

# Health Physics Sample Records

Sample ID: 142430

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized:

Description: 140528BD 02 STAR 2-20 Dirt Sample

## Common

Resp Org: P4000 - PROJECT MANAGEMEN

Cross Ref Sample ID:

Priority:

Contact: COOPER, TERRY L

Survey No:

Reference ID:

Accounting Subcode:

Unknown Mat:

Hazardous Mat:

Comments:

Reviewed: DYNES, WILLIAM J

Date: 05/29/14 11:09

Comments:

## Origin

Mat. Size/Volume: 1000 ml

Docmnt/MO/Act #:

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

Description: STAR 02 SOIL SAMPLE

## Collection

Sample Tech: DYNES, WILLIAM J

Sample Date: 05/28/14 12:41

Count Time: 900 (secs.)

Tritium Req:

Sample Size/Volume: 2119 GRAMS

Instructions: COUNT TO MDA

Comments: COUNT TO MDA

## RLSSS

Exempt: No

Evaluated: No

Chem Notification: No

State Permit:

Offsite Analysis: No

Effluent Permit:

Container Surveyed:

Cleared For Release: Yes

Container Evaluated:

Form 212 Ready:

## Location

Unit: NON-UNIT RE

Area: MS

Elev: 100

Room:

Depth: 3" (in.)

Equip ID:

Stored By: ,

Date: 00/00/00 00:00

Sample Loc:

Other:

Material Loc:

## Health Physics Sample Records

Sample ID: **142430**

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized:

Description: 140528BD 02 STAR 2-20 Dirt Sample

### Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
A_1L_marinelli_sand_	30265	2119	GR		.000		ABERNATHY, AGNES B	05/29/14 14:43		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments	Mod Id	Mod Date	
0 K-40	NT	0.00001321	1.31E-6	<input type="checkbox"/>	82.525%	40				
0 TL-208	NT	4.086E-7	1.134E-7	<input type="checkbox"/>	2.553%	208				
0 PB-212	NT	5.258E-7	1.466E-7	<input type="checkbox"/>	3.285%	212				
0 BI-214	NT	4.701E-7	1.067E-7	<input type="checkbox"/>	2.937%	214				
0 PB-214	NT	7.456E-7	2.236E-7	<input type="checkbox"/>	4.658%	214				
0 AC-228	NT	6.472E-7	1.673E-7	<input type="checkbox"/>	4.043%	228				
0 BE-7	AP	4.5041E-7		<input checked="" type="checkbox"/>	0.000%	7				
0 MN-54	AP	1.1511E-7		<input checked="" type="checkbox"/>	0.000%	54				
0 MN-56	AP	1.0964E-7		<input checked="" type="checkbox"/>	0.000%	56				
0 CO-57	AP	7.2358E-8		<input checked="" type="checkbox"/>	0.000%	57				
0 CO-58	AP	8.0058E-8		<input checked="" type="checkbox"/>	0.000%	58				
0 CO-60	AP	8.8128E-8		<input checked="" type="checkbox"/>	0.000%	60				
0 SB-124	AP	7.104E-8		<input checked="" type="checkbox"/>	0.000%	124				
0 SB-125	FP	2.1701E-7		<input checked="" type="checkbox"/>	0.000%	125				
0 CS-134	FP	7.504E-8		<input checked="" type="checkbox"/>	0.000%	134				
0 CS-137	FP	7.6702E-8		<input checked="" type="checkbox"/>	0.000%	137				

### Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 09:10

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:

## Health Physics Sample Records

---

Sample ID: 142430

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized:

Description: 140528BD 02 STAR 2-20 Dirt Sample

---

### Review/Approve

---

#### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 09:10

Comments:

