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RESULTS OF CALCULATIONS OF EXTERNAL GAMMA RADIATION
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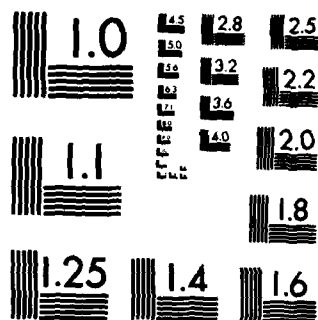
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Results of Calculations of External Gamma Radiation Exposure Rates from Local Fallout and the Related Radionuclide Compositions of Two Hypothetical 1-MT Nuclear Bursts

Harry Hicks

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Prepared for the Federal Emergency Management Agency
Washington, DC 20472

FEMA Interagency Agreement No. EMW-E-0883, Work Unit 3421B
Final Report, December 1984

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LAWRENCE LIVERMORE NATIONAL LABORATORY
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Results of Calculations of External Gamma Radiation Exposure Rates from Local Fallout and the Related Radionuclide Compositions of Two Hypothetical 1-MT Nuclear Bursts

Abstract

This report presents data on calculated gamma radiation exposure rates and local surface deposition of related radionuclides resulting from two hypothetical 1-MT nuclear bursts.

Introduction

In the past, we have calculated the normalized external gamma radiation exposure rates that resulted from local fallout from the Nevada Test Site (NTS)¹ and from Pacific tests.² These calculations have been used in the reconstruction of radiation doses downwind. More recently we were asked to make similar calculations to assist in the

development of criteria for the acceptance of food crops following a nuclear war. We have calculated the debris from two types of bombs, one containing ²³⁵U as a fissionable material (designated oralloy), the other containing ²³⁸U (designated tuballoy).

Results

Results of the calculations of relative external gamma radiation exposure rate and related radionuclide ground deposition are given in the Appendices. Activation products created by neutron interaction with the earth and other environmental materials present on the earth's surface are unimportant in the context of food and water contamination and are therefore not included. These calculations are described in detail in Ref. 3. The output of the calculation has 30 decay times: 10 from 1 to 21 hours, 10 from 1 to 300 days, and 10 from 1 to 50 years. For each of these times and for zero time, there are values of the external gamma radiation exposure rate normalized to 1 mR/h, 1 meter above the surface, 12 hours after the event; the associated values of $\mu\text{Ci}/\text{m}^2$ for each radionuclide; and the total $\mu\text{Ci}/\text{m}^2$.

Surface roughness effects are simulated by using Beck's values⁴ of $(\text{mR}/\text{h})/(\mu\text{Ci}/\text{m}^2)$ for a relaxation length of $0.16 \text{ g}/\text{cm}^2$. According to Beck, the concentration of fallout varies exponentially with soil depth, Z , according to the relation $C = C_0 e^{-\alpha Z}$. He defines relaxation length as $1/\alpha$.

Fractionation effects were simulated by the removal of a fraction of the refractory nuclides from

the calculation. Calculations for each event were performed for unfractionated debris and for debris with 0.5 and 0.1 of the refractory elements present.

Each Appendix contains three sets of 11 pages of calculated results relating to each event. Each set of 11 pages is marked Page 2 through Page 12. Page 2 of each set gives the external gamma-ray exposure rates and associated values of total microcuries per square meter at 30 decay intervals and at zero time. Calculated values for each radionuclide at various decay intervals are given in the remaining pages—from 1 to 21 hours on pp. 3-7, from 1 to 300 days on pp. 8-11, and from 1 to 50 years on p. 12. The value for each activation product at zero time is estimated from measurements performed on debris samples taken by aircraft from events of about 1-MT yield. When no estimate can be made, the value appears as zero. Fission products were calculated from typical fissioning nuclides and neutron energy spectra.³ Note that the totals at zero time include *only* the nuclides listed on pp. 3-12, not all nuclides present at zero time.

This work was funded by the Federal Emergency Management Agency.

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Appendix A

**Detailed Results for a 1-MT Burst with
 ^{235}U as the Principal Fissioning Species**

4

ORALLOY
 MR/HR AT H+12 HOURS = 1.000 MICROCURIES/SQ METER
 FRACTION OF REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

BE	7	24	35	39	57	60	64	67	81	85	87	88	199	203	237	239	240	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743</
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ORALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
 MR/HR AT H+12 HOURS = 1.000
 FRACTION OF REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
84M	8.36E-03	1.44E+00	1.00E+00	2.50E+00	2.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
85M	3.20E-01	1.97E+01	1.33E+01	1.55E+01	1.55E+01	1.55E+01	1.55E+01	1.55E+01	1.55E+01	1.55E+01
88M	6.98E+01	3.39E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01	1.11E+01
89M	3.01E+01	1.44E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
90M	4.74E+01	2.37E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
91M	7.43E+01	3.78E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
92M	1.56E+01	7.78E+00	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
93M	2.43E+01	1.45E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
94M	5.58E+01	2.41E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
95M	1.54E+01	1.18E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
96M	8.06E+01	4.87E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
97M	2.82E+01	1.37E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
98M	1.10E+01	5.75E+00	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
99M	1.22E+01	1.43E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC101	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC102	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC103	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC104	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC105	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC106	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01
TC107	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01	1.33E+01

ORALLOY
 MR/HR AT H+12 HOURS = 1.000
 OF REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SCM
 DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

OR ALLOY
 MR/HR AT H+12 HOURS = 1.000
 REFRACTION OF REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

130	I	130	2.10E+01	6.93555	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
131	S	131	2.10E+01	575	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
132	T	132	2.10E+01	12	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
133	T	133	2.10E+01	33	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
134	T	134	2.10E+01	77	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
135	T	135	2.10E+01	95	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
136	T	136	2.10E+01	37	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
137	X	137	2.10E+01	77	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
138	X	138	2.10E+01	95	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
139	C	139	2.10E+01	33	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
140	B	140	2.10E+01	77	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
141	B	141	2.10E+01	95	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
142	L	142	2.10E+01	33	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
143	L	143	2.10E+01	77	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
144	C	144	2.10E+01	95	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
145	C	145	2.10E+01	33	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
146	C	146	2.10E+01	77	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29
147	C	147	2.10E+01	95	1.1235482263	1.74772	1.146	1.51	1.23	1.63	1.22	1.29

ORALLOY H+12 HOURS = MICROCURIES/SQ METER
 NR/HR AT 1.000
 FRACTION OF REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

	ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
NDI 47	1.57E-05	2.95E+01	3.03E-01	3.03E-01	3.02E-01	3.00E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 49	1.05E+03	1.40E+01	3.50E-01	3.50E-01	3.48E-01	3.46E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 50	2.86E-01	1.23E+01	3.71E-01	3.71E-01	3.69E-01	3.67E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 51	2.32E+01	1.23E+01	1.70E-01	1.70E-01	1.68E-01	1.66E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 52	4.57E-02	1.53E+01	1.70E-01	1.70E-01	1.68E-01	1.66E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 53	1.49E+01	1.11E+01	1.45E-01	1.45E-01	1.43E-01	1.41E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 54	1.65E+01	1.47E+01	1.53E-01	1.53E-01	1.51E-01	1.49E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 55	1.91E+01	1.75E+01	1.75E-01	1.75E-01	1.73E-01	1.71E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 56	2.45E+01	2.77E+01	1.55E-01	1.55E-01	1.53E-01	1.51E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 57	2.76E-02	4.50E+01	1.79E-01	1.79E-01	1.77E-01	1.75E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 58	3.71E-01	1.46E+01	1.79E-01	1.79E-01	1.77E-01	1.75E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 59	2.02E-03	8.48E+01	1.99E-01	1.99E-01	1.97E-01	1.95E-01	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
NDI 60	3.04E-05	2.19E+01	2.17E-04	2.17E-04	2.16E-04	2.14E-04	2.66E+00	2.98E-01	2.26E+01	2.93E+01	3.91E-01	2.89E+01
TOTAL	8.79E+03	2.01E+03	8.35E+02	5.33E+02	3.99E+02	2.71E+02	1.85E+02	1.39E+02	1.10E+02	8.95E+01	7.50E+01	

ORALLOY
MR/HR AT H+12 HOURS = 1.000
FRACTION OF REFRACTORIES PRESENT = 1.000
RELAXATION LENGTH = 0.16 GM/SQCM
DEBRIS DECAY FROM 1 TO 200 DAYS

ZERO	TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+00	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
7	68E-04	2.65E-04	2.61E-04	2.52E-04	2.36E-04	2.07E-04	1.82E-04	1.40E-04	7.31E-05	1.99E-05	5.40E-06
BE	2.76E-05	1.80E-05	1.92E-05	1.68E-05	1.69E-05	1.12E-05	8.28E-06	1.46E-06	4.2E-06	4.31E-06	4.4E-06
24	1.86E-05	1.66E-05	1.80E-05	1.68E-05	1.65E-05	1.12E-05	8.28E-06	1.46E-06	4.2E-06	4.31E-06	4.4E-06
55	1.90E-05	1.66E-05	1.80E-05	1.68E-05	1.65E-05	1.12E-05	8.28E-06	1.46E-06	4.2E-06	4.31E-06	4.4E-06
57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	4.51E-05	1.23E-02	3.35E-03	1.42E-05	1.02E-07	2.24E-07	2.55E-08	2.70E-11	0.06E-16	0.0	0.0
64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M185	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M187	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M188	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AU198	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AU199	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AU203	1.94E-04	1.41E-04	1.02E-04	9.1E-05	7.94E-06	3.66E-07	3.4E-08	2.55E-11	6.3E-18	1.12E-09	7.59E-10
P2347	3.01E-01	2.28E-01	2.45E-02	1.80E-03	1.58E-06	2.66E-07	1.39E-06	1.77E-06	0.05E-05	0.0	0.0
U2330	7.01E-01	2.72E-01	7.01E-02	1.03E-03	5.08E-01	1.99E-11	1.15E-12	1.78E-06	0.0	0.0	0.0
NP2339	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NP2340	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NP240M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMN241	4.25E-03	1.01E-01	8.3E-02	9.5E-03	5.5E-06	3.9E-03	2.5E-04	4.3E-07	3.5E-13	3.22E-23	3.22E-23
AMN242	2.70E-09	9.02E-09	2.28E-09	2.08E-10	2.38E-10	2.23E-10	2.88E-09	7.3E-09	2.8E-10	2.28E-10	2.28E-10
CGAS77	4.00E-05	1.08E-05	5.06E-05	5.66E-06	4.3E-09	2.20E-06	3.5E-09	2.45E-09	0.3E-09	1.57E-09	1.29E-09
ASAS77M	5.20E-02	2.55E-04	1.62E-03	1.70E-06	4.3E-07	2.49E-09	8.35E-08	1.37E-14	8.8E-21	6.19E-40	1.33E-58
ASAS78	1.00E-04	1.05E-04	6.00E-04	6.00E-03	8.8E-07	4.6E-09	1.01E-10	0.0	6.5E-24	1.85E-42	3.93E-61
BRK83	4.23E-04	1.40E-04	3.60E-04	8.00E-03	8.8E-06	3.1E-08	9.7E-10	4.0E-14	4.0E-24	4.81E-45	1.64E-65
BRK83MM	3.23E-05	5.47E-05	2.33E-05	8.00E-14	9.00E-16	5.2E-32	7.6E-49	0.0	0.0	0.0	0.0
BRK85	4.40E-06	1.46E-04	1.68E-04	1.68E-04	1.16E-06	1.16E-04	1.16E-04	1.16E-04	1.15E-04	1.12E-04	1.11E-04
BRK88	6.37E+01	1.14E+01	2.68E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0
BRK88	1.17E+01	1.05E+01	0.87E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0
BRK89	1.17E+01	1.05E+01	0.87E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0
BRK89	1.17E+01	1.05E+01	0.87E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0
BRK90	1.17E+01	1.05E+01	0.87E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0
BRK90	1.17E+01	1.05E+01	0.87E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0
SKY91	1.17E+01	1.05E+01	0.87E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0
SYR	1.17E+01	1.05E+01	0.87E+01	0.99E+01	2.91E+01	0.0	0.0	0.0	0.0	0.0	0.0

GRAILLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
 MR/HR AT REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

DURALLOY
 1.000
 MICROCURIES/SQ METER
 1.000
 PRESENT = 1.000
 OF REFRACTORIES
 AT H+12 HOURS =
 0.16 GR/SQCM
 RELAXATION LENGTH =

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

ORALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1.000
FRACTION OF REFRACTORIES PRESENT = 1.000
RELAXATION LENGTH = 0.16 CM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

ZERO TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
PM151	4.57E-02	3.12E-01	1.72E-01	1.48E-03	3.90E-06	1.03E-08	7.09E-14	8.89E-27	0.	0.
SH1135	1.42E-01	1.05E-01	7.33E-02	4.33E-03	1.26E-04	3.66E-06	3.07E-09	6.34E-17	2.70E-32	1.15E-47
SD1135	9.55E-03	3.27E-02	2.73E-02	1.95E-04	4.01E-07	8.27E-17	3.52E-40	0.	0.	0.
SD1137	2.75E-04	3.27E-03	3.28E-03	3.28E-04	3.24E-04	2.33E-04	2.79E-04	3.14E-04	3.02E-04	2.90E-04
SD1139	1.51E-02	1.73E-02	5.83E-03	1.77E-07	1.63E-11	2.89E-16	9.01E-23	2.76E-05	2.72E-07	2.68E-09
GD1159	2.02E-03	3.97E-03	1.53E-03	9.70E-07	9.40E-11	9.11E-15	8.55E-23	0.	0.	0.
TD161	3.04E-05	1.99E-04	1.79E-04	8.04E-05	2.94E-05	1.08E-05	1.44E-06	7.30E-43	4.13E-13	1.79E-17
TOTAL	2.91E+02	6.32E+01	2.63E+01	9.31E+00	4.46E+00	2.01E+00	1.27E+00	3.23E-01	1.22E-01	6.03E-02

DEBRIS DECAY FROM 1 TO 50 YEARS

[illegible]

ORALLOY H+12 HOURS = 1.000 MR/HR AT REFRACTORIES PRESENT = 0.500 RELAXATION LENGTH = 0.16 GM/SQCM				
TIME	MR/HR	MICROCURI/SQ METER		
ZERO	1.04E+02	9.43E+03		
1.00E+00	1.45E+01	2.12E+03		
2.00E+00	1.38E+01	8.73E+02		
3.00E+00	7.57E+00	5.33E+02		
4.00E+00	4.38E+00	3.58E+02		
5.00E+00	1.39E+00	2.73E+02		
6.00E+00	1.00E+00	1.73E+02		
7.00E+00	7.77E-01	1.02E+02		
8.00E+00	6.29E-01	8.28E+01		
9.00E+00	5.22E-01	6.93E+01		
1.00E+01	4.35E-01	5.83E+01		
2.00E+01	1.86E-01	2.45E+00		
3.00E+01	7.24E-02	8.91E+00		
4.00E+01	3.57E-02	4.41E+00		
5.00E+01	1.49E-02	1.97E+00		
6.00E+01	8.50E-03	1.22E+00		
7.00E+01	5.80E-03	6.66E-01		
8.00E+01	3.25E-03	2.88E-01		
9.00E+01	1.28E-04	9.96E-02		
1.00E+02	1.66E-05	4.76E-02		
2.00E+02	9.62E-05	3.40E-02		
3.00E+02	3.08E-05	1.91E-02		
4.00E+02	1.21E-05	1.36E-02		
5.00E+02	8.66E-06	7.15E-03		
6.00E+02	5.99E-06	4.92E-03		
7.00E+02	3.84E-06	3.31E-03		
8.00E+02	2.41E-06	2.41E-03		
9.00E+02	1.53E-06	1.66E-03		
1.00E+03	9.92E-07	1.15E-03		

BRALLOY H+12 HOURS = MICROCURIES/SQ METER
 MRX/HR AT 1.000
 RELAXATION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 GH/SQCM
 DEBRIS DECAY FROM 1 TO 21 HOURS

	ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
7	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04
24	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02
55	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05	1.04E-05
54	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04
57	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05	3.70E-05
58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
198	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
199	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
203	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
237	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
240	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
242	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
275	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
277	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
278	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
279	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
280	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
281	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
282	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
283	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
283M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ORALLOY H+12 HOURS = 1.000
 FRACTION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	9.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
PD109M	7.32E-03	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
AG109M	4.11E-01	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
PD111M	3.33E-01	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
AG111M	3.33E-01	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
PD112M	1.20E-06	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
AG112M	1.20E-06	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
AG113M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
AG115M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
CD115M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
IN115M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
IN117M	1.20E-06	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
IN117M	1.20E-06	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
CD118M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
CD118M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
IN119M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
IN119M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH119M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH123M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH123M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH125M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH125M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH126M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH127M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH127M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH128M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH128M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH129M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH129M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH129M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH129M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH130M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01
SH130M	1.40E-08	5.58E-01	5.47E-01	5.55E-01	4.43E-01	3.52E-01	2.96E-01	2.51E-01	2.18E-01

DORALLOY
 MR/HR AT H+12 HOURS = 1.000
 FRACTION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z			
4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z				
5	6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z					
6	7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z						
7	8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z							
8	9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z								
9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z									
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z										
B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z											
C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z												
D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z													
E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z														
F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z															
G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z																
H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z																	
I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z																		
J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z																			
K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z																				
L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z																					
M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z																						
N	O	P	Q	R	S	T	U	V	W	X	Y	Z																							
O	P	Q	R	S	T	U	V	W	X	Y	Z																								
P	Q	R	S	T	U	V	W	X	Y	Z																									
Q	R	S	T	U	V	W	X	Y	Z																										
R	S	T	U	V	W	X	Y	Z																											
S	T	U	V	W	X	Y	Z																												
T	U	V	W	X	Y	Z																													
U	V	W	X	Y	Z																														
V	W	X	Y	Z																															
W	X	Y	Z																																
X	Y	Z																																	
Y	Z																																		
Z																																			

ORALLOY H+12 HOURS = MICROCURIES/SQ METER
 1.000
 FRACTION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 CM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
ND147	1.85E-01	1.90E-01	1.90E-01	1.89E-01	1.88E-01	1.87E-01	1.86E-01	1.84E-01	1.83E-01	1.81E-01
ND149	1.76E-01	1.80E-01	1.80E-01	1.79E-01	1.78E-01	1.77E-01	1.76E-01	1.74E-01	1.73E-01	1.71E-01
ND150	1.40E-01	1.43E-01	1.43E-01	1.42E-01	1.41E-01	1.40E-01	1.39E-01	1.37E-01	1.36E-01	1.34E-01
ND151	1.41E-01	1.44E-01	1.44E-01	1.43E-01	1.42E-01	1.41E-01	1.40E-01	1.38E-01	1.37E-01	1.35E-01
ND152	1.35E-01	1.38E-01	1.38E-01	1.37E-01	1.36E-01	1.35E-01	1.34E-01	1.32E-01	1.31E-01	1.29E-01
ND153	1.34E-01	1.37E-01	1.37E-01	1.36E-01	1.35E-01	1.34E-01	1.33E-01	1.31E-01	1.30E-01	1.28E-01
ND154	1.33E-01	1.36E-01	1.36E-01	1.35E-01	1.34E-01	1.33E-01	1.32E-01	1.30E-01	1.29E-01	1.27E-01
ND155	1.32E-01	1.35E-01	1.35E-01	1.34E-01	1.33E-01	1.32E-01	1.31E-01	1.29E-01	1.28E-01	1.26E-01
ND156	1.31E-01	1.34E-01	1.34E-01	1.33E-01	1.32E-01	1.31E-01	1.30E-01	1.28E-01	1.27E-01	1.25E-01
ND157	1.30E-01	1.33E-01	1.33E-01	1.32E-01	1.31E-01	1.30E-01	1.29E-01	1.27E-01	1.26E-01	1.24E-01
ND158	1.29E-01	1.32E-01	1.32E-01	1.31E-01	1.30E-01	1.29E-01	1.28E-01	1.26E-01	1.25E-01	1.23E-01
ND159	1.28E-01	1.31E-01	1.31E-01	1.30E-01	1.29E-01	1.28E-01	1.27E-01	1.25E-01	1.24E-01	1.22E-01
ND160	1.27E-01	1.30E-01	1.30E-01	1.29E-01	1.28E-01	1.27E-01	1.26E-01	1.24E-01	1.23E-01	1.21E-01
ND161	1.26E-01	1.29E-01	1.29E-01	1.28E-01	1.27E-01	1.26E-01	1.25E-01	1.23E-01	1.22E-01	1.20E-01
TOTAL	9.43E+03	2.12E+03	8.73E+02	5.39E+02	3.93E+02	2.58E+02	1.73E+02	1.02E+02	8.28E+01	6.93E+01

OR ALLOY H+12 HOURS = MICROCURIES/SQ METER
 MR/HR AT 1.000
 FRACTION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 GM/GMCM

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

ORALLOY H+12 HOURS = MICROCURIES/SQ METER
FRACTION OF REFRACTORIES PRESENT = 1.000
RELAXATION LENGTH = 0.16 GM/SQCM 0.500

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

DEBRIS DECAY FROM 1 TO 300 DAYS

ZERO TIME 1.00E+00 2.00E+00 5.00

[illegible]

ORALLOY AT H+12 HOURS = MICROCURIES/SQ METER
 MR/HR AT 1.000
 FRACTION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

