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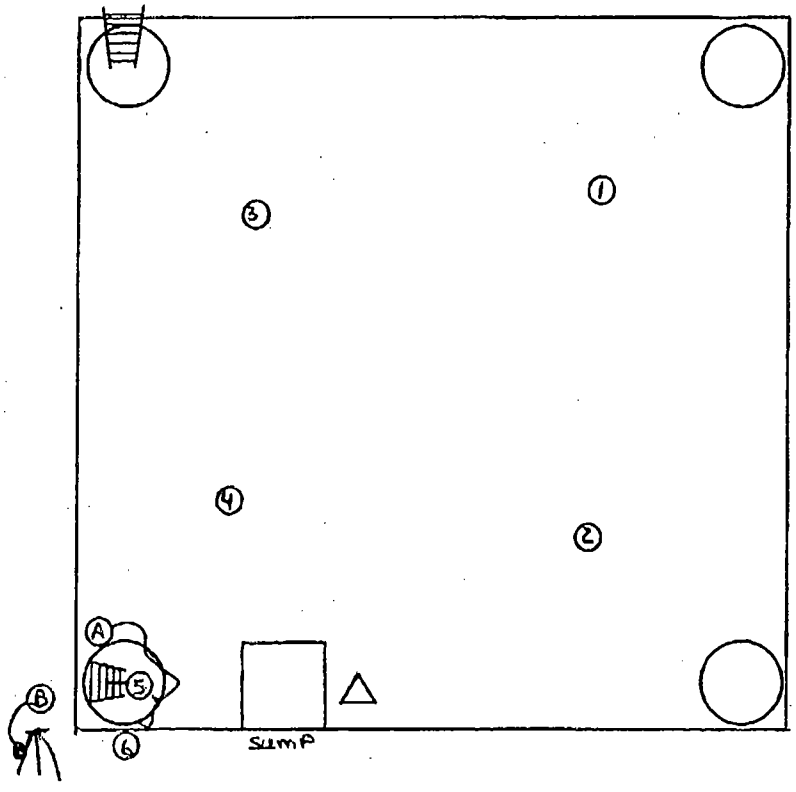
HPS #: J- 23125

HEALTH PHYSICS SURVEY REPORT

DATE 7-29-02	INSTRUMENTATION USED		
TIME 1530	MODEL	S/N	CAL. DATE DUE
SURVEYOR R. LANG / [signature]	LV	2269	12-4-02
LOCATION JN3 WATER STORAGE TANK	ELECTRA	93607	8-12-02
REVIEWED BY [signature] AUG 1 2 2002	N/A	N/A	N/A
Smear locations circled; Dose Rates = mR/hr	WI # 1088	RWP # 02-JN0-018	

PURPOSE OF SURVEY: CHARACTERIZATION SURVEY
N/A



SMEAR RESULTS
RESULTS = DPM/100CM²
UNLESS NOTED

#	βγ	α

CHECK IF APPLICABLE
- ■ SEE ATTACHED DDO-134 FOR SMEAR RESULTS.
- ☐ SEE ATTACHED DDO-103 FOR ADDITIONAL INFORMATION.
- ■ SEE ATTACHED DDO-067 FOR A/S RESULTS. NUMBER OF A/S(s) ATTACHED: 1
- ■ RAD RESULTS ATTACHED

Gross Masslinn RESULTS
RESULTS = DPM/WIPE
UNLESS NOTED

(A) HOLE	<1K	ND
(B) CABLE	<1K	ND

β - Dose Rates in mRad / Hr.
☐ L-3 / ☐ DELTA 3 / ■ ELECTRA BKG: 0.0 CPM α 361 Beta Correction Factor: N/A CPM β EFF: 21.98 % α 10.65 % β

DDO-138 5/93 (jw)

HPS #: J- 23125

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COUNTING ROOM ANALYSIS REPORT

Instrument ID: 93781 Cal Due: 9-11-02 Analysis Performed By: R. [illegible] Date: 7-29-02

Bkgd cpm: α 0.3 β 20.6 Efficiency: α .355 β .190 MDA: α 8.45 β 140.84 Sample Count Time: 1 Min.

Sample Activity Reported In: ■ DPM ☐ μci Reviewed By: [illegible] Date: AUG 1 2 2002

SAMPLE ID OR DESCRIPTION	GROSS COUNTS α	GROSS COUNTS β	NET COUNTS α	NET COUNTS β	ACTIVITY α	ACTIVITY β
BLANK	0	18	0	0	<MDA	<MDA
SMEAR 1 TANK FLOOR	2	17	1.7	0		
2	1	20	0.7	0		
3	0	20	0	0		
4	0	26	0	5.4		
5 LADDER	2	29	1.7	8.4		
6 HOLE	0	21	0	0.4	<MDA	<MDA
BLANK					<MDA	<MDA

