Appendix D

Leachate Generation Calculations for Concentration/Solubility-Screened Group

Appendix D Model Calculations	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
INORGANICS											
Arsenic	As	3			5.687553917		3.3274E+03	1.798876814	5.396630443	170200587.2	3157220893
Astitine	At	1						0	0	0	0
Boron	B	5			184.5525771		1.0797E+05	35.75405018	178.7702509	3382866624	1.04587E+11
Cadmium	Cd	6			3.604582341		2.1088E+03	0.584995647	3.509973881	55349316.76	2053459652
Calcium	Ca	5			21208.90523		1.2408E+07	4108.87929	20544.39645	3.88761E+11	1.20192E+13
Chlorine	Cl	0			1.866365914		1.0919E+03	11.54036257	0	1091890490	0
Cobalt	Co	10			6.03405111		3.5301E+03	0.593801847	5.938018466	56182514.66	3473952156
Copper	Cu	20					1.75E+04	1.482509189	29.65018378	140267489.4	17346412859
Cyanide	CN	0					1.97E+02	2.081822108	0	196971433.7	0
Fluorine	F	0			3.866048315		2.2618E+03	23.90506541	0	2261775869	0
Krypton	Kr	0						0	0	0	0
Magnesium	Mg	5			4478.3411		2.6200E+06	867.6055081	4338.02754	82088426385	2.5379E+12
Molybdenum	Mo	10			10.17766832		5.9543E+03	1.001568951	10.01568951	94763366.95	5859534856
Nitrogen	N	0					No Inventory				
	NO3	0			3.926574218		2.2972E+03	24.27931725	0	2297185677	0
	NO2	0			0.008486856		4.9651E+00	0.05247706	0	4965112.835	0
Phosphorous	P	5			97.40075913		5.6983E+04	18.86980764	94.34903822	1785365355	55197545549
Potassium	K	15			1150.523211		6.7310E+05	75.88339758	1138.250964	7179701648	6.65917E+11
Radon	Rn	0						0	0	0	0
Selenium	Se	4			0.852194244		4.9856E+02	0.204769472	0.819077887	19374247.35	479189717.8
Strontium	Sr	12			18.20350034		1.0650E+04	1.496786043	17.96143251	141618292.8	10508077326
Sulfur	S	14					No Inventory				
	S(-2)	14			758.5103432		4.4376E+05	53.56058952	749.8482532	5067630932	4.38688E+11
	SO4	14			20.52707923		1.2009E+04	1.449475903	20.29266264	137142047.7	11871929927
Vanadium	V	6			21.49017738		1.2573E+04	3.487688455	20.92613073	329987366.8	12242531307
Xenon	Xe	0						0	0	0	0
Zinc	Zn	16			207.9658107		1.2167E+05	12.86779783	205.8847652	1217485672	1.2045E+11

Appendix D Model Calculations	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
INORGANICS									
Arsenic	3327421480	1.798876814	3317520957	1.793524375	3307649892	1.788187861	3297808198	1.782867226	3287995787
Astitine	0	0	0	0	0	0	0	0	0
Boron	1.0797E+11	35.75405018	1.07773E+11	35.68888662	1.07577E+11	35.62384182	1.07381E+11	35.55891557	1.07185E+11
Cadmium	2108808969	0.584995647	2105589313	0.584102496	2102374574	0.583210709	2099164743	0.582320283	2095959812
Calcium	1.2408E+13	4108.87929	1.23854E+13	4101.39065	1.23628E+13	4093.915659	1.23402E+13	4086.454291	1.23178E+13
Chlorine	1091890490	11.54036257	1028375508	10.86906272	968555175.4	10.2368122	912214576.2	9.641339537	859151294.7
Cobalt	3530134671	0.593801847	3526866549	0.593252118	3523601452	0.592702898	3520339379	0.592154186	3517080325
Copper	17486680348	1.482509189	17478521025	1.481817447	17470365510	1.481126028	17462213799	1.480434931	17454065893
Cyanide	196971433.7	2.081822108	185513657.3	1.960723064	174722376.8	1.846668321	164558822.2	1.739248111	154986478.9
