244	1.93E-02	4.05E+00	9.79E+01
U-233	2.09E-02	1.75E+00	9.97E+01
Co-60	8.95E-01	1.88E-01	9.98E+01
Np-237	7.91E-05	3.31E-02	9.99E+01
Eu-154	1.43E-01	2.40E-02	9.99E+01
Ru-106	4.86E-02	2.04E-02	9.99E+01
Ni-63	6.65E+00	1.86E-02	9.99E+01
Ce-144	4.38E-02	1.83E-02	1.00E+02
Eu-152	1.06E-01	9.89E-03	1.00E+02
Ra-226	2.25E-03	9.42E-03	1.00E+02
Ru-103	6.83E-02	6.36E-03	1.00E+02
Nb-95	3.51E-02	2.94E-03	1.00E+02
Sb-125	2.19E-02	2.04E-03	1.00E+02
Cm-242	2.25E-04	1.88E-03	1.00E+02
Zr-95	1.75E-02	1.63E-03	1.00E+02
Ag-110m	6.97E-03	1.46E-03	1.00E+02
Cs-134	5.84E-03	9.79E-04	1.00E+02
Co-58	8.77E-03	7.35E-04	1.00E+02
Eu-155	1.36E-02	5.70E-04	1.00E+02
Ag-108m	3.77E-03	5.27E-04	1.00E+02
Zn-65	7.31E-03	3.06E-04	1.00E+02
Mn-54	3.03E-03	2.54E-04	1.00E+02
Th-234	2.29E-04	9.59E-05	1.00E+02
Pa-233	7.91E-05	7.37E-06	1.00E+02
U-235	6.34E-04	0.00E+00	1.00E+02
I-129	2.85E-04	0.00E+00	1.00E+02
U-238	2.29E-04	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Cs-137	3.17E+01	4.58E+01	Not applicable	Not applicable	1.61E+01
Sr-90	2.87E+01	4.14E+01	Not applicable	Not applicable	1.46E+01
Ni-63	6.65E+00	9.59E+00	Not applicable	Not applicable	3.38E+00
Co-60	8.95E-01	1.29E+00	Not applicable	Not applicable	4.55E-01
Pu-241	6.27E-01	9.04E-01	Not applicable	6.27E-03	3.19E-01
Eu-154	1.43E-01	2.06E-01	Not applicable	Not applicable	7.26E-02
Eu-152	1.06E-01	1.53E-01	Not applicable	Not applicable	5.40E-02
Ru-103	6.83E-02	9.85E-02	Not applicable	Not applicable	3.47E-02
Am-241	6.59E-02	9.50E-02	Not applicable	Not applicable	3.35E-02
Pu-238	5.26E-02	7.59E-02	Not applicable	3.09E-03	2.67E-02
Ru-106	4.86E-02	7.01E-02	Not applicable	Not applicable	2.47E-02
Ce-144	4.38E-02	6.31E-02	Not applicable	Not applicable	2.22E-02
Nb-95	3.51E-02	5.07E-02	Not applicable	Not applicable	1.79E-02
Pu-239	2.29E-02	3.30E-02	Not applicable	3.69E-01	1.16E-02
Sb-125	2.19E-02	3.16E-02	Not applicable	Not applicable	1.11E-02
U-233	2.09E-02	3.01E-02	Not applicable	2.15E+00	1.06E-02
Cm-244	1.93E-02	2.79E-02	Not applicable	Not applicable	9.82E-03
Zr-95	1.75E-02	2.53E-02	Not applicable	Not applicable	8.92E-03
Eu-155	1.36E-02	1.96E-02	Not applicable	Not applicable	6.92E-03
Co-58	8.77E-03	1.27E-02	Not applicable	Not applicable	4.46E-03
Zn-65	7.31E-03	1.05E-02	Not applicable	Not applicable	3.71E-03
Ag-110m	6.97E-03	1.01E-02	Not applicable	Not applicable	3.54E-03
Cs-134	5.84E-03	8.43E-03	Not applicable	Not applicable	2.97E-03
Ag-108m	3.77E-03	5.45E-03	Not applicable	Not applicable	1.92E-03
Mn-54	3.03E-03	4.37E-03	Not applicable	Not applicable	1.54E-03
Ra-226	2.25E-03	3.24E-03	Not applicable	Not applicable	1.14E-03
U-235	6.34E-04	9.15E-04	Not applicable	2.88E+02	3.22E-04
I-129	2.85E-04	4.11E-04	Not applicable	Not applicable	1.45E-04
Th-234	2.29E-04	3.30E-04	Not applicable	Not applicable	1.16E-04
U-238	2.29E-04	3.30E-04	Not applicable	Not applicable	1.16E-04
Cm-242	2.25E-04	3.24E-04	Not applicable	Not applicable	1.14E-04
Np-237	7.91E-05	1.14E-04	Not applicable	Not applicable	4.02E-05
Pa-233	7.91E-05	1.14E-04	Not applicable	Not applicable	4.02E-05

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-1 All Sludge MAX
Cs-137	1	44	1.61E+01
Sr-90	0.04	150	1.46E+01
Ni-63	3.5	70	3.38E+00
Class A Sum of Fractions:			381.81
Class B Sum of Fractions:			0.51
			ClassB

514105

Container ID # **INEEL Tank V-1 Solids (26 gal/drum w/MAX)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: 55 Gallon Metal OH

Description: 26 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 26 gallons with density of 1.02 g/cc (47.3% of capacity)

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
271.32	123.07	50.00	22.68	100.39	0.261	0.098

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

Note: Gross weight of contents = (26 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 221.32 lbs.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Cs-137	1.59E+00	5.32E+00	5.87E+10	5.85E+05	3.70E-02	1.59E+00	5.00E-01	1.17E+02	1.17E-01	0.00E+00	0.00E+00	1.17E-02	1.58E+07
Sr-90	1.44E+00	2.41E+01	5.31E+10	5.29E+05	3.70E-03	1.44E+01	1.00E-01	5.31E+02	5.31E-01	0.00E+00	0.00E+00	5.29E-02	1.43E+07
Ni-63	3.32E-01	1.86E-02	1.23E+10	1.22E+05	3.70E+00	3.32E-03	3.00E+01	4.10E-01	4.10E-04	0.00E+00	0.00E+00	4.08E-05	3.31E+06
Co-60	4.48E-02	1.88E-01	1.66E+09	1.65E+04	3.70E-01	4.48E-03	4.00E-01	4.14E+00	4.14E-03	0.00E+00	0.00E+00	4.13E-04	4.46E+05
Pu-241	3.13E-02	5.25E+00	1.16E+09	1.16E+04	3.70E-02	3.13E-02	1.00E-02	1.16E+02	1.16E-01	3.13E-04	0.00E+00	1.16E-02	3.12E+05
Eu-154	7.15E-03	2.40E-02	2.64E+08	2.63E+03	3.70E-01	7.15E-04	5.00E-01	5.29E-01	5.29E-04	0.00E+00	0.00E+00	5.27E-05	7.12E+04
Eu-152	5.31E-03	9.89E-03	1.96E+08	1.96E+03	3.70E-01	5.31E-04	9.00E-01	2.18E-01	2.18E-04	0.00E+00	0.00E+00	2.17E-05	5.29E+04
Ru-103	3.41E-03	6.36E-03	1.26E+08	1.26E+03	3.70E-01	3.41E-04	9.00E-01	1.40E-01	1.40E-04	0.00E+00	0.00E+00	1.40E-05	3.40E+04
Am-241	3.29E-03	2.76E+01	1.22E+08	1.21E+03	3.70E-04	3.29E-01	2.00E-04	6.09E+02	6.09E-01	0.00E+00	3.28E+01	6.07E-02	3.28E+04
Pu-238	2.63E-03	2.20E+01	9.73E+07	9.69E+02	3.70E-04	2.63E-01	2.00E-04	4.87E+02	4.87E-01	1.55E-04	2.62E+01	4.85E-02	2.62E+04
Ru-106	2.43E-03	2.04E-02	8.99E+07	8.95E+02	3.70E-02	2.43E-03	2.00E-01	4.49E-01	4.49E-04	0.00E+00	0.00E+00	4.48E-05	2.42E+04
Ce-144	2.19E-03	1.83E-02	8.10E+07	8.07E+02	3.70E-02	2.19E-03	2.00E-01	4.05E-01	4.05E-04	0.00E+00	0.00E+00	4.03E-05	2.18E+04
Nb-95	1.76E-03	2.94E-03	6.50E+07	6.47E+02	3.70E-01	1.76E-04	1.00E+00	6.50E-02	6.50E-05	0.00E+00	0.00E+00	6.47E-06	1.75E+04
Pu-239	1.14E-03	9.59E+00	4.23E+07	4.22E+02	3.70E-04	1.14E-01	2.00E-04	2.12E+02	2.12E-01	1.85E-02	1.14E+01	2.11E-02	1.14E+04
Sb-125	1.09E-03	2.04E-03	4.05E+07	4.03E+02	3.70E-01	1.09E-04	9.00E-01	4.50E-02	4.50E-05	0.00E+00	0.00E+00	4.48E-06	1.09E+04
U-233	1.04E-03	1.75E+00	3.86E+07	3.85E+02	3.70E-03	1.04E-02	1.00E-03	3.86E+01	3.86E-02	1.08E-01	0.00E+00	3.85E-03	1.04E+04
Cm-244	9.67E-04	4.05E+00	3.58E+07	3.56E+02	3.70E-04	9.67E-02	4.00E-04	8.94E+01	8.94E-02	0.00E+00	0.00E+00	8.91E-03	9.63E+03
Zr-95	8.77E-04	1.63E-03	3.25E+07	3.23E+02	3.70E-01	8.77E-05	9.00E-01	3.61E-02	3.61E-05	0.00E+00	0.00E+00	3.59E-06	8.74E+03
Eu-155	6.81E-04	5.70E-04	2.52E+07	2.51E+02	3.70E-01	6.81E-05	2.00E+00	1.26E-02	1.26E-05	0.00E+00	0.00E+00	1.25E-06	6.78E+03
Co-58	4.39E-04	7.35E-04	1.62E+07	1.62E+02	3.70E-01	4.39E-05	1.00E+00	1.62E-02	1.62E-05	0.00E+00	0.00E+00	1.62E-06	4.37E+03
Zn-65	3.65E-04	3.06E-04	1.35E+07	1.35E+02	3.70E-01	3.65E-05	2.00E+00	6.76E-03	6.76E-06	0.00E+00	0.00E+00	6.73E-07	3.64E+03
Ag-110m	3.48E-04	1.46E-03	1.29E+07	1.28E+02	3.70E-01	3.48E-05	4.00E-01	3.22E-02	3.22E-05	0.00E+00	0.00E+00	3.21E-06	3.47E+03
Cs-134	2.92E-04	9.79E-04	1.08E+07	1.08E+02	3.70E-02	2.92E-04	5.00E-01	2.16E-02	2.16E-05	0.00E+00	0.00E+00	2.15E-06	2.91E+03
Ag-108m	1.89E-04	5.27E-04	6.98E+06	6.96E+01	3.70E-01	1.89E-05	6.00E-01	1.16E-02	1.16E-05	0.00E+00	0.00E+00	1.16E-06	1.88E+03
Mn-54	1.52E-04	2.54E-04	5.61E+06	5.59E+01	3.70E-01	1.52E-05	1.00E+00	5.61E-03	5.61E-06	0.00E+00	0.00E+00	5.59E-07	1.51E+03
Ra-226	1.12E-04	9.42E-03	4.16E+06	4.14E+01	3.70E-03	1.12E-03	2.00E-02	2.08E-01	2.08E-04	0.00E+00	0.00E+00	2.07E-05	1.12E+03
U-235	3.17E-05	0.00E+00	1.17E+06	1.17E+01	3.70E-03	3.17E-04	Unlimited	0.00E+00	0.00E+00	1.44E+01	0.00E+00	0.00E+00	3.16E+02
I-129	1.43E-05	0.00E+00	5.27E+05	5.25E+00	3.70E-05	1.43E-02	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E+02
Th-234	1.14E-05	9.59E-05	4.23E+05	4.22E+00	3.70E+00	1.14E-07	2.00E-01	2.12E-03	2.12E-06	0.00E+00	0.00E+00	2.11E-07	1.14E+02
U-238	1.14E-05	0.00E+00	4.23E+05	4.22E+00	3.70E-03	1.14E-04	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E+02
Cm-242	1.12E-05	1.88E-03	4.16E+05	4.14E+00	3.70E-02	1.12E-05	1.00E-02	4.16E-02	4.16E-05	0.00E+00	0.00E+00	4.14E-06	1.12E+02
Np-237	3.96E-06	3.31E-02	1.46E+05	1.46E+00	3.70E-04	3.96E-04	2.00E-04	7.32E-01	7.32E-04	0.00E+00	3.94E-02	7.29E-05	3.94E+01
Pa-233	3.96E-06	7.37E-06	1.46E+05	1.46E+00	3.70E+00	3.96E-08	9.00E-01	1.63E-04	1.63E-07	0.00E+00	0.00E+00	1.62E-08	3.94E+01
Total	3.47E+00	100.00%	1.28E+11	1.28E+06		1.68E+01		2.21E+03	2.21E+00	1.45E+01	7.04E+01	2.20E-01	3.45E+07

DOT regulated as Hazard Class 7 Radioactive Material

Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN

> Type A quantity; requires Type B Packaging

Does NOT meet LTD QTY Exception; Check if LSA

Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN

Meets criteria for Fissile Excepted Package per 49 CFR 173.453

This is a Low-level waste

Performed by: [signature] Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Am-241	3.29E-03	2.76E+01	2.76E+01
Sr-90	1.44E+00	2.41E+01	5.17E+01
Pu-238	2.63E-03	2.20E+01	7.37E+01
Pu-239	1.14E-03	9.59E+00	8.33E+01
Cs-137	1.59E+00	5.32E+00	8.86E+01
Pu-241	3.13E-02	5.25E+00	9.39E+01
Cm-244	9.67E-04	4.05E+00	9.79E+01
U-233	1.04E-03	1.75E+00	9.97E+01
Co-60	4.48E-02	1.88E-01	9.98E+01
Np-237	3.96E-06	3.31E-02	9.99E+01
Eu-154	7.15E-03	2.40E-02	9.99E+01
Ru-106	2.43E-03	2.04E-02	9.99E+01
Ni-63	3.32E-01	1.86E-02	9.99E+01
Ce-144	2.19E-03	1.83E-02	1.00E+02
Eu-152	5.31E-03	9.89E-03	1.00E+02
Ra-226	1.12E-04	9.42E-03	1.00E+02
Ru-103	3.41E-03	6.36E-03	1.00E+02
Nb-95	1.76E-03	2.94E-03	1.00E+02
Sb-125	1.09E-03	2.04E-03	1.00E+02
Cm-242	1.12E-05	1.88E-03	1.00E+02
Zr-95	8.77E-04	1.63E-03	1.00E+02
Ag-110m	3.48E-04	1.46E-03	1.00E+02
Cs-134	2.92E-04	9.79E-04	1.00E+02
Co-58	4.39E-04	7.35E-04	1.00E+02
Eu-155	6.81E-04	5.70E-04	1.00E+02
Ag-108m	1.89E-04	5.27E-04	1.00E+02
Zn-65	3.65E-04	3.06E-04	1.00E+02
Mn-54	1.52E-04	2.54E-04	1.00E+02
Th-234	1.14E-05	9.59E-05	1.00E+02
Pa-233	3.96E-06	7.37E-06	1.00E+02
U-235	3.17E-05	0.00E+00	1.00E+02
I-129	1.43E-05	0.00E+00	1.00E+02
U-238	1.14E-05	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Cs-137	1.59E+00	4.58E+01	Not applicable	Not applicable	1.61E+01
Sr-90	1.44E+00	4.14E+01	Not applicable	Not applicable	1.46E+01
Ni-63	3.32E-01	9.59E+00	Not applicable	Not applicable	3.38E+00
Co-60	4.48E-02	1.29E+00	Not applicable	Not applicable	4.55E-01
Pu-241	3.13E-02	9.04E-01	Not applicable	3.13E-04	3.19E-01
Eu-154	7.15E-03	2.06E-01	Not applicable	Not applicable	7.26E-02
Eu-152	5.31E-03	1.53E-01	Not applicable	Not applicable	5.40E-02
Ru-103	3.41E-03	9.85E-02	Not applicable	Not applicable	3.47E-02
Am-241	3.29E-03	9.50E-02	Not applicable	Not applicable	3.35E-02
Pu-238	2.63E-03	7.59E-02	Not applicable	1.55E-04	2.67E-02
Ru-106	2.43E-03	7.01E-02	Not applicable	Not applicable	2.47E-02
Ce-144	2.19E-03	6.31E-02	Not applicable	Not applicable	2.22E-02
Nb-95	1.76E-03	5.07E-02	Not applicable	Not applicable	1.79E-02
Pu-239	1.14E-03	3.30E-02	Not applicable	1.85E-02	1.16E-02
Sb-125	1.09E-03	3.16E-02	Not applicable	Not applicable	1.11E-02
U-233	1.04E-03	3.01E-02	Not applicable	1.08E-01	1.06E-02
Cm-244	9.67E-04	2.79E-02	Not applicable	Not applicable	9.82E-03
Zr-95	8.77E-04	2.53E-02	Not applicable	Not applicable	8.92E-03
Eu-155	6.81E-04	1.96E-02	Not applicable	Not applicable	6.92E-03
Co-58	4.39E-04	1.27E-02	Not applicable	Not applicable	4.46E-03
Zn-65	3.65E-04	1.05E-02	Not applicable	Not applicable	3.71E-03
Ag-110m	3.48E-04	1.01E-02	Not applicable	Not applicable	3.54E-03
Cs-134	2.92E-04	8.43E-03	Not applicable	Not applicable	2.97E-03
Ag-108m	1.89E-04	5.45E-03	Not applicable	Not applicable	1.92E-03
Mn-54	1.52E-04	4.37E-03	Not applicable	Not applicable	1.54E-03
Ra-226	1.12E-04	3.24E-03	Not applicable	Not applicable	1.14E-03
U-235	3.17E-05	9.15E-04	Not applicable	1.44E+01	3.22E-04
I-129	1.43E-05	4.11E-04	Not applicable	Not applicable	1.45E-04
Th-234	1.14E-05	3.30E-04	Not applicable	Not applicable	1.16E-04
U-238	1.14E-05	3.30E-04	Not applicable	Not applicable	1.16E-04
Cm-242	1.12E-05	3.24E-04	Not applicable	Not applicable	1.14E-04
Np-237	3.96E-06	1.14E-04	Not applicable	Not applicable	4.02E-05
Pa-233	3.96E-06	1.14E-04	Not applicable	Not applicable	4.02E-05