---

#### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

---

#### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 09:11

Comments:

```

*****
*          SONGS                      HEALTH PHYSICS REPORT          29-MAY-2014 14:41  *
*-----*
*                >>>> SAMPLE  PARAMETERS <<<<<                *
*
* Title       : 140528BD 02 STAR 2-20 DIRT SAMPLE                *
*
* ID          : 30265                      Acquisition date: 29-MAY-2014 14:38:19 *
* Start Time : 29-MAY-2014 14:38:00
* Stop Time  : 29-MAY-2014 14:38:00      Counting System   : U2GSP          *
* Quantity   : 2.11900E+03 GR             IHPS Sample Number: 142430       *
* Geometry   : A_1L_marinelli_sand_1     Analysis Library   : HP_NATURAL   *
*                               Operator: AGNES ABERNATHY          *
*-----*
*                >>>> A #41-TP11679B  PARAMETERS <<<<<                *
*
* Elapsed Live Time : 0 00:03:00.38      Calibration       : 28-MAY-2014 21:10 *
* Elapsed Real Time  : 0 00:03:00.45      Energy Offset     : 2.58874E-01      *
* Deadtime           : 0.0%                Energy Slope      : 4.99485E-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	77.16	39	46	0.99	153.96	152	7	33.8	5.98E-01	BI-214 PB-212 PB-214
1	238.61	67	79	1.53	477.19	473	11	27.9	6.24E+00	PB-212
1	295.35	36	16	1.58	590.78	585	12	30.0	2.05E+00	PB-214
1	299.90	18	5	1.77	599.90	597	8	29.2	7.68E-01	PB-212
1	338.43	15	15	1.87	677.04	674	9	52.7	2.53E+00	AC-228
1	351.92	45	8	1.31	704.06	699	11	20.0	5.02E-01	PB-214
1	583.22	38	16	1.60	1167.14	1161	15	27.8	9.43E-01	TL-208
1	609.17	31	6	2.33	1219.09	1214	11	22.7	1.25E+00	BI-214
1	911.04	19	2	2.44	1823.47	1818	10	25.8	5.51E-01	AC-228
1	1460.79	106	0	1.84	2924.14	2917	13	9.9	8.59E-01	K-40

Summary of Nuclide Activity  
Sample ID : 30265

Page : 2  
Acquisition date : 29-MAY-2014 14:38:19

Total number of lines in spectrum 10  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 10 100.00%

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	1.321E-05	1.321E-05	0.131E-05	9.95	A
TL-208	3.05M	1.49	2.745E-07	4.086E-07	1.134E-07	27.76	A
PB-212	10.64H	1.00	5.248E-07	5.258E-07	1.466E-07	27.88	A
BI-214	19.90M	1.07	4.412E-07	4.701E-07	1.067E-07	22.70	A
PB-214	26.80M	1.05	7.112E-07	7.456E-07	2.236E-07	30.00	A
AC-228	6.13H	1.00	6.450E-07	6.472E-07	1.673E-07	25.85	A
Total Activity :			1.580E-05	1.600E-05			

Grand Total Activity : 1.580E-05 1.600E-05

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

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

Unidentified Energy Lines  
Sample ID : 30265

Page : 3  
Acquisition date : 29-MAY-2014 14:38:19

None

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30265

Page : 4  
Acquisition date : 29-MAY-2014 14:38:19

No interference correction performed

Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected Decay Corr		1-Sigma %Error
					uCi/GR	uCi/GR	
K-40	1460.83	106	10.67*	5.314E-01	1.321E-05	1.321E-05	9.95
TL-208	72.80	-----	2.14	1.594E+00	-----	Line Not Found	-----
	74.97	-----	3.60	1.692E+00	-----	Line Not Found	-----
	84.79	-----	1.27	2.058E+00	-----	Line Not Found	-----
	252.45	-----	0.80	2.021E+00	-----	Line Not Found	-----
	277.28	-----	6.80	1.920E+00	-----	Line Not Found	-----
	510.61	-----	21.60	1.265E+00	-----	Line Not Found	-----
	583.02	38	86.00*	1.128E+00	2.745E-07	4.086E-07	27.76
	763.06	-----	1.64	8.744E-01	-----	Line Not Found	-----
	860.30	-----	12.00	7.770E-01	-----	Line Not Found	-----
PB-212	74.81	-----	10.50	1.685E+00	-----	Line Not Found	-----
	77.11	39	17.70	1.785E+00	8.734E-07	8.751E-07	33.79
	87.19	-----	6.27	2.129E+00	-----	Line Not Found	-----
	90.13	-----	1.86	2.206E+00	-----	Line Not Found	-----
	115.12	-----	0.59	2.535E+00	-----	Line Not Found	-----
	238.58	67	43.60*	2.082E+00	5.248E-07	5.258E-07	27.88
	300.03	18	3.34	1.835E+00	2.128E-06	2.133E-06	29.20
BI-214	76.86	39	0.58	1.785E+00	2.665E-05	2.840E-05	33.79
	79.29	-----	0.97	1.869E+00	-----	Line Not Found	-----
	609.31	31	46.10*	1.084E+00	4.412E-07	4.701E-07	22.70
	665.44	-----	1.56	9.985E-01	-----	Line Not Found	-----