Remarks: PROBE 43-10-1
164059

DDO-134 Rev. 3 11/98 (wbo)

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AIR SAMPLE DATA AND ANALYSIS

HPS # J23125

SECTION 1 - General Sampling Data

SAMPLING TECH: R. LANG	LOCATION: JN3 WATER TANK
DATE/TIME ON: 7-29-02 / 0900	JOB DESCRIPTION: CHARACTERIZATION SURVEY
DATE/TIME OFF: 7-29-02 / 1500	RWP #: 02-JN0-018
TOTAL TIME (min): 360	WI #: 1088
SAMPLE TYPE: ☐ BZ ■ GA ☐ Lapel	(Sample Time x Flow Rate x Conv. Fact.* = Volume in mL) 360 x 3 x 2.832E4 = 3.06 E7
SAMPLER MODEL/ID: LV 2269	*Conv. Fact. = 2.832E4 for Cu. Ft. or 1.0E3 for Liters
CAL. DUE DATE: 12-4-02 FLOW RATE: 3 ■ cfm ☐ lpm	
Isotope/10% DAC value α: 3 E-13 µCi/ml (WJ) 5 E-14 µCi/ml (KA)	Isotope/10% DAC value β: 2 E-10 µCi/ml (WJ) 1 E-11 µCi/ml (KA)

SECTION 2 - Initial Counting Data

First Field Count: 191/557 Date: 7-29-02 Time: 1510

3 Hour

COUNT TECH: R. LANG	COUNTER MODEL/ID: L2929 / 93781
60 MIN. BACKGROUND TOTAL COUNTS: α: 9 β: 1251	CAL. DUE DATE: 9-11-02
COUNTER EFFICIENCIES α: .355 β: .190	MDC α (µCi / mL): 7.03 E-14
TIME OF BKG COUNT: 0640	MDC β (µCi / mL): 6.14 E-13

	Date/Time Counted	Gross Counts	Count time (min)	Gross CPM	BKG CPM	Net CPM	Coll. fact.	Volume (mL)	Eff.	DPM/µCi	Activity (µCi/mL)**
α	7-30-02 / 0815	42	5	8.4	.15	8.25	*0.67	3.06 E7	.355	2.22E6	5.10 E-13 α
β	7-30-02 / 0815	238	5	47.6	20.85	26.75	0.95	3.06 E7	.190	2.22E6	2.18 E-12 β

*0.67 = (0.95)(0.7)
**(Net CPM ÷ Coll. Fact. ÷ Volume ÷ Eff. ÷ 2.22E6 = Activity)

SECTION 3 - Decayed Counting Data

20 Hour

COUNT TECH: R. LANG	COUNTER MODEL/ID: L2929 / 93781
60 MIN. BACKGROUND TOTAL COUNTS: α: 19 β: 1280	CAL. DUE DATE: 9-11-02
COUNTER EFFICIENCIES α: .355 β: .190	MDC α (µCi / mL): 8.72 E-14
TIME OF BKG COUNT TIME: 0640	MDC β (µCi / mL): 6.21 E-13

	Date/Time Counted	Gross Counts	Count time (min)	Gross CPM	Bkg CPM	Net CPM	Coll. fact.	Volume (mL)	Eff.	DPM/µCi	Activity (µCi/mL)**
α	7-31-02 / 0940	8	5	1.6	.32	1.28	0.67	3.06 E7	.355	2.22E6	7.92 E-14 α
β	7-31-02 / 0940	128	5	25.6	21.33	4.27	0.95	3.06 E7	.190	2.22E6	3.48 E-13 β

SECTION 4 - Long-Lived Activity Calculation

$$\frac{A_0^* - A_1^*(e^{-\alpha \Delta t_1})}{1 - e^{-\alpha \Delta t_1}} = A_{LL}\alpha = \text{N/A}\ \mu Ci/mL$$

0.026 DAC ALPHA
0.0001 DAC BETA
0.0261 DAC TOTAL

Remarks RESPIRATORY PROTECTION FACTOR (1) : <10 % DAC PERSONNEL EXPOSURE

Reviewed By: [signature] Date AUG 12 2002

HPS # J-23125

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RADIOANALYTICAL LABORATORY ANALYTICAL REQUEST

*Project #	*Submitted By/Date:	*Needed By:	*Return To/Mail Stop:
G5012-3065WJ	R. LANG / 7-30-02		R LANG / JN10

Type of Sample	Soil	Sediment	Water	Filter	Smear	Other (Specify)	*Number of Samples:
	☐	☐	☐	☐	☐	■ (PARTICLE)	1

*Sample Origin & Description: PARTICLE FROM JN3 WATER TANK (UNDER PAINT)

