

# Health Physics Sample Records

Sample ID: 142444

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: ☒

Description: 140528BD 14 STAR 14-20 Dirt Sample

## 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: 05/30/14 08:14

Comments:

## Origin

Mat. Size/Volume: 1875 GRAMS

Docmnt/MO/Act #:

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

Description: STAR 14 SOIL SAMPLE

## Collection

Sample Tech: DYNES, WILLIAM J

Sample Date: 05/29/14 07:32

Count Time: 900 (secs.)

Tritium Req: No

Sample Size/Volume: 1875 GRAMS

Instructions:

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: 3" (in.)

Equip ID:

Stored By: ,

Date: 00/00/00 00:00

Sample Loc:

Other:

Material Loc:


# Health Physics Sample Records

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Status: APPROVED

Rasterized: 

Description: 140528BD 14 STAR 14-20 Dirt Sample

## Analysis

Geometry	MCA ID	Quant.	Units	Method	FP/AP	Lab	Analysis By	Date	Mod ID	Mod Date
C_1L_marinelli_sand_	30284	1875	GR		.000		HENDERSON, JOE C	05/30/14 13:28		
Isotope	Mode	Activity	Activity Uncert.	LLD/MDA	% Abund.	Atom. No.	Comments		Mod Id	Mod Date
0 K-40	NT	0.00001481	1.41E-6		6.806%	40				
0 TL-208	NT	5.339E-7	8.42E-8		0.245%	208				
0 PB-212	NT	9.109E-7	1.208E-7		0.419%	212				
0 BI-214	NT	7.262E-7	1.293E-7		0.334%	214				
0 PB-214	NT	6.701E-7	2.376E-7		0.308%	214				
0 RN-222	NT	0.0001961	0.0000521		90.120%	222				
0 RA-226	NT	2.897E-6	1.209E-6		1.331%	226				
0 AC-228	NT	7.712E-7	2.023E-7		0.354%	228				
0 U-235	NT	1.793E-7	7.48E-8		0.082%	235				
0 BE-7	AP	7.3754E-7			0.000%	7				
0 MN-54	AP	7.3495E-8			0.000%	54				
0 MN-56	AP	1.0017E-7			0.000%	56				
0 CO-57	AP	1.0125E-7			0.000%	57				
0 CO-58	AP	1.1466E-7			0.000%	58				
0 CO-60	AP	1.2286E-7			0.000%	60				
0 SB-124	AP	9.3833E-8			0.000%	124				
0 SB-125	FP	2.1966E-7			0.000%	125				
0 CS-134	FP	8.0324E-8			0.000%	134				
0 CS-137	FP	1.3414E-7			0.000%	137				

## Analysis Review

Re-Analyze: No

Lic Rad Mat Present: No

Reviewed: COOPER, TERRY L

Date: 06/10/14 10:03

Hp Eng Rvw Req'd: Yes

Rad Mat Present: Yes

HP Notified Name:

Comments:


## Health Physics Sample Records

Sample ID: 142444

Type: RLSSS

Type Detail: SAND

Status: APPROVED

Rasterized: 

Description: 140528BD 14 STAR 14-20 Dirt Sample

### Review/Approve

#### HP Eng Review

Reviewed: COOPER, TERRY L

Date: 06/10/14 10:04

Comments: U-235 likely mis-ID'd from Ac-228 and Ra-226 energy peaks

#### Disposition

Disposition: OTHER

Result: Sample contains only natural isotopes

Remarks:

#### Final Approval

Approved: COOPER, TERRY L

Date: 06/10/14 10:04

Comments:

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*****
*          SONGS                      HEALTH PHYSICS REPORT          30-MAY-2014 13:16  *
*-----*
*          >>>> SAMPLE  PARAMETERS <<<<          *
*
* Title      : 140528BD 14 STAR 14-20 DIRT SAMPLE          *
*
* ID         : 30284                      Acquisition date: 30-MAY-2014 13:13:36  *
* Start Time: 30-MAY-2014 13:13:00          *
* Stop Time : 30-MAY-2014 13:13:00          Counting System   : U2GSP          *
* Quantity  : 1.87500E+03 GR                IHPS Sample Number: 142444          *
* Geometry  : C_1L_marinelli_sand_1        Analysis Library  : HP_NATURAL          *
*          Operator: JOE HENDERSON          *
*-----*
*          >>>> C #41-TP11750A  PARAMETERS <<<<          *
*
* Elapsed Live Time : 0 00:03:00.41  Calibration      : 29-MAY-2014 21:45  *
* Elapsed Real Time : 0 00:03:00.48  Energy Offset    : -1.13380E-01          *
* Deadtime          : 0.0%            Energy Slope     : 4.99622E-01          *
* Activity Mult Factor: 1.00000E+00  Energy Tolerance: 1.00000          *
* Half Life Ratio   : 8.00000         Sensitivity      : 5.00000          *
*
*****