Fluorine	2261775869	23.90506541	2130208963	22.51451406	2006295269	21.20485071	1889589602	19.97137013	1779672673
Krypton	0	0	0	0	0	0	0	0	0
Magnesium	2.61999E+12	867.6055081	2.61521E+12	866.0242532	2.61045E+12	864.4458803	2.60569E+12	862.870384	2.60094E+12
Molybdenum	5954298223	1.001568951	5948785863	1.00064172	5943278606	0.999715348	5937776448	0.998789833	5932279383
Nitrogen									
	2297185677	24.27931725	2163558992	22.86699576	2037705336	21.53682865	1919172553	20.284037	1807534792
	4965112.835	0.05247706	4676293.53	0.049424483	4404274.768	0.046549474	4148079.265	0.043841703	3906786.588
Phosphorous	56982910903	18.86980764	56879056671	18.83541647	56775391719	18.80108797	56671915701	18.76682204	56568628273
Potassium	6.73097E+11	75.88339758	6.72679E+11	75.83631367	6.72262E+11	75.78925896	6.71845E+11	75.74223346	6.71428E+11
Radon	0	0	0	0	0	0	0	0	0
Selenium	498563965.2	0.204769472	497436970.3	0.204306594	496312523	0.203844763	495190617.5	0.203383975	494071248
Strontium	10649695619	1.496786043	10641457720	1.495628228	10633226194	1.494471309	10625001035	1.493315285	10616782238
Sulfur									
	4.43756E+11	53.56058952	4.43461E+11	53.52500971	4.43166E+11	53.48945353	4.42872E+11	53.45392098	4.42578E+11
	12009071975	1.449475903	12001094458	1.448513029	11993122241	1.447550795	11985155319	1.446589201	11977193690
Vanadium	12572518674	3.487688455	12553323396	3.482363575	12534157424	3.477046825	12515020715	3.471738193	12495913222
Xenon	0	0	0	0	0	0	0	0	0
Zinc	1.21667E+11	12.86779783	1.21597E+11	12.86030767	1.21526E+11	12.85282187	1.21455E+11	12.84534043	1.21384E+11

Appendix D Model Calculations	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
INORGANICS								
Arsenic	1.777562422	3278212572	1.772273403	3268458467	1.76700012	3258733384	1.761742528	3249037238
Astitine	0	0	0	0	0	0	0	0
Boron	35.49410765	1.0699E+11	35.42941785	1.06795E+11	35.36484595	1.066E+11	35.30039173	1.06406E+11
Cadmium	0.581431217	2092759774	0.580543509	2089564623	0.579657155	2086374349	0.578772155	2083188946
Calcium	4079.006521	1.22953E+13	4071.572326	1.22729E+13	4064.15168	1.22505E+13	4056.744558	1.22282E+13
Chlorine	9.080505357	809174690.4	8.552294754	762105211.9	8.054810023	717773752.6	7.586263847	676021042.6
Cobalt	0.591605983	3513824288	0.591058287	3510571266	0.590511098	3507321255	0.589964416	3504074253
Copper	1.479744157	17445921788	1.479053705	17437781483	1.478363576	17429644976	1.477673768	17421512266
Cyanide	1.638076507	145970956.3	1.542790028	137479864.2	1.453046339	129482696.7	1.368523017	121950722.4
Fluorine	18.8096408	1676149583	17.71548895	1578648404	16.68498363	1486818842	15.71442253	1400330982
Krypton	0	0	0	0	0	0	0	0
Magnesium	861.2977592	2.5962E+12	859.7280005	2.59147E+12	858.1611029	2.58675E+12	856.5970609	2.58203E+12
Molybdenum	0.997865175	5926787408	0.996941373	5921300517	0.996018427	5915818705	0.995096334	5910341969
Nitrogen								
	19.10411992	1702390969	17.9928383	1603363336	16.94619964	1510096113	15.96044367	1422254220
	0.041291443	3679529.842	0.03888953	3465492.561	0.036627337	3263905.772	0.034496734	3074045.234