*Collection Date(s)/Time(s): 7-29-02 / 1500

Special Request/Submitter Code/WI/HPS: J-23125

For Lab Use Only — Sample(s) Accepted: ☒ Yes ☐ No

*Type of Analysis:
- ☐ Gross Alpha Beta
- ■ Gamma Spectrometry
- ☐ Plutonium Isotope
- ☐ Americium Isotope
- ☐ Uranium Isotope
- ☐ Thorium Isotope
- ☐ Strontium 90

Other (Specify Below)

*Sample Disposition:
- ■ Return to Submitter
- ☐ Dispose (The Lab will not be responsible for disposal of chemicals)
- ☐ Archive**

#PRIORITY (Manager's Approval)

FOR LAB USE ONLY

Received By: Eugene H. Sands EHS 7-30-02 0815

R/RL #: 02-0269

File Name: RL02-0269

System: 1

Disk: 2002

Comments:

Completion Date: 7-30-02

CHAIN-OF-CUSTODY RECORD

The sample(s) named below have been evaluated to procedure TR-OP-001 for transportation in commerce over public roads. Check applicable box below.
- ☐ The materials are regulated by DOT. Contact Site Shipping Officer.
- ☐ The materials are exempted from regulation. Sign below and transport materials in accordance with procedure TR-OP-001.
- ■ N/A -- materials not going on public roadway.

Evaluator's Signature — Date

Sample Submitted By: R Lang — Relinquished: R Lang

Received By: Eugene H. Sands EHS 7-30-02 0815 — Relinquished:

Received By: — Returned/Disposed/Archived: Eugene H. Sands EHS 7-30-02

Collection Date/Time	Sample ID	For Lab Use Only R/RL#	Collection Date/Time	Sample ID	For Lab Use Only R/RL#	Collection Date/Time	Sample ID	For Lab Use Only R/RL#
1) 7-30-02/1500	J23125	02-0269	5)			9)		
2)			6)			10)		
3)			7)			11)		
4)			8)			12)		

Requires Building Manager's or Health Physics Supervisor's approval for priority samples only. Contact Laboratory Manager prior to submitting.
* Mandatory entries for acceptance of samples.
** Requires Laboratory Manager's and Department/Building Manager's approval.

REVIEWED BY

AUG 06 2002

HPS # J-23125

Sample ID : RL02-0269 Acquisition date : 30-JUL-2002 09:17:46

Battelle Radioanalytical Laboratory Report

Configuration : DKA0:[GAMMA.SCUSR.ARCHIVE]SMP_RL020269_GAMMA1_47MMFLT400_3911
Report Generated : 30-JUL-2002 14:18:06.54

Lab Number : RL02-0269
Description : JN3 PARTICLE FROM WATER TANK UNDER PAINT

Deposition date :
Sample date : 29-JUL-2002 15:00:00 Acquisition date : 30-JUL-2002 09:17:46
Sample quantity : 1.00000E+00 EA Critical level : Yes
Sample type : PARTICLE

Detector name : GAMMA1 Detector geometry: 47mmflt4/00
Serial Number : Critical level : Yes
Elapsed live time: 0 05:00:00.00 Elapsed real time: 0 05:00:07.96 0.0%
Pk start channel : 100 Pk end channel : 4096
Sensitivity : 5.00000 Gaussian : 10.00000
Bkg Filename : DKA0:[GAMMA.SCUSR.ARCHIVE]BKG_BKG29JUN021_GAMMA1__3855.CNF;1
Nuclide library : DKA0:[GAMMA.SCUSR.LIB]BCLDP_LIQUID.NLB;
ASF Filename : SAMPLES uCi Procedure number RL-TP-030

Brief Report

Nuclide	Activity uCi/EA	2-Sigma Error
CS-137	1.642E-02	1.916E-03
EU-154	5.704E-05	1.030E-05
AM-241	3.734E-05	1.273E-05
Total Activity :	1.651E-02	

Analyzed by: Eugene H. Sands EHS 7-30-02

Reviewed by: Eugene H. Sands EHS 7-30-02

GRETCHEN FARNUNG GAF 7/30/02

REVIEWED BY 7/30/02

AUG 0 6 2002

HPS # J-23125

Combined Activity-MDA Report
Sample ID : RL02-0269

Acquisition date : 30-JUL-2002 09:17:46

---- Identified Nuclides ----

Nuclide	Activity (uCi/EA)	Act error	MDA (uCi/EA)	MDA error	Act/MDA
CS-137	1.642E-02	1.916E-03	1.225E-05	1.429E-06	1340.150
EU-154	5.704E-05	1.030E-05	1.462E-05	1.540E-06	3.902
AM-241	3.734E-05	1.273E-05	1.578E-05	1.617E-06	2.366