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-1 Sludge(26 gal/drum w/MAX)
Cs-137	1	44	1.61E+01
Sr-90	0.04	150	1.46E+01
Ni-63	3.5	70	3.38E+00
Class A Sum of Fractions:			381.81
Class B Sum of Fractions:			0.51
			ClassB

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Container ID # **INEEL Tank V-1 Liquids (Total)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: N/A Form#

Description: 1164 gallons of liquids PKE#

NTS Waste Stream # #N/A

SNL Waste Stream# #N/A

Note: assume liquid phase volume of 1,164 gallons with density of 1.00 g/ml

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
9714.00	4406.27	0.00	0.00	4406.27	#N/A	4.406

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Note: Gross weight of contents = (1164 gal.)x(1.0 g/ml)x(3785.412 ml/gal.)x(2.2046E-03 lb/g) = 9,714.0 lb

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-4)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Liquids Fraction	Activity/gram (pCi/g)
H-3	1.34E-01	1.55E+00	4.96E+09	1.12E+03	3.70E+00	1.34E-03	4.00E+01	1.24E+00	1.24E-04	0.00E+00	0.00E+00	2.81E-06	3.04E+04
Cs-137	1.28E-02	1.18E+01	4.73E+08	1.07E+02	3.70E-02	1.28E-02	5.00E-01	9.46E+00	9.46E-04	0.00E+00	0.00E+00	2.15E-05	2.90E+03
Sr-90	8.94E-03	4.13E+01	3.31E+08	7.51E+01	3.70E-03	8.94E-02	1.00E-01	3.31E+01	3.31E-03	0.00E+00	0.00E+00	7.51E-05	2.03E+03
Ni-63	1.27E-03	1.95E-02	4.70E+07	1.07E+01	3.70E+00	1.27E-05	3.00E+01	1.57E-02	1.57E-06	0.00E+00	0.00E+00	3.55E-08	2.88E+02
U-233	8.33E-05	3.85E+01	3.08E+06	6.99E-01	3.70E-03	8.33E-04	1.00E-03	3.08E+01	3.08E-03	8.59E-03	0.00E+00	6.99E-05	1.89E+01
Co-60	6.83E-05	7.89E-02	2.53E+06	5.73E-01	3.70E-01	6.83E-06	4.00E-01	6.32E-02	6.32E-06	0.00E+00	0.00E+00	1.43E-07	1.55E+01
Ru-103	5.68E-05	2.92E-02	2.10E+06	4.77E-01	3.70E-01	5.68E-06	9.00E-01	2.34E-02	2.34E-06	0.00E+00	0.00E+00	5.30E-08	1.29E+01
Ru-106	4.16E-05	9.60E-02	1.54E+06	3.49E-01	3.70E-02	4.16E-05	2.00E-01	7.69E-02	7.69E-06	0.00E+00	0.00E+00	1.74E-07	9.43E+00
Ce-144	3.32E-05	7.67E-02	1.23E+06	2.79E-01	3.70E-02	3.32E-05	2.00E-01	6.14E-02	6.14E-06	0.00E+00	0.00E+00	1.39E-07	7.53E+00
Eu-152	2.14E-05	1.10E-02	7.92E+05	1.80E-01	3.70E-01	2.14E-06	9.00E-01	8.80E-03	8.80E-07	0.00E+00	0.00E+00	2.00E-08	4.86E+00
Zr-95	1.89E-05	9.73E-03	7.01E+05	1.59E-01	3.70E-01	1.89E-06	9.00E-01	7.79E-03	7.79E-07	0.00E+00	0.00E+00	1.77E-08	4.30E+00
Sb-125	1.71E-05	8.75E-03	6.31E+05	1.43E-01	3.70E-01	1.71E-06	9.00E-01	7.01E-03	7.01E-07	0.00E+00	0.00E+00	1.59E-08	3.87E+00
Eu-155	1.07E-05	2.46E-03	3.95E+05	8.95E-02	3.70E-01	1.07E-06	2.00E+00	1.97E-03	1.97E-07	0.00E+00	0.00E+00	4.48E-09	2.42E+00
Nb-95	1.06E-05	4.89E-03	3.91E+05	8.88E-02	3.70E-01	1.06E-06	1.00E+00	3.91E-03	3.91E-07	0.00E+00	0.00E+00	8.88E-09	2.40E+00
Co-58	9.52E-06	4.40E-03	3.52E+05	7.99E-02	3.70E-01	9.52E-07	1.00E+00	3.52E-03	3.52E-07	0.00E+00	0.00E+00	7.99E-09	2.16E+00
Pu-241	8.26E-06	3.82E-01	3.06E+05	6.94E-02	3.70E-02	8.26E-06	1.00E-02	3.06E-01	3.06E-05	8.26E-08	0.00E+00	6.94E-07	1.88E+00
Zn-65	7.62E-06	1.76E-03	2.82E+05	6.40E-02	3.70E-01	7.62E-07	2.00E+00	1.41E-03	1.41E-07	0.00E+00	0.00E+00	3.20E-09	1.73E+00
Eu-154	7.31E-06	6.76E-03	2.71E+05	6.14E-02	3.70E-01	7.31E-07	5.00E-01	5.41E-03	5.41E-07	0.00E+00	0.00E+00	1.23E-08	1.66E+00
Ag-110m	5.60E-06	6.46E-03	2.07E+05	4.70E-02	3.70E-01	5.60E-07	4.00E-01	5.18E-03	5.18E-07	0.00E+00	0.00E+00	1.17E-08	1.27E+00
Ra-226	5.55E-06	1.28E-01	2.05E+05	4.66E-02	3.70E-03	5.55E-05	2.00E-02	1.03E-01	1.03E-05	0.00E+00	0.00E+00	2.33E-07	1.26E+00
Ag-108m	3.42E-06	2.63E-03	1.27E+05	2.87E-02	3.70E-01	3.42E-07	6.00E-01	2.11E-03	2.11E-07	0.00E+00	0.00E+00	4.79E-09	7.76E-01
Mn-54	3.33E-06	1.54E-03	1.23E+05	2.79E-02	3.70E-01	3.33E-07	1.00E+00	1.23E-03	1.23E-07	0.00E+00	0.00E+00	2.79E-09	7.55E-01
Cs-134	3.23E-06	2.99E-03	1.20E+05	2.72E-02	3.70E-02	3.23E-06	5.00E-01	2.39E-03	2.39E-07	0.00E+00	0.00E+00	5.43E-09	7.34E-01
U-235	2.49E-06	0.00E+00	9.23E+04	2.09E-02	3.70E-03	2.49E-05	Unlimited	0.00E+00	0.00E+00	1.13E+00	0.00E+00	0.00E+00	5.66E-01
I-129	1.11E-06	0.00E+00	4.11E+04	9.32E-03	3.70E-05	1.11E-03	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-01
Pu-238	9.87E-07	2.28E+00	3.65E+04	8.29E-03	3.70E-04	9.87E-05	2.00E-04	1.83E+00	1.83E-04	5.81E-08	2.24E-04	4.14E-06	2.24E-01
Th-234	9.25E-07	2.14E-03	3.42E+04	7.77E-03	3.70E+00	9.25E-09	2.00E-01	1.71E-03	1.71E-07	0.00E+00	0.00E+00	3.88E-09	2.10E-01
U-238	9.25E-07	0.00E+00	3.42E+04	7.77E-03	3.70E-03	9.25E-06	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-01
Am-241	8.68E-07	2.01E+00	3.21E+04	7.29E-03	3.70E-04	8.68E-05	2.00E-04	1.61E+00	1.61E-04	0.00E+00	1.97E-04	3.64E-06	1.97E-01
Pu-239	4.63E-07	1.07E+00	1.71E+04	3.88E-03	3.70E-04	4.63E-05	2.00E-04	8.56E-01	8.56E-05	7.46E-06	1.05E-04	1.94E-06	1.05E-01
Cm-244	2.83E-07	3.27E-01	1.05E+04	2.38E-03	3.70E-04	2.83E-05	4.00E-04	2.62E-01	2.62E-05	0.00E+00	0.00E+00	5.94E-07	6.42E-02
Np-237	1.18E-07	2.72E-01	4.35E+03	9.88E-04	3.70E-04	1.18E-05	2.00E-04	2.18E-01	2.18E-05	0.00E+00	2.67E-05	4.94E-07	2.67E-02
Pa-233	1.18E-07	6.04E-05	4.35E+03	9.88E-04	3.70E+00	1.18E-09	9.00E-01	4.84E-05	4.84E-09	0.00E+00	0.00E+00	1.10E-10	2.67E-02
Cm-242	3.79E-08	1.75E-03	1.40E+03	3.19E-04	3.70E-02	3.79E-08	1.00E-02	1.40E-03	1.40E-07	0.00E+00	0.00E+00	3.19E-09	8.61E-03
Total	1.57E-01	100.00%	5.82E+09	1.32E+03		1.06E-01		8.01E+01	8.01E-03	1.14E+00	5.53E-04	1.82E-04	3.57E+04

DOT regulated as Hazard Class 7 Radioactive Material
NOT an RQ amount of a Hazardous Substance
< Type A quantity/package per 49 CFR 173.431(a); check if excepted quantity -> excepted packaging
Does NOT meet LTD QTY Exception; Check if LSA
Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN
Meets criteria for Fissile Excepted Package per 49 CFR 173.453
This is a Low-level waste

Performed by: Gordon Harris Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	8.94E-03	4.13E+01	4.13E+01
U-233	8.33E-05	3.85E+01	7.98E+01
Cs-137	1.28E-02	1.18E+01	9.16E+01
Pu-238	9.87E-07	2.28E+00	9.39E+01
Am-241	8.68E-07	2.01E+00	9.59E+01
H-3	1.34E-01	1.55E+00	9.75E+01
Pu-239	4.63E-07	1.07E+00	9.85E+01
Pu-241	8.26E-06	3.82E-01	9.89E+01
Cm-244	2.83E-07	3.27E-01	9.92E+01
Np-237	1.18E-07	2.72E-01	9.95E+01
Ra-226	5.55E-06	1.28E-01	9.96E+01
Ru-106	4.16E-05	9.60E-02	9.97E+01
Co-60	6.83E-05	7.89E-02	9.98E+01
Ce-144	3.32E-05	7.67E-02	9.99E+01
Ru-103	5.68E-05	2.92E-02	9.99E+01
Ni-63	1.27E-03	1.95E-02	9.99E+01
Eu-152	2.14E-05	1.10E-02	9.99E+01
Zr-95	1.89E-05	9.73E-03	1.00E+02
Sb-125	1.71E-05	8.75E-03	1.00E+02
Eu-154	7.31E-06	6.76E-03	1.00E+02
Ag-110m	5.60E-06	6.46E-03	1.00E+02
Nb-95	1.06E-05	4.89E-03	1.00E+02
Co-58	9.52E-06	4.40E-03	1.00E+02
Cs-134	3.23E-06	2.99E-03	1.00E+02
Ag-108m	3.42E-06	2.63E-03	1.00E+02
Eu-155	1.07E-05	2.46E-03	1.00E+02
Th-234	9.25E-07	2.14E-03	1.00E+02
Zn-65	7.62E-06	1.76E-03	1.00E+02
Cm-242	3.79E-08	1.75E-03	1.00E+02
Mn-54	3.33E-06	1.54E-03	1.00E+02
Pa-233	1.18E-07	6.04E-05	1.00E+02
U-235	2.49E-06	0.00E+00	1.00E+02
I-129	1.11E-06	0.00E+00	1.00E+02
U-238	9.25E-07	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
H-3	1.34E-01	8.51E+01	Not applicable	Not applicable	3.04E-02
Cs-137	1.28E-02	8.12E+00	Not applicable	Not applicable	2.90E-03
Sr-90	8.94E-03	5.68E+00	Not applicable	Not applicable	2.03E-03
Ni-63	1.27E-03	8.06E-01	Not applicable	Not applicable	2.88E-04
U-233	8.33E-05	5.29E-02	Not applicable	8.59E-03	1.89E-05
Co-60	6.83E-05	4.34E-02	Not applicable	Not applicable	1.55E-05
Ru-103	5.68E-05	3.61E-02	Not applicable	Not applicable	1.29E-05
Ru-106	4.16E-05	2.64E-02	Not applicable	Not applicable	9.43E-06
Ce-144	3.32E-05	2.11E-02	Not applicable	Not applicable	7.53E-06
Eu-152	2.14E-05	1.36E-02	Not applicable	Not applicable	4.86E-06
Zr-95	1.89E-05	1.20E-02	Not applicable	Not applicable	4.30E-06
Sb-125	1.71E-05	1.08E-02	Not applicable	Not applicable	3.87E-06
Eu-155	1.07E-05	6.78E-03	Not applicable	Not applicable	2.42E-06
Nb-95	1.06E-05	6.72E-03	Not applicable	Not applicable	2.40E-06
Co-58	9.52E-06	6.05E-03	Not applicable	Not applicable	2.16E-06
Pu-241	8.26E-06	5.25E-03	Not applicable	8.26E-08	1.88E-06
Zn-65	7.62E-06	4.84E-03	Not applicable	Not applicable	1.73E-06
Eu-154	7.31E-06	4.65E-03	Not applicable	Not applicable	1.66E-06
Ag-110m	5.60E-06	3.56E-03	Not applicable	Not applicable	1.27E-06
Ra-226	5.55E-06	3.53E-03	Not applicable	Not applicable	1.26E-06
Ag-108m	3.42E-06	2.17E-03	Not applicable	Not applicable	7.76E-07
Mn-54	3.33E-06	2.11E-03	Not applicable	Not applicable	7.55E-07
Cs-134	3.23E-06	2.06E-03	Not applicable	Not applicable	7.34E-07
U-235	2.49E-06	1.58E-03	Not applicable	1.13E+00	5.66E-07
I-129	1.11E-06	7.06E-04	Not applicable	Not applicable	2.52E-07
Pu-238	9.87E-07	6.27E-04	Not applicable	5.81E-08	2.24E-07
Th-234	9.25E-07	5.88E-04	Not applicable	Not applicable	2.10E-07
U-238	9.25E-07	5.88E-04	Not applicable	Not applicable	2.10E-07
Am-241	8.68E-07	5.52E-04	Not applicable	Not applicable	1.97E-07
Pu-239	4.63E-07	2.94E-04	Not applicable	7.46E-06	1.05E-07
Cm-244	2.83E-07	1.80E-04	Not applicable	Not applicable	6.42E-08
Np-237	1.18E-07	7.48E-05	Not applicable	Not applicable	2.67E-08
Pa-233	1.18E-07	7.48E-05	Not applicable	Not applicable	2.67E-08
Cm-242	3.79E-08	2.41E-05	Not applicable	Not applicable	8.61E-09

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-1 All Liquid
H-3	40	*	3.04E-02
Cs-137	1	44	2.90E-03
Sr-90	0.04	150	2.03E-03
Ni-63	3.5	70	2.88E-04
Co-60	700	*	1.55E-05
Class A Sum of Fractions:			0.05
Class B Sum of Fractions:			0.00
			ClassA*

*Note: No limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Classs B unless the concentrations of other nuclides in Table 2 determine the waste to be Class C independent of these nuclides.