	ZERO	TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
PM151	2.87E-02	1.96E-01	1.08E-01	1.82E-02	9.32E-02	2.32E-04	2.45E-06	6.45E-09	4.45E-14	5.58E-27	0.70E-32	0.721E-48
SM153	9.38E-02	6.59E-02	4.63E-02	1.60E-02	2.72E-03	2.72E-03	2.51E-17	2.30E-06	1.93E-09	3.98E-17	1.70E-32	0.721E-48
SM156	5.93E-02	1.01E-02	1.72E-03	8.50E-04	1.22E-04	2.04E-04	2.03E-04	5.19E-04	2.21E-04	0.97E-04	1.89E-04	1.82E-04
EU155	6.05E-06	2.05E-04	2.05E-04	2.05E-04	2.04E-04	2.04E-04	2.03E-04	2.03E-04	2.01E-04	1.73E-05	1.71E-07	1.68E-09
EU156	1.73E-04	1.41E-03	1.56E-03	1.40E-03	1.11E-03	1.11E-03	6.92E-11	4.41E-04	1.75E-04	0.97E-04	1.71E-07	1.68E-09
EU157	9.50E-03	1.10E-02	3.69E-03	1.38E-04	5.82E-07	5.82E-07	1.03E-11	1.82E-16	5.65E-26	0.58E-43	0.59E-13	1.13E-17
GD159	1.27E-03	2.49E-03	9.92E-04	6.19E-05	6.09E-07	6.09E-07	5.90E-11	5.72E-15	5.36E-23	4.58E-43	0.59E-13	1.13E-17
TB161	1.91E-05	1.25E-04	1.13E-04	8.33E-05	5.04E-05	5.04E-05	1.85E-05	6.76E-06	9.05E-07	5.99E-09	2.59E-13	1.13E-17
TOTAL	3.32E+02	5.83E+01	2.45E+01	8.91E+00	4.41E+00	4.41E+00	1.97E+00	1.22E+00	6.66E-01	2.86E-01	9.96E-02	4.76E-02

DEBRIS DECAY FROM 1 TO 50 YEARS

[illegible]

ORALLOY
MR/HR AT H+12 HOURS = 1.000
FRACTION OF REFRACATORIES PRESENT = 0.100
RELAXATION LENGTH = 0.16 GR/SQCM

TIME	MR/HR	MICROCURIES/SQ METER
ZERO TIME HOURS		
1.00E+00	1.07E+02	02E+04
1.00E+00	3.78E+01	02E+03
3.00E+00	7.49E+00	1.26E+02
3.00E+00	7.67E+00	1.26E+02
4.00E+00	2.60E+00	3.85E+02
6.00E+00	1.30E+00	1.57E+02
9.00E+00	1.00E+00	1.16E+02
1.20E+01	7.83E-01	9.14E+01
1.50E+01	6.39E-01	7.45E+01
2.10E+01	4.37E-01	5.22E+01
2.00E+00	1.89E-01	2.16E+01
5.00E+00	8.03E-02	8.41E+00
1.00E+01	3.94E-02	4.31E+00
2.00E+01	1.53E-02	1.91E+00
3.00E+01	5.33E-03	1.15E+00
5.00E+01	3.80E-03	1.06E-01
1.00E+02	1.70E-04	4.00E-01
2.00E+02	7.09E-05	1.53E-02
3.00E+00	4.74E-05	1.63E-02
1.50E+00	2.57E-05	2.35E-02
2.50E+00	1.49E-05	1.05E-02
3.50E+00	1.00E-05	6.62E-03
5.00E+00	7.00E-06	4.96E-03
7.00E+01	1.05E-06	3.33E-03
1.00E+01	9.33E-06	3.01E-03
2.00E+01	7.13E-06	2.08E-03
3.00E+01	5.66E-06	1.45E-03

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

ORALLOY
 MR/HR AT H+12 HOURS = 1.000
 REFRACTION OF REFRACTORIES PRESENT = 0.100
 RELAXATION LENGTH = 0.16 GM/SQCM
 DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

ORALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
 MR/HR AT REFRACTORIES PRESENT = 0.100
 RELAXATION LENGTH = 0.16 GM/SQCM
 DEBRIS DECAY FROM 1 TO 21 HOURS

	ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
PD109M	9.19E-03	7.73E-01	7.73E-01	7.73E-01	7.73E-01	7.73E-01	7.73E-01	7.73E-01	7.73E-01	7.73E-01	7.73E-01
AG111M	5.34E-00	6.33E-01	6.33E-01	6.33E-01	6.33E-01	6.33E-01	6.33E-01	6.33E-01	6.33E-01	6.33E-01	6.33E-01
PD111M	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
AG111M	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01
PD112M	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01
AG112M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
AG113M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
AG115M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
CD115M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
CD117M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
IN117M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
IN118M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
IN119M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
IN119M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
IN123M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN123M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN125M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN126M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN127M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
TE127M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN128M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN128M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN129M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SN129M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
TE129M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
TE129M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01
SB130M	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.21E-01

OR ALLOY MICROCURIES/SQ METER
 MR/HR AT H+12 HOURS = 1.000
 OF REFRACTORIES PRESENT = 0.100
 RELAXATION LENGTH = 0.16 GM/SCM

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

ORALLOY
MR/HR AT H+12 HOURS = 1.000
FRACTION OF REFRACTORIES PRESENT = 0.100
RELAXATION LENGTH = 0.16 CM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
ND147	4.47E-06	4.78E-02	4.77E-02	4.76E-01	4.33E-02	4.70E-02	4.66E-02	4.63E-02	4.59E-02	4.55E-02
ND149	3.23E+04	1.50E+02	1.40E+02	6.91E-02	4.21E-02	1.07E-02	1.88E-02	1.60E-02	1.38E-02	1.26E-02
PM150	4.36E-02	5.84E-02	1.40E-02	8.31E-03	3.41E-03	9.63E-03	3.68E-03	3.35E-03	3.06E-03	2.81E-03
ND151	1.71E+03	1.11E-02	1.47E-02	1.09E-01	1.06E-02	6.21E-02	9.79E-02	1.02E-02	9.19E-02	8.18E-02
PM152	1.78E-02	1.40E-02	1.66E-02	1.07E-01	1.55E-02	1.44E-02	1.35E-02	1.28E-02	1.17E-02	1.09E-02
SM153	2.07E+06	1.23E-02	1.22E-02	1.22E-02	1.02E-02	1.07E-02	1.81E-02	1.89E-02	1.53E-02	1.37E-02
SM155	1.52E-05	5.02E-03	1.13E-03	1.15E-03	1.56E-03	1.77E-03	1.55E-03	1.33E-03	1.22E-03	1.16E-03
SM156	4.35E-05	9.29E-03	1.20E-03	1.42E-03	1.81E-03	1.63E-03	1.67E-03	1.59E-03	1.46E-03	1.39E-03
EU157	5.68E-02	7.31E-03	7.77E-03	1.53E-03	1.29E-03	4.63E-03	4.10E-03	3.63E-03	3.27E-03	2.91E-03
EU158	3.18E-04	1.43E-03	1.26E-03	1.33E-03	1.05E-03	1.93E-03	1.77E-03	1.68E-03	1.46E-03	1.30E-03
EU159	4.80E-06	3.43E-03	3.42E-03	1.33E-03	1.37E-03	1.34E-03	3.29E-03	3.25E-03	3.21E-03	3.17E-03
TOTAL	1.02E+04	2.26E+03	9.21E+02	5.48E+02	2.41E+02	1.57E+02	1.16E+02	9.14E+01	7.45E+01	6.22E+01

OR ALLOY H+12 HOURS = MICROCURIES/SQ METER
 NR/HR AT 1,000
 OF REFRACTORY PRESENT = 0.100
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

4	2	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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[illegible]

ALLOY AT H+12 HOURS = 1.000 MICROCURIES/SQ METER
 MR/HR OF REFRACTION LENGTH = 0.100
 RELAXATION LENGTH = 0.16 GN/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

DURALLOY
 MR/HR AT H+12 HOURS = MICROCURIES/SQ METER
 OF REFRACTORY PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM 0.100

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

ORALLOY
MR/HR AT H+12 HOURS = 1.000
FRACTION OF REEFACTORIES PRESENT = 0.100
RELAXATION LENGTH = 0.16 CM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

ZERO TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
PM151	7.21E-03	4.92E-02	2.71E-02	2.34E-04	6.14E-07	1.62E-09	1.12E-14	1.40E-27	0.26E-33	0.81E-48
SM153	2.36E-02	1.64E-03	4.03E-03	6.83E-04	1.99E-05	5.77E-07	4.85E-10	1.00E-17	0.76E-05	4.57E-05
EU155	1.92E-03	2.59E-03	4.73E-03	3.07E-05	6.32E-18	1.30E-25	5.55E-41	0.95E-05	4.29E-08	4.23E-10
EU156	4.33E-03	3.15E-04	3.93E-04	2.80E-07	1.76E-09	1.11E-11	4.40E-05	4.35E-06	0.	0.
EU157	2.33E-04	2.76E-03	9.28E-04	1.49E-05	2.58E-12	4.56E-17	1.42E-23	0.15E-43	0.	0.
GD159	3.13E-04	2.23E-04	2.49E-04	1.55E-05	1.43E-11	1.44E-15	1.35E-23	1.50E-09	6.51E-14	2.83E-18
TB161	4.80E-06	3.13E-05	2.83E-05	1.27E-05	4.64E-06	1.70E-06	2.27E-07	1.50E-09	0.	0.
TOTAL	3.84E+02	5.21E+01	2.16E+01	8.41E+00	4.34E+00	1.91E+00	6.06E-01	2.40E-01	7.15E-02	3.16E-02

DURALLOY

H+12 HOURS =	MICROCURIES/SQ METER
INR/HR AT	1.000
OF REFRACTION PRESENT =	0.100
RELAXATION LENGTH =	0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 50 YEARS

[illegible]

Appendix B

**Detailed Results for a 1-MT Burst with
 ^{238}U as the Principal Fissioning Species**

TUBALLOY H+12 HOURS = 1.000
 MR/HR AT REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

TIME	MR/HR	MICROCURIES/SQ METER
ZERO	1.04E+02	20E+04
1.00E+00	3.21E+01	1.45E+02
2.00E+00	1.00E+00	5.45E+02
3.00E+00	6.25E+00	5.45E+02
4.00E+00	4.23E+00	2.87E+02
5.00E+00	2.38E+00	2.06E+02
6.00E+00	1.00E+00	1.61E+02
7.00E+00	1.87E+01	1.32E+02
8.00E+00	6.46E+01	1.12E+02
9.00E+00	5.46E+01	1.65E+01
1.00E+01	4.64E+01	8.41E+01
2.00E+00	2.97E+02	2.22E+01
3.00E+00	1.00E+00	1.60E+01
4.00E+00	3.62E+02	1.64E+00
5.00E+00	1.44E+02	1.36E+00
6.00E+00	8.27E+03	1.38E+01
7.00E+00	3.95E+03	1.00E+01
8.00E+00	1.55E+04	1.44E+01
9.00E+00	5.09E+04	8.22E+02
1.00E+01	1.35E+04	2.55E+02
2.00E+00	3.79E+05	1.66E+03
3.00E+00	2.17E+05	5.99E+03
4.00E+00	8.55E+06	1.35E+04
5.00E+00	6.78E+06	1.35E+04
6.00E+00	5.64E+06	1.35E+04
7.00E+00	4.88E+06	1.35E+04
8.00E+00	2.02E+06	1.35E+04
9.00E+00	2.02E+06	1.35E+04
1.00E+01	2.02E+06	1.35E+04
2.00E+01	2.02E+06	1.35E+04
3.00E+01	2.02E+06	1.35E+04
4.00E+01	2.02E+06	1.35E+04
5.00E+01	2.02E+06	1.35E+04

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1.000
OF REFRACTORIES PRESENT = 1.000
RELAXATION LENGTH = 0.16 GM/SQCM