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (uCi/EA)	K.L. Ided	Act error	MDA (uCi/EA)	MDA error	Act/MDA
BE-7	7.429E-05		1.223E-04	1.980E-04	1.908E-05	0.375
K-40	2.712E-06		4.235E-05	7.384E-05	7.239E-06	0.037
MN-54	1.797E-06		4.781E-06	8.195E-06	1.045E-06	0.219
CO-57	2.053E-05	+	6.787E-06	7.899E-06	7.760E-07	2.599
CO-58	-2.913E-06		4.945E-06	8.114E-06	1.310E-06	-0.359
CO-60	-5.377E-08		2.792E-06	5.024E-06	4.750E-07	-0.011
ZN-65	-8.037E-06		7.980E-06	1.167E-05	2.628E-06	-0.689
NB-94	4.077E-06		5.253E-06	7.948E-06	9.526E-07	0.513
AG108M	1.671E-05	+	7.515E-06	9.940E-06	1.206E-06	1.681
SB-125	-4.340E-06		3.725E-05	6.035E-05	5.547E-06	-0.072
I-131	9.200E-06		1.108E-05	1.830E-05	1.696E-06	0.503
BA-133	8.615E-06		1.297E-05	1.689E-05	1.673E-06	0.510
CS-134	-3.056E-06		6.509E-06	9.563E-06	1.205E-06	-0.320
EU-152	6.168E-05	+	2.094E-05	2.343E-05	2.932E-06	2.632
EU-155	8.717E-07		1.113E-05	1.812E-05	1.808E-06	0.048
TL-208	-3.255E-06		7.723E-06	1.281E-05	1.411E-06	-0.254
BI-212	-4.829E-05		8.513E-05	1.210E-04	1.570E-05	-0.399
PB-212	-1.789E-07		1.254E-05	2.096E-05	2.382E-06	-0.009
BI-214	-1.403E-05		1.467E-05	2.414E-05	2.749E-06	-0.581
PB-214	-2.409E-05		2.239E-05	3.608E-05	3.368E-06	-0.668
RA-226	5.363E-04		1.586E-04	2.595E-04	2.642E-05	2.066
AC-228	-5.135E-06		1.867E-05	2.990E-05	4.162E-06	-0.172
TH-234	-4.627E-05		8.872E-05	1.141E-04	5.388E-05	-0.405
U-235	-2.101E-06		3.764E-05	1.568E-05	1.645E-06	-0.134
NP-239	1.176E-06		1.482E-05	2.397E-05	2.372E-06	0.049
U-239	5.853E-05		4.722E-05	7.868E-05	8.519E-06	0.744

EMS

REVIEWED BY

AUG 0 6 2002

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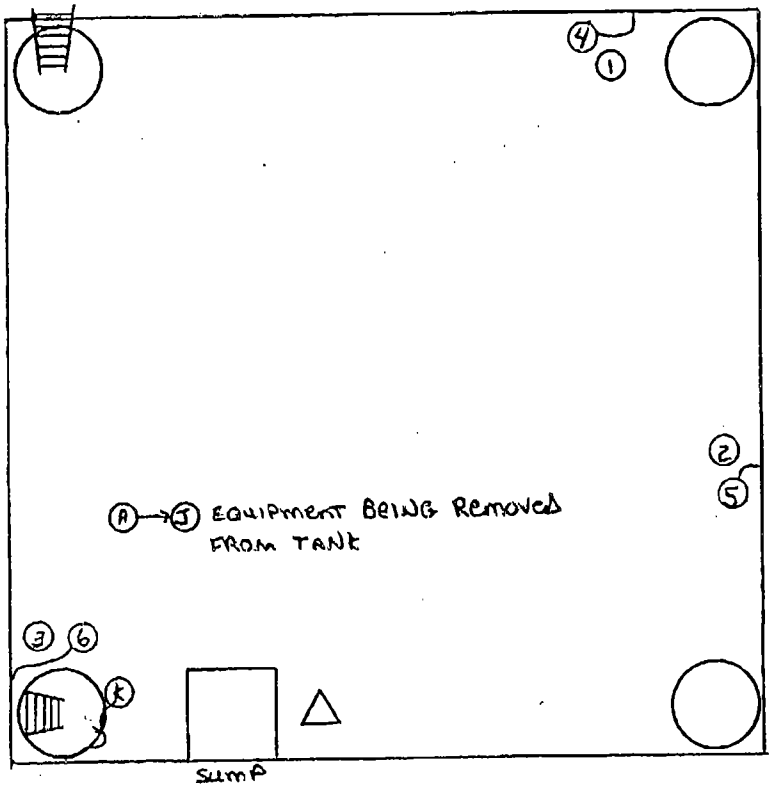
HPS #: J-23164

HEALTH PHYSICS SURVEY REPORT

DATE 8-2-02	INSTRUMENTATION USED		
TIME 1530	MODEL	S/N	CAL. DATE DUE
SURVEYOR R. HAGG / [signature]	LV	2269	12-4-02
LOCATION JN3 WATER STORAGE TANK	ELECTRA	93607	8-12-02
REVIEWED BY [signature] AUG 07 2002	N/A	N/A	N/A
Smear locations circled; Dose Rates = mR/hr	WI # 1088	RWP # 02-JN0-018	