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Container ID # **INEEL Tank V-1 Liquids (582 gal/HIC)**
Note: HIC Liner capacity is 804.9 gallons; assume 72.3% full

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: HIC Liner PL8-120 MT Form#
Description: 582 gallons of liquids PKE#
NTS Waste Stream # #N/A
SNL Waste Stream# #N/A
Note: assume liquid phase volume of 582 gallons with density of 1.00 g/ml

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
5457.00	2475.30	600.00	272.16	2203.14	3.427	2.203

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.
Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.
EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Note: Gross weight of contents = (582 gal.)x(1.0 g/ml)x(3785.412 ml/gal.)x(2.2046E-03 lb/g) = 4,857.0 lb

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-4)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Liquids Fraction	Activity/gram (pCi/g)
H-3	6.70E-02	1.55E+00	2.48E+09	1.12E+03	3.70E+00	6.70E-04	4.00E+01	6.20E-01	6.20E-05	0.00E+00	0.00E+00	2.81E-06	3.04E+04
Cs-137	6.39E-03	1.18E+01	2.36E+08	1.07E+02	3.70E-02	6.39E-03	5.00E-01	4.73E+00	4.73E-04	0.00E+00	0.00E+00	2.15E-05	2.90E+03
Sr-90	4.47E-03	4.13E+01	1.65E+08	7.51E+01	3.70E-03	4.47E-02	1.00E-01	1.65E+01	1.65E-03	0.00E+00	0.00E+00	7.51E-05	2.03E+03
Ni-63	6.34E-04	1.95E-02	2.35E+07	1.07E+01	3.70E+00	6.34E-06	3.00E+01	7.83E-03	7.83E-07	0.00E+00	0.00E+00	3.55E-08	2.88E+02
U-233	4.16E-05	3.85E+01	1.54E+06	6.99E-01	3.70E-03	4.16E-04	1.00E-03	1.54E+01	1.54E-03	4.29E-03	0.00E+00	6.99E-05	1.89E+01
Co-60	3.41E-05	7.89E-02	1.26E+06	5.73E-01	3.70E-01	3.41E-06	4.00E-01	3.16E-02	3.16E-06	0.00E+00	0.00E+00	1.43E-07	1.55E+01
Ru-103	2.84E-05	2.92E-02	1.05E+06	4.77E-01	3.70E-01	2.84E-06	9.00E-01	1.17E-02	1.17E-06	0.00E+00	0.00E+00	5.30E-08	1.29E+01
Ru-106	2.08E-05	9.60E-02	7.69E+05	3.49E-01	3.70E-02	2.08E-05	2.00E-01	3.84E-02	3.84E-06	0.00E+00	0.00E+00	1.74E-07	9.43E+00
Ce-144	1.66E-05	7.67E-02	6.14E+05	2.79E-01	3.70E-02	1.66E-05	2.00E-01	3.07E-02	3.07E-06	0.00E+00	0.00E+00	1.39E-07	7.53E+00
Eu-152	1.07E-05	1.10E-02	3.96E+05	1.80E-01	3.70E-01	1.07E-06	9.00E-01	4.40E-03	4.40E-07	0.00E+00	0.00E+00	2.00E-08	4.86E+00
Zr-95	9.47E-06	9.73E-03	3.51E+05	1.59E-01	3.70E-01	9.47E-07	9.00E-01	3.89E-03	3.89E-07	0.00E+00	0.00E+00	1.77E-08	4.30E+00
Sb-125	8.53E-06	8.75E-03	3.15E+05	1.43E-01	3.70E-01	8.53E-07	9.00E-01	3.51E-03	3.51E-07	0.00E+00	0.00E+00	1.59E-08	3.87E+00
Eu-155	5.33E-06	2.46E-03	1.97E+05	8.95E-02	3.70E-01	5.33E-07	2.00E+00	9.86E-04	9.86E-08	0.00E+00	0.00E+00	4.48E-09	2.42E+00
Nb-95	5.29E-06	4.89E-03	1.96E+05	8.88E-02	3.70E-01	5.29E-07	1.00E+00	1.96E-03	1.96E-07	0.00E+00	0.00E+00	8.88E-09	2.40E+00
Co-58	4.76E-06	4.40E-03	1.76E+05	7.99E-02	3.70E-01	4.76E-07	1.00E+00	1.76E-03	1.76E-07	0.00E+00	0.00E+00	7.99E-09	2.16E+00
Pu-241	4.13E-06	3.82E-01	1.53E+05	6.94E-02	3.70E-02	4.13E-06	1.00E-02	1.53E-01	1.53E-05	4.13E-08	0.00E+00	6.94E-07	1.88E+00
Zn-65	3.81E-06	1.76E-03	1.41E+05	6.40E-02	3.70E-01	3.81E-07	2.00E+00	7.05E-04	7.05E-08	0.00E+00	0.00E+00	3.20E-09	1.73E+00
Eu-154	3.66E-06	6.76E-03	1.35E+05	6.14E-02	3.70E-01	3.66E-07	5.00E-01	2.71E-03	2.71E-07	0.00E+00	0.00E+00	1.23E-08	1.66E+00
Ag-110m	2.80E-06	6.46E-03	1.04E+05	4.70E-02	3.70E-01	2.80E-07	4.00E-01	2.59E-03	2.59E-07	0.00E+00	0.00E+00	1.17E-08	1.27E+00
Ra-226	2.78E-06	1.28E-01	1.03E+05	4.66E-02	3.70E-03	2.78E-05	2.00E-02	5.14E-02	5.14E-06	0.00E+00	0.00E+00	2.33E-07	1.26E+00
Ag-108m	1.71E-06	2.63E-03	6.33E+04	2.87E-02	3.70E-01	1.71E-07	6.00E-01	1.05E-03	1.05E-07	0.00E+00	0.00E+00	4.79E-09	7.76E-01
Mn-54	1.66E-06	1.54E-03	6.15E+04	2.79E-02	3.70E-01	1.66E-07	1.00E+00	6.15E-04	6.15E-08	0.00E+00	0.00E+00	2.79E-09	7.55E-01
Cs-134	1.62E-06	2.99E-03	5.98E+04	2.72E-02	3.70E-02	1.62E-06	5.00E-01	1.20E-03	1.20E-07	0.00E+00	0.00E+00	5.43E-09	7.34E-01
U-235	1.25E-06	0.00E+00	4.61E+04	2.09E-02	3.70E-03	1.25E-05	Unlimited	0.00E+00	0.00E+00	5.67E-01	0.00E+00	0.00E+00	5.66E-01
I-129	5.55E-07	0.00E+00	2.05E+04	9.32E-03	3.70E-05	5.55E-04	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-01
Pu-238	4.93E-07	2.28E+00	1.83E+04	8.29E-03	3.70E-04	4.93E-05	2.00E-04	9.13E-01	9.13E-05	2.90E-08	2.24E-04	4.14E-06	2.24E-01
Th-234	4.63E-07	2.14E-03	1.71E+04	7.77E-03	3.70E+00	4.63E-09	2.00E-01	8.56E-04	8.56E-08	0.00E+00	0.00E+00	3.88E-09	2.10E-01
U-238	4.63E-07	0.00E+00	1.71E+04	7.77E-03	3.70E-03	4.63E-06	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-01
Am-241	4.34E-07	2.01E+00	1.61E+04	7.29E-03	3.70E-04	4.34E-05	2.00E-04	8.03E-01	8.03E-05	0.00E+00	1.97E-04	3.64E-06	1.97E-01
Pu-239	2.31E-07	1.07E+00	8.56E+03	3.88E-03	3.70E-04	2.31E-05	2.00E-04	4.28E-01	4.28E-05	3.73E-06	1.05E-04	1.94E-06	1.05E-01
Cm-244	1.41E-07	3.27E-01	5.23E+03	2.38E-03	3.70E-04	1.41E-05	4.00E-04	1.31E-01	1.31E-05	0.00E+00	0.00E+00	5.94E-07	6.42E-02
Np-237	5.88E-08	2.72E-01	2.18E+03	9.88E-04	3.70E-04	5.88E-06	2.00E-04	1.09E-01	1.09E-05	0.00E+00	2.67E-05	4.94E-07	2.67E-02
Pa-233	5.88E-08	6.04E-05	2.18E+03	9.88E-04	3.70E+00	5.88E-10	9.00E-01	2.42E-05	2.42E-09	0.00E+00	0.00E+00	1.10E-10	2.67E-02
Cm-242	1.90E-08	1.75E-03	7.02E+02	3.19E-04	3.70E-02	1.90E-08	1.00E-02	7.02E-04	7.02E-08	0.00E+00	0.00E+00	3.19E-09	8.61E-03
Total	7.87E-02	100.00%	2.91E+09	1.32E+03		5.30E-02		4.00E+01	4.00E-03	5.71E-01	5.53E-04	1.82E-04	3.57E+04

DOT regulated as Hazard Class 7 Radioactive Material
NOT an RQ amount of a Hazardous Substance
< Type A quantity/package per 49 CFR 173.431(a); check if excepted quantity -> excepted packaging
Does NOT meet LTD QTY Exception; Check if LSA
Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN
Meets criteria for Fissile Excepted Package per 49 CFR 173.453
This is a Low-level waste

Performed by: [signature] Date: 9/25/01

Reviewed by: _____ Date: _____

Section III: Check radionuclides for listing on labels and shipping papers

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	4.47E-03	4.13E+01	4.13E+01
U-233	4.16E-05	3.85E+01	7.98E+01
Cs-137	6.39E-03	1.18E+01	9.16E+01
Pu-238	4.93E-07	2.28E+00	9.39E+01
Am-241	4.34E-07	2.01E+00	9.59E+01
H-3	6.70E-02	1.55E+00	9.75E+01
Pu-239	2.31E-07	1.07E+00	9.85E+01
Pu-241	4.13E-06	3.82E-01	9.89E+01
Cm-244	1.41E-07	3.27E-01	9.92E+01
Np-237	5.88E-08	2.72E-01	9.95E+01
Ra-226	2.78E-06	1.28E-01	9.96E+01
Ru-106	2.08E-05	9.60E-02	9.97E+01
Co-60	3.41E-05	7.89E-02	9.98E+01
Ce-144	1.66E-05	7.67E-02	9.99E+01
Ru-103	2.84E-05	2.92E-02	9.99E+01
Ni-63	6.34E-04	1.95E-02	9.99E+01
Eu-152	1.07E-05	1.10E-02	9.99E+01
Zr-95	9.47E-06	9.73E-03	1.00E+02
Sb-125	8.53E-06	8.75E-03	1.00E+02
Eu-154	3.66E-06	6.76E-03	1.00E+02
Ag-110m	2.80E-06	6.46E-03	1.00E+02
Nb-95	5.29E-06	4.89E-03	1.00E+02
Co-58	4.76E-06	4.40E-03	1.00E+02
Cs-134	1.62E-06	2.99E-03	1.00E+02
Ag-108m	1.71E-06	2.63E-03	1.00E+02
Eu-155	5.33E-06	2.46E-03	1.00E+02
Th-234	4.63E-07	2.14E-03	1.00E+02
Zn-65	3.81E-06	1.76E-03	1.00E+02
Cm-242	1.90E-08	1.75E-03	1.00E+02
Mn-54	1.66E-06	1.54E-03	1.00E+02
Pa-233	5.88E-08	6.04E-05	1.00E+02
U-235	1.25E-06	0.00E+00	1.00E+02
I-129	5.55E-07	0.00E+00	1.00E+02
U-238	4.63E-07	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
H-3	6.70E-02	8.51E+01	Not applicable	Not applicable	3.04E-02
Cs-137	6.39E-03	8.12E+00	Not applicable	Not applicable	2.90E-03
Sr-90	4.47E-03	5.68E+00	Not applicable	Not applicable	2.03E-03
Ni-63	6.34E-04	8.06E-01	Not applicable	Not applicable	2.88E-04
U-233	4.16E-05	5.29E-02	Not applicable	4.29E-03	1.89E-05
Co-60	3.41E-05	4.34E-02	Not applicable	Not applicable	1.55E-05
Ru-103	2.84E-05	3.61E-02	Not applicable	Not applicable	1.29E-05
Ru-106	2.08E-05	2.64E-02	Not applicable	Not applicable	9.43E-06
Ce-144	1.66E-05	2.11E-02	Not applicable	Not applicable	7.53E-06
Eu-152	1.07E-05	1.36E-02	Not applicable	Not applicable	4.86E-06
Zr-95	9.47E-06	1.20E-02	Not applicable	Not applicable	4.30E-06
Sb-125	8.53E-06	1.08E-02	Not applicable	Not applicable	3.87E-06
Eu-155	5.33E-06	6.78E-03	Not applicable	Not applicable	2.42E-06
Nb-95	5.29E-06	6.72E-03	Not applicable	Not applicable	2.40E-06
Co-58	4.76E-06	6.05E-03	Not applicable	Not applicable	2.16E-06
Pu-241	4.13E-06	5.25E-03	Not applicable	4.13E-08	1.88E-06
Zn-65	3.81E-06	4.84E-03	Not applicable	Not applicable	1.73E-06
Eu-154	3.66E-06	4.65E-03	Not applicable	Not applicable	1.66E-06
Ag-110m	2.80E-06	3.56E-03	Not applicable	Not applicable	1.27E-06
Ra-226	2.78E-06	3.53E-03	Not applicable	Not applicable	1.26E-06
Ag-108m	1.71E-06	2.17E-03	Not applicable	Not applicable	7.76E-07
Mn-54	1.66E-06	2.11E-03	Not applicable	Not applicable	7.55E-07
Cs-134	1.62E-06	2.06E-03	Not applicable	Not applicable	7.34E-07
U-235	1.25E-06	1.58E-03	Not applicable	5.67E-01	5.66E-07
I-129	5.55E-07	7.06E-04	Not applicable	Not applicable	2.52E-07
Pu-238	4.93E-07	6.27E-04	Not applicable	2.90E-08	2.24E-07
Th-234	4.63E-07	5.88E-04	Not applicable	Not applicable	2.10E-07
U-238	4.63E-07	5.88E-04	Not applicable	Not applicable	2.10E-07
Am-241	4.34E-07	5.52E-04	Not applicable	Not applicable	1.97E-07
Pu-239	2.31E-07	2.94E-04	Not applicable	3.73E-06	1.05E-07
Cm-244	1.41E-07	1.80E-04	Not applicable	Not applicable	6.42E-08
Np-237	5.88E-08	7.48E-05	Not applicable	Not applicable	2.67E-08
Pa-233	5.88E-08	7.48E-05	Not applicable	Not applicable	2.67E-08
Cm-242	1.90E-08	2.41E-05	Not applicable	Not applicable	8.61E-09

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-1 Liquid (582 gal/HIC)
H-3	40	*	3.04E-02
Cs-137	1	44	2.90E-03
Sr-90	0.04	150	2.03E-03
Ni-63	3.5	70	2.88E-04
Co-60	700	*	1.55E-05
Class A Sum of Fractions:			0.05
Class B Sum of Fractions:			0.00
			ClassA*

*Note: No limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Classs B unless the concentrations of other nuclides in Table 2 determine the waste to be Class C independent of these nuclides.

5/8/05

Attachment 5

(DOT Spreadsheets for Tank V-2 used to calculate data for Option 3.)

