Results of Gamma Spec Analysis for Depleted Uranium in APG Soils

Sample ID:	pCi/g U-238 (Th-234)	Total Curies U-238	grams U-238 per Sample	pCi/g U-235	Total Curies U-235	grams U-235 per sample	U-235/U-238 Ratio	
							6.4227E-02	This Sample
	0.60	5.9600E-13	1.7898E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-1-1							785.53	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-1-2							1326.43	% Diff from Natual
							5.4596E-03	This Sample
	0.93	9.3200E-13	2.7988E-06	0.033	3.2700E-14	1.5280E-08	7.2529E-03	Natural
SU-1-3							-24.73	% Diff from Natual
							5.3729E-03	This Sample
	2.65	2.6500E-12	7.9580E-06	0.092	9.1500E-14	4.2757E-08	7.2529E-03	Natural
SU-1-4							-25.92	% Diff from Natual
							6.5900E-03	This Sample
	0.90	9.0200E-13	2.7087E-06	0.038	3.8200E-14	1.7850E-08	7.2529E-03	Natural
SU-1-5							-9.14	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-1-6							1326.43	% Diff from Natual
							4.7790E-02	This Sample
	0.80	8.0100E-13	2.4054E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-1-7							558.90	% Diff from Natual
							6.9749E-03	This Sample
	1.70	1.7000E-12	5.1051E-06	0.076	7.6200E-14	3.5607E-08	7.2529E-03	Natural
SU-1-8							-3.83	% Diff from Natual
							2.6988E-03	This Sample
	12.80	1.2800E-11	3.8438E-05	0.222	2.2200E-13	1.0374E-07	7.2529E-03	Natural
SU-1-9							-62.79	% Diff from Natual
							3.2168E-03	This Sample
	5.95	5.9500E-12	1.7868E-05	0.123	1.2300E-13	5.7477E-08	7.2529E-03	Natural
SU-1-10							-55.65	% Diff from Natual
							2.2662E-03	This Sample
	2.52	2.5200E-12	7.5676E-06	0.037	3.6700E-14	1.7150E-08	7.2529E-03	Natural
SU-1-11							-68.75	% Diff from Natual
							3.1928E-03	This Sample
	1.93	1.9300E-12	5.7958E-06	0.040	3.9600E-14	1.8505E-08	7.2529E-03	Natural
SU-1-12							-55.98	% Diff from Natual
							3.8379E-03	This Sample
	0.89	8.9200E-13	2.6787E-06	0.022	2.2000E-14	1.0280E-08	7.2529E-03	Natural
SU-1-13							-47.09	% Diff from Natual
							2.3256E-03	This Sample
	2.75	2.7500E-12	8.2583E-06	0.041	4.1100E-14	1.9206E-08	7.2529E-03	Natural
SU-1-14							-67.94	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-1							1326.43	% Diff from Natual
							2.8087E-01	This Sample
	0.02	2.0000E-14	6.0060E-08	0.036	3.6100E-14	1.6869E-08	7.2529E-03	Natural
SU-2-2							3772.52	% Diff from Natual
							6.6689E-02	This Sample
	0.57	5.7400E-13	1.7237E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-3							819.47	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-4							1326.43	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-5							1326.43	% Diff from Natual