TUBALLOY

TUBALLOY
MR/HR AT H+12 HOURS =

$$\text{ERACTYON RE REEACTARTES PRESENT} = 1\ 000$$

FRACTION OF REFRACTORIES PRESENT
RELAXATION LENGTH - 0.12 CM/SOCM

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[illegible]

TUBALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
MR/HR AT REFRACTORIES PRESENT = 1.000
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

TUBALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
 MR/HR AT REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible][illegible]

TUBALLOY H-12 HOURS = MICROCURIES/SQ METER
 MR/HR AT 1.000
 FRACTION OF REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO	TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.00E+01	1.20E+01	1.50E+01	1.80E+01	2.10E+01
ND147	1.58E-05	2.98E-01	3.07E-01	3.06E-01	3.05E-01	3.04E-01	3.03E-01	3.02E-01	3.01E-01	3.00E-01	2.99E-01	2.98E-01
PM149	2.66E+01	1.81E+01	1.23E+01	8.39E+00	5.67E+00	3.64E+00	2.29E+00	1.41E+00	8.80E-01	5.24E-01	3.18E-01	1.92E-01
PM150	3.70E-01	2.36E-01	1.80E-01	1.30E-01	9.88E-02	7.33E-02	5.42E-02	4.02E-02	2.99E-02	2.24E-02	1.68E-02	1.25E-02
ND151	1.17E+02	3.66E+00	1.35E-01	5.8E-03	1.09E-04	5.09E-07	2.02E-09	7.8E-12	3.0E-14	1.1E-16	4.3E-18	1.6E-20
PM151	7.43E+02	8.69E-01	1.75E-04	5.3E-07	1.62E-10	7.90E-16	2.5E-25	8.1E-34	2.8E-43	9.3E-52	3.2E-61	1.2E-70
SM153	1.83E+01	2.61E+00	1.58E-01	7.1E-04	2.50E-07	8.43E-11	2.8E-15	9.3E-19	3.1E-23	1.1E-27	4.1E-31	1.5E-35
SM155	9.45E+06	2.19E-04	3.46E-01	5.6E-02	8.7E-05	1.3E-08	2.0E-11	3.0E-14	4.5E-17	6.7E-20	1.0E-23	1.5E-26
SM156	2.49E-04	2.31E-03	2.15E-04	2.00E-05	1.85E-06	1.69E-07	1.53E-08	1.37E-09	1.21E-10	1.05E-11	9.3E-13	8.1E-14
EU157	3.01E+02	9.19E-02	1.61E-01	3.0E-03	5.5E-06	9.9E-10	1.8E-13	3.3E-16	6.0E-19	1.1E-22	2.0E-25	3.6E-28
EU158	1.03E+00	4.16E-01	1.68E-02	6.8E-05	2.7E-08	1.0E-11	3.9E-14	1.5E-17	5.8E-20	2.2E-23	8.5E-26	3.2E-29
EU159	6.11E-03	2.42E-02	1.41E-01	7.8E-03	4.6E-05	2.6E-08	1.3E-11	6.5E-14	3.3E-17	1.7E-20	8.5E-23	4.1E-26
TD161	1.23E-04	8.87E-04	8.82E-04	8.79E-04	8.76E-04	8.67E-04	8.58E-04	8.49E-04	8.40E-04	8.31E-04	8.22E-04	8.13E-04
TOTAL	1.20E+04	2.45E+03	9.00E+02	5.45E+02	4.08E+02	2.87E+02	2.06E+02	1.61E+02	1.32E+02	1.12E+02	9.65E+01	

TUBALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
MR/HR AT REFRACTORIES PRESENT = 1.000
RELAXATION LENGTH = 0.16 GM/SQCM
DEBRIS DECAY FROM 1 TO 300 DAYS

BEA MN FEE CC CC CC W185 W187 W188 AU1993 P237 U240 NP239 NP240 M241 CM242 CGE AS SES ASR BR KKR KKR KKR KKR SR Y

ZERO	TIME	1	00E+00	2	00E+00	5	00E+00	1	00E+01	2	00E+01	3	00E+01	5	00E+01	1	00E+02	2	00E+02	3	00E+02
6-80	04-04	6	72E-04	6	63E-04	6	38E-04	5	98E-04	5	25E-04	4	61E-04	3	55E-04	1	86E-04	5	04E-05	1	37E-05
1-09	05-05	3	60E-05	1	19E-05	4	26E-05	2	67E-05	5	55E-05	3	89E-05	9	05E-05	0	72E-05	1	37E-05	0	09E-05
2-18	05-05	3	16E-05	1	12E-05	4	10E-05	1	24E-05	5	06E-05	4	03E-05	3	93E-05	0	83E-05	3	57E-05	3	31E-05
4-12	05-05	1	12E-05	1	73E-05	4	16E-05	1	53E-05	1	32E-05	1	13E-05	3	28E-05	3	85E-06	8	20E-07	0	17E-07
0-00	05-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-06	0	00E-06	0	00E-06
0-00	05-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-06	0	00E-06	0	00E-06
5-24	05-05	4	00E-05	3	21E-05	6	53E-05	9	79E-05	2	23E-07	5	04E-08	7	31E-11	0	02E-16	0	00E-16	0	00E-16
0-00	05-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-07	0	00E-08	0	00E-11	0	00E-16	0	00E-16	0	00E-16
0-00	05-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-07	0	00E-08	0	00E-11	0	00E-16	0	00E-16	0	00E-16
0-00	05-05	0	00E-05	0	00E-05	0	00E-05	0	00E-05	0	00E-07	0	00E-08	0	00E-11	0	00E-16	0	00E-16	0	00E-16
1-28	05-04	8	86E-05	6	42E+00	2	46E-05	4	99E-06	2	05E-07	8	42E-09	1	41E-11	0	65E-18	0	46E-08	0	88E-09
3-49	05+00	2	54E+00	3	97E+01	2	30E-02	7	14E+05	5	36E-10	4	03E-15	2	28E-25	0	36E-04	1	00E-08	9	00E-09
0-00	05+00	0	00E+00	0	00E+01	4	79E+00	1	0E+05	3	73E-02	3	00E-03	8	32E-06	3	23E-12	0	72E-22	7	72E-22
1-02	05-10	1	56E+00	1	16E+01	4	79E+00	7	19E+05	5	42E-10	4	07E-15	3	30E-25	0	19E-10	2	19E-10	2	19E-10
0-02	05-10	2	94E+00	1	04E+10	2	72E+00	2	19E+05	2	19E-10	3	19E-10	8	19E-10	2	19E-10	0	19E-10	1	23E-09
1-19	05-09	4	33E+00	2	37E+01	4	19E+00	4	24E+05	5	05E-09	2	89E-09	3	57E-10	2	90E-09	0	89E-09	2	23E-09
4-15	05-04	9	41E+00	2	27E+01	2	74E+00	5	77E+05	2	07E-15	3	89E-09	4	66E-14	9	29E-21	0	99E-39	4	28E-58
1-65	05-04	2	25E+00	1	28E+01	5	14E+00	1	76E+05	8	40E-08	3	26E-10	6	00E-14	2	79E-23	5	66E-42	1	29E-60
3-33	05-04	3	20E+00	2	00E+01	6	85E+00	4	60E+06	4	13E-08	3	71E-10	3	00E-14	0	75E-24	6	00E-45	2	04E-65
1-12	05-03	1	94E+00	2	92E+01	4	01E+14	1	03E+29	0	00E-06	0	00E-06	0	00E-06	0	00E-06	0	00E-06	0	00E-06
3-33	05-03	1	31E+00	4	52E+01	1	01E+14	4	52E+29	0	00E-06	0	00E-06	0	00E-06	0	00E-06	0	00E-06	0	00E-06
1-49	06-01	2	94E+00	1	04E+10	2	72E+00	2	19E+05	2	19E-10	3	19E-10	8	19E-10	2	19E-10	0	19E-10	1	23E-09
3-33	06-06	2	82E+00	4	70E+01	5	10E+08	3	44E+16	1	31E-32	4	96E-49	9	97E-05	9	87E-05	9	68E-05	9	53E-05
5-27	06+01	1	96E+00	1	00E+01	1	02E+08	0	00E-04	0	100E-04	0	00E-04	0	00E-05	0	00E-05	0	00E-05	0	00E-05
2-25	06+06	1	32E+00	2	21E+01	3	06E+08	5	53E+25	0	00E-06	0	00E-06	0	00E-06	0	00E-06	0	00E-06	0	00E-06
7-6	06+12	5	04E+00	3	23E+01	7	19E+04	7	19E+04	6	15E-14	5	33E-22	6	10E-37	2	15E-02	5	65E-03	0	49E-03
2-39	06+06	5	19E+00	2	10E+01	4	19E+04	5	19E+04	5	19E-04	5	19E-04	5	19E-04	5	14E-04	5	14E-04	5	10E-04
0-38	06+06	2	14E+00	1	08E+01	2	15E+05	4	82E+07	5	58E-14	5	33E-22	6	10E-37	5	14E-04	5	14E-04	5	10E-04

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
 MR/HR AT REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM
 DEBRIS DECAY FROM 1 TO 300 DAYS

ZERO TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
91M	4.66E-05	2.87E-01	1.92E-01	1.02E-01	5.00E-02	3.45E-02	3.94E-02	0.94E-02	0.06E-03	0.78E-03
Y 91	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 92	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 93	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 94	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 95	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 96	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 97	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 98	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 99	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 100	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 101	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 102	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 103	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 104	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 105	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 106	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 107	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 108	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 109	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 110	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 111	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 112	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 113	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 114	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 115	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 116	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 117	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 118	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 119	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 120	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 121	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 122	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 123	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 124	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03
Y 125	1.15E+00	2.33E+00	1.41E+00	8.25E-01	5.00E-01	3.50E-01	2.50E-01	1.50E-01	9.00E-02	5.00E-02
SR Y 126	4.40E-01	1.07E-01	6.14E-02	3.71E-02	2.25E-02	1.35E-02	8.15E-03	5.00E-03	3.00E-03	1.80E-03

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1.000
FRACTION OF REFRACTORIES PRESENT = 1.000
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
 MR/HR AT 1.000
 FRACTION OF REFRACTORIES PRESENT = 1.000
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

ZERO	TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
PM151	7.43E-02	5.07E-01	2.80E-01	4.71E-02	2.41E-03	6.33E-06	1.67E-08	1.15E-13	1.44E-26	0.79E-32	0.04E-47
SM153	2.65E-01	1.86E-01	1.31E-01	4.52E-02	7.68E-03	2.23E-04	6.49E-06	5.45E-09	1.12E-16	0.00E-21	0.00E-26
SM156	9.49E-01	4.25E-02	7.25E-03	3.57E-05	5.14E-09	1.06E-16	2.18E-24	9.28E-40	0.00E-47	0.00E-54	0.00E-61
EU155	7.28E-04	3.93E-04	3.20E-04	3.20E-04	3.19E-04	3.17E-04	3.16E-04	3.14E-04	3.08E-04	2.95E-04	2.84E-04
EU157	3.01E-03	3.48E-02	6.57E-03	5.88E-03	4.68E-03	3.94E-03	3.18E-03	2.36E-03	1.79E-03	1.18E-03	7.07E-04
GD159	6.11E-03	1.20E-02	4.79E-03	2.39E-04	1.85E-06	2.25E-10	5.76E-14	1.79E-22	0.21E-42	0.00E-47	0.00E-52
TB161	1.23E-04	8.06E-04	7.27E-04	5.38E-04	3.26E-04	1.19E-04	4.36E-05	2.55E-06	3.87E-08	1.67E-12	7.27E-17
TOTAL	2.73E+02	8.41E+01	4.22E+01	1.60E+01	6.64E+00	2.41E+00	1.36E+00	6.88E-01	3.00E-01	1.14E-01	5.82E-02