Container ID # **INEEL Tank V-2 Solids (Total w/AVG)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: N/A

Description: 520 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 520 gallons with density of 1.02 g/cc

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
4426.40	2007.82	0.00	0.00	2007.82	#N/A	1.968

Dose survey from Sxxxxx on xx/xx/00 shows < _____ mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Note: Gross weight of contents = (520 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 4,426.4 lbs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Sr-90	2.75E+01	5.59E+01	1.02E+12	5.07E+05	3.70E-03	2.75E+02	1.00E-01	1.02E+04	1.02E+01	0.00E+00	0.00E+00	5.07E-02	1.37E+07
Cs-137	1.55E+01	6.32E+00	5.75E+11	2.86E+05	3.70E-02	1.55E+01	5.00E-01	1.15E+03	1.15E+00	0.00E+00	0.00E+00	5.73E-03	7.74E+06
Ni-63	1.85E+00	1.25E-02	6.83E+10	3.40E+04	3.70E+00	1.85E-02	3.00E+01	2.28E+00	2.28E-03	0.00E+00	0.00E+00	1.13E-05	9.20E+05
Co-60	5.39E-01	2.74E-01	2.00E+10	9.94E+03	3.70E-01	5.39E-02	4.00E-01	4.99E+01	4.99E-02	0.00E+00	0.00E+00	2.49E-04	2.69E+05
Pu-241	4.75E-02	9.65E-01	1.76E+09	8.74E+02	3.70E-02	4.75E-02	1.00E-02	1.76E+02	1.76E-01	4.75E-04	0.00E+00	8.74E-04	2.36E+04
Eu-154	4.65E-02	1.89E-02	1.72E+09	8.57E+02	3.70E-01	4.65E-03	5.00E-01	3.44E+00	3.44E-03	0.00E+00	0.00E+00	1.71E-05	2.31E+04
Eu-152	3.24E-02	7.32E-03	1.20E+09	5.97E+02	3.70E-01	3.24E-03	9.00E-01	1.33E+00	1.33E-03	0.00E+00	0.00E+00	6.63E-06	1.61E+04
Ru-103	2.41E-02	5.45E-03	8.93E+08	4.45E+02	3.70E-01	2.41E-03	9.00E-01	9.93E-01	9.93E-04	0.00E+00	0.00E+00	4.94E-06	1.20E+04
Ru-106	2.26E-02	2.30E-02	8.37E+08	4.17E+02	3.70E-02	2.26E-02	2.00E-01	4.18E+00	4.18E-03	0.00E+00	0.00E+00	2.08E-05	1.13E+04
Ce-144	1.91E-02	1.94E-02	7.06E+08	3.52E+02	3.70E-02	1.91E-02	2.00E-01	3.53E+00	3.53E-03	0.00E+00	0.00E+00	1.76E-05	9.50E+03
Pu-238	1.58E-02	1.61E+01	5.86E+08	2.92E+02	3.70E-04	1.58E+00	2.00E-04	2.93E+03	2.93E+00	9.32E-04	7.89E+00	1.46E-02	7.89E+03
Pu-239	1.34E-02	1.36E+01	4.95E+08	2.46E+02	3.70E-04	1.34E+00	2.00E-04	2.47E+03	2.47E+00	2.16E-01	6.66E+00	1.23E-02	6.66E+03
Sb-125	8.87E-03	2.00E-03	3.28E+08	1.63E+02	3.70E-01	8.87E-04	9.00E-01	3.65E-01	3.65E-04	0.00E+00	0.00E+00	1.82E-06	4.42E+03
Eu-155	8.03E-03	8.16E-04	2.97E+08	1.48E+02	3.70E-01	8.03E-04	2.00E+00	1.48E-01	1.48E-04	0.00E+00	0.00E+00	7.40E-07	4.00E+03
U-233	6.50E-03	1.32E+00	2.41E+08	1.20E+02	3.70E-03	6.50E-02	1.00E-03	2.41E+02	2.41E-01	6.70E-01	0.00E+00	1.20E-03	3.24E+03
Zr-95	5.87E-03	1.33E-03	2.17E+08	1.08E+02	3.70E-01	5.87E-04	9.00E-01	2.41E-01	2.41E-04	0.00E+00	0.00E+00	1.20E-06	2.92E+03
Am-241	4.98E-03	5.07E+00	1.84E+08	9.19E+01	3.70E-04	4.98E-01	2.00E-04	9.22E+02	9.22E-01	0.00E+00	2.48E+00	4.59E-03	2.48E+03
Ra-226	4.92E-03	5.00E-02	1.82E+08	9.07E+01	3.70E-03	4.92E-02	2.00E-02	9.10E+00	9.10E-03	0.00E+00	0.00E+00	4.53E-05	2.45E+03
Ag-110m	3.43E-03	1.74E-03	1.27E+08	6.31E+01	3.70E-01	3.43E-04	4.00E-01	3.17E-01	3.17E-04	0.00E+00	0.00E+00	1.58E-06	1.71E+03
Nb-95	3.28E-03	6.68E-04	1.22E+08	6.05E+01	3.70E-01	3.28E-04	1.00E+00	1.22E-01	1.22E-04	0.00E+00	0.00E+00	6.05E-07	1.64E+03
Co-58	3.12E-03	6.34E-04	1.15E+08	5.75E+01	3.70E-01	3.12E-04	1.00E+00	1.15E-01	1.15E-04	0.00E+00	0.00E+00	5.75E-07	1.55E+03
Zn-65	2.98E-03	3.03E-04	1.10E+08	5.49E+01	3.70E-01	2.98E-04	2.00E+00	5.51E-02	5.51E-05	0.00E+00	0.00E+00	2.74E-07	1.48E+03
Ag-108m	2.03E-03	6.88E-04	7.51E+07	3.74E+01	3.70E-01	2.03E-04	6.00E-01	1.25E-01	1.25E-04	0.00E+00	0.00E+00	6.23E-07	1.01E+03
Mn-54	1.17E-03	2.37E-04	4.32E+07	2.15E+01	3.70E-01	1.17E-04	1.00E+00	4.32E-02	4.32E-05	0.00E+00	0.00E+00	2.15E-07	5.81E+02
Cs-134	1.10E-03	4.48E-04	4.07E+07	2.03E+01	3.70E-02	1.10E-03	5.00E-01	8.15E-02	8.15E-05	0.00E+00	0.00E+00	4.06E-07	5.48E+02
Cm-243	3.25E-04	2.20E-01	1.20E+07	5.99E+00	3.70E-04	3.25E-02	3.00E-04	4.01E+01	4.01E-02	0.00E+00	1.62E-01	2.00E-04	1.62E+02
U-235	1.99E-04	0.00E+00	7.35E+06	3.66E+00	3.70E-03	1.99E-03	Unlimited	0.00E+00	0.00E+00	9.03E+01	0.00E+00	0.00E+00	9.90E+01
U-238	1.78E-04	0.00E+00	6.58E+06	3.28E+00	3.70E-03	1.78E-03	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.85E+01
Th-234	1.78E-04	1.81E-04	6.58E+06	3.28E+00	3.70E+00	1.78E-06	2.00E-01	3.29E-02	3.29E-05	0.00E+00	0.00E+00	1.64E-07	8.85E+01
I-129	1.38E-04	0.00E+00	5.12E+06	2.55E+00	3.70E-05	1.38E-01	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E+01
Np-237	5.24E-05	5.33E-02	1.94E+06	9.66E-01	3.70E-04	5.24E-03	2.00E-04	9.69E+00	9.69E-03	0.00E+00	2.61E-02	4.83E-05	2.61E+01
Pa-233	5.24E-05	1.18E-05	1.94E+06	9.66E-01	3.70E+00	5.24E-07	9.00E-01	2.15E-03	2.15E-06	0.00E+00	0.00E+00	1.07E-08	2.61E+01
Cm-242	9.19E-06	1.87E-04	3.40E+05	1.69E-01	3.70E-02	9.19E-06	1.00E-02	3.40E-02	3.40E-05	0.00E+00	0.00E+00	1.69E-07	4.58E+00
Total	4.57E+01	100.00%	1.69E+12	8.42E+05		2.94E+02		1.82E+04	1.82E+01	9.12E+01	1.72E+01	9.06E-02	2.28E+07

DOT regulated as Hazard Class 7 Radioactive Material

Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN

≥ Type A quantity; requires Type B Packaging

Does NOT meet LTD QTY Exception; Check if LSA

Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN

>15 grams Fissile Material - use Radioactive material, fissile material, n.o.s. as PSN

This is a Low-level waste

Performed by: Gordon Harris Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	2.75E+01	5.59E+01	5.59E+01
Pu-238	1.58E-02	1.61E+01	7.20E+01
Pu-239	1.34E-02	1.36E+01	8.56E+01
Cs-137	1.55E+01	6.32E+00	9.20E+01
Am-241	4.98E-03	5.07E+00	9.70E+01
U-233	6.50E-03	1.32E+00	9.83E+01
Pu-241	4.75E-02	9.65E-01	9.93E+01
Co-60	5.39E-01	2.74E-01	9.96E+01
Cm-243	3.25E-04	2.20E-01	9.98E+01
Np-237	5.24E-05	5.33E-02	9.99E+01
Ra-226	4.92E-03	5.00E-02	9.99E+01
Ru-106	2.26E-02	2.30E-02	9.99E+01
Ce-144	1.91E-02	1.94E-02	9.99E+01
Eu-154	4.65E-02	1.89E-02	1.00E+02
Ni-63	1.85E+00	1.25E-02	1.00E+02
Eu-152	3.24E-02	7.32E-03	1.00E+02
Ru-103	2.41E-02	5.45E-03	1.00E+02
Sb-125	8.87E-03	2.00E-03	1.00E+02
Ag-110m	3.43E-03	1.74E-03	1.00E+02
Zr-95	5.87E-03	1.33E-03	1.00E+02
Eu-155	8.03E-03	8.16E-04	1.00E+02
Ag-108m	2.03E-03	6.88E-04	1.00E+02
Nb-95	3.28E-03	6.68E-04	1.00E+02
Co-58	3.12E-03	6.34E-04	1.00E+02
Cs-134	1.10E-03	4.48E-04	1.00E+02
Zn-65	2.98E-03	3.03E-04	1.00E+02
Mn-54	1.17E-03	2.37E-04	1.00E+02
Cm-242	9.19E-06	1.87E-04	1.00E+02
Th-234	1.78E-04	1.81E-04	1.00E+02
Pa-233	5.24E-05	1.18E-05	1.00E+02
U-235	1.99E-04	0.00E+00	1.00E+02
U-238	1.78E-04	0.00E+00	1.00E+02
I-129	1.38E-04	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Sr-90	2.75E+01	6.02E+01	Not applicable	Not applicable	1.40E+01
Cs-137	1.55E+01	3.40E+01	Not applicable	Not applicable	7.90E+00
Ni-63	1.85E+00	4.04E+00	Not applicable	Not applicable	9.39E-01
Co-60	5.39E-01	1.18E+00	Not applicable	Not applicable	2.74E-01
Pu-241	4.75E-02	1.04E-01	Not applicable	4.75E-04	2.41E-02
Eu-154	4.65E-02	1.02E-01	Not applicable	Not applicable	2.36E-02
Eu-152	3.24E-02	7.08E-02	Not applicable	Not applicable	1.65E-02
Ru-103	2.41E-02	5.28E-02	Not applicable	Not applicable	1.23E-02
Ru-106	2.26E-02	4.95E-02	Not applicable	Not applicable	1.15E-02
Ce-144	1.91E-02	4.17E-02	Not applicable	Not applicable	9.70E-03
Pu-238	1.58E-02	3.47E-02	Not applicable	9.32E-04	8.05E-03
Pu-239	1.34E-02	2.93E-02	Not applicable	2.16E-01	6.79E-03
Sb-125	8.87E-03	1.94E-02	Not applicable	Not applicable	4.51E-03
Eu-155	8.03E-03	1.76E-02	Not applicable	Not applicable	4.08E-03
U-233	6.50E-03	1.42E-02	Not applicable	6.70E-01	3.30E-03
Zr-95	5.87E-03	1.28E-02	Not applicable	Not applicable	2.98E-03
Am-241	4.98E-03	1.09E-02	Not applicable	Not applicable	2.53E-03
Ra-226	4.92E-03	1.08E-02	Not applicable	Not applicable	2.50E-03
Ag-110m	3.43E-03	7.49E-03	Not applicable	Not applicable	1.74E-03
Nb-95	3.28E-03	7.19E-03	Not applicable	Not applicable	1.67E-03
Co-58	3.12E-03	6.83E-03	Not applicable	Not applicable	1.59E-03
Zn-65	2.98E-03	6.52E-03	Not applicable	Not applicable	1.51E-03
Ag-108m	2.03E-03	4.44E-03	Not applicable	Not applicable	1.03E-03
Mn-54	1.17E-03	2.55E-03	Not applicable	Not applicable	5.93E-04
Cs-134	1.10E-03	2.41E-03	Not applicable	Not applicable	5.59E-04
Cm-243	3.25E-04	7.12E-04	Not applicable	Not applicable	1.65E-04
U-235	1.99E-04	4.35E-04	Not applicable	9.03E+01	1.01E-04
U-238	1.78E-04	3.89E-04	Not applicable	Not applicable	9.03E-05
Th-234	1.78E-04	3.89E-04	Not applicable	Not applicable	9.03E-05
I-129	1.38E-04	3.03E-04	Not applicable	Not applicable	7.03E-05
Np-237	5.24E-05	1.15E-04	Not applicable	Not applicable	2.66E-05
Pa-233	5.24E-05	1.15E-04	Not applicable	Not applicable	2.66E-05
Cm-242	9.19E-06	2.01E-05	Not applicable	Not applicable	4.67E-06

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-2 All Sludge AVG
Sr-90	0.04	150	1.40E+01
Cs-137	1	44	7.90E+00
Ni-63	3.5	70	9.39E-01
Class A Sum of Fractions:			211.66
Class B Sum of Fractions:			0.38
			ClassB

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Container ID # **INEEL Tank V-2 Solids (52 gal per drum using AVG)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: 55 Gallon Metal OH

Description: 52 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 52 gallons with density of 1.02 g/cc (94.5% of capacity)

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
492.64	223.46	50.00	22.68	200.78	0.261	0.197

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

Note: Gross weight of contents = (52 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 442.64 lbs.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Sr-90	2.75E+00	5.59E+01	1.02E+11	5.07E+05	3.70E-03	2.75E+01	1.00E-01	1.02E+03	1.02E+00	0.00E+00	0.00E+00	5.07E-02	1.37E+07
Cs-137	1.55E+00	6.32E+00	5.75E+10	2.86E+05	3.70E-02	1.55E+00	5.00E-01	1.15E+02	1.15E-01	0.00E+00	0.00E+00	5.73E-03	7.74E+06
Ni-63	1.85E-01	1.25E-02	6.83E+09	3.40E+04	3.70E+00	1.85E-03	3.00E+01	2.28E-01	2.28E-04	0.00E+00	0.00E+00	1.13E-05	9.20E+05
Co-60	5.39E-02	2.74E-01	2.00E+09	9.94E+03	3.70E-01	5.39E-03	4.00E-01	4.99E+00	4.99E-03	0.00E+00	0.00E+00	2.49E-04	2.69E+05
Pu-241	4.75E-03	9.65E-01	1.76E+08	8.74E+02	3.70E-02	4.75E-03	1.00E-02	1.76E+01	1.76E-02	4.75E-05	0.00E+00	8.74E-04	2.36E+04
Eu-154	4.65E-03	1.89E-02	1.72E+08	8.57E+02	3.70E-01	4.65E-04	5.00E-01	3.44E-01	3.44E-04	0.00E+00	0.00E+00	1.71E-05	2.31E+04
Eu-152	3.24E-03	7.32E-03	1.20E+08	5.97E+02	3.70E-01	3.24E-04	9.00E-01	1.33E-01	1.33E-04	0.00E+00	0.00E+00	6.63E-06	1.61E+04
Ru-103	2.41E-03	5.45E-03	8.93E+07	4.45E+02	3.70E-01	2.41E-04	9.00E-01	9.93E-02	9.93E-05	0.00E+00	0.00E+00	4.94E-06	1.20E+04
Ru-106	2.26E-03	2.30E-02	8.37E+07	4.17E+02	3.70E-02	2.26E-03	2.00E-01	4.18E-01	4.18E-04	0.00E+00	0.00E+00	2.08E-05	1.13E+04
Ce-144	1.91E-03	1.94E-02	7.06E+07	3.52E+02	3.70E-02	1.91E-03	2.00E-01	3.53E-01	3.53E-04	0.00E+00	0.00E+00	1.76E-05	9.50E+03
Pu-238	1.58E-03	1.61E+01	5.86E+07	2.92E+02	3.70E-04	1.58E-01	2.00E-04	2.93E+02	2.93E-01	9.32E-05	7.89E+00	1.46E-02	7.89E+03
Pu-239	1.34E-03	1.36E+01	4.95E+07	2.46E+02	3.70E-04	1.34E-01	2.00E-04	2.47E+02	2.47E-01	2.16E-02	6.66E+00	1.23E-02	6.66E+03
Sb-125	8.87E-04	2.00E-03	3.28E+07	1.63E+02	3.70E-01	8.87E-05	9.00E-01	3.65E-02	3.65E-05	0.00E+00	0.00E+00	1.82E-06	4.42E+03
Eu-155	8.03E-04	8.16E-04	2.97E+07	1.48E+02	3.70E-01	8.03E-05	2.00E+00	1.48E-02	1.48E-05	0.00E+00	0.00E+00	7.40E-07	4.00E+03
U-233	6.50E-04	1.32E+00	2.41E+07	1.20E+02	3.70E-03	6.50E-03	1.00E-03	2.41E+01	2.41E-02	6.70E-02	0.00E+00	1.20E-03	3.24E+03
Zr-95	5.87E-04	1.33E-03	2.17E+07	1.08E+02	3.70E-01	5.87E-05	9.00E-01	2.41E-02	2.41E-05	0.00E+00	0.00E+00	1.20E-06	2.92E+03
Am-241	4.98E-04	5.07E+00	1.84E+07	9.19E+01	3.70E-04	4.98E-02	2.00E-04	9.22E+01	9.22E-02	0.00E+00	2.48E+00	4.59E-03	2.48E+03
Ra-226	4.92E-04	5.00E-02	1.82E+07	9.07E+01	3.70E-03	4.92E-03	2.00E-02	9.10E-01	9.10E-04	0.00E+00	0.00E+00	4.53E-05	2.45E+03
Ag-110m	3.43E-04	1.74E-03	1.27E+07	6.31E+01	3.70E-01	3.43E-05	4.00E-01	3.17E-02	3.17E-05	0.00E+00	0.00E+00	1.58E-06	1.71E+03
Nb-95	3.28E-04	6.68E-04	1.22E+07	6.05E+01	3.70E-01	3.28E-05	1.00E+00	1.22E-02	1.22E-05	0.00E+00	0.00E+00	6.05E-07	1.64E+03
Co-58	3.12E-04	6.34E-04	1.15E+07	5.75E+01	3.70E-01	3.12E-05	1.00E+00	1.15E-02	1.15E-05	0.00E+00	0.00E+00	5.75E-07	1.55E+03
Zn-65	2.98E-04	3.03E-04	1.10E+07	5.49E+01	3.70E-01	2.98E-05	2.00E+00	5.51E-03	5.51E-06	0.00E+00	0.00E+00	2.74E-07	1.48E+03
Ag-108m	2.03E-04	6.88E-04	7.51E+06	3.74E+01	3.70E-01	2.03E-05	6.00E-01	1.25E-02	1.25E-05	0.00E+00	0.00E+00	6.23E-07	1.01E+03
Mn-54	1.17E-04	2.37E-04	4.32E+06	2.15E+01	3.70E-01	1.17E-05	1.00E+00	4.32E-03	4.32E-06	0.00E+00	0.00E+00	2.15E-07	5.81E+02
Cs-134	1.10E-04	4.48E-04	4.07E+06	2.03E+01	3.70E-02	1.10E-04	5.00E-01	8.15E-03	8.15E-06	0.00E+00	0.00E+00	4.06E-07	5.48E+02
Cm-243	3.25E-05	2.20E-01	1.20E+06	5.99E+00	3.70E-04	3.25E-03	3.00E-04	4.01E+00	4.01E-03	0.00E+00	1.62E-01	2.00E-04	1.62E+02
U-235	1.99E-05	0.00E+00	7.35E+05	3.66E+00	3.70E-03	1.99E-04	Unlimited	0.00E+00	0.00E+00	9.03E+00	0.00E+00	0.00E+00	9.90E+01
U-238	1.78E-05	0.00E+00	6.58E+05	3.28E+00	3.70E-03	1.78E-04	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.85E+01
Th-234	1.78E-05	1.81E-04	6.58E+05	3.28E+00	3.70E+00	1.78E-07	2.00E-01	3.29E-03	3.29E-06	0.00E+00	0.00E+00	1.64E-07	8.85E+01
I-129	1.38E-05	0.00E+00	5.12E+05	2.55E+00	3.70E-05	1.38E-02	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E+01
Np-237	5.24E-06	5.33E-02	1.94E+05	9.66E-01	3.70E-04	5.24E-04	2.00E-04	9.69E-01	9.69E-04	0.00E+00	2.61E-02	4.83E-05	2.61E+01
Pa-233	5.24E-06	1.18E-05	1.94E+05	9.66E-01	3.70E+00	5.24E-08	9.00E-01	2.15E-04	2.15E-07	0.00E+00	0.00E+00	1.07E-08	2.61E+01
Cm-242	9.19E-07	1.87E-04	3.40E+04	1.69E-01	3.70E-02	9.19E-07	1.00E-02	3.40E-03	3.40E-06	0.00E+00	0.00E+00	1.69E-07	4.58E+00
Total	4.57E+00	100.00%	1.69E+11	8.42E+05		2.94E+01		1.82E+03	1.82E+00	9.12E+00	1.72E+01	9.06E-02	2.28E+07