Phosphorous	18.73261856	56465529092	18.69847741	56362617815	18.66439849	56259894098	18.63038169	56157357601
Potassium	75.69523713	6.71011E+11	75.64826996	6.70595E+11	75.60133194	6.70179E+11	75.55442303	6.69763E+11
Radon	0	0	0	0	0	0	0	0
Selenium	0.20292423	492954408.9	0.202465523	491840094.3	0.202007853	490728298.6	0.201551218	489619016.2
Strontium	1.492160156	10608569799	1.491005919	10600363712	1.489852576	10592163974	1.488700125	10583970577
Sulfur								
	53.41841202	4.42284E+11	53.38292666	4.4199E+11	53.34746487	4.41696E+11	53.31202664	4.41403E+11
	1.445628245	11969237350	1.444667927	11961286295	1.443708247	11953340522	1.442749205	11945400027
Vanadium	3.466437666	12476834903	3.461145231	12457785711	3.455860876	12438765603	3.45058459	12419774535
Xenon	0	0	0	0	0	0	0	0
Zinc	12.83786335	1.21314E+11	12.83039061	1.21243E+11	12.82292223	1.21173E+11	12.81545819	1.21102E+11

Appendix D Model Calculations	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
INORGANICS								
Arsenic	1.756500579	3239369942	1.751274227	3229731410	1.746063426	3220121557	1.740868129	3210540297
Astitine	0	0	0	0	0	0	0	0
Boron	35.23605498	1.06212E+11	35.17183549	1.06018E+11	35.10773305	1.05825E+11	35.04374743	1.05632E+11
Cadmium	0.577888506	2080008407	0.577006207	2076832723	0.576125254	2073661888	0.575245646	2070495894
Calcium	4049.350937	1.22059E+13	4041.97079	1.21837E+13	4034.604094	1.21615E+13	4027.250825	1.21393E+13
Chlorine	7.144972878	636697076.8	6.72935169	599660575.7	6.337907076	564778478	5.969232692	531925462.8
Cobalt	0.589418239	3500830257	0.588872569	3497589265	0.588327403	3494351273	0.587782743	3491116278
Copper	1.476984282	17413383351	1.476295118	17405258229	1.475606276	17397136897	1.474917755	17389019356
Cyanide	1.288916393	114856881	1.213940467	108175686.5	1.14332587	101883135.4	1.076818905	95956620.24
Fluorine	14.80031871	1318874098	13.93938807	1242155539	13.12853754	1169899679	12.36485398	1101846923
Krypton	0	0	0	0	0	0	0	0
Magnesium	855.0358695	2.57733E+12	853.4775235	2.57263E+12	851.9220176	2.56794E+12	850.3693467	2.56326E+12
Molybdenum	0.994175096	5904870302	0.99325471	5899403701	0.992335177	5893942162	0.991416494	5888485678
Nitrogen								
	15.03202887	1339522067	14.15761971	1261602421	13.33407471	1188215341	12.55843509	1119097168
	0.032490068	2895228.833	0.03060013	2726814.135	0.028820128	2568196.075	0.027143669	2418804.787
Phosphorous	18.59642687	56055007981	18.56253395	55952844899	18.52870279	55850868014	18.4949333	55749076988
Potassium	75.50754324	6.69348E+11	75.46069253	6.68932E+11	75.41387089	6.68517E+11	75.3670783	6.68102E+11
Radon	0	0	0	0	0	0	0	0
Selenium	0.201095615	488512241.2	0.200641042	487407968.1	0.200187497	486306191.2	0.199734977	485206904.8
Strontium	1.487548565	10575783519	1.486397896	10567602794	1.485248117	10559428397	1.484099228	10551260323
Sulfur								
	53.27661195	4.4111E+11	53.24122078	4.40817E+11	53.20585312	4.40524E+11	53.17050896	4.40231E+11
	1.4417908	11937464807	1.440833032	11929534858	1.439875899	11921610177	1.438919403	11913690760