DEBRIS DECAY FROM 1 TO 50 YEARS

[illegible]

TUBALLOY H+12 HOURS = 1.000 MR/HR AT REFRACTORIES PRESENT = 0.500 RELAXATION LENGTH = 0.16 GM/SQCM			
TIME	MR/HR	MICROCURI/SQ METER	
ZERO TIME HOURS	1.10E+02	1.19E+04	
1.00E+00	3.35E+01	2.42E+03	
2.00E+00	1.70E+01	9.13E+02	
3.00E+00	7.01E+00	5.47E+02	
4.00E+00	4.38E+00	4.00E+02	
6.00E+00	2.31E+00	2.71E+02	
9.00E+00	1.37E+00	1.89E+02	
1.20E+01	1.00E+00	1.45E+02	
1.50E+01	7.84E-01	1.18E+02	
1.80E+01	6.40E-01	9.83E+01	
2.10E+01	5.36E-01	8.43E+01	
2.40E+01	4.52E-01	7.49E+01	
2.70E+01	3.85E-01	6.74E+01	
3.00E+01	3.27E-01	6.14E+01	
3.30E+01	2.75E-01	5.64E+01	
3.60E+01	2.28E-01	5.23E+01	
3.90E+01	1.86E-01	4.88E+01	
4.20E+01	1.49E-01	4.55E+01	
4.50E+01	1.16E-01	4.27E+01	
4.80E+01	9.71E-02	4.02E+01	
5.10E+01	8.22E-02	3.80E+01	
5.40E+01	6.96E-02	3.59E+01	
5.70E+01	5.90E-02	3.40E+01	
6.00E+01	5.00E-02	3.23E+01	
6.30E+01	4.24E-02	3.08E+01	
6.60E+01	3.60E-02	2.94E+01	
6.90E+01	3.07E-02	2.82E+01	
7.20E+01	2.63E-02	2.71E+01	
7.50E+01	2.27E-02	2.62E+01	
7.80E+01	1.97E-02	2.54E+01	
8.10E+01	1.72E-02	2.47E+01	
8.40E+01	1.50E-02	2.41E+01	
8.70E+01	1.30E-02	2.35E+01	
9.00E+01	1.12E-02	2.30E+01	
9.30E+01	9.60E-03	2.25E+01	
9.60E+01	8.16E-03	2.20E+01	
9.90E+01	6.90E-03	2.15E+01	
1.00E+02	5.80E-03	2.10E+01	
1.05E+02	4.84E-03	2.05E+01	
1.10E+02	4.00E-03	2.00E+01	
1.15E+02	3.27E-03	1.95E+01	
1.20E+02	2.63E-03	1.90E+01	
1.25E+02	2.08E-03	1.85E+01	
1.30E+02	1.61E-03	1.80E+01	
1.35E+02	1.21E-03	1.75E+01	
1.40E+02	9.60E-04	1.70E+01	
1.45E+02	7.60E-04	1.65E+01	
1.50E+02	6.10E-04	1.60E+01	
1.55E+02	5.00E-04	1.55E+01	
1.60E+02	4.10E-04	1.50E+01	
1.65E+02	3.37E-04	1.45E+01	
1.70E+02	2.77E-04	1.40E+01	
1.75E+02	2.27E-04	1.35E+01	
1.80E+02	1.86E-04	1.30E+01	
1.85E+02	1.52E-04	1.25E+01	
1.90E+02	1.24E-04	1.20E+01	
1.95E+02	1.01E-04	1.15E+01	
2.00E+02	8.20E-05	1.10E+01	
2.05E+02	6.70E-05	1.05E+01	
2.10E+02	5.50E-05	1.00E+01	
2.15E+02	4.50E-05	9.50E+00	
2.20E+02	3.60E-05	9.00E+00	
2.25E+02	2.90E-05	8.50E+00	
2.30E+02	2.30E-05	8.00E+00	
2.35E+02	1.80E-05	7.50E+00	
2.40E+02	1.40E-05	7.00E+00	
2.45E+02	1.10E-05	6.50E+00	
2.50E+02	8.80E-06	6.00E+00	
2.55E+02	7.10E-06	5.50E+00	
2.60E+02	5.80E-06	5.00E+00	
2.65E+02	4.70E-06	4.50E+00	
2.70E+02	3.80E-06	4.00E+00	
2.75E+02	3.10E-06	3.50E+00	
2.80E+02	2.50E-06	3.00E+00	
2.85E+02	2.00E-06	2.50E+00	
2.90E+02	1.60E-06	2.00E+00	
2.95E+02	1.30E-06	1.50E+00	
3.00E+02	1.00E-06	1.00E+00	

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1,000
OF REFRACTORIES PRESENT = 0.500
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO	TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.00E+01	1.20E+01	1.50E+01	1.80E+01	2.10E+01
7	BE	4.31E-04	4.31E-04	4.31E-04	4.31E-04	4.31E-04	4.29E-04	4.27E-04	4.28E-04	4.27E-04	4.27E-04	4.26E-04
24	MA	4.31E-03	4.31E-03	4.31E-03	4.31E-03	4.31E-03	4.29E-03	4.27E-03	4.28E-03	4.27E-03	4.27E-03	4.26E-03
54	EE	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
55	CC	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
57	CC	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
60	CC	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
64	U	4.31E-02	4.31E-02	4.31E-02	4.31E-02	4.31E-02	4.29E-02	4.27E-02	4.28E-02	4.27E-02	4.27E-02	4.26E-02
185	W185	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
187	W187	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
188	W188	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
193	AU193	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
203	P	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
237	U237	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
239	U239	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
240	NP240	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
40	NP240M	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
41	NP241	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
42	CM2	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
77	CGE77	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
77	CGE77	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
77	CGE77	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.26E-05
77	CGE77	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.31E-05	4.29E-05	4.27E-05	4.28E-05	4.27E-05	4.27E-05	4.

TUBALLOY
 H+12 HOURS = 1.000 MICROCURIES/SQ METER
 MR/HR AT FRACTION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 GM/SQCM
 DEBRIS DECAY FROM 1 TO 21 HOURS

TUBALLOY
MR/HR AT
FRACTION
RELAXATION

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

TUBALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
MR/HR AT REFRACTORIES PRESENT = 0.500
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DEBRIS DECAY FROM 1 TO 21 HOURS

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

TUBALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
MR/HR AT REFRACTORIES PRESENT = 0.500
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible][illegible]

TUBALLOY H+12 HOURS = 1.000
MR/HR AT REFRACTORIES PRESENT = 0.500
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
ND147	1.00E+05	1.89E-01	1.94E-01	1.93E-01	1.93E-01	1.91E-01	1.90E-01	1.88E-01	1.87E-01	1.85E-01
ND149	1.68E-03	1.15E-01	1.32E-01	1.36E-01	1.49E-01	1.52E-01	1.56E-01	1.54E-01	1.54E-01	1.52E-01
PM149	2.35E-01	1.83E-01	3.85E-01	4.36E-01	4.90E-01	5.09E-01	5.00E-01	4.87E-01	4.68E-01	4.52E-01
PM150	7.43E-01	1.49E-01	8.27E-02	6.90E-02	6.10E-02	5.92E-02	5.86E-02	5.71E-02	5.62E-02	5.48E-02
PM151	4.71E-02	5.51E-01	5.41E-01	5.28E-01	5.01E-01	4.65E-01	4.47E-01	4.02E-01	3.72E-01	3.45E-01
PM152	1.16E-01	1.14E-01	1.11E-01	1.06E-01	1.01E-01	9.47E-02	8.77E-02	8.15E-02	7.62E-02	7.09E-02
SM153	1.68E-01	1.66E-01	1.61E-01	1.59E-01	1.58E-01	1.62E-01	1.60E-01	1.56E-01	1.52E-01	1.48E-01
EU155	8.15E-06	1.34E-04	3.02E-04	5.88E-04	2.03E-04	3.03E-04	3.03E-04	2.33E-04	2.03E-04	2.35E-04
EU156	1.58E-01	1.47E-04	1.27E-03	1.17E-03	1.01E-03	1.13E-03	1.03E-03	1.03E-03	1.02E-03	1.02E-03
EU157	4.62E-02	6.33E-01	5.47E-02	5.51E-02	5.03E-02	4.39E-02	3.84E-02	3.41E-02	3.21E-02	3.54E-02
EU158	1.92E-01	2.69E-02	1.02E-01	1.07E-01	1.03E-01	9.15E-02	8.25E-02	7.41E-02	6.81E-02	7.19E-02
EU159	6.05E-01	8.99E-02	8.57E-02	8.77E-02	8.65E-02	8.45E-02	8.25E-02	8.05E-02	7.86E-02	7.69E-02
GD159	3.88E-03	1.70E-04	1.71E-04	1.65E-04	1.53E-04	1.36E-04	1.23E-04	1.08E-04	9.52E-05	8.57E-05
TB161	7.82E-05	5.63E-04	5.57E-04	5.55E-04	5.50E-04	5.44E-04	5.37E-04	5.29E-04	5.24E-04	5.16E-04
TOTAL	1.19E+04	2.42E+03	9.13E+02	4.00E+02	2.71E+02	1.89E+02	1.45E+02	1.18E+02	9.83E+01	8.43E+01

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1.000
OF REFRACTORIES PRESENT = 0.500
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