DOT regulated as Hazard Class 7 Radioactive Material
Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN
≥ Type A quantity; requires Type B Packaging
Does NOT meet LTD QTY Exception; Check if LSA
Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN
Meets criteria for Fissile Excepted Package per 49 CFR 173.453
This is a Low-level waste

Performed by: [signature] Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	2.75E+00	5.59E+01	5.59E+01
Pu-238	1.58E-03	1.61E+01	7.20E+01
Pu-239	1.34E-03	1.36E+01	8.56E+01
Cs-137	1.55E+00	6.32E+00	9.20E+01
Am-241	4.98E-04	5.07E+00	9.70E+01
U-233	6.50E-04	1.32E+00	9.83E+01
Pu-241	4.75E-03	9.65E-01	9.93E+01
Co-60	5.39E-02	2.74E-01	9.96E+01
Cm-243	3.25E-05	2.20E-01	9.98E+01
Np-237	5.24E-06	5.33E-02	9.99E+01
Ra-226	4.92E-04	5.00E-02	9.99E+01
Ru-106	2.26E-03	2.30E-02	9.99E+01
Ce-144	1.91E-03	1.94E-02	9.99E+01
Eu-154	4.65E-03	1.89E-02	1.00E+02
Ni-63	1.85E-01	1.25E-02	1.00E+02
Eu-152	3.24E-03	7.32E-03	1.00E+02
Ru-103	2.41E-03	5.45E-03	1.00E+02
Sb-125	8.87E-04	2.00E-03	1.00E+02
Ag-110m	3.43E-04	1.74E-03	1.00E+02
Zr-95	5.87E-04	1.33E-03	1.00E+02
Eu-155	8.03E-04	8.16E-04	1.00E+02
Ag-108m	2.03E-04	6.88E-04	1.00E+02
Nb-95	3.28E-04	6.68E-04	1.00E+02
Co-58	3.12E-04	6.34E-04	1.00E+02
Cs-134	1.10E-04	4.48E-04	1.00E+02
Zn-65	2.98E-04	3.03E-04	1.00E+02
Mn-54	1.17E-04	2.37E-04	1.00E+02
Cm-242	9.19E-07	1.87E-04	1.00E+02
Th-234	1.78E-05	1.81E-04	1.00E+02
Pa-233	5.24E-06	1.18E-05	1.00E+02
U-235	1.99E-05	0.00E+00	1.00E+02
U-238	1.78E-05	0.00E+00	1.00E+02
I-129	1.38E-05	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Sr-90	2.75E+00	6.02E+01	Not applicable	Not applicable	1.40E+01
Cs-137	1.55E+00	3.40E+01	Not applicable	Not applicable	7.89E+00
Ni-63	1.85E-01	4.04E+00	Not applicable	Not applicable	9.38E-01
Co-60	5.39E-02	1.18E+00	Not applicable	Not applicable	2.74E-01
Pu-241	4.75E-03	1.04E-01	Not applicable	4.75E-05	2.41E-02
Eu-154	4.65E-03	1.02E-01	Not applicable	Not applicable	2.36E-02
Eu-152	3.24E-03	7.08E-02	Not applicable	Not applicable	1.64E-02
Ru-103	2.41E-03	5.28E-02	Not applicable	Not applicable	1.23E-02
Ru-106	2.26E-03	4.95E-02	Not applicable	Not applicable	1.15E-02
Ce-144	1.91E-03	4.17E-02	Not applicable	Not applicable	9.69E-03
Pu-238	1.58E-03	3.47E-02	Not applicable	9.32E-05	8.04E-03
Pu-239	1.34E-03	2.93E-02	Not applicable	2.16E-02	6.79E-03
Sb-125	8.87E-04	1.94E-02	Not applicable	Not applicable	4.50E-03
Eu-155	8.03E-04	1.76E-02	Not applicable	Not applicable	4.07E-03
U-233	6.50E-04	1.42E-02	Not applicable	6.70E-02	3.30E-03
Zr-95	5.87E-04	1.28E-02	Not applicable	Not applicable	2.98E-03
Am-241	4.98E-04	1.09E-02	Not applicable	Not applicable	2.53E-03
Ra-226	4.92E-04	1.08E-02	Not applicable	Not applicable	2.50E-03
Ag-110m	3.43E-04	7.49E-03	Not applicable	Not applicable	1.74E-03
Nb-95	3.28E-04	7.19E-03	Not applicable	Not applicable	1.67E-03
Co-58	3.12E-04	6.83E-03	Not applicable	Not applicable	1.58E-03
Zn-65	2.98E-04	6.52E-03	Not applicable	Not applicable	1.51E-03
Ag-108m	2.03E-04	4.44E-03	Not applicable	Not applicable	1.03E-03
Mn-54	1.17E-04	2.55E-03	Not applicable	Not applicable	5.93E-04
Cs-134	1.10E-04	2.41E-03	Not applicable	Not applicable	5.59E-04
Cm-243	3.25E-05	7.12E-04	Not applicable	Not applicable	1.65E-04
U-235	1.99E-05	4.35E-04	Not applicable	9.03E+00	1.01E-04
U-238	1.78E-05	3.89E-04	Not applicable	Not applicable	9.02E-05
Th-234	1.78E-05	3.89E-04	Not applicable	Not applicable	9.02E-05
I-129	1.38E-05	3.03E-04	Not applicable	Not applicable	7.02E-05
Np-237	5.24E-06	1.15E-04	Not applicable	Not applicable	2.66E-05
Pa-233	5.24E-06	1.15E-04	Not applicable	Not applicable	2.66E-05
Cm-242	9.19E-07	2.01E-05	Not applicable	Not applicable	4.67E-06

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-2 Sludge(52 gal/drum w/AVG)
Cs-137	1	44	7.89E+00
Sr-90	0.04	150	1.40E+01
Ni-63	3.5	70	9.38E-01

Class A Sum of Fractions: 357.22

Class B Sum of Fractions: 0.29

ClassB

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Container ID # **INEEL Tank V-2 Solids (Total w/MAX)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: N/A

Description: 520 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 520 gallons with density of 1.02 g/cc

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
4426.40	2007.82	0.00	0.00	2007.82	#N/A	1.968

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

Note: Gross weight of contents = (520 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 4,426.4 lbs.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Sr-90	3.31E+01	4.96E+01	1.23E+12	6.10E+05	3.70E-03	3.31E+02	1.00E-01	1.23E+04	1.23E+01	0.00E+00	0.00E+00	6.10E-02	1.65E+07
Cs-137	2.83E+01	8.48E+00	1.05E+12	5.22E+05	3.70E-02	2.83E+01	5.00E-01	2.09E+03	2.09E+00	0.00E+00	0.00E+00	1.04E-02	1.41E+07
Ni-63	3.51E+00	1.75E-02	1.30E+11	6.47E+04	3.70E+00	3.51E-02	3.00E+01	4.33E+00	4.33E-03	0.00E+00	0.00E+00	2.16E-05	1.75E+06
Co-60	1.42E+00	5.30E-01	5.24E+10	2.61E+04	3.70E-01	1.42E-01	4.00E-01	1.31E+02	1.31E-01	0.00E+00	0.00E+00	6.52E-04	7.05E+05
Eu-152	9.76E-02	1.62E-02	3.61E+09	1.80E+03	3.70E-01	9.76E-03	9.00E-01	4.01E+00	4.01E-03	0.00E+00	0.00E+00	2.00E-05	4.86E+04
Pu-241	6.73E-02	1.01E+00	2.49E+09	1.24E+03	3.70E-02	6.73E-02	1.00E-02	2.49E+02	2.49E-01	6.73E-04	0.00E+00	1.24E-03	3.35E+04
Eu-154	6.71E-02	2.01E-02	2.48E+09	1.24E+03	3.70E-01	6.71E-03	5.00E-01	4.96E+00	4.96E-03	0.00E+00	0.00E+00	2.47E-05	3.34E+04
Ru-103	5.50E-02	9.16E-03	2.04E+09	1.01E+03	3.70E-01	5.50E-03	9.00E-01	2.26E+00	2.26E-03	0.00E+00	0.00E+00	1.13E-05	2.74E+04
Ru-106	5.10E-02	3.82E-02	1.89E+09	9.40E+02	3.70E-02	5.10E-02	2.00E-01	9.43E+00	9.43E-03	0.00E+00	0.00E+00	4.70E-05	2.54E+04
Ce-144	4.16E-02	3.11E-02	1.54E+09	7.66E+02	3.70E-02	4.16E-02	2.00E-01	7.69E+00	7.69E-03	0.00E+00	0.00E+00	3.83E-05	2.07E+04
Pu-238	2.79E-02	2.09E+01	1.03E+09	5.14E+02	3.70E-04	2.79E+00	2.00E-04	5.16E+03	5.16E+00	1.64E-03	1.39E+01	2.57E-02	1.39E+04
Sb-125	1.88E-02	3.13E-03	6.95E+08	3.46E+02	3.70E-01	1.88E-03	9.00E-01	7.73E-01	7.73E-04	0.00E+00	0.00E+00	3.85E-06	9.36E+03
Ra-226	1.79E-02	1.34E-01	6.63E+08	3.30E+02	3.70E-03	1.79E-01	2.00E-02	3.32E+01	3.32E-02	0.00E+00	0.00E+00	1.65E-04	8.93E+03
Pu-239	1.66E-02	1.24E+01	6.14E+08	3.06E+02	3.70E-04	1.66E+00	2.00E-04	3.07E+03	3.07E+00	2.67E-01	8.26E+00	1.53E-02	8.26E+03
Eu-155	1.53E-02	1.14E-03	5.65E+08	2.82E+02	3.70E-01	1.53E-03	2.00E+00	2.83E-01	2.83E-04	0.00E+00	0.00E+00	1.41E-06	7.61E+03
Zr-95	1.39E-02	2.31E-03	5.14E+08	2.56E+02	3.70E-01	1.39E-03	9.00E-01	5.71E-01	5.71E-04	0.00E+00	0.00E+00	2.84E-06	6.92E+03
Ag-110m	7.85E-03	2.94E-03	2.90E+08	1.45E+02	3.70E-01	7.85E-04	4.00E-01	7.26E-01	7.26E-04	0.00E+00	0.00E+00	3.62E-06	3.91E+03
Nb-95	7.81E-03	1.17E-03	2.89E+08	1.44E+02	3.70E-01	7.81E-04	1.00E+00	2.89E-01	2.89E-04	0.00E+00	0.00E+00	1.44E-06	3.89E+03
U-233	7.61E-03	1.14E+00	2.82E+08	1.40E+02	3.70E-03	7.61E-02	1.00E-03	2.82E+02	2.82E-01	7.84E-01	0.00E+00	1.40E-03	3.79E+03
Co-58	7.49E-03	1.12E-03	2.77E+08	1.38E+02	3.70E-01	7.49E-04	1.00E+00	2.77E-01	2.77E-04	0.00E+00	0.00E+00	1.38E-06	3.73E+03
Zn-65	7.29E-03	5.46E-04	2.70E+08	1.34E+02	3.70E-01	7.29E-04	2.00E+00	1.35E-01	1.35E-04	0.00E+00	0.00E+00	6.72E-07	3.63E+03
Am-241	7.07E-03	5.29E+00	2.61E+08	1.30E+02	3.70E-04	7.07E-01	2.00E-04	1.31E+03	1.31E+00	0.00E+00	3.52E+00	6.51E-03	3.52E+03
Ag-108m	4.18E-03	1.04E-03	1.55E+08	7.70E+01	3.70E-01	4.18E-04	6.00E-01	2.58E-01	2.58E-04	0.00E+00	0.00E+00	1.28E-06	2.08E+03
Mn-54	2.73E-03	4.09E-04	1.01E+08	5.03E+01	3.70E-01	2.73E-04	1.00E+00	1.01E-01	1.01E-04	0.00E+00	0.00E+00	5.03E-07	1.36E+03
Cs-134	2.55E-03	7.64E-04	9.43E+07	4.70E+01	3.70E-02	2.55E-03	5.00E-01	1.89E-01	1.89E-04	0.00E+00	0.00E+00	9.40E-07	1.27E+03
Cm-243	4.90E-04	2.45E-01	1.81E+07	9.03E+00	3.70E-04	4.90E-02	3.00E-04	6.04E+01	6.04E-02	0.00E+00	2.44E-01	3.01E-04	2.44E+02
U-238	2.63E-04	0.00E+00	9.73E+06	4.85E+00	3.70E-03	2.63E-03	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E+02
Th-234	2.63E-04	1.97E-04	9.73E+06	4.85E+00	3.70E+00	2.63E-06	2.00E-01	4.87E-02	4.87E-05	0.00E+00	0.00E+00	2.42E-07	1.31E+02
I-129	2.31E-04	0.00E+00	8.54E+06	4.25E+00	3.70E-05	2.31E-01	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E+02
U-235	2.27E-04	0.00E+00	8.39E+06	4.18E+00	3.70E-03	2.27E-03	Unlimited	0.00E+00	0.00E+00	1.03E+02	0.00E+00	0.00E+00	1.13E+02
Np-237	7.61E-05	5.70E-02	2.82E+06	1.40E+00	3.70E-04	7.61E-03	2.00E-04	1.41E+01	1.41E-02	0.00E+00	3.79E-02	7.01E-05	3.79E+01
Pa-233	7.61E-05	1.27E-05	2.82E+06	1.40E+00	3.70E+00	7.61E-07	9.00E-01	3.13E-03	3.13E-06	0.00E+00	0.00E+00	1.56E-08	3.79E+01
Cm-242	1.90E-05	2.85E-04	7.03E+05	3.50E-01	3.70E-02	1.90E-05	1.00E-02	7.03E-02	7.03E-05	0.00E+00	0.00E+00	3.50E-07	9.46E+00
Total	6.69E+01	100.00%	2.48E+12	1.23E+06		3.66E+02		2.47E+04	2.47E+01	1.04E+02	2.60E+01	1.23E-01	3.33E+07

DOT regulated as Hazard Class 7 Radioactive Material

Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN

≥ Type A quantity; requires Type B Packaging

Does NOT meet LTD QTY Exception; Check if LSA

Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN

>15 grams Fissile Material - use Radioactive material, fissile material, n.o.s. as PSN

