

## Health Physics Sample Records

**Sample ID:** 142452

**Type:** RLSSS

**Type Detail:** SAND

**Status:** APPROVED

**Rasterized:** ☐

**Description:** 140530BD info 1 STARYARD

### Common

**Resp Org:** P4000 - PROJECT MANAGEMEN

**Cross Ref Sample ID:**

**Priority:** Y

**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:** 05/30/14 12:13

**Comments:**

### Origin

**Mat. Size/Volume:** 2128 GRAMS

**Docmnt/MO/Act #:**

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

**Description:**

### Collection

**Sample Tech:** DYNES, WILLIAM J

**Sample Date:** 05/30/14 10:45

**Count Time:** 900 (secs.)

**Tritium Req:** No

**Sample Size/Volume:** 2128 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:**

**Elev:** 100

**Room:**

**Depth:** (in.)

**Equip ID:**

**Stored By:** ,

**Date:** 00/00/00 00:00

**Sample Loc:**

**Other:**

**Material Loc:**

# Health Physics Sample Records

Sample ID: 142452

Type: RLSSS


















Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140530BD info 1 STARYARD

## Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
B_1L_marinelli_sand_	30282	2128	GR		.000		HENDERSON, JOE C	05/30/14 13:13		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	0.00002515	2.03E-6		64.368%	40				
0 TL-208	NT	5.34E-7	1.667E-7		1.367%	208				
0 PB-212	NT	1.776E-6	1.49E-7		4.545%	212				
0 BI-214	NT	1.154E-6	1.51E-7		2.954%	214				
0 PB-214	NT	1.475E-6	3.15E-7		3.775%	214				
0 RA-224	NT	6.969E-6	2.046E-6		17.836%	224				
0 AC-228	NT	2.014E-6	2.99E-7		5.155%	228				
0 BE-7	AP	1.0455E-6			0.000%	7				
0 MN-54	AP	1.7105E-7			0.000%	54				
0 MN-56	AP	2.1351E-7			0.000%	56				
0 CO-57	AP	1.3212E-7			0.000%	57				
0 CO-58	AP	1.4299E-7			0.000%	58				
0 CO-60	AP	1.726E-7			0.000%	60				
0 SB-124	AP	9.8444E-8			0.000%	124				
0 SB-125	FP	3.4734E-7			0.000%	125				
0 CS-134	FP	1.4206E-7			0.000%	134				
0 CS-137	FP	1.2134E-7			0.000%	137				

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 10:32

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:


## Health Physics Sample Records

Sample ID: **142452**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140530BD info 1 STARYARD

### Review/Approve

#### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 10:33

Comments: Energy peak at 332 keV is not due to plant-produced radionuclide

#### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

#### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 10:33

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          30-MAY-2014 13:02  *
*-----*
*          >>>> SAMPLE   PARAMETERS <<<<<          *
*-----*
* Title      : 140530BD INFO 1 STARYARD          *
* ID         : 30282                      Acquisition date: 30-MAY-2014 12:58:58 *
* Start Time: 30-MAY-2014 12:58:00          *
* Stop Time : 30-MAY-2014 12:58:00          Counting System   : U2GSP          *
* Quantity  : 2.12800E+03 GR                IHPS Sample Number: 142452          *
* Geometry  : B_1L_marinelli_sand_1        Analysis Library  : HP_NATURAL          *
* Operator  : JOE HENDERSON                  *
*-----*
*          >>>> B #42-TP11663A   PARAMETERS <<<<<          *
*-----*
* Elapsed Live Time : 0 00:03:00.36 Calibration      : 29-MAY-2014 21:44          *
* Elapsed Real Time : 0 00:03:00.46 Energy Offset    : -1.81343E-02          *
* Deadtime          : 0.1%                      Energy Slope     : 4.99764E-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	77.27	48	105	1.21	154.64	151	7	38.2	3.34E+00	BI-214 PB-212 PB-214
5	238.68	198	24	1.20	477.62	473	19	8.4	1.55E+00	PB-212
5	241.55	69	34	2.02	483.36	473	19	29.4		RA-224 PB-214
1	295.45	60	25	1.40	591.21	587	10	21.4	1.56E+00	PB-214
1	328.22	25	13	1.48	656.79	652	16	32.6	9.94E-01	AC-228
1	332.19	18	5	1.48	664.74	652	16	32.3		
1	338.75	43	11	2.14	677.87	673	14	25.4	1.87E+00	AC-228
1	352.10	77	33	1.24	704.58	699	11	18.4	2.01E+00	PB-214
1	583.32	35	20	1.32	1167.25	1162	13	31.2	6.64E-01	TL-208
1	609.39	61	0	1.74	1219.43	1214	11	13.1	7.51E-01	BI-214
1	911.04	50	0	2.31	1823.03	1817	14	14.8	5.12E-01	AC-228
1	968.81	26	7	2.05	1938.63	1933	13	29.0	7.99E-01	AC-228
1	1460.71	160	0	2.04	2922.99	2915	14	8.1	8.01E-01	K-40

