

Cabrera Services, Inc. Responses to US NRC Questions
Interim Removal Action Work Plan and EE/CA
September 18, 2002

1. Section 1.5, Paragraph 3 in the Final EE/CA does state that soil samples taken during the first excavation in 1989 were assayed using a liquid scintillation counter. The reference to ‘chemical analysis only’ is for the groundwater samples taken from the Site 1 monitoring wells (Section 1.5, paragraphs 6 and 7).

2. Na-22 was excluded from the Final ROC list due to its short half-life and small inventory quantity. Na-22’s half-life of 2.6 years results in approximately 9.25 half-lives worth of decay since the single largest recorded disposal on 11/7/78. The table below was developed from the NADC Radionuclide Inventory Log and known disposal log information [Refs (NADC, 2000) and (ATKearney, 1991a), respectively, in Final EE/CA].

Although Na-22 did not meet the “>10 half-lives of decay” criterion referenced in Section 1.6 of the Final EE/CA, the levels of the decayed material appeared to be sufficiently small to warrant exception from the ROC list.

Isotope	Inventory (mCi) ¹	Total Decayed Inventory (Decayed to 9/18/02) (mCi)	NADC Disposal Record (mCi) ²	Decayed NADC Disposal Activities (mCi)
C14	1.462E+02	1.444E+02	6.180E-01	6.104E-01
Ca45	8.400E+01	9.204E-16		
Ca47	1.355E+01	5.420E-16		
Cl36	4.050E-01	4.050E-01	1.370E-01	1.370E-01
Cr51	4.000E+00	1.989E-99	6.780E-01	3.371E-100
Fe59	9.000E+00	7.258E-62		
Hg197	5.000E-01	0.000E+00		
H3	1.484E+03	2.970E+02	2.904E+01	5.811E+00
I125	2.397E+02	2.295E-38	7.930E+00	7.591E-40
I131	2.237E+02	0.000E+00	4.000E-05	0.000E+00
Mg28	5.500E+00	0.000E+00		
Na22	3.005E+00	4.717E-03	3.010E-01	2.041E-03
Ni63			1.500E-02	
P32	2.100E+01	6.060E-262		
S35	1.100E+00	4.898E-33	1.300E-01	5.788E-34
K40	1.000E+00	1.000E+00		
Ra226	1.000E+00	1.000E+00		

¹ from *Running Inventory of Radioisotopes*

² from *PA Table 2-1*

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3. While all of the spaces between burials are 6 feet in length, the actual lengths of the burials themselves vary from 4 feet up to 22 feet in length. Please see the table below for estimated burial pit locations and sizes, as recorded by NADC staff. The total length of the burial pits is estimated at 284 feet.

Burial #	Date Buried	Total Bag Volume (volume)	Estimated Locations		Trench Length (ft)
			Start Point (ft from ref.)	End Point (ft from ref.)	
1	5/28/1971	150	0	15	15
2	11/16/1971	140	21	31	10
3	5/18/1972	100	37	46	9
4	11/20/1972	135	52	56	4
5	11/15/1973	115	62	70	8
6	10/4/1974	255	76	86	10
7	8/29/1975	210	92	98	7
8	4/1/1976	680	104	110	5
9	3/18/1977	735	116	131	15
10	10/18/1977	241	137	144	7
11	6/16/1978	846	150	166	16
12	11/7/1978	468	172	186	14
13	4/30/1979	890	192	204	12
14	10/29/1979	735	210	231	22
15	4/16/1980	1050	237	256	18
16	10/20/1980	1275	262	284	22
Total volume =		8025			

4. The 12' trench width was a conservative estimate, based on limited knowledge of the physical characteristics of the burials. This width was estimated assuming a 6' pit width and 3' of additional width on each side to allow for excavation benching. We anticipate that the actual burials are thinner than 6' in width, which in turn will reduce the overall width of the overburden excavation. The goal of the excavation is to remove the optimal amount of dirt to achieve excavation of the buried bags while assuring compliance with OSHA excavation regulations.