This is a Low-level waste

Performed by: [signature] Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	3.31E+01	4.96E+01	4.96E+01
Pu-238	2.79E-02	2.09E+01	7.05E+01
Pu-239	1.66E-02	1.24E+01	8.30E+01
Cs-137	2.83E+01	8.48E+00	9.14E+01
Am-241	7.07E-03	5.29E+00	9.67E+01
U-233	7.61E-03	1.14E+00	9.79E+01
Pu-241	6.73E-02	1.01E+00	9.89E+01
Co-60	1.42E+00	5.30E-01	9.94E+01
Cm-243	4.90E-04	2.45E-01	9.97E+01
Ra-226	1.79E-02	1.34E-01	9.98E+01
Np-237	7.61E-05	5.70E-02	9.99E+01
Ru-106	5.10E-02	3.82E-02	9.99E+01
Ce-144	4.16E-02	3.11E-02	9.99E+01
Eu-154	6.71E-02	2.01E-02	9.99E+01
Ni-63	3.51E+00	1.75E-02	1.00E+02
Eu-152	9.76E-02	1.62E-02	1.00E+02
Ru-103	5.50E-02	9.16E-03	1.00E+02
Sb-125	1.88E-02	3.13E-03	1.00E+02
Ag-110m	7.85E-03	2.94E-03	1.00E+02
Zr-95	1.39E-02	2.31E-03	1.00E+02
Nb-95	7.81E-03	1.17E-03	1.00E+02
Eu-155	1.53E-02	1.14E-03	1.00E+02
Co-58	7.49E-03	1.12E-03	1.00E+02
Ag-108m	4.18E-03	1.04E-03	1.00E+02
Cs-134	2.55E-03	7.64E-04	1.00E+02
Zn-65	7.29E-03	5.46E-04	1.00E+02
Mn-54	2.73E-03	4.09E-04	1.00E+02
Cm-242	1.90E-05	2.85E-04	1.00E+02
Th-234	2.63E-04	1.97E-04	1.00E+02
Pa-233	7.61E-05	1.27E-05	1.00E+02
U-238	2.63E-04	0.00E+00	1.00E+02
I-129	2.31E-04	0.00E+00	1.00E+02
U-235	2.27E-04	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Sr-90	3.31E+01	4.95E+01	Not applicable	Not applicable	1.68E+01
Cs-137	2.83E+01	4.23E+01	Not applicable	Not applicable	1.44E+01
Ni-63	3.51E+00	5.25E+00	Not applicable	Not applicable	1.79E+00
Co-60	1.42E+00	2.12E+00	Not applicable	Not applicable	7.19E-01
Eu-152	9.76E-02	1.46E-01	Not applicable	Not applicable	4.96E-02
Pu-241	6.73E-02	1.01E-01	Not applicable	6.73E-04	3.42E-02
Eu-154	6.71E-02	1.00E-01	Not applicable	Not applicable	3.41E-02
Ru-103	5.50E-02	8.22E-02	Not applicable	Not applicable	2.80E-02
Ru-106	5.10E-02	7.62E-02	Not applicable	Not applicable	2.59E-02
Ce-144	4.16E-02	6.21E-02	Not applicable	Not applicable	2.11E-02
Pu-238	2.79E-02	4.17E-02	Not applicable	1.64E-03	1.42E-02
Sb-125	1.88E-02	2.81E-02	Not applicable	Not applicable	9.55E-03
Ra-226	1.79E-02	2.68E-02	Not applicable	Not applicable	9.11E-03
Pu-239	1.66E-02	2.48E-02	Not applicable	2.67E-01	8.43E-03
Eu-155	1.53E-02	2.28E-02	Not applicable	Not applicable	7.76E-03
Zr-95	1.39E-02	2.08E-02	Not applicable	Not applicable	7.06E-03
Ag-110m	7.85E-03	1.17E-02	Not applicable	Not applicable	3.99E-03
Nb-95	7.81E-03	1.17E-02	Not applicable	Not applicable	3.97E-03
U-233	7.61E-03	1.14E-02	Not applicable	7.84E-01	3.87E-03
Co-58	7.49E-03	1.12E-02	Not applicable	Not applicable	3.81E-03
Zn-65	7.29E-03	1.09E-02	Not applicable	Not applicable	3.70E-03
Am-241	7.07E-03	1.06E-02	Not applicable	Not applicable	3.59E-03
Ag-108m	4.18E-03	6.24E-03	Not applicable	Not applicable	2.12E-03
Mn-54	2.73E-03	4.08E-03	Not applicable	Not applicable	1.39E-03
Cs-134	2.55E-03	3.81E-03	Not applicable	Not applicable	1.30E-03
Cm-243	4.90E-04	7.32E-04	Not applicable	Not applicable	2.49E-04
U-238	2.63E-04	3.93E-04	Not applicable	Not applicable	1.34E-04
Th-234	2.63E-04	3.93E-04	Not applicable	Not applicable	1.34E-04
I-129	2.31E-04	3.45E-04	Not applicable	Not applicable	1.17E-04
U-235	2.27E-04	3.39E-04	Not applicable	1.03E+02	1.15E-04
Np-237	7.61E-05	1.14E-04	Not applicable	Not applicable	3.87E-05
Pa-233	7.61E-05	1.14E-04	Not applicable	Not applicable	3.87E-05
Cm-242	1.90E-05	2.84E-05	Not applicable	Not applicable	9.65E-06

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-2 All Sludge MAX
Cs-137	1	44	1.44E+01
Sr-90	0.04	150	1.68E+01
Ni-63	3.5	70	1.79E+00
Class A Sum of Fractions:			435.73
Class B Sum of Fractions:			0.46
			ClassB

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Container ID # **INEEL Tank V-2 Solids (52 gal per drum using MAX)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: 55 Gallon Metal OH

Description: 52 gallons of Solids

Form#

PKE#

Note: assume solid phase volume of 52 gallons with density of 1.02 g/cc (94.5% of capacity)

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
492.64	223.46	50.00	22.68	200.78	0.261	0.197

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Note: Gross weight of contents = (52 gal.)x(1.02 g/cc)x(3785.412 cc/gal.)x(2.2046E-03 lb/g) = 442.64 lbs.

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-3)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Solids Frac	Activity/gram (pCi/g)
Sr-90	3.31E+00	4.96E+01	1.23E+11	6.10E+05	3.70E-03	3.31E+01	1.00E-01	1.23E+03	1.23E+00	0.00E+00	0.00E+00	6.10E-02	1.65E+07
Cs-137	2.83E+00	8.48E+00	1.05E+11	5.22E+05	3.70E-02	2.83E+00	5.00E-01	2.09E+02	2.09E-01	0.00E+00	0.00E+00	1.04E-02	1.41E+07
Ni-63	3.51E-01	1.75E-02	1.30E+10	6.47E+04	3.70E+00	3.51E-03	3.00E+01	4.33E-01	4.33E-04	0.00E+00	0.00E+00	2.16E-05	1.75E+06
Co-60	1.42E-01	5.30E-01	5.24E+09	2.61E+04	3.70E-01	1.42E-02	4.00E-01	1.31E+01	1.31E-02	0.00E+00	0.00E+00	6.52E-04	7.05E+05
Eu-152	9.76E-03	1.62E-02	3.61E+08	1.80E+03	3.70E-01	9.76E-04	9.00E-01	4.01E-01	4.01E-04	0.00E+00	0.00E+00	2.00E-05	4.86E+04
Pu-241	6.73E-03	1.01E+00	2.49E+08	1.24E+03	3.70E-02	6.73E-03	1.00E-02	2.49E+01	2.49E-02	6.73E-05	0.00E+00	1.24E-03	3.35E+04
Eu-154	6.71E-03	2.01E-02	2.48E+08	1.24E+03	3.70E-01	6.71E-04	5.00E-01	4.96E-01	4.96E-04	0.00E+00	0.00E+00	2.47E-05	3.34E+04
Ru-103	5.50E-03	9.16E-03	2.04E+08	1.01E+03	3.70E-01	5.50E-04	9.00E-01	2.26E-01	2.26E-04	0.00E+00	0.00E+00	1.13E-05	2.74E+04
Ru-106	5.10E-03	3.82E-02	1.89E+08	9.40E+02	3.70E-02	5.10E-03	2.00E-01	9.43E-01	9.43E-04	0.00E+00	0.00E+00	4.70E-05	2.54E+04
Ce-144	4.16E-03	3.11E-02	1.54E+08	7.66E+02	3.70E-02	4.16E-03	2.00E-01	7.69E-01	7.69E-04	0.00E+00	0.00E+00	3.83E-05	2.07E+04
Pu-238	2.79E-03	2.09E+01	1.03E+08	5.14E+02	3.70E-04	2.79E-01	2.00E-04	5.16E+02	5.16E-01	1.64E-04	1.39E+01	2.57E-02	1.39E+04
Sb-125	1.88E-03	3.13E-03	6.95E+07	3.46E+02	3.70E-01	1.88E-04	9.00E-01	7.73E-02	7.73E-05	0.00E+00	0.00E+00	3.85E-06	9.36E+03
Ra-226	1.79E-03	1.34E-01	6.63E+07	3.30E+02	3.70E-03	1.79E-02	2.00E-02	3.32E+00	3.32E-03	0.00E+00	0.00E+00	1.65E-04	8.93E+03
Pu-239	1.66E-03	1.24E+01	6.14E+07	3.06E+02	3.70E-04	1.66E-01	2.00E-04	3.07E+02	3.07E-01	2.67E-02	8.26E+00	1.53E-02	8.26E+03
Eu-155	1.53E-03	1.14E-03	5.65E+07	2.82E+02	3.70E-01	1.53E-04	2.00E+00	2.83E-02	2.83E-05	0.00E+00	0.00E+00	1.41E-06	7.61E+03
Zr-95	1.39E-03	2.31E-03	5.14E+07	2.56E+02	3.70E-01	1.39E-04	9.00E-01	5.71E-02	5.71E-05	0.00E+00	0.00E+00	2.84E-06	6.92E+03
Ag-110m	7.85E-04	2.94E-03	2.90E+07	1.45E+02	3.70E-01	7.85E-05	4.00E-01	7.26E-02	7.26E-05	0.00E+00	0.00E+00	3.62E-06	3.91E+03
Nb-95	7.81E-04	1.17E-03	2.89E+07	1.44E+02	3.70E-01	7.81E-05	1.00E+00	2.89E-02	2.89E-05	0.00E+00	0.00E+00	1.44E-06	3.89E+03
U-233	7.61E-04	1.14E+00	2.82E+07	1.40E+02	3.70E-03	7.61E-03	1.00E-03	2.82E+01	2.82E-02	7.84E-02	0.00E+00	1.40E-03	3.79E+03
Co-58	7.49E-04	1.12E-03	2.77E+07	1.38E+02	3.70E-01	7.49E-05	1.00E+00	2.77E-02	2.77E-05	0.00E+00	0.00E+00	1.38E-06	3.73E+03
Zn-65	7.29E-04	5.46E-04	2.70E+07	1.34E+02	3.70E-01	7.29E-05	2.00E+00	1.35E-02	1.35E-05	0.00E+00	0.00E+00	6.72E-07	3.63E+03
Am-241	7.07E-04	5.29E+00	2.61E+07	1.30E+02	3.70E-04	7.07E-02	2.00E-04	1.31E+02	1.31E-01	0.00E+00	3.52E+00	6.51E-03	3.52E+03
Ag-108m	4.18E-04	1.04E-03	1.55E+07	7.70E+01	3.70E-01	4.18E-05	6.00E-01	2.58E-02	2.58E-05	0.00E+00	0.00E+00	1.28E-06	2.08E+03
Mn-54	2.73E-04	4.09E-04	1.01E+07	5.03E+01	3.70E-01	2.73E-05	1.00E+00	1.01E-02	1.01E-05	0.00E+00	0.00E+00	5.03E-07	1.36E+03
Cs-134	2.55E-04	7.64E-04	9.43E+06	4.70E+01	3.70E-02	2.55E-04	5.00E-01	1.89E-02	1.89E-05	0.00E+00	0.00E+00	9.40E-07	1.27E+03
Cm-243	4.90E-05	2.45E-01	1.81E+06	9.03E+00	3.70E-04	4.90E-03	3.00E-04	6.04E+00	6.04E-03	0.00E+00	2.44E-01	3.01E-04	2.44E+02
U-238	2.63E-05	0.00E+00	9.73E+05	4.85E+00	3.70E-03	2.63E-04	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E+02
Th-234	2.63E-05	1.97E-04	9.73E+05	4.85E+00	3.70E+00	2.63E-07	2.00E-01	4.87E-03	4.87E-06	0.00E+00	0.00E+00	2.42E-07	1.31E+02
I-129	2.31E-05	0.00E+00	8.54E+05	4.25E+00	3.70E-05	2.31E-02	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E+02
U-235	2.27E-05	0.00E+00	8.39E+05	4.18E+00	3.70E-03	2.27E-04	Unlimited	0.00E+00	0.00E+00	1.03E+01	0.00E+00	0.00E+00	1.13E+02
Np-237	7.61E-06	5.70E-02	2.82E+05	1.40E+00	3.70E-04	7.61E-04	2.00E-04	1.41E+00	1.41E-03	0.00E+00	3.79E-02	7.01E-05	3.79E+01
Pa-233	7.61E-06	1.27E-05	2.82E+05	1.40E+00	3.70E+00	7.61E-08	9.00E-01	3.13E-04	3.13E-07	0.00E+00	0.00E+00	1.56E-08	3.79E+01
Cm-242	1.90E-06	2.85E-04	7.03E+04	3.50E-01	3.70E-02	1.90E-06	1.00E-02	7.03E-03	7.03E-06	0.00E+00	0.00E+00	3.50E-07	9.46E+00
Total	6.69E+00	100.00%	2.48E+11	1.23E+06		3.66E+01		2.47E+03	2.47E+00	1.04E+01	2.60E+01	1.23E-01	3.33E+07

DOT regulated as Hazard Class 7 Radioactive Material

Contains a Reportable Quantity of a Hazardous Substance; use 'RQ(radionuclides)' as part of PSN

> Type A quantity; requires Type B Packaging

Does NOT meet LTD QTY Exception; Check if LSA

Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN

Meets criteria for Fissile Excepted Package per 49 CFR 173.453

This is a Low-level waste

Performed by: Carolyn Harris Date: 9/25/01

Reviewed by: _____ Date: _____

9/25/01

Section III: Check radionuclides for listing on labels and shipping papers; Check reportable radionuclides per Disposal Facility

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	3.31E+00	4.96E+01	4.96E+01
Pu-238	2.79E-03	2.09E+01	7.05E+01
Pu-239	1.66E-03	1.24E+01	8.30E+01
Cs-137	2.83E+00	8.48E+00	9.14E+01
Am-241	7.07E-04	5.29E+00	9.67E+01
U-233	7.61E-04	1.14E+00	9.79E+01
Pu-241	6.73E-03	1.01E+00	9.89E+01
Co-60	1.42E-01	5.30E-01	9.94E+01
Cm-243	4.90E-05	2.45E-01	9.97E+01
Ra-226	1.79E-03	1.34E-01	9.98E+01
Np-237	7.61E-06	5.70E-02	9.99E+01
Ru-106	5.10E-03	3.82E-02	9.99E+01
Ce-144	4.16E-03	3.11E-02	9.99E+01
Eu-154	6.71E-03	2.01E-02	9.99E+01
Ni-63	3.51E-01	1.75E-02	1.00E+02
Eu-152	9.76E-03	1.62E-02	1.00E+02
Ru-103	5.50E-03	9.16E-03	1.00E+02
Sb-125	1.88E-03	3.13E-03	1.00E+02
Ag-110m	7.85E-04	2.94E-03	1.00E+02
Zr-95	1.39E-03	2.31E-03	1.00E+02
Nb-95	7.81E-04	1.17E-03	1.00E+02
Eu-155	1.53E-03	1.14E-03	1.00E+02
Co-58	7.49E-04	1.12E-03	1.00E+02
Ag-108m	4.18E-04	1.04E-03	1.00E+02
Cs-134	2.55E-04	7.64E-04	1.00E+02
Zn-65	7.29E-04	5.46E-04	1.00E+02
Mn-54	2.73E-04	4.09E-04	1.00E+02
Cm-242	1.90E-06	2.85E-04	1.00E+02
Th-234	2.63E-05	1.97E-04	1.00E+02
Pa-233	7.61E-06	1.27E-05	1.00E+02
U-238	2.63E-05	0.00E+00	1.00E+02
I-129	2.31E-05	0.00E+00	1.00E+02
U-235	2.27E-05	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
Sr-90	3.31E+00	4.95E+01	Not applicable	Not applicable	1.68E+01
Cs-137	2.83E+00	4.23E+01	Not applicable	Not applicable	1.44E+01
Ni-63	3.51E-01	5.25E+00	Not applicable	Not applicable	1.78E+00
Co-60	1.42E-01	2.12E+00	Not applicable	Not applicable	7.19E-01
Eu-152	9.76E-03	1.46E-01	Not applicable	Not applicable	4.95E-02
Pu-241	6.73E-03	1.01E-01	Not applicable	6.73E-05	3.42E-02
Eu-154	6.71E-03	1.00E-01	Not applicable	Not applicable	3.40E-02
Ru-103	5.50E-03	8.22E-02	Not applicable	Not applicable	2.79E-02
Ru-106	5.10E-03	7.62E-02	Not applicable	Not applicable	2.59E-02
Ce-144	4.16E-03	6.21E-02	Not applicable	Not applicable	2.11E-02
Pu-238	2.79E-03	4.17E-02	Not applicable	1.64E-04	1.42E-02
Sb-125	1.88E-03	2.81E-02	Not applicable	Not applicable	9.54E-03
Ra-226	1.79E-03	2.68E-02	Not applicable	Not applicable	9.10E-03
Pu-239	1.66E-03	2.48E-02	Not applicable	2.67E-02	8.42E-03
Eu-155	1.53E-03	2.28E-02	Not applicable	Not applicable	7.76E-03
Zr-95	1.39E-03	2.08E-02	Not applicable	Not applicable	7.05E-03
Ag-110m	7.85E-04	1.17E-02	Not applicable	Not applicable	3.98E-03
Nb-95	7.81E-04	1.17E-02	Not applicable	Not applicable	3.96E-03
U-233	7.61E-04	1.14E-02	Not applicable	7.84E-02	3.86E-03
Co-58	7.49E-04	1.12E-02	Not applicable	Not applicable	3.80E-03
Zn-65	7.29E-04	1.09E-02	Not applicable	Not applicable	3.70E-03
Am-241	7.07E-04	1.06E-02	Not applicable	Not applicable	3.59E-03
Ag-108m	4.18E-04	6.24E-03	Not applicable	Not applicable	2.12E-03
Mn-54	2.73E-04	4.08E-03	Not applicable	Not applicable	1.39E-03
Cs-134	2.55E-04	3.81E-03	Not applicable	Not applicable	1.29E-03
Cm-243	4.90E-05	7.32E-04	Not applicable	Not applicable	2.49E-04
U-238	2.63E-05	3.93E-04	Not applicable	Not applicable	1.34E-04
Th-234	2.63E-05	3.93E-04	Not applicable	Not applicable	1.34E-04
I-129	2.31E-05	3.45E-04	Not applicable	Not applicable	1.17E-04
U-235	2.27E-05	3.39E-04	Not applicable	1.03E+01	1.15E-04
Np-237	7.61E-06	1.14E-04	Not applicable	Not applicable	3.86E-05
Pa-233	7.61E-06	1.14E-04	Not applicable	Not applicable	3.86E-05
Cm-242	1.90E-06	2.84E-05	Not applicable	Not applicable	9.64E-06

If #DIV/0! occurs in the Fraction of Waste Profile Column or the Does Nuclide Meet Waste Profile? Column of Section III, the nuclide is not included on the current profile and needs to be added.