Results of Gamma Spec Analysis for Depleted Uranium in APG Soils

Sample ID:	pCi/g U-238 (Th-234)	Total Curies U-238	grams U-238 per Sample	pCi/g U-235	Total Curies U-235	grams U-235 per sample	U-235/U-238 Ratio	
							8.6801E-02	This Sample
	0.44	4.4100E-13	1.3243E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-6							1096.77	% Diff from Natual
							6.7751E-02	This Sample
	0.57	5.6500E-13	1.6967E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-7							834.12	% Diff from Natual
							2.6308E-03	This Sample
	13.90	1.3900E-11	4.1742E-05	0.235	2.3500E-13	1.0981E-07	7.2529E-03	Natural
SU-2-8							-63.73	% Diff from Natual
							2.8065E-03	This Sample
	3.92	3.9200E-12	1.1772E-05	0.071	7.0700E-14	3.3037E-08	7.2529E-03	Natural
SU-2-9							-61.31	% Diff from Natual
							4.8578E-02	This Sample
	0.79	7.8800E-13	2.3664E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-10							569.77	% Diff from Natual
							4.2080E-03	This Sample
	0.87	8.6900E-13	2.6096E-06	0.024	2.3500E-14	1.0981E-08	7.2529E-03	Natural
SU-2-11							-41.98	% Diff from Natual
							3.2717E+00	This Sample
	0.01	1.1700E-14	3.5135E-08	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-12							45009.21	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-13							1326.43	% Diff from Natual
							4.2914E-02	This Sample
	0.89	8.9200E-13	2.6787E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-2-14							491.68	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-4-1							1326.43	% Diff from Natual
							3.1121E-01	This Sample
	0.05	5.3000E-14	1.5916E-07	0.106	1.0600E-13	4.9533E-08	7.2529E-03	Natural
SU-4-2							4190.88	% Diff from Natual
							4.6260E-03	This Sample
	2.21	2.2100E-12	6.6366E-06	0.066	6.5700E-14	3.0701E-08	7.2529E-03	Natural
SU-4-3							-36.22	% Diff from Natual
							3.0677E-01	This Sample
	0.02	2.1000E-14	6.3063E-08	0.041	4.1400E-14	1.9346E-08	7.2529E-03	Natural
SU-4-4							4129.58	% Diff from Natual
							2.5656E-03	This Sample
	20.50	2.0500E-11	6.1562E-05	0.338	3.3800E-13	1.5794E-07	7.2529E-03	Natural
SU-4-5							-64.63	% Diff from Natual
							2.0774E-01	This Sample
	0.04	4.0000E-14	1.2012E-07	0.053	5.3400E-14	2.4953E-08	7.2529E-03	Natural
SU-4-6							2764.16	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-4-7							1326.43	% Diff from Natual
							3.6872E-01	This Sample
	0.05	4.6000E-14	1.3814E-07	0.109	1.0900E-13	5.0935E-08	7.2529E-03	Natural
SU-4-8							4983.76	% Diff from Natual
							1.7466E-02	This Sample
	0.98	9.8000E-13	2.9429E-06	0.110	1.1000E-13	5.1402E-08	7.2529E-03	Natural
SU-4-9							140.81	% Diff from Natual
							1.6235E-01	This Sample
	0.06	6.0000E-14	1.8018E-07	0.063	6.2600E-14	2.9252E-08	7.2529E-03	Natural
SU-4-10							2138.41	% Diff from Natual

Results of Gamma Spec Analysis for Depleted Uranium in APG Soils

Sample ID:	pCi/g U-238 (Th-234)	Total Curies U-238	grams U-238 per Sample	pCi/g U-235	Total Curies U-235	grams U-235 per sample	U-235/U-238 Ratio	
							7.8119E-03	This Sample
	2.47	2.4700E-12	7.4174E-06	0.124	1.2400E-13	5.7944E-08	7.2529E-03	Natural
SU-4-11							7.71	% Diff from Natual
							3.0468E-01	This Sample
	0.05	5.0000E-14	1.5015E-07	0.098	9.7900E-14	4.5748E-08	7.2529E-03	Natural
SU-4-12							4100.77	% Diff from Natual
							2.6648E-01	This Sample
	0.08	8.0000E-14	2.4024E-07	0.137	1.3700E-13	6.4019E-08	7.2529E-03	Natural
SU-4-13							3574.06	% Diff from Natual
							5.2301E-01	This Sample
	0.04	3.6000E-14	1.0811E-07	0.121	1.2100E-13	5.6542E-08	7.2529E-03	Natural
SU-4-14							7111.06	% Diff from Natual
							3.2949E-03	This Sample
	2.98	2.9800E-12	8.9489E-06	0.063	6.3100E-14	2.9486E-08	7.2529E-03	Natural
SU-14-1							-54.57	% Diff from Natual
							4.2056E-03	This Sample
	2.22	2.2200E-12	6.6667E-06	0.060	6.0000E-14	2.8037E-08	7.2529E-03	Natural
SU-14-2							-42.02	% Diff from Natual
							2.3806E-03	This Sample
	0.72	7.1900E-13	2.1592E-06	0.011	1.1000E-14	5.1402E-09	7.2529E-03	Natural
SU-14-3							-67.18	% Diff from Natual
							4.8736E-03	This Sample
	3.03	3.0300E-12	9.0991E-06	0.095	9.4900E-14	4.4346E-08	7.2529E-03	Natural
SU-14-4							-32.80	% Diff from Natual
							5.3915E-02	This Sample
	0.71	7.1000E-13	2.1321E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-14-5							643.35	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-14-6							1326.43	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-14-7							1326.43	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-14-8							1326.43	% Diff from Natual
							3.2430E-03	This Sample
	3.33	3.3300E-12	1.0000E-05	0.069	6.9400E-14	3.2430E-08	7.2529E-03	Natural
SU-14-9							-55.29	% Diff from Natual
							1.5065E-03	This Sample
	3.45	3.4500E-12	1.0360E-05	0.033	3.3400E-14	1.5607E-08	7.2529E-03	Natural
SU-14-10							-79.23	% Diff from Natual
							8.1101E-02	This Sample
	0.47	4.7200E-13	1.4174E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-14-11							1018.17	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-14-12							1326.43	% Diff from Natual
							1.0346E-01	This Sample
	0.37	3.7000E-13	1.1111E-06	0.246	2.4600E-13	1.1495E-07	7.2529E-03	Natural
SU-14-13							1326.43	% Diff from Natual
							2.1653E-03	This Sample
	0.96	9.6300E-13	2.8919E-06	0.013	1.3400E-14	6.2617E-09	7.2529E-03	Natural
SU-14-14							-70.15	% Diff from Natual

