

## Health Physics Sample Records

Sample ID: **142514**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: ☐

Description: 140523BD01 BACKGROUND HELO # 1

### Common

Resp Org: P4000 - PROJECT MANAGEMEN

Cross Ref Sample ID:

Priority: N

Contact: COOPER, TERRY L

Survey No:

Reference ID:

Accounting Subcode:

Unknown Mat: NO

Hazardous Mat: NO

Comments: COUNT TO MDA

Reviewed: DYNES, WILLIAM J

Date: 06/10/14 11:08

Comments: COUNT TO MDA

### Origin

Mat. Size/Volume: 1662 GRAMS

Docmnt/MO/Act #:

Proposed Ship Date: 00/00/00 00:00

Description: HELO -# 1

### Collection

Sample Tech: DYNES, WILLIAM J

Sample Date: 05/23/14 11:05

Count Time: 900 (secs.)

Tritium Req: No

Sample Size/Volume: 1662 GRAMS

Instructions: COUNT TO MDA

Comments: COUNT TO MDA

### RLSSS

Exempt: No

Evaluated: No

Chem Notification: No

State Permit: No

Offsite Analysis: No

Effluent Permit: No

Container Surveyed: No

Cleared For Release: Yes

Container Evaluated: Yes

Form 212 Ready: ☒

### Location

Unit: NON-UNIT RE

Area: MS

Elev: 100

Room:

Depth: (in.)

Equip ID:

Stored By: ,

Date: 00/00/00 00:00

Sample Loc:

Other: COUNT TO MDA

Material Loc:

# Health Physics Sample Records

Sample ID: 142514

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: ☐

Description: 140523BD01 BACKGROUND HELO # 1

## Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
A_1L_marinelli_sand_	1009	1662	GR		.000		DYNES, WILLIAM J	06/10/14 11:58		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	0.00001792	2.05E-6	<input type="checkbox"/>	88.613%	40				
0 TL-208	NT	4.216E-7	1.024E-7	<input type="checkbox"/>	2.085%	208				
0 PB-212	NT	6.172E-7	1.861E-7	<input type="checkbox"/>	3.052%	212				
0 BI-214	NT	4.931E-7	1.403E-7	<input type="checkbox"/>	2.438%	214				
0 PB-214	NT	7.709E-7	1.985E-7	<input type="checkbox"/>	3.812%	214				
0 BE-7	AP	8.6887E-7		<input checked="" type="checkbox"/>	0.000%	7				
0 MN-54	AP	1.3525E-7		<input checked="" type="checkbox"/>	0.000%	54				
0 MN-56	AP	1.4064E-7		<input checked="" type="checkbox"/>	0.000%	56				
0 CO-57	AP	1.0143E-7		<input checked="" type="checkbox"/>	0.000%	57				
0 CO-58	AP	3.3688E-8		<input checked="" type="checkbox"/>	0.000%	58				
0 CO-60	AP	1.4036E-7		<input checked="" type="checkbox"/>	0.000%	60				
0 SB-124	AP	5.6927E-8		<input checked="" type="checkbox"/>	0.000%	124				
0 SB-125	FP	3.2566E-7		<input checked="" type="checkbox"/>	0.000%	125				
0 CS-134	FP	7.0614E-8		<input checked="" type="checkbox"/>	0.000%	134				
0 CS-137	FP	1.5992E-7		<input checked="" type="checkbox"/>	0.000%	137				

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/11/14 08:16

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:

## Health Physics Sample Records

Sample ID: **142514**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140523BD01 BACKGROUND HELO # 1

### Review/Approve

#### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/11/14 08:16

Comments:

#### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

#### Final Approval

Approved: COOPER, TERRY L

Date: 06/11/14 08:16

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          10-JUN-2014 11:53  *
*-----*
*          >>>> SAMPLE  PARAMETERS <<<<          *
*-----*
* Title      : 140523BD01_BACKGROUND_HELO_# 1          *
*-----*
* ID          : 1009                      Acquisition date: 10-JUN-2014 11:50:39 *
* Start Time: 10-JUN-2014 11:50:00                      *
* Stop Time: 10-JUN-2014 11:50:00                      Counting System   : U1GSP      *
* Quantity   : 1.66200E+03 GR                      IHPS Sample Number: 142514      *
* Geometry   : A_1L_marinelli_sand_1                Analysis Library  : HP_NATURAL   *
* Operator:  BILL DYNES                                *
*-----*
*          >>>> A -1922924  PARAMETERS <<<<          *
*-----*
* Elapsed Live Time   : 0 00:03:00.26  Calibration      : 10-JUN-2014 00:04      *
* Elapsed Real Time   : 0 00:03:00.33  Energy Offset    : -1.04456E-01      *
* Deadtime            : 0.0%            Energy Slope     : 4.99840E-01      *
* Activity Mult Factor: 1.00000E+00      Energy Tolerance: 1.00000      *
* Half Life Ratio     : 8.00000          Sensitivity      : 5.00000      *
*-----*
*****

```

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
1	77.37	34	53	1.56	155.00	151	9	42.0	1.62E+00	BI-214 PB-212 PB-214
1	238.66	58	57	1.48	477.65	473	13	29.9	9.46E-01	PB-212
1	295.39	27	4	1.98	591.14	587	13	25.4	1.50E+00	PB-214
1	351.92	63	3	1.42	704.23	697	13	14.4	5.73E-01	PB-214
1	583.43	25	2	2.20	1167.32	1163	11	23.6	5.08E-01	TL-208
1	609.05	22	4	1.43	1218.56	1213	10	28.1	3.50E-01	BI-214
1	1460.83	95	3	1.89	2922.03	2916	12	10.9	4.45E-01	K-40

Summary of Nuclide Activity  
Sample ID : 1009

Page : 2  
Acquisition date : 10-JUN-2014 11:50:39

Total number of lines in spectrum 7  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 7 100.00%

---

Nuclide Type : natural

Nuclide	Hlife	Decay	Uncorrected uCi/GR	Decay Corr uCi/GR	Decay Corr 1-Sigma Error	1-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	1.792E-05	1.792E-05	0.205E-05	11.46	A
TL-208	3.05M	1.60	2.627E-07	4.216E-07	1.024E-07	24.29	A
PB-212	10.64H	1.00	6.158E-07	6.172E-07	1.861E-07	30.15	A
BI-214	19.90M	1.08	4.574E-07	4.931E-07	1.403E-07	28.44	A
PB-214	26.80M	1.06	7.291E-07	7.709E-07	1.985E-07	25.75	A
Total Activity :			1.999E-05	2.023E-05			

Grand Total Activity : 1.999E-05 2.023E-05

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : 1009

Page : 3  
Acquisition date : 10-JUN-2014 11:50:39

None

Flags: "T" = Tentatively associated

---

Interference Report  
Sample ID : 1009

Page : 4  
Acquisition date : 10-JUN-2014 11:50:39

No interference correction performed

---

~~Nuclide Type: natural~~

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected uCi/GR	Decay Corr uCi/GR	1-Sigma %Error
K-40	1460.83	95	10.67*	4.482E-01	1.792E-05	1.792E-05	11.46
TL-208	72.80	-----	2.14	1.155E+00	-----	Line Not Found	-----
	74.97	-----	3.60	1.239E+00	-----	Line Not Found	-----
	84.79	-----	1.27	1.578E+00	-----	Line Not Found	-----