Summary of Nuclide Activity  
Sample ID : 30282

Page : 2  
Acquisition date : 30-MAY-2014 12:58:58

Total number of lines in spectrum 13  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 12 92.31%

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	2.515E-05	2.515E-05	0.203E-05	8.05	A
TL-208	3.05M	1.72	3.104E-07	5.340E-07	1.667E-07	31.22	A
PB-212	10.64H	1.00	1.772E-06	1.776E-06	0.149E-06	8.41	A
BI-214	19.90M	1.09	1.059E-06	1.154E-06	0.151E-06	13.06	A
PB-214	26.80M	1.07	1.384E-06	1.475E-06	0.315E-06	21.36	A
RA-224	3.66D	1.00	6.967E-06	6.969E-06	2.046E-06	29.36	A
AC-228	6.13H	1.00	2.005E-06	2.014E-06	0.299E-06	14.83	A
Total Activity :			3.865E-05	3.907E-05			

Grand Total Activity : 3.865E-05 3.907E-05

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : 30282

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Acquisition date : 30-MAY-2014 12:58:58

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	332.19	18	5	1.48	664.74	652	16	1.01E-01	32.3	1.45E+00	

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30282

Page : 4  
Acquisition date : 30-MAY-2014 12:58:58

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	160	10.67*	4.211E-01	2.515E-05	2.515E-05	8.05
TL-208	72.80	-----	2.14	1.070E+00	-----	Line Not Found	-----
	74.97	-----	3.60	1.156E+00	-----	Line Not Found	-----
	84.79	-----	1.27	1.506E+00	-----	Line Not Found	-----
	252.45	-----	0.80	1.745E+00	-----	Line Not Found	-----
	277.28	-----	6.80	1.645E+00	-----	Line Not Found	-----
	510.61	-----	21.60	1.035E+00	-----	Line Not Found	-----
	583.02	35	86.00*	9.195E-01	3.104E-07	5.340E-07	31.22
	763.06	-----	1.64	7.126E-01	-----	Line Not Found	-----
	860.30	-----	12.00	6.341E-01	-----	Line Not Found	-----
PB-212	74.81	-----	10.50	1.150E+00	-----	Line Not Found	-----
	77.11	48	17.70	1.245E+00	1.536E-06	1.540E-06	38.20
	87.19	-----	6.27	1.579E+00	-----	Line Not Found	-----
	90.13	-----	1.86	1.662E+00	-----	Line Not Found	-----
	115.12	-----	0.59	2.085E+00	-----	Line Not Found	-----
	238.58	198	43.60*	1.804E+00	1.772E-06	1.776E-06	8.41
	300.03	-----	3.34	1.562E+00	-----	Line Not Found	-----
BI-214	76.86	48	0.58	1.245E+00	4.687E-05	5.107E-05	38.20
	79.29	-----	0.97	1.320E+00	-----	Line Not Found	-----
	609.31	61	46.10*	8.832E-01	1.059E-06	1.154E-06	13.06
	665.44	-----	1.56	8.131E-01	-----	Line Not Found	-----
	768.35	-----	4.88	7.078E-01	-----	Line Not Found	-----
	806.16	-----	1.23	6.754E-01	-----	Line Not Found	-----
	934.04	-----	3.16	5.861E-01	-----	Line Not Found	-----
	1120.27	-----	15.00	4.982E-01	-----	Line Not Found	-----
	1155.18	-----	1.69	4.860E-01	-----	Line Not Found	-----
	1238.11	-----	5.92	4.615E-01	-----	Line Not Found	-----
	1280.95	-----	1.47	4.510E-01	-----	Line Not Found	-----
	1377.66	-----	4.02	4.323E-01	-----	Line Not Found	-----
	1385.30	-----	0.78	4.311E-01	-----	Line Not Found	-----
	1401.48	-----	1.39	4.287E-01	-----	Line Not Found	-----
	1407.97	-----	2.48	4.277E-01	-----	Line Not Found	-----
	1509.22	-----	2.19	4.165E-01	-----	Line Not Found	-----
	1583.22	-----	0.72	4.120E-01	-----	Line Not Found	-----
	1661.26	-----	1.15	4.103E-01	-----	Line Not Found	-----
	1729.58	-----	3.05	4.114E-01	-----	Line Not Found	-----
	1764.49	-----	15.90	4.128E-01	-----	Line Not Found	-----
	1847.41	-----	2.12	4.187E-01	-----	Line Not Found	-----
PB-214	53.17	-----	1.10	2.929E-01	-----	Line Not Found	-----
	74.81	-----	6.52	1.150E+00	-----	Line Not Found	-----
	77.11	48	11.00	1.245E+00	2.471E-06	2.634E-06	38.20
	87.19	-----	3.88	1.579E+00	-----	Line Not Found	-----
	90.13	-----	1.15	1.662E+00	-----	Line Not Found	-----
	241.92	69	7.46	1.792E+00	3.642E-06	3.882E-06	29.36
	258.94	-----	0.55	1.718E+00	-----	Line Not Found	-----
	295.09	60	19.20*	1.578E+00	1.384E-06	1.475E-06	21.36
	351.87	77	37.10	1.395E+00	1.045E-06	1.113E-06	18.42
	785.83	-----	1.09	6.925E-01	-----	Line Not Found	-----
	839.00	-----	0.59	6.497E-01	-----	Line Not Found	-----



Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected uCi/GR	Decay Corr uCi/GR	1-Sigma %Error
RA-224	83.79	-----	0.20	1.474E+00	-----	Line Not Found	-----
	240.76	69	3.90*	1.792E+00	6.967E-06	6.969E-06	29.36
AC-228	89.96	-----	3.40	1.657E+00	-----	Line Not Found	-----
	93.35	-----	5.60	1.743E+00	-----	Line Not Found	-----
	99.55	-----	1.30	1.876E+00	-----	Line Not Found	-----
	105.36	-----	2.00	1.973E+00	-----	Line Not Found	-----
	108.99	-----	0.67	2.021E+00	-----	Line Not Found	-----
	129.03	-----	2.90	2.163E+00	-----	Line Not Found	-----
	153.89	-----	0.84	2.160E+00	-----	Line Not Found	-----
	209.39	-----	4.10	1.937E+00	-----	Line Not Found	-----
	216.24	-----	0.80	1.905E+00	-----	Line Not Found	-----
	270.26	-----	3.80	1.673E+00	-----	Line Not Found	-----
	328.07	25	3.50	1.467E+00	3.403E-06	3.419E-06	32.57
	338.42	43	12.40	1.434E+00	1.710E-06	1.718E-06	25.36
	340.94	-----	0.52	1.428E+00	-----	Line Not Found	-----
	409.62	-----	2.20	1.243E+00	-----	Line Not Found	-----
	463.10	-----	4.60	1.125E+00	-----	Line Not Found	-----
	562.65	-----	1.01	9.501E-01	-----	Line Not Found	-----
	581.52	-----	3.00	9.221E-01	-----	Line Not Found	-----
	726.63	-----	0.87	7.472E-01	-----	Line Not Found	-----
	755.28	-----	1.32	7.197E-01	-----	Line Not Found	-----
	772.28	-----	1.09	7.043E-01	-----	Line Not Found	-----
	782.12	-----	0.59	6.956E-01	-----	Line Not Found	-----
	794.79	-----	4.60	6.848E-01	-----	Line Not Found	-----
	830.59	-----	0.63	6.561E-01	-----	Line Not Found	-----
	835.60	-----	1.71	6.523E-01	-----	Line Not Found	-----
	840.44	-----	0.94	6.486E-01	-----	Line Not Found	-----
	904.29	-----	0.89	6.044E-01	-----	Line Not Found	-----
	911.16	50	29.00*	6.002E-01	2.005E-06	2.014E-06	14.83
	964.64	-----	5.80	5.686E-01	-----	Line Not Found	-----
	968.97	26	17.40	5.664E-01	1.881E-06	1.890E-06	28.96
	1246.60	-----	0.57	4.593E-01	-----	Line Not Found	-----
	1459.19	-----	1.06	4.213E-01	-----	Line Not Found	-----
	1496.00	-----	1.05	4.176E-01	-----	Line Not Found	-----
	1501.44	-----	0.58	4.172E-01	-----	Line Not Found	-----
	1580.30	-----	0.71	4.121E-01	-----	Line Not Found	-----
	1588.23	-----	3.60	4.118E-01	-----	Line Not Found	-----
	1630.47	-----	1.95	4.106E-01	-----	Line Not Found	-----
	1638.10	-----	0.54	4.105E-01	-----	Line Not Found	-----

Flag: "\*" = Keyline

Minimum Detectable Activity Report  
Sample ID : 30282

Page : 7  
Acquisition date : 30-MAY-2014 12:58:58

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	9.	477.61	1.0455E-06
MN-54	8.	834.83	1.7105E-07
MN-56	12.	846.81	2.1351E-07
CO-57	46.	122.06	1.3212E-07
CO-58	5.	810.79	1.4299E-07
CO-60	3.	1332.50	1.7260E-07
SB-124	0.	1690.98	9.8444E-08
SB-125	10.	427.88	3.4734E-07
CS-134	10.	604.71	1.4206E-07
CS-137	4.	661.66	1.2134E-07