Vanadium	3.445316359	12400812461	3.440056171	12381879338	3.434804015	12362975121	3.429559877	12344099767
Xenon	0	0	0	0	0	0	0	0
Zinc	12.8079985	1.21031E+11	12.80054315	1.20961E+11	12.79309214	1.20891E+11	12.78564547	1.2082E+11

Appendix D Model Calculations	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
INORGANICS						
Arsenic	1.735688291	3200987546	1.730523865	3191463219	1.725374805	3181967230
Astitine	0	0	0	0	0	0
Boron	34.97987843	1.05439E+11	34.91612584	1.05247E+11	34.85248944	1.05055E+11
Cadmium	0.574367381	2067334734	0.573490457	2064178401	0.572614872	2061026886
Calcium	4019.910957	1.21172E+13	4012.584466	1.20951E+13	4005.271328	1.2073E+13
Chlorine	5.622003999	500983498.9	5.294973509	471841420.8	4.986966295	444394529.7
Cobalt	0.587238586	3487884278	0.586694933	3484655271	0.586151784	3481429253
Copper	1.474229555	17380905602	1.473541676	17372795634	1.472854118	17364689449
Cyanide	1.014180633	90374848.93	0.955186013	85117767.79	0.899623095	80166489.68
Fluorine	11.64559368	1037752778	10.96817256	977386972.4	10.33015686	920532629.8
Krypton	0	0	0	0	0	0
Magnesium	848.8195056	2.55859E+12	847.2724892	2.55392E+12	845.7282924	2.54927E+12
Molybdenum	0.990498662	5883034246	0.98958168	5877587860	0.988665547	5872146517
Nitrogen						
	11.82791424	1053999581	11.13988758	992688702.9	10.49188326	934944262.7
	0.025564729	2278103.55	0.024077635	2145586.867	0.022677046	2020778.644
Phosphorous	18.46122535	55647471480	18.42757883	55546051154	18.39399364	55444815671
Potassium	75.32031475	6.67688E+11	75.27358021	6.67274E+11	75.22687467	6.6686E+11
Radon	0	0	0	0	0	0
Selenium	0.199283479	484110103.3	0.198833003	483015781.1	0.198383544	481923932.7
Strontium	1.482951227	10543098567	1.481804114	10534943125	1.480657889	10526793991
Sulfur						
	53.13518828	4.39939E+11	53.09989106	4.39646E+11	53.06461729	4.39354E+11
	1.437963542	11905776604	1.437008316	11897867706	1.436053724	11889964061
Vanadium	3.424323746	12325253230	3.419095609	12306435468	3.413875455	12287646437
Xenon	0	0	0	0	0	0
Zinc	12.77820313	1.2075E+11	12.77076513	1.2068E+11	12.76333145	1.20609E+11

Appendix D Model Calculations	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
ORGANICS											
1,1,1-Trichloroethane f		0.41			0.015685556		9.1761E+00	0.027433818	0.011247865	2595648.484	6580401.516
1,1,2,2-Tetrachloroethane		0.24			4.22222E-05		2.4700E-02	0.000105096	2.5223E-05	9943.639291	14756.36071
1,1,2-Trichloroethane		0.23			0.000232222		1.3585E-01	0.000592783	0.00013634	56086.14876	79763.85124
1,1-Dichloroethane		0.16			0.002343333		1.3709E+00	0.007283209	0.001165313	689100.2011	681749.7989
1,1-Dichloroethene		0.2			0.001477778		8.6450E-01	0.004085113	0.000817023	386512.6677	477987.3323
1,2,4-Trichlorobenzene		4.98					5.3900E+00	0.001791833	0.00892333	169534.1742	5220465.826
1,2-Dichlorobenzene		1.14			0.011378889		6.6567E+00	0.00874086	0.00996458	827015.7784	5829634.222
1,2-Dichloroethane		0.11					2.5500E-03	1.60409E-05	1.7645E-06	1517.706577	1032.293423
1,2-Dichloroethene (total)		0.11					1.5400E-01	0.000968743	0.000106562	91657.57365	62342.42635