PURPOSE OF SURVEY: DECON WALLS / CHARACTERIZATION SURVEY



SMEAR RESULTS
RESULTS = DPM/100CM²
UNLESS NOTED

#	βγ	α

CHECK IF APPLICABLE
- ■ SEE ATTACHED DDO-134 FOR SMEAR RESULTS.
- ☐ SEE ATTACHED DDO-100 FOR ADDITIONAL INFORMATION.
- ■ SEE ATTACHED DDO-057 FOR A/S RESULTS. NUMBER OF A/S(s) ATTACHED: 1
- ☐ RAD RESULTS ATTACHED

Gross Masslinn RESULTS
RESULTS = DPM/WIPE
UNLESS NOTED

A-J EQUIP	<1K	ND
K HOLE	<1K	ND

β - Dose Rates in mRad / Hr.
☐ L-3 / ☐ DELTA 3 / ■ ELECTRA BKG: 0.0 CPM α. 399 CPM β Beta Correction Factor: ____ EFF: 21.98 % α 10.65 % β

DDO-138 5/93 (jw)

HPS #: J- 231604

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COUNTING ROOM ANALYSIS REPORT

Instrument ID: 93781 Cal Due: 9-11-02 Analysis Performed By: R. LONG Date: 8-2-02

Bkgd cpm: α 0.5 β 18.7 Efficiency: α .355 β .190 MDA: α 8.45 β 133.41 Sample Count Time: 1 Min.

Sample Activity Reported In: ■ DPM ☐ μci Reviewed By: [signature] Date: AUG 07 2002

SAMPLE ID OR DESCRIPTION	GROSS COUNTS α	GROSS COUNTS β	NET COUNTS α	NET COUNTS β	ACTIVITY α	ACTIVITY β
BLANK	0	23	0	4.3	<MDA	<MDA
SMEAR # 1 FLOOR	0	12	0	0		
2	0	18	0	0		
3	0	26	0	7.3		
4 WALL	0	13	0	0		
5	0	21	0	2.3		
6	0	23	0	4.3		
BLANK	1	23	0.5	4.3	<MDA	<MDA

Remarks: PROBE 43-10-1
164059

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AIR SAMPLE DATA AND ANALYSIS

HPS # J23164

SECTION 1 - General Sampling Data

SAMPLING TECH: R. LANG	LOCATION: JN3 WATER STORAGE TANK
DATE/TIME ON: 8-2-02 / 0830	JOB DESCRIPTION: CLEAN OUT TANK / CHARACTERIZATION SURVEY
DATE/TIME OFF: 8-2-02 / 1315	RWP #: 02-JN0-018
TOTAL TIME (min): 285	WI #: 1088
SAMPLE TYPE: ☐ BZ ☒ GA ☐ Lapel	(Sample Time x Flow Rate x Conv. Fact.* = Volume in mL) 7
SAMPLER MODEL/ID: LV 2269	285 x 3 x 2.832E4 = 2.42E7
CAL. DUE DATE: 12.4.02 FLOW RATE: 3 ☒ cfm ☐ lpm	*Conv. Fact. = 2.832E4 for Cu. Ft. or 1.0E3 for Liters
Isotope/10% DAC value α: 3 E-13 µCi/ml (WJ) 5 E-14 µCi/ml (KA)	Isotope/10% DAC value β: 2 E-10 µCi/ml (WJ) 1 E-11 µCi/ml (KA)

SECTION 2 - Initial Counting Data First Field Count: 215/506 Date: 8-2-02 Time: 1400

3 Hour		
COUNT TECH: R. LANG	COUNTER MODEL/ID: L2929 / 93781	
60 MIN. BACKGROUND TOTAL COUNTS: α: 19 β: 1208	CAL. DUE DATE: 9-11-02	
COUNTER EFFICIENCIES α: .355 β: .190	MDC α (µCi / ml.): 1.1E-13	
TIME OF BKG COUNT: 0645	MDC β (µCi / ml.): 7.64E-13	

	Date/Time Counted	Gross Counts	Count time (min)	Gross CPM	BKG CPM	Net CPM	Coll. fact.	Volume (mL)	Eff.	DPM/µCi	Activity (µCi/mL)**
α	8-5-02 / 0810	9	5	1.8	.32	1.48	*0.67	2.42E7	.355	2.22E6	1.16E-13 α
β	8-5-02 / 0810	139	5	27.8	20.13	7.67	0.95	2.42E7	.190	2.22E6	7.91E-13 β

*0.67 = (0.95)(0.7)
**(Net CPM ÷ Coll. Fact. ÷ Volume ÷ Eff. ÷ 2.22E6 = Activity)