Y 91M	SR 91M	Y 92M	Y 93M	Y 94M	Y 95M	Y 96M	Y 97M	Y 98M	Y 99M	Y 100M	Y 101M	Y 102M	Y 103M	Y 104M	Y 105M	Y 106M	Y 107M	Y 108M	Y 109M	Y 110M	Y 111M	Y 112M	Y 113M	Y 114M	Y 115M	Y 116M	Y 117M	Y 118M	Y 119M	Y 120M	Y 121M	Y 122M	Y 123M	Y 124M	Y 125M	Y 126M	Y 127M	Y 128M	Y 129M	Y 130M	Y 131M	Y 132M	Y 133M	Y 134M	Y 135M	Y 136M	Y 137M	Y 138M	Y 139M	Y 140M	Y 141M	Y 142M	Y 143M	Y 144M	Y 145M	Y 146M	Y 147M	Y 148M	Y 149M	Y 150M	Y 151M	Y 152M	Y 153M	Y 154M	Y 155M	Y 156M	Y 157M	Y 158M	Y 159M	Y 160M	Y 161M	Y 162M	Y 163M	Y 164M	Y 165M	Y 166M	Y 167M	Y 168M	Y 169M	Y 170M	Y 171M	Y 172M	Y 173M	Y 174M	Y 175M	Y 176M	Y 177M	Y 178M	Y 179M	Y 180M	Y 181M	Y 182M	Y 183M	Y 184M	Y 185M	Y 186M	Y 187M	Y 188M	Y 189M	Y 190M	Y 191M	Y 192M	Y 193M	Y 194M	Y 195M	Y 196M	Y 197M	Y 198M	Y 199M	Y 200M	Y 201M	Y 202M	Y 203M	Y 204M	Y 205M	Y 206M	Y 207M	Y 208M	Y 209M	Y 210M	Y 211M	Y 212M	Y 213M	Y 214M	Y 215M	Y 216M	Y 217M	Y 218M	Y 219M	Y 220M	Y 221M	Y 222M	Y 223M	Y 224M	Y 225M	Y 226M	Y 227M	Y 228M	Y 229M	Y 230M	Y 231M	Y 232M	Y 233M	Y 234M	Y 235M	Y 236M	Y 237M	Y 238M	Y 239M	Y 240M	Y 241M	Y 242M	Y 243M	Y 244M	Y 245M	Y 246M	Y 247M	Y 248M	Y 249M	Y 250M	Y 251M	Y 252M	Y 253M	Y 254M	Y 255M	Y 256M	Y 257M	Y 258M	Y 259M	Y 260M	Y 261M	Y 262M	Y 263M	Y 264M	Y 265M	Y 266M	Y 267M	Y 268M	Y 269M	Y 270M	Y 271M	Y 272M	Y 273M	Y 274M	Y 275M	Y 276M	Y 277M	Y 278M	Y 279M	Y 280M	Y 281M	Y 282M	Y 283M	Y 284M	Y 285M	Y 286M	Y 287M	Y 288M	Y 289M	Y 290M	Y 291M	Y 292M	Y 293M	Y 294M	Y 295M	Y 296M	Y 297M	Y 298M	Y 299M	Y 300M	Y 301M	Y 302M	Y 303M	Y 304M	Y 305M	Y 306M	Y 307M	Y 308M	Y 309M	Y 310M	Y 311M	Y 312M	Y 313M	Y 314M	Y 315M	Y 316M	Y 317M	Y 318M	Y 319M	Y 320M	Y 321M	Y 322M	Y 323M	Y 324M	Y 325M	Y 326M	Y 327M	Y 328M	Y 329M	Y 330M	Y 331M	Y 332M	Y 333M	Y 334M	Y 335M	Y 336M	Y 337M	Y 338M	Y 339M	Y 340M	Y 341M	Y 342M	Y 343M	Y 344M	Y 345M	Y 346M	Y 347M	Y 348M	Y 349M	Y 350M	Y 351M	Y 352M	Y 353M	Y 354M	Y 355M	Y 356M	Y 357M	Y 358M	Y 359M	Y 360M	Y 361M	Y 362M	Y 363M	Y 364M	Y 365M	Y 366M	Y 367M	Y 368M	Y 369M	Y 370M	Y 371M	Y 372M	Y 373M	Y 374M	Y 375M	Y 376M	Y 377M	Y 378M	Y 379M	Y 380M	Y 381M	Y 382M	Y 383M	Y 384M	Y 385M	Y 386M	Y 387M	Y 388M	Y 389M	Y 390M	Y 391M	Y 392M	Y 393M	Y 394M	Y 395M	Y 396M	Y 397M	Y 398M	Y 399M	Y 400M	Y 401M	Y 402M	Y 403M	Y 404M	Y 405M	Y 406M	Y 407M	Y 408M	Y 409M	Y 410M	Y 411M	Y 412M	Y 413M	Y 414M	Y 415M	Y 416M	Y 417M	Y 418M	Y 419M	Y 420M	Y 421M	Y 422M	Y 423M	Y 424M	Y 425M	Y 426M	Y 427M	Y 428M	Y 429M	Y 430M	Y 431M	Y 432M	Y 433M	Y 434M	Y 435M	Y 436M	Y 437M	Y 438M	Y 439M	Y 440M	Y 441M	Y 442M	Y 443M	Y 444M	Y 445M	Y 446M	Y 447M	Y 448M	Y 449M	Y 450M	Y 451M	Y 452M	Y 453M	Y 454M	Y 455M	Y 456M	Y 457M	Y 458M	Y 459M	Y 460M	Y 461M	Y 462M	Y 463M	Y 464M	Y 465M	Y 466M	Y 467M	Y 468M	Y 469M	Y 470M	Y 471M	Y 472M	Y 473M	Y 474M	Y 475M	Y 476M	Y 477M	Y 478M	Y 479M	Y 480M	Y 481M	Y 482M	Y 483M	Y 484M	Y 485M	Y 486M	Y 487M	Y 488M	Y 489M	Y 490M	Y 491M	Y 492M	Y 493M	Y 494M	Y 495M	Y 496M	Y 497M	Y 498M	Y 499M	Y 500M	Y 501M	Y 502M	Y 503M	Y 504M	Y 505M	Y 506M	Y 507M	Y 508M	Y 509M	Y 510M	Y 511M	Y 512M	Y 513M	Y 514M	Y 515M	Y 516M	Y 517M	Y 518M	Y 519M	Y 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663M	Y 664M	Y 665M	Y 666M	Y 667M	Y 668M	Y 669M	Y 670M	Y 671M	Y 672M	Y 673M	Y 674M	Y 675M	Y 676M	Y 677M	Y 678M	Y 679M	Y 680M	Y 681M	Y 682M	Y 683M	Y 684M	Y 685M	Y 686M	Y 687M	Y 688M	Y 689M	Y 690M	Y 691M	Y 692M	Y 693M	Y 694M	Y 695M	Y 696M	Y 697M	Y 698M	Y 699M	Y 700M	Y 701M	Y 702M	Y 703M	Y 704M	Y 705M	Y 706M	Y 707M	Y 708M	Y 709M	Y 710M	Y 711M	Y 712M	Y 713M	Y 714M	Y 715M	Y 716M	Y 717M	Y 718M	Y 719M	Y 720M	Y 721M	Y 722M	Y 723M	Y 724M	Y 725M	Y 726M	Y 727M	Y 728M	Y 729M	Y 730M	Y 731M	Y 732M	Y 733M	Y 734M	Y 735M	Y 736M	Y 737M	Y 738M	Y 739M	Y 740M	Y 741M	Y 742M	Y 743M	Y 744M	Y 745M	Y 746M	Y 747M	Y 748M	Y 749M	Y 750M	Y 751M	Y 752M	Y 753M	Y 754M	Y 755M	Y 756M	Y 757M	Y 758M	Y 759M	Y 760M	Y 761M	Y 762M	Y 763M	Y 764M	Y 765M	Y 766M	Y 767M	Y 768M	Y 769M	Y 770M	Y 771M	Y 772M	Y 773M	Y 774M	Y 775M	Y 776M	Y 777M	Y 778M	Y 779M	Y 780M	Y 781M	Y 782M	Y 783M	Y 784M	Y 785M	Y 786M	Y 787M	Y 788M	Y 789M	Y 790M	Y 791M	Y 792M	Y 793M	Y 794M	Y 795M	Y 796M	Y 797M	Y 798M	Y 799M	Y 800M	Y 801M	Y 802M	Y 803M	Y 804M	Y 805M	Y 806M	Y 807M	Y 808M	Y 809M	Y 810M	Y 811M	Y 812M	Y 813M	Y 814M	Y 815M	Y 816M	Y 817M	Y 818M	Y 819M	Y 820M	Y 821M	Y 822M	Y 823M	Y 824M	Y 825M	Y 826M	Y 827M	Y 828M	Y 829M	Y 830M	Y 831M	Y 832M	Y 833M	Y 834M	Y 835M	Y 836M	Y 837M	Y 838M	Y 839M	Y 840M	Y 841M	Y 842M	Y 843M	Y 844M	Y 845M	Y 846M	Y 847M	Y 848M	Y 849M	Y 850M	Y 851M	Y 852M	Y 853M	Y 854M	Y 855M	Y 856M	Y 857M	Y 858M	Y 859M	Y 860M	Y 861M	Y 862M	Y 863M	Y 864M	Y 865M	Y 866M	Y 867M	Y 868M	Y 869M	Y 870M	Y 871M	Y 872M	Y 873M	Y 874M	Y 875M	Y 876M	Y 877M	Y 878M	Y 879M	Y 880M	Y 881M	Y 882M	Y 883M	Y 884M	Y 885M	Y 886M	Y 887M	Y 888M	Y 889M	Y 890M	Y 891M	Y 892M	Y 893M	Y 894M	Y 895M	Y 896M	Y 897M	Y 898M	Y 899M	Y 900M	Y 901M	Y 902M	Y 903M	Y 904M	Y 905M	Y 906M	Y 907M	Y 908M	Y 909M	Y 910M	Y 911M	Y 912M	Y 913M	Y 914M	Y 915M	Y 916M	Y 917M	Y 918M	Y 919M	Y 920M	Y 921M	Y 922M	Y 923M	Y 924M	Y 925M	Y 926M	Y 927M	Y 928M	Y 929M	Y 930M	Y 931M	Y 932M	Y 933M	Y 934M	Y 935M	Y 936M	Y 937M	Y 938M	Y 939M	Y 940M	Y 941M	Y 942M	Y 943M	Y 944M	Y 945M	Y 946M	Y 947M	Y 948M	Y 949M	Y 950M	Y 951M	Y 952M	Y 953M	Y 954M	Y 955M	Y 956M	Y 957M	Y 958M	Y 959M	Y 960M	Y 961M	Y 962M	Y 963M	Y 964M	Y 965M	Y 966M	Y 967M	Y 968M	Y 969M	Y 970M	Y 971M	Y 972M	Y 973M	Y 974M	Y 975M	Y 976M	Y 977M	Y 978M	Y 979M	Y 980M	Y 981M	Y 982M	Y 983M	Y 984M	Y 985M	Y 986M	Y 987M	Y 988M	Y 989M	Y 990M	Y 991M	Y 992M	Y 993M	Y 994M	Y 995M	Y 996M	Y 997M	Y 998M	Y 999M	Y 1000M	Y 1001M	Y 1002M	Y 1003M	Y 1004M	Y 1005M	Y 1006M	Y 1007M	Y 1008M	Y 1009M	Y 1010M	Y 1011M	Y 1012M	Y 1013M	Y 1014M	Y 1015M	Y 1016M	Y 1017M	Y 1018M	Y 1019M	Y 1020M	Y 1021M	Y 1022M	Y 1023M	Y 1024M	Y 1025M	Y 1026M	Y 1027M	Y 1028M	Y 1029M	Y 1030M	Y 1031M	Y 1032M	Y 1033M	Y 1034M	Y 1035M	Y 1036M	Y 1037M	Y 1038M	Y 1039M	Y 1040M	Y 1041M	Y 1042M	Y 1043M	Y 1044M	Y 1045M	Y 1046M	Y 1047M	Y 1048M	Y 1049M	Y 1050M	Y 1051M	Y 1052M	Y 1053M	Y 1054M	Y 1055M	Y 1056M	Y 1057M	Y 1058M	Y 1059M	Y 1060M	Y 1061M	Y 1062M	Y 1063M	Y 1064M	Y 1065M	Y 1066M	Y 1067M	Y 1068M	Y 1069M	Y 1070M	Y 1071M	Y 1072M	Y 1073M	Y 1074M	Y 1075M	Y 1076M	Y 1077M	Y 1078M	Y 1079M	Y 1080M	Y 1081M	Y 1082M	Y 1083M	Y 1084M	Y 1085M	Y 1086M	Y 1087M	Y 1088M	Y 1089M	Y 1090M	Y 1091M	Y 1092M	Y 1093M	Y 1094M	Y 1095M	Y 1096M	Y 1097M	Y 1098M	Y 1099M	Y 1100M	Y 1101M	Y 1102M	Y 1103M	Y 1104M	Y 1105M	Y 1106M	Y 1107M	Y 1108M	Y 1109M	Y 1110M	Y 1111M	Y 1112M	Y 1113M	Y 1114M	Y 1115M	Y 1116M	Y 1117M	Y 1118M	Y 1119M	Y 1120M	Y 1121M	Y 1122M	Y 1123M	Y 1124M	Y 1125M	Y 1126M	Y 1127M	Y 1128M	Y 1129M	Y 1130M	Y 1131M	Y 1132M	Y 1133M	Y 1134M	Y 1135M	Y 1136M	Y 1137M	Y 1138M	Y 1139M	Y 1140M	Y 1141M	Y 1142M	Y 1143M	Y 1144M	Y 1145M	Y 1146M	Y 1147M	Y 1148M	Y 1149M	Y 1150M	Y 1151M	Y 1152M	Y 1153M	Y 1154M	Y 1155M	Y 1156M	Y 1157M	Y 1158M	Y 1159M	Y 1160M	Y 1161M	Y 1162M	Y 1163M	Y 1164M	Y 1165M	Y 1166M	Y 1167M	Y 1168M	Y 1169M	Y 1170M	Y 1171M	Y 1172M	Y 1173M	Y 1174M	Y 1175M	Y 1176M	Y 1177M	Y 1178M	Y 1179M	Y 1180M	Y 1181M	Y 1182M	Y 1183M	Y 1184M	Y 1185M	Y 1186M	Y 1187M	Y 1188M	Y 1189M	Y 1190M	Y 1191M	Y 1192M	Y 1193M	Y 1194M	Y 1195M	Y 1196M	Y 1197M	Y
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TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1.000
FRACTION OF REFRACTORIES PRESENT = 0.500
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
 MR/HR AT 1.000
 FRACTION OF REFRACTORIES PRESENT = 0.500
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