1,3-Dichlorobenzene		4.44			0.011378889		6.6567E+00	0.002472594	0.010978316	233944.2609	6422705.739
1,4-Dichlorobenzene		1.85			0.450046667		2.6328E+02	0.223698205	0.413841679	21165187.91	242112112.1
1,4-Dioxane g		0			2.11111E-05		1.2350E-02	0.000130529	0	12350	0
2,4,5-Trichlorophenol		2.12			0.044607778		2.6096E+01	0.019548834	0.041443527	1849611.35	24245938.65
2,4,6-Trichlorophenol		7.54			0.018261111		1.0683E+01	0.002370897	0.017876567	224322.2718	10458427.73
2,4-Dichlorophenol		1.04			0.021596667		1.2634E+01	0.017970294	0.018689106	1700257.94	10933792.06
2,4-Dimethylphenol		0.63			0.018261111		1.0683E+01	0.023063562	0.014530044	2182157.083	8500592.917
2,4-Dinitrophenol		0.06			0.050941111		2.9801E+01	0.229735016	0.013784101	21736360.32	8064189.679
2,4-Dinitrotoluene		0.29			0.011378889		6.6567E+00	0.025188322	0.007304613	2383191.121	4273458.879
2,6-Dinitrotoluene		0.21			0.020688889		1.2103E+01	0.05565304	0.011687138	5265608.005	6837391.995
2-Butanone		0.04			0.024721111		1.4462E+01	0.122541077	0.004901643	11594214.32	2867635.676
2-Chlorophenol		0.26			0.018261111		1.0683E+01	0.043298351	0.011257571	4096670.075	6586079.925
2-Hexanone		0.04			0.002702222		1.5808E+00	0.013394755	0.00053579	1267343.666	313456.3335
2-Methylphenol		0.27					9.7800E+00	0.038721244	0.010454736	3663607.417	6116392.583
2-Nitroaniline		0.05			0.027212222		1.5919E+01	0.128518399	0.00642592	12159758.12	3759391.884
2-Nitrophenol		0.13			0.018261111		1.0683E+01	0.062593182	0.008137114	5922248.914	4760501.086
3,3'-Dichlorobenzidine		1.94			0.011378889		6.6567E+00	0.005413742	0.010502659	512220.7402	6144429.26
3-Nitroaniline		0.04			0.027212222		1.5919E+01	0.134889367	0.005395575	12762546.77	3156603.234
4-Chloro-3-methylphenol		2.33			0.018261111		1.0683E+01	0.007328256	0.017074837	693362.3963	9989387.604
4-Chloroaniline		0.13			0.040786667		2.3860E+01	0.139803499	0.018174455	13227497	10632703
4-Methylphenol		0.02			0.03857		2.2563E+01	0.212230783	0.004244616	20080198.75	2483251.246
4-Nitrophenol		0.15			0.051553333		3.0159E+01	0.165370714	0.024805607	15646536.96	14512163.04
Acenaphthene		14.69					9.5800E+01	0.011025704	0.161967588	1043196.086	94756803.91
Acetone f		0			0.620518889		3.6300E+02	3.836641696	0	363003550	0
Acetonitrile g		0			2.11111E-05		1.2350E-02	0.000130529	0	12350	0
Acrolein		0					4.29E-03	4.53545E-05	0	4291.215978	0
Acrylonitrile		0					4.29E-03	4.53545E-05	0	4291.215978	0
Benzene f		0.19			0.603334444		3.5295E+02	1.715253742	0.325898211	162288596.8	190662053.2
Benzidine g		0.04			0.000295556		1.7290E-01	0.001465051	5.86021E-05	138615.7135	34284.28648
Benzo(b)fluoranthene		0.001849785			0.179465556		1.0499E+02	1.09707962	0.002029361	103800101.3	1187248.669
Benzoic acid g		0.14			0.00855		5.0018E+00	0.028335332	0.003966946	2680945.149	2320804.851
bis(2-Chloroethoxy)methane		0.01			0.011378889		6.6567E+00	0.066258216	0.000662582	6269015.853	387634.1469
ORGANICS (Continued)											

Appendix D Model Calculations	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