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Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides
5	74.34	70	24	1.43	149.02	144	19	18.5	2.69E+00	PB-212 PB-214 TL-208
5	77.33	62	21	1.43	155.01	144	19	21.0		BI-214 PB-212 PB-214
1	93.18	46	42	1.78	186.73	182	9	28.6	3.97E+00	AC-228 U-235
1	185.85	27	34	1.48	372.20	368	8	41.7	1.94E+00	U-235 RA-226
1	238.51	102	24	1.15	477.58	474	7	13.3	5.67E+00	PB-212
1	295.28	28	16	1.31	591.19	586	11	35.5	8.75E-01	PB-214
1	338.19	25	5	1.50	677.08	670	11	27.7	8.97E-01	AC-228
1	351.80	63	13	1.53	704.31	700	9	16.3	5.47E-01	PB-214
1	510.54	22	5	2.50	1021.97	1018	9	26.6	8.36E-01	RN-222 TL-208
1	582.98	42	0	1.97	1166.93	1162	10	15.8	8.79E-01	TL-208
1	609.27	43	5	1.91	1219.53	1214	10	17.8	5.09E-01	BI-214
1	910.96	21	4	2.08	1823.18	1819	8	26.2	4.05E-01	AC-228
1	1460.72	110	0	2.04	2923.02	2918	10	9.5	4.57E-01	K-40

Summary of Nuclide Activity  
Sample ID : 30284

Page : 2  
Acquisition date : 30-MAY-2014 13:13:36

Total number of lines in spectrum 13  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 13 100.00%

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	1.481E-05	1.481E-05	0.141E-05	9.50	A
TL-208	3.05M	1.58	3.375E-07	5.339E-07	0.842E-07	15.77	A
PB-212	10.64H	1.00	9.088E-07	9.109E-07	1.208E-07	13.27	A
BI-214	19.90M	1.08	6.752E-07	7.262E-07	1.293E-07	17.81	A
PB-214	26.80M	1.06	6.348E-07	6.701E-07	2.376E-07	35.45	A
RN-222	3.83D	1.00	1.960E-04	1.961E-04	0.521E-04	26.59	A
RA-226	1600.00Y	1.00	2.897E-06	2.897E-06	1.209E-06	41.73	A
AC-228	6.13H	1.00	7.682E-07	7.712E-07	2.023E-07	26.23	A
U-235	7.04E+08Y	1.00	1.793E-07	1.793E-07	0.748E-07	41.73	A
Total Activity :			2.172E-04	2.176E-04			