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-2 Sludge(52 gal/drum w/MAX)
Cs-137	1	44	1.44E+01
Sr-90	0.04	150	1.68E+01
Ni-63	3.5	70	1.78E+00

Class A Sum of Fractions: 435.29

Class B Sum of Fractions: 0.46

ClassB

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Container ID # **INEEL Tank V-2 Liquids (Total)**

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: N/A Form#

Description: 1076 gallons of liquids PKE#

NTS Waste Stream # #N/A

SNL Waste Stream# #N/A

Note: assume liquid phase volume of 1,076 gallons with density of 1.00 g/ml

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
8979.60	4073.15	0.00	0.00	4073.15	#N/A	4.073

Dose survey from Sxxxxx on xx/xx/00 shows < [ ] mrem/hr OC.

Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.

EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Note: Gross weight of contents = (1076 gal.)x(1.0 g/ml)x(3785.412 ml/gal.)x(2.2046E-03 lb/g) = 8,979.6 lb

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-4)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Liquids Fraction	Activity/gram (pCi/g)
H-3	4.15E-01	2.09E+00	1.54E+10	3.77E+03	3.70E+00	4.15E-03	4.00E+01	3.84E+00	3.84E-04	0.00E+00	0.00E+00	9.43E-06	1.02E+05
Cs-137	5.50E-02	2.21E+01	2.03E+09	4.99E+02	3.70E-02	5.50E-02	5.00E-01	4.07E+01	4.07E-03	0.00E+00	0.00E+00	9.99E-05	1.35E+04
Sr-90	2.00E-02	4.01E+01	7.38E+08	1.81E+02	3.70E-03	2.00E-01	1.00E-01	7.38E+01	7.38E-03	0.00E+00	0.00E+00	1.81E-04	4.90E+03
Ni-63	1.82E-03	1.22E-02	6.75E+07	1.66E+01	3.70E+00	1.82E-05	3.00E+01	2.25E-02	2.25E-06	0.00E+00	0.00E+00	5.53E-08	4.48E+02
Ru-106	1.88E-04	1.89E-01	6.96E+06	1.71E+00	3.70E-02	1.88E-04	2.00E-01	3.48E-01	3.48E-05	0.00E+00	0.00E+00	8.55E-07	4.62E+01
U-233	1.57E-04	3.16E+01	5.82E+06	1.43E+00	3.70E-03	1.57E-03	1.00E-03	5.82E+01	5.82E-03	1.62E-02	0.00E+00	1.43E-04	3.86E+01
Ce-144	1.54E-04	1.55E-01	5.70E+06	1.40E+00	3.70E-02	1.54E-04	2.00E-01	2.85E-01	2.85E-05	0.00E+00	0.00E+00	6.99E-07	3.78E+01
Ru-103	1.47E-04	3.27E-02	5.43E+06	1.33E+00	3.70E-01	1.47E-05	9.00E-01	6.03E-02	6.03E-06	0.00E+00	0.00E+00	1.48E-07	3.60E+01
Sb-125	7.49E-05	1.67E-02	2.77E+06	6.81E-01	3.70E-01	7.49E-06	9.00E-01	3.08E-02	3.08E-06	0.00E+00	0.00E+00	7.56E-08	1.84E+01
Eu-155	5.87E-05	5.89E-03	2.17E+06	5.33E-01	3.70E-01	5.87E-06	2.00E+00	1.09E-02	1.09E-06	0.00E+00	0.00E+00	2.66E-08	1.44E+01
Co-60	5.30E-05	2.66E-02	1.96E+06	4.81E-01	3.70E-01	5.30E-06	4.00E-01	4.90E-02	4.90E-06	0.00E+00	0.00E+00	1.20E-07	1.30E+01
Ag-110m	2.90E-05	1.46E-02	1.07E+06	2.63E-01	3.70E-01	2.90E-06	4.00E-01	2.68E-02	2.68E-06	0.00E+00	0.00E+00	6.59E-08	7.12E+00
Eu-152	1.94E-05	4.33E-03	7.17E+05	1.76E-01	3.70E-01	1.94E-06	9.00E-01	7.97E-03	7.97E-07	0.00E+00	0.00E+00	1.96E-08	4.76E+00
Ra-226	1.67E-05	1.68E-01	6.18E+05	1.52E-01	3.70E-03	1.67E-04	2.00E-02	3.09E-01	3.09E-05	0.00E+00	0.00E+00	7.58E-07	4.10E+00
Ag-108m	1.61E-05	5.40E-03	5.97E+05	1.47E-01	3.70E-01	1.61E-06	6.00E-01	9.95E-03	9.95E-07	0.00E+00	0.00E+00	2.44E-08	3.96E+00
Zr-95	1.31E-05	2.92E-03	4.84E+05	1.19E-01	3.70E-01	1.31E-06	9.00E-01	5.38E-03	5.38E-07	0.00E+00	0.00E+00	1.32E-08	3.21E+00
Nb-95	7.98E-06	1.60E-03	2.95E+05	7.25E-02	3.70E-01	7.98E-07	1.00E+00	2.95E-03	2.95E-07	0.00E+00	0.00E+00	7.25E-09	1.96E+00
Eu-154	7.41E-06	2.98E-03	2.74E+05	6.73E-02	3.70E-01	7.41E-07	5.00E-01	5.49E-03	5.49E-07	0.00E+00	0.00E+00	1.35E-08	1.82E+00
Zn-65	6.92E-06	6.95E-04	2.56E+05	6.29E-02	3.70E-01	6.92E-07	2.00E+00	1.28E-03	1.28E-07	0.00E+00	0.00E+00	3.14E-09	1.70E+00
U-235	6.52E-06	0.00E+00	2.41E+05	5.92E-02	3.70E-03	6.52E-05	Unlimited	0.00E+00	0.00E+00	2.96E+00	0.00E+00	0.00E+00	1.60E+00
Co-58	6.52E-06	1.31E-03	2.41E+05	5.92E-02	3.70E-01	6.52E-07	1.00E+00	2.41E-03	2.41E-07	0.00E+00	0.00E+00	5.92E-09	1.60E+00
Cs-134	3.11E-06	1.25E-03	1.15E+05	2.83E-02	3.70E-02	3.11E-06	5.00E-01	2.30E-03	2.30E-07	0.00E+00	0.00E+00	5.65E-09	7.64E-01
Mn-54	2.92E-06	5.86E-04	1.08E+05	2.65E-02	3.70E-01	2.92E-07	1.00E+00	1.08E-03	1.08E-07	0.00E+00	0.00E+00	2.65E-09	7.16E-01
Pu-241	2.28E-06	4.59E-02	8.45E+04	2.07E-02	3.70E-02	2.28E-06	1.00E-02	8.45E-02	8.45E-06	2.28E-08	0.00E+00	2.07E-07	5.61E-01
U-238	2.03E-06	0.00E+00	7.52E+04	1.85E-02	3.70E-03	2.03E-05	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.99E-01
Th-234	2.03E-06	2.04E-03	7.52E+04	1.85E-02	3.70E+00	2.03E-08	2.00E-01	3.76E-03	3.76E-07	0.00E+00	0.00E+00	9.23E-09	4.99E-01
Pu-238	1.93E-06	1.94E+00	7.16E+04	1.76E-02	3.70E-04	1.93E-04	2.00E-04	3.58E+00	3.58E-04	1.14E-07	4.75E-04	8.79E-06	4.75E-01
Pu-239	1.15E-06	1.16E+00	4.26E+04	1.05E-02	3.70E-04	1.15E-04	2.00E-04	2.13E+00	2.13E-04	1.86E-05	2.83E-04	5.24E-06	2.83E-01
I-129	6.88E-07	0.00E+00	2.55E+04	6.25E-03	3.70E-05	6.88E-04	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-01
Am-241	2.40E-07	2.41E-01	8.88E+03	2.18E-03	3.70E-04	2.40E-05	2.00E-04	4.44E-01	4.44E-05	0.00E+00	5.89E-05	1.09E-06	5.89E-02
Np-237	1.12E-07	1.13E-01	4.16E+03	1.02E-03	3.70E-04	1.12E-05	2.00E-04	2.08E-01	2.08E-05	0.00E+00	2.76E-05	5.11E-07	2.76E-02
Pa-233	1.12E-07	2.51E-05	4.16E+03	1.02E-03	3.70E+00	1.12E-09	9.00E-01	4.62E-05	4.62E-09	0.00E+00	0.00E+00	1.13E-10	2.76E-02
Cm-243	6.60E-08	4.42E-02	2.44E+03	5.99E-04	3.70E-04	6.60E-06	3.00E-04	8.14E-02	8.14E-06	0.00E+00	1.62E-05	2.00E-07	1.62E-02
Cm-242	2.02E-08	4.06E-04	7.47E+02	1.84E-04	3.70E-02	2.02E-08	1.00E-02	7.47E-04	7.47E-08	0.00E+00	0.00E+00	1.84E-09	4.96E-03
Total	4.93E-01	100.00%	1.82E+10	4.48E+03		2.62E-01		1.84E+02	1.84E-02	2.98E+00	8.61E-04	4.52E-04	1.21E+05

DOT regulated as Hazard Class 7 Radioactive Material
NOT an RQ amount of a Hazardous Substance
< Type A quantity/package per 49 CFR 173.431(a); check if excepted quantity -> excepted packaging
Does NOT meet LTD QTY Exception; Check if LSA
Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN
Meets criteria for Fissile Excepted Package per 49 CFR 173.453
This is a Low-level waste

Performed by: [signature] Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	2.00E-02	4.01E+01	4.01E+01
U-233	1.57E-04	3.16E+01	7.16E+01
Cs-137	5.50E-02	2.21E+01	9.37E+01
H-3	4.15E-01	2.09E+00	9.58E+01
Pu-238	1.93E-06	1.94E+00	9.78E+01
Pu-239	1.15E-06	1.16E+00	9.89E+01
Am-241	2.40E-07	2.41E-01	9.92E+01
Ru-106	1.88E-04	1.89E-01	9.93E+01
Ra-226	1.67E-05	1.68E-01	9.95E+01
Ce-144	1.54E-04	1.55E-01	9.97E+01
Np-237	1.12E-07	1.13E-01	9.98E+01
Pu-241	2.28E-06	4.59E-02	9.98E+01
Cm-243	6.60E-08	4.42E-02	9.99E+01
Ru-103	1.47E-04	3.27E-02	9.99E+01
Co-60	5.30E-05	2.66E-02	9.99E+01
Sb-125	7.49E-05	1.67E-02	9.99E+01
Ag-110m	2.90E-05	1.46E-02	1.00E+02
Ni-63	1.82E-03	1.22E-02	1.00E+02
Eu-155	5.87E-05	5.89E-03	1.00E+02
Ag-108m	1.61E-05	5.40E-03	1.00E+02
Eu-152	1.94E-05	4.33E-03	1.00E+02
Eu-154	7.41E-06	2.98E-03	1.00E+02
Zr-95	1.31E-05	2.92E-03	1.00E+02
Th-234	2.03E-06	2.04E-03	1.00E+02
Nb-95	7.98E-06	1.60E-03	1.00E+02
Co-58	6.52E-06	1.31E-03	1.00E+02
Cs-134	3.11E-06	1.25E-03	1.00E+02
Zn-65	6.92E-06	6.95E-04	1.00E+02
Mn-54	2.92E-06	5.86E-04	1.00E+02
Cm-242	2.02E-08	4.06E-04	1.00E+02
Pa-233	1.12E-07	2.51E-05	1.00E+02
U-235	6.52E-06	0.00E+00	1.00E+02
U-238	2.03E-06	0.00E+00	1.00E+02
I-129	6.88E-07	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
H-3	4.15E-01	8.42E+01	Not applicable	Not applicable	1.02E-01
Cs-137	5.50E-02	1.11E+01	Not applicable	Not applicable	1.35E-02
Sr-90	2.00E-02	4.05E+00	Not applicable	Not applicable	4.90E-03
Ni-63	1.82E-03	3.70E-01	Not applicable	Not applicable	4.48E-04
Ru-106	1.88E-04	3.82E-02	Not applicable	Not applicable	4.62E-05
U-233	1.57E-04	3.19E-02	Not applicable	1.62E-02	3.86E-05
Ce-144	1.54E-04	3.12E-02	Not applicable	Not applicable	3.78E-05
Ru-103	1.47E-04	2.97E-02	Not applicable	Not applicable	3.60E-05
Sb-125	7.49E-05	1.52E-02	Not applicable	Not applicable	1.84E-05
Eu-155	5.87E-05	1.19E-02	Not applicable	Not applicable	1.44E-05
Co-60	5.30E-05	1.07E-02	Not applicable	Not applicable	1.30E-05
Ag-110m	2.90E-05	5.88E-03	Not applicable	Not applicable	7.12E-06
Eu-152	1.94E-05	3.93E-03	Not applicable	Not applicable	4.76E-06
Ra-226	1.67E-05	3.39E-03	Not applicable	Not applicable	4.10E-06
Ag-108m	1.61E-05	3.27E-03	Not applicable	Not applicable	3.96E-06
Zr-95	1.31E-05	2.65E-03	Not applicable	Not applicable	3.21E-06
Nb-95	7.98E-06	1.62E-03	Not applicable	Not applicable	1.96E-06
Eu-154	7.41E-06	1.50E-03	Not applicable	Not applicable	1.82E-06
Zn-65	6.92E-06	1.40E-03	Not applicable	Not applicable	1.70E-06
U-235	6.52E-06	1.32E-03	Not applicable	2.96E+00	1.60E-06
Co-58	6.52E-06	1.32E-03	Not applicable	Not applicable	1.60E-06
Cs-134	3.11E-06	6.31E-04	Not applicable	Not applicable	7.64E-07
Mn-54	2.92E-06	5.91E-04	Not applicable	Not applicable	7.16E-07
Pu-241	2.28E-06	4.63E-04	Not applicable	2.28E-08	5.61E-07
U-238	2.03E-06	4.12E-04	Not applicable	Not applicable	4.99E-07
Th-234	2.03E-06	4.12E-04	Not applicable	Not applicable	4.99E-07
Pu-238	1.93E-06	3.92E-04	Not applicable	1.14E-07	4.75E-07
Pu-239	1.15E-06	2.34E-04	Not applicable	1.86E-05	2.83E-07
I-129	6.88E-07	1.40E-04	Not applicable	Not applicable	1.69E-07
Am-241	2.40E-07	4.86E-05	Not applicable	Not applicable	5.89E-08
Np-237	1.12E-07	2.28E-05	Not applicable	Not applicable	2.76E-08
Pa-233	1.12E-07	2.28E-05	Not applicable	Not applicable	2.76E-08
Cm-243	6.60E-08	1.34E-05	Not applicable	Not applicable	1.62E-08
Cm-242	2.02E-08	4.10E-06	Not applicable	Not applicable	4.96E-09

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-2 All Liquid
H-3	40	*	1.02E-01
Cs-137	1	44	1.35E-02
Sr-90	0.04	150	4.90E-03
Ni-63	3.5	70	4.48E-04
Co-60	700	*	1.30E-05
Class A Sum of Fractions:			0.14
Class B Sum of Fractions:			0.00
			ClassA*

*Note: No limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Classs B unless the concentrations of other nuclides in Table 2 determine the waste to be Class C independent of these nuclides.