SECTION 3 - Decayed Counting Data

20 Hour		
COUNT TECH:	COUNTER MODEL/ID:	
60 MIN. BACKGROUND TOTAL COUNTS: α: β:	CAL. DUE DATE:	
COUNTER EFFICIENCIES α: β:	MDC α (µCi / ml.):	
TIME OF BKG COUNT TIME:	MDC β (µCi / ml.):	

	Date/Time Counted	Gross Counts	Count time (min)	Gross CPM	Bkg CPM	Net CPM	Coll. fact.	Volume (mL)	Eff.	DPM/µCi	Activity (µCi/mL)**
α							0.67			2.22E6	α
β							0.95			2.22E6	β

SECTION 4 - Long-Lived Activity Calculation

$$\frac{A_0^{\alpha} - A_t^{\alpha}(e^{-0.0693t})}{1 - e^{-0.0693t}} = A_{LL}\alpha = \text{N/A}\ \mu\text{Ci/mL}$$

0.039 DAC ALPHA
0.0004 DAC BETA
0.0394 DAC TOTAL

Remarks RESPIRATORY PROTECTION FACTOR (1): <10 % DAC PERSONNEL EXPOSURE
n/a

Reviewed By: [signature] Date AUG 07 2002

DDO-057, Rev. 10 wbo (1/02)

HPS # J-21840

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PERMIT FOR VOLUMETRIC RELEASE OF SOIL, WATER, AND LIQUID

1. Signature of Preparer [signature] Date 5-12-03
   Printed Name of Preparer Forrest C Lohner

2. Waste drum or box identification number, as applicable: DRUM-SDSBC-3611
   Description (materials, liquid, water) and location including building and room number.
   State the material and chemical composition of (solid, liquid) being released.
   Attach chemical analysis of material*. *(Attach additional sheets.)*
   Approx 55 gallons of water from the JN-1 machine shop sump.

3. Radiologically regulated waste? [signature] [signature] [✓] Yes [ ] No
   Completed by: Print / Sign

4. Are radioactive material concentrations greater than MDA*? [✓] Yes [ ] No

5. Are radioactive material concentrations below release criteria*? [✓] Yes [ ] No

6. Dilution or mixing that will occur* *(Attach calculations. An example would be dilution by normal sanitary sewer flows.)*
   N/A

7. Plan for release *(Release point and release conditions.)*
   Release through the JN-1 Evap System
   N/A

RTS Manager [signature] Date 5/19/03
Environmental Operations Manager [signature] Date 5/19/03
Field Operations (Waste) Manager [signature] for RSW Date 5/19/03
Conditions of Approval (or state "None")

Permit Expiration Date

Release Completed [ ] by: Name _____ Date _____ Time _____

* *Indicates attachment required.*

☐ Continuation sheet (pg.2 of 3) and instructions (pg. 3 of 3) not used and not attached.

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HPS # J-24840

VOLUMETRIC RELEASE LOG
(Section A)

Date	HPS #	Item Description	Technician (print/sign)	Evaluator (Signature or NA)	Release Approval RFO Manager or Designee Signature
5/12/03	J 24840	APPROX 55 GALLONS OF WATER FROM THE J-1 machine Shop Sump	Forrest C Lohner Forrest C Lohner	C.D. CHAPMAN MAY 16 2003	
REVIEWED BY		C.D. CHAPMAN	MAY 15 2003		

HPS # J-24840

VOLUMETRIC RELEASE LOG

DACM-SBSBC-3611

(Section B)

Item	Location Item is to be Used or Stored	Individual Receiving Item (Address)	Total Volume	Total Ci Content	Radionuclide Concentrations
Approx 55 gallons of water from the JN-1 machine shop sump	JN-1 Evap System	N/A	55 gallons	2.66E-7	Cs-137 1.277E-6 uci/ml
				2.20E-9	Am-241 1.06E-8 uci/ml
				2.20E-9	Pu-238 1.06E-8 uci/ml
				2.20E-9	Pu-239 1.06E-8 uci/ml
				2.96E-7	Sr-90 1.42E-6 uci/ml
				2.96E-7	Y-90 1.42E-6 uci/ml

REVIEWED BY [signature] MAY 16 2003
C.D. CHAPMAN

HPS # J-24840

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RADIOANALYTICAL LABORATORY ANALYTICAL REQUEST

*Project #	*Submitted By/Date:	*Needed By:	*Return To/Mail Stop:
65012-2189	Millwyn 5/12/03	5/15/03	Chapman JN2

*Type of Sample	Soil	Sediment	Water	Filter	Smear	Other (Specify)	*Number of Samples:
	☐	☐	☒	☐	☐	☐	1

*Sample Origin & Description: ≈55 gals
5DSBC-3611 – H2O JN1 mach Shop Sump

*Collection Date(s)/Time(s): 5/12/03 1315

Special Request/Submitter Code/WI/HPS:
HPS # J-24840

For Lab Use Only
Sample(s) Accepted: ☒ Yes ☐ No

*Type of Analysis:
- ☐ Gross Alpha Beta
- ☒ Gamma Spectrometry
- ☐ Plutonium Isotope
- ☐ Americium Isotope
- ☐ Uranium Isotope
- ☐ Thorium Isotope
- ☐ Strontium 90