	768.35	-----	4.88	8.685E-01	-----	Line Not Found	-----
	806.16	-----	1.23	8.283E-01	-----	Line Not Found	-----
	934.04	-----	3.16	7.177E-01	-----	Line Not Found	-----
	1120.27	-----	15.00	6.114E-01	-----	Line Not Found	-----
	1155.18	-----	1.69	5.973E-01	-----	Line Not Found	-----
	1238.11	-----	5.92	5.697E-01	-----	Line Not Found	-----
	1280.95	-----	1.47	5.585E-01	-----	Line Not Found	-----
	1377.66	-----	4.02	5.401E-01	-----	Line Not Found	-----
	1385.30	-----	0.78	5.391E-01	-----	Line Not Found	-----
	1401.48	-----	1.39	5.370E-01	-----	Line Not Found	-----
	1407.97	-----	2.48	5.362E-01	-----	Line Not Found	-----
	1509.22	-----	2.19	5.292E-01	-----	Line Not Found	-----
	1583.22	-----	0.72	5.296E-01	-----	Line Not Found	-----
	1661.26	-----	1.15	5.351E-01	-----	Line Not Found	-----
	1729.58	-----	3.05	5.442E-01	-----	Line Not Found	-----
	1764.49	-----	15.90	5.503E-01	-----	Line Not Found	-----
	1847.41	-----	2.12	5.694E-01	-----	Line Not Found	-----
PB-214	53.17	-----	1.10	5.543E-01	-----	Line Not Found	-----
	74.81	-----	6.52	1.685E+00	-----	Line Not Found	-----
	77.11	39	11.00	1.785E+00	1.405E-06	1.473E-06	33.79
	87.19	-----	3.88	2.129E+00	-----	Line Not Found	-----
	90.13	-----	1.15	2.206E+00	-----	Line Not Found	-----
	241.92	-----	7.46	2.067E+00	-----	Line Not Found	-----
	258.94	-----	0.55	1.994E+00	-----	Line Not Found	-----
	295.09	36	19.20*	1.851E+00	7.112E-07	7.456E-07	30.00
	351.87	45	37.10	1.662E+00	5.129E-07	5.377E-07	19.96
	785.83	-----	1.09	8.495E-01	-----	Line Not Found	-----
	839.00	-----	0.59	7.964E-01	-----	Line Not Found	-----



Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected Decay Corr		1-Sigma
					uCi/GR	uCi/GR	
AC-228	89.96	-----	3.40	2.201E+00	-----	Line Not Found	-----
	93.35	-----	5.60	2.279E+00	-----	Line Not Found	-----
	99.55	-----	1.30	2.389E+00	-----	Line Not Found	-----
	105.36	-----	2.00	2.463E+00	-----	Line Not Found	-----
	108.99	-----	0.67	2.496E+00	-----	Line Not Found	-----
	129.03	-----	2.90	2.562E+00	-----	Line Not Found	-----
	153.89	-----	0.84	2.496E+00	-----	Line Not Found	-----
	209.39	-----	4.10	2.221E+00	-----	Line Not Found	-----
	216.24	-----	0.80	2.187E+00	-----	Line Not Found	-----
	270.26	-----	3.80	1.948E+00	-----	Line Not Found	-----
	328.07	-----	3.50	1.738E+00	-----	Line Not Found	-----
	338.42	15	12.40	1.704E+00	5.140E-07	5.158E-07	52.66
	340.94	-----	0.52	1.696E+00	-----	Line Not Found	-----
	409.62	-----	2.20	1.499E+00	-----	Line Not Found	-----
	463.10	-----	4.60	1.368E+00	-----	Line Not Found	-----
	562.65	-----	1.01	1.164E+00	-----	Line Not Found	-----
	581.52	-----	3.00	1.131E+00	-----	Line Not Found	-----
	726.63	-----	0.87	9.173E-01	-----	Line Not Found	-----
	755.28	-----	1.32	8.833E-01	-----	Line Not Found	-----
	772.28	-----	1.09	8.641E-01	-----	Line Not Found	-----
	782.12	-----	0.59	8.534E-01	-----	Line Not Found	-----
	794.79	-----	4.60	8.400E-01	-----	Line Not Found	-----
	830.59	-----	0.63	8.043E-01	-----	Line Not Found	-----
	835.60	-----	1.71	7.996E-01	-----	Line Not Found	-----
	840.44	-----	0.94	7.951E-01	-----	Line Not Found	-----
	904.29	-----	0.89	7.403E-01	-----	Line Not Found	-----
	911.16	19	29.00*	7.350E-01	6.450E-07	6.472E-07	25.85
	964.64	-----	5.80	6.962E-01	-----	Line Not Found	-----
	968.97	-----	17.40	6.933E-01	-----	Line Not Found	-----
	1246.60	-----	0.57	5.673E-01	-----	Line Not Found	-----
	1459.19	-----	1.06	5.315E-01	-----	Line Not Found	-----
	1496.00	-----	1.05	5.296E-01	-----	Line Not Found	-----
	1501.44	-----	0.58	5.294E-01	-----	Line Not Found	-----
1580.30	-----	0.71	5.295E-01	-----	Line Not Found	-----	
1588.23	-----	3.60	5.298E-01	-----	Line Not Found	-----	
1630.47	-----	1.95	5.324E-01	-----	Line Not Found	-----	
1638.10	-----	0.54	5.330E-01	-----	Line Not Found	-----	

Flag: "\*" = Keyline

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	2.	477.61	4.5041E-07
MN-54	5.	834.83	1.1511E-07
MN-56	4.	846.81	1.0964E-07
CO-57	18.	122.06	7.2358E-08
CO-58	2.	810.79	8.0058E-08
CO-60	1.	1173.24	8.8128E-08
SB-124	3.	602.73	7.1040E-08
SB-125	5.	427.88	2.1701E-07
CS-134	3.	604.71	7.5040E-08
CS-137	2.	661.66	7.6702E-08