	ZERO TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
PM151	4.71E-02	3.21E-01	1.77E-01	1.53E-03	4.02E-06	1.06E-08	7.30E-14	9.16E-27	0.04E-32	0.29E-47	0.80E-04
SM153	1.68E-01	1.18E-01	8.29E-02	4.58E-02	1.42E-04	4.12E-06	3.46E-09	7.13E-17	0.87E-04	1.80E-04	4.48E-09
SM156	1.58E-01	2.69E-02	4.59E-03	2.26E-05	6.70E-17	1.38E-24	5.89E-40	0.95E-04	4.62E-05	0.00E-00	0.00E-00
EU155	5.99E-04	2.03E-04	2.03E-04	2.03E-04	2.01E-04	2.00E-04	1.99E-04	1.95E-04	1.87E-04	1.80E-04	1.80E-04
EU156	4.62E-04	3.76E-03	4.16E-03	2.97E-03	1.86E-03	1.17E-03	4.66E-04	1.62E-05	4.55E-07	0.00E-00	0.00E-00
EU157	1.91E-02	2.23E-02	7.43E-03	1.17E-06	2.06E-11	3.65E-16	1.14E-22	1.40E-42	0.00E-00	0.00E-00	0.00E-00
GD159	3.88E-03	7.63E-03	3.04E-03	1.86E-04	1.81E-10	1.77E-14	3.71E-22	2.45E-08	1.06E-12	4.61E-17	0.00E-00
TB161	7.82E-05	5.11E-04	4.61E-04	2.07E-04	7.56E-05	2.77E-05	3.71E-06	2.45E-08	1.06E-12	4.61E-17	0.00E-00
TOTAL	3.04E+02	7.27E+01	3.49E+01	1.34E+01	5.84E+00	2.24E+00	1.29E+00	6.62E-01	2.80E-01	9.85E-02	4.94E-02

DEBRIS DECAY FROM 1 TO 50 YEARS

ZERO	TIME	1.00E+00	1.50E+00	2.00E+00	3.50E+00	5.00E+00	7.00E+00	1.00E+01	2.00E+01	3.50E+01	5.00E+01	5.00E+01
7	4.31E-04	7.33E-06	4.66E-07	3.22E-08	2.59E-11	2.07E-14	1.55E-18	9.33E-25	0.760E-13	0.275E-18	0.950E+01	0.950E+01
BE 54	1.38E-05	9.92E-06	5.88E-06	3.73E-07	2.37E-07	1.01E-07	9.66E-08	9.24E-09	0.760E-13	0.275E-18	0.950E+01	0.950E+01
MN 59	1.13E-05	3.43E-09	2.48E-10	2.32E-14	2.692E-14	2.92E-18	0.02E-23	2.33E-30	0.760E-13	0.275E-18	0.950E+01	0.950E+01
CC 60	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.760E-13	0.275E-18	0.950E+01	0.950E+01
CC 60	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.760E-13	0.275E-18	0.950E+01	0.950E+01
M185	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.760E-13	0.275E-18	0.950E+01	0.950E+01
U237	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.760E-13	0.275E-18	0.950E+01	0.950E+01
AM247	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.760E-13	0.275E-18	0.950E+01	0.950E+01
CM2425	2.49E+00	9.10E-04	5.10E-05	1.09E-09	9.10E-09	9.01E-14	5.09E-14	9.01E-16	5.10E-20	3.09E-20	6.05E-20	6.05E-20
CM2425	3.80E+06	1.04E-04	6.04E-05	1.09E-09	9.10E-09	9.01E-14	5.09E-14	9.01E-16	5.10E-20	3.09E-20	6.05E-20	6.05E-20
KKR89	7.40E-06	1.96E-04	1.29E-05	0.01E-09	5.22E-09	1.78E-08	6.44E-16	4.42E-23	4.42E-23	3.35E-25	5.09E-26	5.09E-26
SSR90	4.09E-12	4.03E-04	2.99E-05	0.05E-08	0.05E-08	4.43E-14	6.44E-16	1.15E-20	4.02E-24	7.8E-24	9.2E-24	9.2E-24
SR90	1.23E-04	3.66E-04	9.34E-05	0.08E-08	0.08E-08	7.07E-14	6.44E-16	1.14E-20	0.22E-24	7.8E-24	9.2E-24	9.2E-24
Y91	8.24E+01	1.50E-04	4.66E-05	0.00E-09	0.00E-09	0.26E-13	6.44E-16	0.95E-22	3.34E-25	7.8E-24	9.2E-24	9.2E-24
NR95	4.49E+01	1.11E-04	5.95E-05	0.00E-09	0.00E-09	1.11E-13	6.44E-16	0.95E-22	3.34E-25	7.8E-24	9.2E-24	9.2E-24
NB95	2.99E-09	1.50E-05	1.76E-07	0.01E-11	0.01E-11	5.99E-14	1.79E-16	3.88E-25	1.2E-28	6.1E-31	1.3E-31	1.3E-31
RUI103	6.27E-04	5.1E-03	7.66E-03	0.03E-04	0.03E-04	9.99E-04	2.06E-05	1.11E-05	1.4E-06	2.4E-06	1.6E-07	1.6E-07
RUI106	5.71E-03	5.1E-03	7.66E-03	0.03E-04	0.03E-04	9.99E-04	2.06E-05	1.11E-05	1.4E-06	2.4E-06	1.6E-07	1.6E-07
RHI106	5.15E-04	5.1E-03	7.66E-03	0.03E-04	0.03E-04	9.99E-04	2.06E-05	1.11E-05	1.4E-06	2.4E-06	1.6E-07	1.6E-07
S21235	1.22E-04	5.1E-03	7.66E-03	0.03E-04	0.03E-04	9.99E-04	2.06E-05	1.11E-05	1.4E-06	2.4E-06	1.6E-07	1.6E-07
TE127	2.72E-04	5.1E										

TOTAL

TUBALLOY H+12 HOURS = 1.000 MR/HR AT REFRACTORIES PRESENT = 0.100 FRACTION OF REFRACTORIES PRESENT = 0.16 GM/SQCM RELAXATION LENGTH = 0.16 GM/SQCM			
TIME	MR/HR	MICROCRIES/SQ METER	
ZERO TIME HOURS	1.18E+02	1.18E+04	
1.00E+00	3.75E+01	3.38E+03	
2.00E+00	7.46E+00	3.30E+02	
3.00E+00	7.53E+00	3.90E+02	
4.00E+00	4.54E+00	3.51E+02	
6.00E+00	2.37E+00	2.67E+02	
9.00E+00	1.00E+00	1.25E+02	
1.20E+01	7.80E-01	9.90E+01	
1.50E+01	6.32E-01	8.12E+01	
1.80E+01	5.24E-01	6.79E+01	
2.10E+01	4.37E-01	5.56E+01	
2.40E+01	3.94E-01	5.96E+00	
5.00E+00	8.24E-02	4.82E+00	
1.00E+01	3.93E-02	2.02E+00	
2.00E+01	1.51E-02	2.20E+00	
3.00E+01	8.22E-03	1.20E+01	
5.00E+01	2.99E-03	5.35E-01	
1.00E+02	7.69E-04	2.87E-02	
2.00E+02	1.98E-04	3.80E-02	
3.00E+02	6.05E-05	1.88E-02	
1.50E+00	3.81E-05	1.37E-03	
3.50E+00	2.77E-05	1.49E-03	
5.50E+00	1.33E-05	5.00E-03	
7.50E+00	1.07E-05	3.34E-03	
1.00E+01	9.00E-06	4.49E-03	
2.00E+01	6.56E-06	2.69E-03	
3.50E+01	3.26E-06	1.18E-03	

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1,000
FRACTION OF REFRACTORIES PRESENT = 0.100
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
 FRACTION OF REFRAC TOIES PRESENT = 0.100
 RELAXATION LENGTH = 0.16 CM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.00E+00	1.50E+01	1.80E+01	2.10E+01
84M	1.38E-01	6.46E+00	1.09E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
85M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
88M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
89M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
90M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
91M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
92M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
93M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
94M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
95M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
97M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
98M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
99M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
101M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
102M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
103M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
104M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
105M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
106M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
107M	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01
PDI	1.09E+01	1.22E+01	1.99E+01	4.72E+00	3.55E+00	4.55E+00	6.35E+00	2.12E+01	5.84E+00	1.58E+01

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1.000
OF REFRACTORIES PRESENT = 0.100
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

[illegible]

TUBALLOY H+12 HOURS MICROCURIES/SQ METER
 MRX/HR AT 1.000
 OF REFRACTION PRESENT = 0.100
 RELAXATION LENGTH = 0.16 GM/SQCM
 DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.00E+01	1.20E+01	1.50E+01	1.80E+01	2.10E+01
01	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
02	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
03	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
04	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
05	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
06	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
07	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
08	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
09	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
10	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
11	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
12	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
13	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
14	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
15	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
16	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
17	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
18	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
19	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
20	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02
21	37E+02	19E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02	37E+02