Other (Specify Below): N/A

*Sample Disposition:
- ☒ Return to Submitter
- ☐ Dispose (The Lab will not be responsible for disposal of chemicals)
- ☐ Archive**

#PRIORITY (Manager's Approval)

FOR LAB USE ONLY

Received By: Eugene H. Sands EHS 5-12-03 1430

R/RL #: 03-0167

File Name: RL03-0167

System: 2

Disk: 2003

Comments: QC PASSES

Completion Date: 5-13-03

CHAIN-OF-CUSTODY RECORD

The sample(s) named below have been evaluated to procedure TR-OP-001 for transportation in commerce over public roads. Check applicable box below.
- ☐ The materials are regulated by DOT. Contact Site Shipping Officer.
- ☐ The materials are exempted from regulation. Sign below and transport materials in accordance with procedure TR-OP-001.
- ☒ N/A – material not going on public roadway.

MMW 5/12/03
Evaluator's Signature Date

Sample Submitted By: Relinquished:

Received By: Relinquished:

Received By: Returned/Disposed/Archived: Eugene H. Sands EHS 5-13-03

Collection Date/Time	Sample ID	For Lab Use Only R/RL#	Collection Date/Time	Sample ID	For Lab Use Only R/RL#	Collection Date/Time	Sample ID	For Lab Use Only R/RL#
1) 5/12/03 1315	5DSBC-3611	03-0167	5)			9)		
2)			6)			10)		
3)			7)			11)		
4)			8)			12)		

Requires Building Manager's or Health Physics Supervisor's approval for priority samples only. Contact Laboratory Manager prior to submitting.
* Mandatory entries for acceptance of samples.
** Requires Laboratory Manager's and Department/Building Manager's approval.

REVIEWED BY C.D. CHAPMAN

MAY 15 2003

HPS # J-24840

Sample ID : RL03-0167 Acquisition date : 12-MAY-2003 15:22:07

Battelle Radioanalytical Laboratory Report

Configuration : DKA0:[GAMMA.SCUSR.ARCHIVE]SMP_RL030167_GAMMA2_100LIQ_4876.CNF
Report Generated : 13-MAY-2003 08:02:29.22

Lab Number : RL03-0167
Description : SDSBC-3611 JN1 MACH.SHOP SUMP WATER ~55 GALS. J24840

Deposition date :
Sample date : 12-MAY-2003 13:15:00 Acquisition date : 12-MAY-2003 15:22:07
Sample quantity : 1.25000E+02 ML Critical level : Yes
Sample type : WATER

Detector name : GAMMA2 Detector geometry: 100LIQ
Serial Number : Critical level : Yes
Elapsed live time: 0 16:40:00.00 Elapsed real time: 0 16:40:26.46 0.0%
Pk start channel : 100 Pk end channel : 4096
Sensitivity : 5.00000 Gaussian : 10.00000
Bkg Filename : DKA0:[GAMMA.SCUSR.ARCHIVE]BKG_BKG01MAY032_GAMMA2__4825.CNF;1
Nuclide library : DKA0:[GAMMA.SCUSR.LIB]BCLDP_LIQUID.NLB;
ASF Filename : SAMPLES uCi Procedure number RL-TP-030

Brief Report

Nuclide	Activity uCi/ML	2-Sigma Error
CS-137	1.277E-06	1.593E-07
Total Activity :	1.277E-06	

Analyzed by: Eugene H. Sands EHS 5-13-03

Reviewed by: Eugene H. Sands EHS 5-13-03

GRETCHEN FARNUNG GAF 5/13/03

REVIEWED BY C.D. CHAPMAN

MAY 15 2003

HPS # J-24848

Combined Activity-MDA Report
Sample ID : RL03-0167

Acquisition date : 12-MAY-2003 15:22:07

---- Identified Nuclides ----

Nuclide	Activity (uCi/ML)	Act error	MDA (uCi/ML)	MDA error	Act/MDA
CS-137	1.277E-06	1.593E-07	3.281E-08	3.844E-09	38.918