	252.45	-----	0.80	1.887E+00	-----	Line Not Found	-----
	277.28	-----	6.80	1.783E+00	-----	Line Not Found	-----
	510.61	-----	21.60	1.121E+00	-----	Line Not Found	-----
	583.02	25	86.00*	9.948E-01	2.627E-07	4.216E-07	24.29
	763.06	-----	1.64	7.714E-01	-----	Line Not Found	-----
	860.30	-----	12.00	6.870E-01	-----	Line Not Found	-----
PB-212	74.81	-----	10.50	1.233E+00	-----	Line Not Found	-----
	77.11	34	17.70	1.329E+00	1.311E-06	1.314E-06	42.30
	87.19	-----	6.27	1.650E+00	-----	Line Not Found	-----
	90.13	-----	1.86	1.730E+00	-----	Line Not Found	-----
	115.12	-----	0.59	2.162E+00	-----	Line Not Found	-----
	238.58	58	43.60*	1.948E+00	6.158E-07	6.172E-07	30.15
	300.03	-----	3.34	1.694E+00	-----	Line Not Found	-----
BI-214	76.86	34	0.58	1.329E+00	4.002E-05	4.314E-05	42.48
	79.29	-----	0.97	1.397E+00	-----	Line Not Found	-----
	609.31	22	46.10*	9.561E-01	4.574E-07	4.931E-07	28.44
	665.44	-----	1.56	8.797E-01	-----	Line Not Found	-----
	768.35	-----	4.88	7.663E-01	-----	Line Not Found	-----
	806.16	-----	1.23	7.315E-01	-----	Line Not Found	-----
	934.04	-----	3.16	6.352E-01	-----	Line Not Found	-----
	1120.27	-----	15.00	5.391E-01	-----	Line Not Found	-----
	1155.18	-----	1.69	5.255E-01	-----	Line Not Found	-----
	1238.11	-----	5.92	4.976E-01	-----	Line Not Found	-----
	1280.95	-----	1.47	4.855E-01	-----	Line Not Found	-----
	1377.66	-----	4.02	4.629E-01	-----	Line Not Found	-----
	1385.30	-----	0.78	4.614E-01	-----	Line Not Found	-----
	1401.48	-----	1.39	4.583E-01	-----	Line Not Found	-----
	1407.97	-----	2.48	4.571E-01	-----	Line Not Found	-----
	1509.22	-----	2.19	4.415E-01	-----	Line Not Found	-----
	1583.22	-----	0.72	4.336E-01	-----	Line Not Found	-----
	1661.26	-----	1.15	4.280E-01	-----	Line Not Found	-----
	1729.58	-----	3.05	4.255E-01	-----	Line Not Found	-----
	1764.49	-----	15.90	4.249E-01	-----	Line Not Found	-----
	1847.41	-----	2.12	4.256E-01	-----	Line Not Found	-----
PB-214	53.17	-----	1.10	3.707E-01	-----	Line Not Found	-----
	74.81	-----	6.52	1.233E+00	-----	Line Not Found	-----
	77.11	34	11.00	1.329E+00	2.110E-06	2.231E-06	42.32
	87.19	-----	3.88	1.650E+00	-----	Line Not Found	-----
	90.13	-----	1.15	1.730E+00	-----	Line Not Found	-----
	241.92	-----	7.46	1.933E+00	-----	Line Not Found	-----
	258.94	-----	0.55	1.859E+00	-----	Line Not Found	-----
	295.09	27	19.20*	1.712E+00	7.291E-07	7.709E-07	25.75
	351.87	63	37.10	1.515E+00	1.004E-06	1.062E-06	15.10
	785.83	-----	1.09	7.498E-01	-----	Line Not Found	-----
	839.00	-----	0.59	7.038E-01	-----	Line Not Found	-----



Nuclide Line Activity Report (continued)  
Sample ID : 1009

Page : 6  
Acquisition date : 10-JUN-2014 11:50:39

Flag: "\*" = Keyline

---

Minimum Detectable Activity Report  
Sample ID : 1009

Page : 7  
Acquisition date : 10-JUN-2014 11:50:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	4.	477.61	8.6887E-07
MN-54	3.	834.83	1.3525E-07
MN-56	3.	846.81	1.4064E-07
CO-57	16.	122.06	1.0143E-07
CO-58	0.	810.79	3.3688E-08
CO-60	1.	1332.50	1.4036E-07
SB-124	0.	602.73	5.6927E-08
SB-125	6.	427.88	3.2566E-07
CS-134	1.	604.71	7.0614E-08
CS-137	5.	661.66	1.5992E-07