ORGANICS									
1,1,1-Trichloroethane f	9176050	0.027433818	9025061.812	0.026982405	8876558.073	0.026538421	8730497.904	0.026101742	8586841.095
1,1,2,2-Tetrachloroethane	24700	0.000105096	24121.58112	0.000102635	23556.70753	0.000100231	23005.06201	9.78841E-05	22466.3348
1,1,2-Trichloroethane	135850	0.000592783	132587.4835	0.000578547	129403.3182	0.000564653	126295.6226	0.000551093	123262.56
1,1-Dichloroethane	1370850	0.007283209	1330765.223	0.007070242	1291852.558	0.006863502	1254077.73	0.006662808	1217407.47
1,1-Dichloroethene	864500	0.004085113	842016.66	0.00397887	820118.0517	0.003875391	798788.9679	0.003774602	778014.5966
1,2,4-Trichlorobenzene	5390000	0.001791833	5380138.242	0.001788555	5370294.527	0.001785283	5360468.823	0.001782016	5350661.096
1,2-Dichlorobenzene	6656650	0.00874086	6608542.71	0.00867769	6560783.089	0.008614977	6513368.625	0.008552717	6466296.823
1,2-Dichloroethane	2550	1.60409E-05	2461.715408	1.54855E-05	2376.487354	1.49494E-05	2294.210015	1.44318E-05	2214.781233
1,2-Dichloroethene (total)	154000	0.000968743	148668.3031	0.000935204	143521.1971	0.000902826	138552.2911	0.000871569	133755.4156
1,3-Dichlorobenzene	6656650	0.002472594	6643041.524	0.002467539	6629460.868	0.002462494	6615907.976	0.00245746	6602382.791
1,4-Dichlorobenzene	263277300	0.223698205	262046126.6	0.222652117	260820710.6	0.22161092	259601025	0.220574593	258387043.1
1,4-Dioxane g	12350	0.000130529	11631.60376	0.000122936	10954.99643	0.000115785	10317.74718	0.00010905	9717.566543
2,4,5-Trichlorophenol	26095550	0.019548834	25987958.6	0.019468234	25880810.79	0.019387967	25774104.75	0.019308031	25667838.66
2,4,6-Trichlorophenol	10682750	0.002370897	10669701.23	0.002368001	10656668.4	0.002365109	10643651.49	0.00236222	10630650.49
2,4-Dichlorophenol	12634050	0.017970294	12535146.44	0.017829617	12437017.14	0.01769004	12339656.02	0.017551557	12243057.08
2,4-Dimethylphenol	10682750	0.023063562	10555814.5	0.022789514	10430387.28	0.022518723	10306450.42	0.022251149	10183986.22
2,4-Dinitrophenol	29800550	0.229735016	28536151.65	0.21998766	27325400.07	0.210653871	26166019.09	0.201716103	25055829.13
2,4-Dinitrotoluene	6656650	0.025188322	6518020.401	0.024663757	6382277.864	0.024150116	6249362.265	0.023647173	6119214.73
2,6-Dinitrotoluene	12103000	0.05565304	11796700.97	0.05424459	11498153.66	0.052871785	11207161.9	0.051533722	10923534.47
2-Butanone	14461850	0.122541077	13787417.61	0.11682634	13144437.56	0.111378111	12531443.06	0.106183962	11947035.74
2-Chlorophenol	10682750	0.043298351	10444447.78	0.042332486	10211461.42	0.041388167	9983672.327	0.040464913	9760964.573
2-Hexanone	1580800	0.013394755	1507078.953	0.012770087	1436795.907	0.01217455	1369790.531	0.011606787	1305909.969
2-Methylphenol	9780000	0.038721244	9566888.922	0.037877489	9358421.641	0.037052119	9154496.966	0.036244735	8955015.911
2-Nitroaniline	15919150	0.128518399	15211820.08	0.122807987	14535918.69	0.117351303	13890049.39	0.112137074	13272877.77
2-Nitrophenol	10682750	0.062593182	10338254.34	0.060574686	10004867.93	0.058621283	9682232.503	0.056730873	9370001.377