Sample ID: Example

pCi/g U-238	Grams of Sample	Total Curies	grams U-238 per Sample
14.40	1600	2.3040E-08	6.9189E-02

pCi/g U-235		Total Curies	grams U-235
0.24		3.8880E-10	1.8168E-04

	U-235/U-238 Ratio	
Depleted	2.6259E-03	This Sample
0	7.2529E-03	Natural
0	-63.80	% Diff from Natual

Enter pCi/g and grams of sample from analysis report.

Natural Abundance
0.7200% U-235
99.2745% U-238

Specific Activity			
Ci/g = **U-238**	3.33E-07	t 1/2 =	4.47E+09 yr
Ci/g = **U-235**	2.14E-06	t 1/2 =	7.1E+08 yr
Ci/g = **Th-234**	2.30E+04	t1/2 =	24.2 days

Specific Activity Calculation	Conversions
Ci/g = 1.30E+08 / t1/2 (days) x atomic wt	1dps = 1bq 1bq = 27 pCi 1Ci = 3.7E9dps

Bob's Ratio by Activity

Isotope	**U238**			
Half-life	1.41E+17	sec		
A.W.	238.050788	g	N. Abd.	Activity
SpA	3.36E-07	Ci/g	99.2745	3.33E-05

Isotope	**U235**			
Half-life	2.22E+16	sec		
A.W.	235.043928	g	0.72	1.55E-06
SpA	2.16E-06	Ci/g		

Sample	pCi/g
U235	0.239
U238	7.78

Ratio Natural	
U235/238	0.0466
Ratio Sample	
U235/238	0.0307
Ratio	
Samp/Nat	0.6588
-34.12	% Diff from Natual

Less than 1 indicates depletion
Greater than 1 indicates enrichment
Look at counting statistics
to see if uncertainties overlap natural.

Sample ID	

U-235/U-238 Ratio	
4.6600E-02	Natural
4.7120E-02	This Sample

pCi/g U-238	Grams of Sample	Total Curies
19.10	1600	3.0560E-08

0	
0	
Natural	

pCi/g U-235	Grams of Sample	Total Curies
0.90	1600	1.4400E-09

**Enter pCi/g from analysis report in Column A

Ratio	
U235/238	0.0466

Isotope	U238			
Half-life	1.41E+17	sec		
A.W.	238.050788	g	N. Abd.	Activity Ci
SpA	3.36E-07	Ci/g	99.2745	3.33E-05

Isotope	U235			
Half-life	2.22E+16	sec		
A.W.	235.043928	g	N. Abd.	Activity Ci
SpA	2.16E-06	Ci/g	0.7200	1.55E-06