Grand Total Activity : 2.172E-04 2.176E-04

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

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

Unidentified Energy Lines  
Sample ID : 30284

Page : 3  
Acquisition date : 30-MAY-2014 13:13:36

None

Flags: "T" = Tentatively associated

Interference Report  
Sample ID : 30284

Page : 4  
Acquisition date : 30-MAY-2014 13:13:36

No interference correction performed

Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected Decay Corr		1-Sigma
					uCi/GR	uCi/GR	
K-40	1460.83	110	10.67*	5.560E-01	1.481E-05	1.481E-05	9.50
TL-208	72.80	-----	2.14	1.486E+00	-----	Line Not Found	-----
	74.97	70	3.60	1.551E+00	1.006E-05	1.592E-05	18.47
	84.79	-----	1.27	1.917E+00	-----	Line Not Found	-----
	252.45	-----	0.80	2.004E+00	-----	Line Not Found	-----
	277.28	-----	6.80	1.917E+00	-----	Line Not Found	-----
	510.61	22	21.60	1.298E+00	6.353E-07	1.005E-06	26.59
	583.02	42	86.00*	1.158E+00	3.375E-07	5.339E-07	15.77
	763.06	-----	1.64	8.934E-01	-----	Line Not Found	-----
PB-212	860.30	-----	12.00	7.922E-01	-----	Line Not Found	-----
	74.81	70	10.50	1.551E+00	3.450E-06	3.458E-06	18.47
	77.11	62	17.70	1.669E+00	1.684E-06	1.688E-06	21.04
	87.19	-----	6.27	1.983E+00	-----	Line Not Found	-----
	90.13	-----	1.86	2.055E+00	-----	Line Not Found	-----
	115.12	-----	0.59	2.376E+00	-----	Line Not Found	-----
	238.58	102	43.60*	2.055E+00	9.088E-07	9.109E-07	13.27
	300.03	-----	3.34	1.843E+00	-----	Line Not Found	-----
BI-214	76.86	62	0.58	1.669E+00	5.139E-05	5.527E-05	21.04
	79.29	-----	0.97	1.741E+00	-----	Line Not Found	-----
	609.31	43	46.10*	1.112E+00	6.752E-07	7.262E-07	17.81
	665.44	-----	1.56	1.023E+00	-----	Line Not Found	-----
	768.35	-----	4.88	8.873E-01	-----	Line Not Found	-----
	806.16	-----	1.23	8.454E-01	-----	Line Not Found	-----
	934.04	-----	3.16	7.310E-01	-----	Line Not Found	-----
	1120.27	-----	15.00	6.242E-01	-----	Line Not Found	-----
	1155.18	-----	1.69	6.105E-01	-----	Line Not Found	-----
	1238.11	-----	5.92	5.846E-01	-----	Line Not Found	-----
	1280.95	-----	1.47	5.747E-01	-----	Line Not Found	-----
	1377.66	-----	4.02	5.602E-01	-----	Line Not Found	-----
	1385.30	-----	0.78	5.595E-01	-----	Line Not Found	-----
	1401.48	-----	1.39	5.583E-01	-----	Line Not Found	-----
	1407.97	-----	2.48	5.578E-01	-----	Line Not Found	-----
	1509.22	-----	2.19	5.568E-01	-----	Line Not Found	-----
	1583.22	-----	0.72	5.628E-01	-----	Line Not Found	-----
	1661.26	-----	1.15	5.753E-01	-----	Line Not Found	-----
PB-214	1729.58	-----	3.05	5.918E-01	-----	Line Not Found	-----
	1764.49	-----	15.90	6.023E-01	-----	Line Not Found	-----
	1847.41	-----	2.12	6.331E-01	-----	Line Not Found	-----
	53.17	-----	1.10	5.203E-01	-----	Line Not Found	-----
	74.81	70	6.52	1.551E+00	5.556E-06	5.865E-06	18.47
	77.11	62	11.00	1.669E+00	2.709E-06	2.860E-06	21.04
	87.19	-----	3.88	1.983E+00	-----	Line Not Found	-----
	90.13	-----	1.15	2.055E+00	-----	Line Not Found	-----
	241.92	-----	7.46	2.043E+00	-----	Line Not Found	-----
	258.94	-----	0.55	1.981E+00	-----	Line Not Found	-----
	295.09	28	19.20*	1.858E+00	6.348E-07	6.701E-07	35.45
	351.87	63	37.10	1.686E+00	8.029E-07	8.477E-07	16.33
	785.83	-----	1.09	8.674E-01	-----	Line Not Found	-----
	839.00	-----	0.59	8.122E-01	-----	Line Not Found	-----



Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected Decay Corr		1-Sigma
					uCi/GR	uCi/GR	
RN-222	510.00	22	0.07*	1.298E+00	1.960E-04	1.961E-04	26.59
RA-226	81.07	-----	0.18	1.802E+00	-----	Line Not Found	-----
	186.11	27	3.28*	2.262E+00	2.897E-06	2.897E-06	41.73
AC-228	89.96	-----	3.40	2.051E+00	-----	Line Not Found	-----
	93.35	46	5.60	2.120E+00	3.106E-06	3.118E-06	28.60
	99.55	-----	1.30	2.229E+00	-----	Line Not Found	-----
	105.36	-----	2.00	2.301E+00	-----	Line Not Found	-----
	108.99	-----	0.67	2.335E+00	-----	Line Not Found	-----
	129.03	-----	2.90	2.414E+00	-----	Line Not Found	-----
	153.89	-----	0.84	2.377E+00	-----	Line Not Found	-----
	209.39	-----	4.10	2.168E+00	-----	Line Not Found	-----
	216.24	-----	0.80	2.141E+00	-----	Line Not Found	-----
	270.26	-----	3.80	1.941E+00	-----	Line Not Found	-----
	328.07	-----	3.50	1.756E+00	-----	Line Not Found	-----
	338.42	25	12.40	1.726E+00	9.431E-07	9.469E-07	27.75
	340.94	-----	0.52	1.718E+00	-----	Line Not Found	-----
	409.62	-----	2.20	1.531E+00	-----	Line Not Found	-----
	463.10	-----	4.60	1.401E+00	-----	Line Not Found	-----
	562.65	-----	1.01	1.195E+00	-----	Line Not Found	-----
	581.52	-----	3.00	1.160E+00	-----	Line Not Found	-----
	726.63	-----	0.87	9.382E-01	-----	Line Not Found	-----
	755.28	-----	1.32	9.027E-01	-----	Line Not Found	-----
	772.28	-----	1.09	8.827E-01	-----	Line Not Found	-----
	782.12	-----	0.59	8.716E-01	-----	Line Not Found	-----
	794.79	-----	4.60	8.576E-01	-----	Line Not Found	-----
	830.59	-----	0.63	8.205E-01	-----	Line Not Found	-----
	835.60	-----	1.71	8.155E-01	-----	Line Not Found	-----
	840.44	-----	0.94	8.108E-01	-----	Line Not Found	-----
	904.29	-----	0.89	7.542E-01	-----	Line Not Found	-----
	911.16	21	29.00*	7.488E-01	7.682E-07	7.712E-07	26.23
	964.64	-----	5.80	7.091E-01	-----	Line Not Found	-----
	968.97	-----	17.40	7.061E-01	-----	Line Not Found	-----
	1246.60	-----	0.57	5.825E-01	-----	Line Not Found	-----
	1459.19	-----	1.06	5.560E-01	-----	Line Not Found	-----
	1496.00	-----	1.05	5.563E-01	-----	Line Not Found	-----
	1501.44	-----	0.58	5.565E-01	-----	Line Not Found	-----
	1580.30	-----	0.71	5.624E-01	-----	Line Not Found	-----
	1588.23	-----	3.60	5.634E-01	-----	Line Not Found	-----
	1630.47	-----	1.95	5.696E-01	-----	Line Not Found	-----
	1638.10	-----	0.54	5.709E-01	-----	Line Not Found	-----
U-235	89.96	-----	3.36	2.051E+00	-----	Line Not Found	-----
	93.35	46	5.50	2.120E+00	3.162E-06	3.162E-06	28.60
	105.36	-----	1.98	2.301E+00	-----	Line Not Found	-----
	109.18	-----	1.50	2.336E+00	-----	Line Not Found	-----
	143.79	-----	10.50	2.402E+00	-----	Line Not Found	-----
	163.38	-----	4.70	2.347E+00	-----	Line Not Found	-----
	185.74	27	53.00*	2.262E+00	1.793E-07	1.793E-07	41.73
	194.96	-----	0.59	2.226E+00	-----	Line Not Found	-----
	202.13	-----	1.00	2.197E+00	-----	Line Not Found	-----

Nuclide Line Activity Report (continued)  
Sample ID : 30284

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Acquisition date : 30-MAY-2014 13:13:36

Nuclide Type: natural

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected uCi/GR	Decay Corr uCi/GR	1-Sigma %Error
	205.33	-----	4.70	2.184E+00	-----	Line Not Found	-----

Flag: "\*" = Keyline

Minimum Detectable Activity Report  
Sample ID : 30284

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Acquisition date : 30-MAY-2014 13:13:36

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/GR)
BE-7	5.	477.61	7.3754E-07
MN-54	1.	834.83	7.3495E-08
MN-56	2.	846.81	1.0017E-07
CO-57	25.	122.06	1.0125E-07
CO-58	4.	810.79	1.1466E-07
CO-60	2.	1173.24	1.2286E-07
SB-124	5.	602.73	9.3833E-08
SB-125	4.	427.88	2.1966E-07
CS-134	1.	795.87	8.0324E-08
CS-137	7.	661.66	1.3414E-07