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (uCi/ML)	K.L. Ided	Act error	MDA (uCi/ML)	MDA error	Act/MDA
BE-7	-4.042E-09		1.640E-07	2.809E-07	3.524E-08	-0.014
K-40	-3.378E-07		3.518E-07	4.942E-07	3.557E-08	-0.684
MN-54	-2.539E-08		2.714E-08	2.986E-08	4.784E-09	-0.850
CO-57	5.603E-09		1.386E-08	2.248E-08	1.634E-09	0.249
CO-58	-7.063E-09		1.735E-08	2.839E-08	4.783E-09	-0.249
CO-60	9.431E-09		1.790E-08	3.124E-08	2.140E-09	0.302
ZN-65	-1.006E-07		4.410E-08	5.875E-08	1.231E-08	-1.712
NB-94	7.209E-09		1.718E-08	2.902E-08	5.533E-09	0.248
AG108M	-1.469E-08		1.869E-08	3.031E-08	3.352E-09	-0.485
SB-125	-8.565E-09		5.342E-08	9.172E-08	1.155E-08	-0.093
I-131	-7.928E-09		3.084E-08	3.305E-08	4.101E-09	-0.240
BA-133	-7.903E-08		2.838E-08	4.043E-08	4.844E-09	-1.955
CS-134	-5.495E-08		2.189E-08	3.249E-08	3.961E-09	-1.691
EU-152	6.120E-09		4.197E-08	6.769E-08	7.187E-09	0.090
EU-154	-4.154E-09		2.943E-08	4.715E-08	3.916E-09	-0.088
EU-155	-3.681E-08		3.791E-08	5.733E-08	3.762E-09	-0.642
TL-208	1.342E-08		2.971E-08	3.796E-08	4.709E-09	0.354
BI-212	-5.453E-08		2.549E-07	4.245E-07	5.050E-08	-0.128
PB-212	8.029E-08	+	7.875E-08	6.389E-08	8.321E-09	1.257
BI-214	-5.801E-08		6.990E-08	8.659E-08	1.068E-08	-0.670
PB-214	-9.468E-09		7.639E-08	8.529E-08	1.046E-08	-0.111
RA-226	2.487E-08		6.976E-07	8.752E-07	8.640E-08	0.028
AC-228	-8.339E-09		1.126E-07	1.244E-07	1.866E-08	-0.067
TH-234	2.996E-07		4.188E-07	5.035E-07	2.038E-07	0.595
U-235	-1.350E-07		1.697E-07	1.970E-07	1.772E-08	-0.685
NP-239	3.259E-08		4.632E-08	7.608E-08	5.251E-09	0.428
U-239	-6.616E-07		1.168E-07	1.595E-07	9.776E-09	-4.147
AM-241	-1.734E-07		3.702E-08	4.035E-08	2.632E-09	-4.297

EHS.

C.D. CHAPMAN

REVIEWED BY

MAY 15 2003

BCLDP Radioanalytical Laboratory
RAL Manager: Gretchen Farnung ph: 424-7045
Gross Alpha/Beta Water Final Results
Method: RL-TP-057
SDSBC-3611 JN1 Machine Shop Sump Water HPS# J-24840

Am-241 Eff.:	21.92		
Alpha Eff.:	23.53	Alpha Bkgrd:	0.15
Beta Eff.:	40.9	Beta Bkgrd.:	1.16

RL#:	03-0167
System#:	Tenn #2

Sample Name	Aliquot Vol.(ml)	Date Counted	Count Time(min.)	Alpha CPM	Beta CPM	Alpha SA Factor	Beta SA Factor	Alpha Activity (uCi/mL)	Alpha ± 2 sigma	Beta Activity (uCi/mL)	Beta ± 2 sigma
RL03-0167-1	25	5/14/03	120	0.23	33.03	1.85	1.01	1.06E-08	1.58E-08	1.42E-06	4.75E-08
RL03-0167-2	25	5/14/03	120	0.16	36.01	1.92	1.02	1.23E-09	1.49E-08	1.57E-06	5.00E-08
RL03-0167-3	25	5/15/03	60	0.17	81.68	1.85	1.01	2.36E-09	2.06E-08	3.58E-06	1.05E-07
RL03-0167-4*	25	5/15/03	60	20.52	39.97	1.14	1.01	1.91E-06	1.10E-07	1.73E-06	7.37E-08
BLANK	25	5/14/03	120	0.13	1.23	1.07	1.00	-2.05E-09	7.84E-09	3.23E-09	1.24E-08
BS-3	25	5/15/03	60	0.07	6.87	1.07	1.00	-6.83E-09	9.85E-09	2.51E-07	3.22E-08
BS-4*	25	5/15/03	60	2.57	1.98	1.01	1.00	2.01E-07	3.53E-08	3.63E-08	2.02E-08

NOTE: -1=Sample; -2=Duplicate; -3=Beta Spike; -4= Alpha Spike
*Alpha Matrix Spike (RL03-0167-4) is calculated using Am-241 Efficiency and Self Absorption Factor

	25 ml
Total alpha MDA (uCi/mL)=	1.43E-08
Total beta MDA (uCi/mL)=	2.12E-08

Analyzed By: Eugene H. Sands EHS Technician
Date: 5-16-03

Reviewed By: GRETCHEN FARNUNG GAF LAB Director
Date: 5/15/03

REVIEWED BY C.D. CHAPMAN MAY 16 2003

TOTAL P.17