68 9105

Container ID # **INEEL Tank V-2 Liquids (538 gal/HIC)**
Note: HIC Liner capacity is 804.9 gallons; assume 66.8% full

Constants	Units
3.70E+10	Bq/Ci
453.6	g/lb
1.00E-12	TBq/Bq or Ci/pCi
1000.00	g/kg
1.00E+09	nCi/Ci

Section I. Waste Stream Information

Container Type: HIC Liner PL8-120 MT Form#
Description: 538 gallons of liquids PKE#
NTS Waste Stream # #N/A
SNL Waste Stream# #N/A
Note: assume liquid phase volume of 538 gallons with density of 1.00 g/ml

Container Gross Wt (lb)	Container Gross Wt (kg)	Container Tare Wt (lb)	Container Tare Wt (kg)	Waste Net Wt (kg)	External Vol. (m3)	Est. Waste Vol. (m3)
5089.80	2308.73	600.00	272.16	2036.57	3.427	2.037

Dose survey from Sxxxxx on xx/xx/00 shows < mrem/hr OC.
Radioactive liquid effluents from hot cells, labs, and decon facilities at TAN and IETF.
EPA regulated hazardous COCs: Barium, Cadmium, Chromium, Lead, Mercury, Silver, VOCs, SVOCs, and PCBs.

Note: Gross weight of contents = (538 gal.)x(1.0 g/ml)x(3785.412 ml/gal.)x(2.2046E-03 lb/g) = 4,489.8 lb

Section II. List the radionuclides and activities; perform DOT RAM, RQ, LTD QTY, and Type A Packaging checks

Nuclide	Activity (Ci)	% of Total A2 Fraction	Activity (Bq)	Activity/gram (Bq/gram)	RQ limits (TBq)	RQ Ratios (amount/limit)	A2 Value (TBq)	LTD QTY Det. (amount/(10-4)A2)	Type A Pkg? (amount/A2)	DOT Fissile Mass (g)	TRU Conc. (nCi/g)	LSA-II Liquids Fraction	Activity/gram (pCi/g)
H-3	2.08E-01	2.09E+00	7.69E+09	3.77E+03	3.70E+00	2.08E-03	4.00E+01	1.92E+00	1.92E-04	0.00E+00	0.00E+00	9.43E-06	1.02E+05
Cs-137	2.75E-02	2.21E+01	1.02E+09	4.99E+02	3.70E-02	2.75E-02	5.00E-01	2.03E+01	2.03E-03	0.00E+00	0.00E+00	9.99E-05	1.35E+04
Sr-90	9.98E-03	4.01E+01	3.69E+08	1.81E+02	3.70E-03	9.98E-02	1.00E-01	3.69E+01	3.69E-03	0.00E+00	0.00E+00	1.81E-04	4.90E+03
Ni-63	9.12E-04	1.22E-02	3.38E+07	1.66E+01	3.70E+00	9.12E-06	3.00E+01	1.13E-02	1.13E-06	0.00E+00	0.00E+00	5.53E-08	4.48E+02
Ru-106	9.41E-05	1.89E-01	3.48E+06	1.71E+00	3.70E-02	9.41E-05	2.00E-01	1.74E-01	1.74E-05	0.00E+00	0.00E+00	8.55E-07	4.62E+01
U-233	7.86E-05	3.16E+01	2.91E+06	1.43E+00	3.70E-03	7.86E-04	1.00E-03	2.91E+01	2.91E-03	8.10E-03	0.00E+00	1.43E-04	3.86E+01
Ce-144	7.70E-05	1.55E-01	2.85E+06	1.40E+00	3.70E-02	7.70E-05	2.00E-01	1.42E-01	1.42E-05	0.00E+00	0.00E+00	6.99E-07	3.78E+01
Ru-103	7.33E-05	3.27E-02	2.71E+06	1.33E+00	3.70E-01	7.33E-06	9.00E-01	3.01E-02	3.01E-06	0.00E+00	0.00E+00	1.48E-07	3.60E+01
Sb-125	3.75E-05	1.67E-02	1.39E+06	6.81E-01	3.70E-01	3.75E-06	9.00E-01	1.54E-02	1.54E-06	0.00E+00	0.00E+00	7.56E-08	1.84E+01
Eu-155	2.93E-05	5.89E-03	1.09E+06	5.33E-01	3.70E-01	2.93E-06	2.00E+00	5.43E-03	5.43E-07	0.00E+00	0.00E+00	2.66E-08	1.44E+01
Co-60	2.65E-05	2.66E-02	9.80E+05	4.81E-01	3.70E-01	2.65E-06	4.00E-01	2.45E-02	2.45E-06	0.00E+00	0.00E+00	1.20E-07	1.30E+01
Ag-110m	1.45E-05	1.46E-02	5.37E+05	2.63E-01	3.70E-01	1.45E-06	4.00E-01	1.34E-02	1.34E-06	0.00E+00	0.00E+00	6.59E-08	7.12E+00
Eu-152	9.69E-06	4.33E-03	3.59E+05	1.76E-01	3.70E-01	9.69E-07	9.00E-01	3.99E-03	3.99E-07	0.00E+00	0.00E+00	1.96E-08	4.76E+00
Ra-226	8.35E-06	1.68E-01	3.09E+05	1.52E-01	3.70E-03	8.35E-05	2.00E-02	1.54E-01	1.54E-05	0.00E+00	0.00E+00	7.58E-07	4.10E+00
Ag-108m	8.06E-06	5.40E-03	2.98E+05	1.47E-01	3.70E-01	8.06E-07	6.00E-01	4.97E-03	4.97E-07	0.00E+00	0.00E+00	2.44E-08	3.96E+00
Zr-95	6.54E-06	2.92E-03	2.42E+05	1.19E-01	3.70E-01	6.54E-07	9.00E-01	2.69E-03	2.69E-07	0.00E+00	0.00E+00	1.32E-08	3.21E+00
Nb-95	3.99E-06	1.60E-03	1.48E+05	7.25E-02	3.70E-01	3.99E-07	1.00E+00	1.48E-03	1.48E-07	0.00E+00	0.00E+00	7.25E-09	1.96E+00
Eu-154	3.71E-06	2.98E-03	1.37E+05	6.73E-02	3.70E-01	3.71E-07	5.00E-01	2.74E-03	2.74E-07	0.00E+00	0.00E+00	1.35E-08	1.82E+00
Zn-65	3.46E-06	6.95E-04	1.28E+05	6.29E-02	3.70E-01	3.46E-07	2.00E+00	6.40E-04	6.40E-08	0.00E+00	0.00E+00	3.14E-09	1.70E+00
U-235	3.26E-06	0.00E+00	1.21E+05	5.92E-02	3.70E-03	3.26E-05	Unlimited	0.00E+00	0.00E+00	1.48E+00	0.00E+00	0.00E+00	1.60E+00
Co-58	3.26E-06	1.31E-03	1.21E+05	5.92E-02	3.70E-01	3.26E-07	1.00E+00	1.21E-03	1.21E-07	0.00E+00	0.00E+00	5.92E-09	1.60E+00
Cs-134	1.56E-06	1.25E-03	5.76E+04	2.83E-02	3.70E-02	1.56E-06	5.00E-01	1.15E-03	1.15E-07	0.00E+00	0.00E+00	5.65E-09	7.64E-01
Mn-54	1.46E-06	5.86E-04	5.40E+04	2.65E-02	3.70E-01	1.46E-07	1.00E+00	5.40E-04	5.40E-08	0.00E+00	0.00E+00	2.65E-09	7.16E-01
Pu-241	1.14E-06	4.59E-02	4.23E+04	2.07E-02	3.70E-02	1.14E-06	1.00E-02	4.23E-02	4.23E-06	1.14E-08	0.00E+00	2.07E-07	5.61E-01
U-238	1.02E-06	0.00E+00	3.76E+04	1.85E-02	3.70E-03	1.02E-05	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.99E-01
Th-234	1.02E-06	2.04E-03	3.76E+04	1.85E-02	3.70E+00	1.02E-08	2.00E-01	1.88E-03	1.88E-07	0.00E+00	0.00E+00	9.23E-09	4.99E-01
Pu-238	9.67E-07	1.94E+00	3.58E+04	1.76E-02	3.70E-04	9.67E-05	2.00E-04	1.79E+00	1.79E-04	5.69E-08	4.75E-04	8.79E-06	4.75E-01
Pu-239	5.76E-07	1.16E+00	2.13E+04	1.05E-02	3.70E-04	5.76E-05	2.00E-04	1.07E+00	1.07E-04	9.30E-06	2.83E-04	5.24E-06	2.83E-01
I-129	3.44E-07	0.00E+00	1.27E+04	6.25E-03	3.70E-05	3.44E-04	Unlimited	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-01
Am-241	1.20E-07	2.41E-01	4.44E+03	2.18E-03	3.70E-04	1.20E-05	2.00E-04	2.22E-01	2.22E-05	0.00E+00	5.89E-05	1.09E-06	5.89E-02
Np-237	5.62E-08	1.13E-01	2.08E+03	1.02E-03	3.70E-04	5.62E-06	2.00E-04	1.04E-01	1.04E-05	0.00E+00	2.76E-05	5.11E-07	2.76E-02
Pa-233	5.62E-08	2.51E-05	2.08E+03	1.02E-03	3.70E+00	5.62E-10	9.00E-01	2.31E-05	2.31E-09	0.00E+00	0.00E+00	1.13E-10	2.76E-02
Cm-243	3.30E-08	4.42E-02	1.22E+03	5.99E-04	3.70E-04	3.30E-06	3.00E-04	4.07E-02	4.07E-06	0.00E+00	1.62E-05	2.00E-07	1.62E-02
Cm-242	1.01E-08	4.06E-04	3.74E+02	1.84E-04	3.70E-02	1.01E-08	1.00E-02	3.74E-04	3.74E-08	0.00E+00	0.00E+00	1.84E-09	4.96E-03
Total	2.47E-01	100.00%	9.12E+09	4.48E+03		1.31E-01		9.21E+01	9.21E-03	1.49E+00	8.61E-04	4.52E-04	1.21E+05

DOT regulated as Hazard Class 7 Radioactive Material
NOT an RQ amount of a Hazardous Substance
< Type A quantity/package per 49 CFR 173.431(a); check if excepted quantity -> excepted packaging
Does NOT meet LTD QTY Exception; Check if LSA
Meets Low Specific Activity (LSA)-II material - Check <Type A quantity and use Radioactive material, LSA, n.o.s. as PSN
Meets criteria for Fissile Excepted Package per 49 CFR 173.453
This is a Low-level waste

Performed by: Gordon Harris Date: 9/25/01

Reviewed by: _____ Date: _____

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Section III: Check radionuclides for listing on labels and shipping papers

Nuclide	Activity (Ci)	% of Total A2 Fraction	Cumulative A2 Fraction
Sr-90	9.98E-03	4.01E+01	4.01E+01
U-233	7.86E-05	3.16E+01	7.16E+01
Cs-137	2.75E-02	2.21E+01	9.37E+01
H-3	2.08E-01	2.09E+00	9.58E+01
Pu-238	9.67E-07	1.94E+00	9.78E+01
Pu-239	5.76E-07	1.16E+00	9.89E+01
Am-241	1.20E-07	2.41E-01	9.92E+01
Ru-106	9.41E-05	1.89E-01	9.93E+01
Ra-226	8.35E-06	1.68E-01	9.95E+01
Ce-144	7.70E-05	1.55E-01	9.97E+01
Np-237	5.62E-08	1.13E-01	9.98E+01
Pu-241	1.14E-06	4.59E-02	9.98E+01
Cm-243	3.30E-08	4.42E-02	9.99E+01
Ru-103	7.33E-05	3.27E-02	9.99E+01
Co-60	2.65E-05	2.66E-02	9.99E+01
Sb-125	3.75E-05	1.67E-02	9.99E+01
Ag-110m	1.45E-05	1.46E-02	1.00E+02
Ni-63	9.12E-04	1.22E-02	1.00E+02
Eu-155	2.93E-05	5.89E-03	1.00E+02
Ag-108m	8.06E-06	5.40E-03	1.00E+02
Eu-152	9.69E-06	4.33E-03	1.00E+02
Eu-154	3.71E-06	2.98E-03	1.00E+02
Zr-95	6.54E-06	2.92E-03	1.00E+02
Th-234	1.02E-06	2.04E-03	1.00E+02
Nb-95	3.99E-06	1.60E-03	1.00E+02
Co-58	3.26E-06	1.31E-03	1.00E+02
Cs-134	1.56E-06	1.25E-03	1.00E+02
Zn-65	3.46E-06	6.95E-04	1.00E+02
Mn-54	1.46E-06	5.86E-04	1.00E+02
Cm-242	1.01E-08	4.06E-04	1.00E+02
Pa-233	5.62E-08	2.51E-05	1.00E+02
U-235	3.26E-06	0.00E+00	1.00E+02
U-238	1.02E-06	0.00E+00	1.00E+02
I-129	3.44E-07	0.00E+00	1.00E+02

Nuclide	Activity (Ci)	% of Total Activity	Source Material (kg)	SNM (g)	Activity Conc. (Ci/m^3)
H-3	2.08E-01	8.42E+01	Not applicable	Not applicable	1.02E-01
Cs-137	2.75E-02	1.11E+01	Not applicable	Not applicable	1.35E-02
Sr-90	9.98E-03	4.05E+00	Not applicable	Not applicable	4.90E-03
Ni-63	9.12E-04	3.70E-01	Not applicable	Not applicable	4.48E-04
Ru-106	9.41E-05	3.82E-02	Not applicable	Not applicable	4.62E-05
U-233	7.86E-05	3.19E-02	Not applicable	8.10E-03	3.86E-05
Ce-144	7.70E-05	3.12E-02	Not applicable	Not applicable	3.78E-05
Ru-103	7.33E-05	2.97E-02	Not applicable	Not applicable	3.60E-05
Sb-125	3.75E-05	1.52E-02	Not applicable	Not applicable	1.84E-05
Eu-155	2.93E-05	1.19E-02	Not applicable	Not applicable	1.44E-05
Co-60	2.65E-05	1.07E-02	Not applicable	Not applicable	1.30E-05
Ag-110m	1.45E-05	5.88E-03	Not applicable	Not applicable	7.12E-06
Eu-152	9.69E-06	3.93E-03	Not applicable	Not applicable	4.76E-06
Ra-226	8.35E-06	3.39E-03	Not applicable	Not applicable	4.10E-06
Ag-108m	8.06E-06	3.27E-03	Not applicable	Not applicable	3.96E-06
Zr-95	6.54E-06	2.65E-03	Not applicable	Not applicable	3.21E-06
Nb-95	3.99E-06	1.62E-03	Not applicable	Not applicable	1.96E-06
Eu-154	3.71E-06	1.50E-03	Not applicable	Not applicable	1.82E-06
Zn-65	3.46E-06	1.40E-03	Not applicable	Not applicable	1.70E-06
U-235	3.26E-06	1.32E-03	Not applicable	1.48E+00	1.60E-06
Co-58	3.26E-06	1.32E-03	Not applicable	Not applicable	1.60E-06
Cs-134	1.56E-06	6.31E-04	Not applicable	Not applicable	7.64E-07
Mn-54	1.46E-06	5.91E-04	Not applicable	Not applicable	7.16E-07
Pu-241	1.14E-06	4.63E-04	Not applicable	1.14E-08	5.61E-07
U-238	1.02E-06	4.12E-04	Not applicable	Not applicable	4.99E-07
Th-234	1.02E-06	4.12E-04	Not applicable	Not applicable	4.99E-07
Pu-238	9.67E-07	3.92E-04	Not applicable	5.69E-08	4.75E-07
Pu-239	5.76E-07	2.34E-04	Not applicable	9.30E-06	2.83E-07
I-129	3.44E-07	1.40E-04	Not applicable	Not applicable	1.69E-07
Am-241	1.20E-07	4.86E-05	Not applicable	Not applicable	5.89E-08
Np-237	5.62E-08	2.28E-05	Not applicable	Not applicable	2.76E-08
Pa-233	5.62E-08	2.28E-05	Not applicable	Not applicable	2.76E-08
Cm-243	3.30E-08	1.34E-05	Not applicable	Not applicable	1.62E-08
Cm-242	1.01E-08	4.10E-06	Not applicable	Not applicable	4.96E-09

Waste Classification Determination for near surface disposal per 10 CFR §61.55

Assume that Sr-90, Cs-137, and Ni-63 are major nuclides driving waste classification determination for Tank V-1, V-2, and V-3 wastes

Radionuclide	Table 2 limit (Ci/m^3) Column 1	Column 2	V-2 Liquid (538 gal/HIC)
H-3	40	*	1.02E-01
Cs-137	1	44	1.35E-02
Sr-90	0.04	150	4.90E-03
Ni-63	3.5	70	4.48E-04
Co-60	700	*	1.30E-05
Class A Sum of Fractions:			0.14
Class B Sum of Fractions:			0.00
			ClassA*

*Note: No limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Classs B unless the concentrations of other nuclides in Table 2 determine the waste to be Class C independent of these nuclides.