TUBALLOY H+12 HOURS = 1.000
 MICROCURIES/SQ METER
 FRACTION OF REFRACTORIES PRESENT = 0.100
 RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 21 HOURS

ZERO TIME	1.00E+00	2.00E+00	3.00E+00	4.00E+00	6.00E+00	9.00E+00	1.20E+01	1.50E+01	1.80E+01	2.10E+01
ND147	2.56E-06	4.81E-02	4.95E-02	4.92E-02	4.90E-02	4.88E-02	4.82E-02	4.79E-02	4.75E-02	4.71E-02
PM149	4.29E-04	4.92E-02	4.99E-02	4.96E-02	4.90E-02	4.88E-02	4.82E-02	4.79E-02	4.75E-02	4.71E-02
PM150	5.97E-04	4.67E-02	4.75E-02	4.72E-02	4.65E-02	4.63E-02	4.57E-02	4.54E-02	4.50E-02	4.46E-02
PM151	1.89E-04	3.80E-02	3.85E-02	3.82E-02	3.75E-02	3.73E-02	3.67E-02	3.64E-02	3.60E-02	3.56E-02
PM152	1.20E-02	1.40E-01	1.41E-01	1.34E-01	1.28E-01	1.23E-01	1.10E-01	1.02E-01	9.44E-02	8.78E-02
SM153	2.26E-02	2.89E-02	2.82E-02	2.75E-02	2.68E-02	2.63E-02	2.50E-02	2.42E-02	2.34E-02	2.26E-02
SM155	2.07E-06	4.21E-02	4.16E-02	4.09E-02	4.03E-02	3.98E-02	3.82E-02	3.74E-02	3.66E-02	3.58E-02
SM156	4.02E-02	4.35E-05	4.30E-05	4.23E-05	4.17E-05	4.12E-05	4.00E-05	3.92E-05	3.84E-05	3.76E-05
EU157	1.86E-04	1.92E-04	1.90E-04	1.84E-04	1.78E-04	1.73E-04	1.60E-04	1.52E-04	1.44E-04	1.36E-04
EU158	4.66E-01	1.67E-02	1.62E-02	1.55E-02	1.49E-02	1.44E-02	1.30E-02	1.22E-02	1.14E-02	1.06E-02
EU159	2.30E-01	2.25E-03	2.22E-03	2.15E-03	2.09E-03	2.04E-03	1.90E-03	1.82E-03	1.74E-03	1.66E-03
GD159	9.86E-04	4.32E-03	4.27E-03	4.20E-03	4.14E-03	4.09E-03	3.90E-03	3.82E-03	3.74E-03	3.66E-03
TB161	1.99E-05	1.43E-04	1.42E-04	1.35E-04	1.29E-04	1.24E-04	1.10E-04	1.02E-04	9.44E-05	8.78E-05
TOTAL	1.18E+04	2.38E+03	9.30E+02	5.50E+02	3.90E+02	2.51E+02	1.67E+02	9.90E+01	8.12E+01	6.84E+01

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
MR/HR AT 1,000
FRACTION OF REFRACTORY PRESENT = 0.100
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

	ZERO	TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
7	1.10E-04	1.08E-04	1.07E-04	1.07E-04	1.03E-04	9.23E-05	8.47E-05	5.72E-05	7.44E-05	5.72E-05	2.99E-05	8.14E-06	2.21E-06
BE	1.76E-03	1.81E-06	1.92E-06	1.92E-06	1.88E-06	9.23E-06	1.11E-05	1.46E-05	2.77E-05	1.46E-05	2.77E-05	2.1E-06	1.76E-06
24	1.51E-06	1.48E-06	1.48E-06	1.48E-06	1.42E-06	3.63E-06	3.37E-06	1.11E-06	2.77E-06	1.11E-06	1.7E-06	5.76E-06	1.34E-06
55	1.65E-06	1.65E-06	1.65E-06	1.65E-06	1.62E-06	2.47E-06	2.12E-06	9.42E-06	5.0E-06	9.42E-06	6.21E-07	1.32E-07	2.84E-08
FE	1.89E-06	1.80E-06	1.80E-06	1.80E-06	1.67E-06	2.47E-06	2.12E-06	1.34E-06	1.82E-06	1.34E-06	6.21E-07	1.32E-07	2.84E-08
57	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	0.98E-03	1.90E-03	1.8E-04	1.8E-04	1.05E-05	1.58E-08	3.59E-14	4.18E-31	1.3E-20	4.18E-31	1.65E-17	0.00E+00	0.00E+00
CCU	0.46E-06	0.45E-06	0.43E-06	0.43E-06	0.219E-06	5.71E-07	8.5E-08	1.18E-11	2.60E-09	1.18E-11	0.00E+00	0.00E+00	0.00E+00
64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
M181	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
M187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
M188	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
199	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
203	1.97E-04	1.43E-04	1.04E-04	1.04E-04	9.7E-05	8.05E-06	3.1E-07	2.8E-11	3.6E-08	2.8E-11	6.7E-18	2.36E-09	1.59E-09
P	1.63E-01	1.72E-01	1.15E-01	1.15E-01	7.9E-03	2.7E-05	1.2E-02	7.2E-26	9.1E-16	7.2E-26	2.20E-05	0.00E+00	0.00E+00
U237	1.53E+00	1.45E+01	1.45E+01	1.45E+01	2.0E+03	1.5E+05	6.5E+11	3.67E+23	5.1E+02	3.67E+23	0.00E+00	0.00E+00	0.00E+00
U240	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NP233	0.65E-03	1.46E-01	1.37E-01	1.37E-01	7.2E-03	1.7E-05	2.4E-03	3.3E-06	8.4E-04	3.3E-06	2.2E-13	1.2E-22	1.25E-22
NP233M	0.42E-03	1.53E-01	1.53E-01	1.53E-01	2.3E-03	1.6E-05	7.4E-03	7.0E-11	3.1E-11	7.0E-11	5.3E-11	3.5E-11	5.3E-11
241	1.12E-01	1.08E-02	1.08E-02	1.08E-02	9.7E-03	3.2E-05	5.3E-10	5.3E-10	3.3E-11	5.3E-10	6.8E-11	3.05E-10	3.99E-10
AM242	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
AS	1.53E-02	1.68E-02	1.68E-02	1.68E-02	1.43E-02	3.2E-05	1.29E-05	7.51E-14	6.05E-07	7.51E-14	1.50E-20	3.22E-39	6.90E-58
77M	1.53E-02	1.68E-02	1.68E-02	1.68E-02									

TUBALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
MR/HR AT REFRACTION OF REFRACTORIES PRESENT = 0.100
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

TUBALLOY H+12 HOURS = 1.000 MICROCURIES/SQ METER
MR/HR AT REFRACTORIES PRESENT = 0.100
RELAXATION LENGTH = 0.16 GM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

[illegible]

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
 MR/HR AT 1,000
 FRACTION OF REACTORIES PRESENT = 0.100
 RELAXATION LENGTH = 0.16 CM/SQCM

DEBRIS DECAY FROM 1 TO 300 DAYS

ZERO TIME	1.00E+00	2.00E+00	5.00E+00	1.00E+01	2.00E+01	3.00E+01	5.00E+01	1.00E+02	2.00E+02	3.00E+02
PM151	1.20E-02	8.18E-02	4.51E-02	3.89E-04	1.02E-06	2.69E-09	1.86E-14	2.33E-27	0	0
SM153	4.28E-02	3.01E-03	2.11E-03	1.24E-03	3.61E-17	1.05E-25	8.80E-40	1.81E-17	7.73E-33	3.29E-48
SM156	4.02E-02	6.86E-03	5.17E-03	8.30E-05	1.71E-05	5.52E-25	1.50E-40	0	0	0
EU155	1.52E-04	5.16E-03	5.16E-03	5.16E-03	5.12E-04	1.09E-04	5.06E-05	4.96E-05	4.76E-05	4.58E-05
EU156	1.18E-04	9.56E-04	1.06E-03	7.55E-04	4.74E-04	2.99E-17	2.19E-04	1.18E-05	1.16E-07	1.14E-09
EU157	4.86E-03	5.62E-03	1.89E-03	2.98E-07	5.25E-12	9.30E-15	4.18E-23	0	0	0
GD159	9.86E-04	1.94E-03	7.73E-04	4.74E-07	4.60E-11	4.35E-15	4.18E-23	3.57E-43	0	0
TB161	1.99E-05	1.30E-04	1.17E-04	5.26E-05	1.92E-05	7.04E-06	9.44E-07	6.24E-09	2.70E-13	1.17E-17
TOTAL	3.45E+02	5.79E+01	2.56E+01	9.96E+00	4.82E+00	2.02E+00	1.20E+00	6.29E-01	2.53E-01	7.87E-02

TUBALLOY H+12 HOURS = MICROCURIES/SQ METER
 MR/HR AT 1.000
 FRACTION OF REFRACTORIES PRESENT = 0.100
 RELAXATION LENGTH = 0.16 CM/SQCM

DEBRIS DECAY FROM 1 TO 50 YEARS

ZERO TIME	1.00E+00	1.50E+00	2.00E+00	3.50E+00	5.00E+00	7.00E+00	1.00E+01	2.00E+01	3.50E+01	5.00E+01
7	1.10E-04	9.48E-07	8.82E-07	6.59E-12	5.59E-12	3.94E-19	2.53E-25	0.93E-13	7.00E-19	0.53E-24
BN	1.51E-06	1.04E-08	9.98E-08	8.19E-09	7.55E-08	5.01E-23	3.24E-30	0.00E+00	0.00E+00	0.00E+00
FE	2.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W181	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W185	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W188	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
U237	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AM241	3.4E-01	5.8E-11	5.4E-09	1.40E-11	1.33E-13	8.6E-14	5.9E-16	3.9E-10	1.3E-10	5.4E-10
CM242	7.6E-04	1.51E-10	1.54E-11	1.31E-12	1.12E-14	8.6E-16	5.8E-18	3.9E-11	1.3E-11	5.1E-11
KR89	4.3E-06	1.01E-04	8.8E-05	1.24E-06	1.05E-08	8.6E-10	5.5E-12	3.9E-05	1.0E-05	3.6E-06
SR90	8.1E-08	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
Y91	2.7E-08	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
ZR95M	1.5E-12	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
NB95	1.60E-09	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
RH103M	1.80E-04	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
RH106	7.7E-05	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
SM1235M	3.5E-05	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
TE127M	1.80E-11	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
TE137M	5.95E-10	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
BA137M	1.80E-07	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
CE141	2.7E-07	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
PR144	1.80E-04	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
PM147	7.09E-06	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
EUI55	1.52E-06	1.51E-04	8.8E-05	7.71E-06	6.6E-08	5.5E-10	3.9E-12	2.9E-04	5.3E-04	4.5E-04
TOTAL	6.95E-01	2.88E-02	1.82E-02	1.37E-02	7.49E-03	4.00E-03	3.34E-03	2.44E-03	1.69E-03	1.18E-03

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