3,3'-Dichlorobenzidine	6656650	0.005413742	6626854.255	0.005389509	6597191.877	0.005365385	6567662.272	0.005341369	6538264.843
3-Nitroaniline	15919150	0.134889367	15176756.02	0.128598764	14468983.79	0.122601525	13794218.71	0.116883969	13150921.49
4-Chloro-3-methylphenol	10682750	0.007328256	10642417.29	0.007300589	10602236.86	0.007273025	10562208.13	0.007245566	10522330.53
4-Chloroaniline	23860200	0.139803499	23090759.99	0.135295138	22346132.75	0.130932161	21625518.15	0.126709881	20928141.8
4-Methylphenol	22563450	0.212230783	21395390.13	0.201244065	20287798.14	0.190826106	19237543.73	0.18094746	18241658.67
4-Nitrophenol	30158700	0.165370714	29248545.07	0.160380015	28365857.57	0.155539931	27509808.56	0.150845914	26679594.13
Acenaphthene	95800000	0.011025704	95739317.56	0.01101872	95678673.56	0.01101174	95618067.97	0.011004765	95557500.77
Acetone f	363003550	3.836641696	341887729.2	3.61346526	322000210.1	3.403270938	303269542.8	3.205303565	285628433.4
Acetonitrile g	12350	0.000130529	11631.60376	0.000122936	10954.99643	0.000115785	10317.74718	0.00010905	9717.566543
Acrolein	4291.215978	4.53545E-05	4041.597075	4.27163E-05	3806.498439	4.02315E-05	3585.075428	3.78912E-05	3376.532535
Acrylonitrile	4291.215978	4.53545E-05	4041.597075	4.27163E-05	3806.498439	4.02315E-05	3585.075428	3.78912E-05	3376.532535
Benzene f	352950650	1.715253742	343510365.1	1.669376268	334322577.2	1.624725869	325380532.8	1.581269722	316677659.1
Benzidine g	172900	0.001465051	164836.7605	0.001396728	157149.5524	0.001331591	149820.8394	0.001269492	142833.9029
Benzo(b)fluoranthene	104987350	1.09707962	98949325.47	1.03398446	93258559.34	0.974518024	87895080.13	0.918471617	82840064.93
Benzoic acid g	5001750	0.028335332	4845800.127	0.027451862	4694712.625	0.026595939	4548335.89	0.025766703	4406523.044
bis(2-Chloroethoxy)methane	6656650	0.066258216	6291983	0.062628435	5947293.32	0.059197501	5621486.553	0.055954522	5313528.251
ORGANICS (Continued)									

Appendix D Model Calculations	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
ORGANICS								
1,1,1-Trichloroethane f	0.025672248	8445548.101	0.025249822	8306580.026	0.024834346	8169898.614	0.024425707	8035466.239
1,1,2,2-Tetrachloroethane	9.55919E-05	21940.22337	9.33533E-05	21426.43231	9.11672E-05	20924.67308	8.90323E-05	20434.66393
1,1,2-Trichloroethane	0.000537858	120302.3382	0.000524941	117413.2078	0.000512334	114593.4615	0.00050003	111841.4331
1,1-Dichloroethane	0.006467982	1181809.478	0.006278852	1147252.401	0.006095254	1113705.801	0.005917023	1081140.131
1,1-Dichloroethene	0.003676435	757780.5114	0.00358082	738072.6607	0.003487693	718877.3587	0.003396987	700181.2754
1,2,4-Trichlorobenzene	0.001778756	5340871.314	0.001775501	5331099.443	0.001772253	5321345.452	0.00176901	5311609.307
1,2-Dichlorobenzene	0.008490907	6419565.206	0.008429544	6373171.317	0.008368624	6327112.714	0.008308144	6281386.974
1,2-Dichloroethane	1.39322E-05	2138.102387	1.34498E-05	2064.078271	1.29842E-05	1992.616974	1.25346E-05	1923.629768
1,2-Dichloroethene (total)	0.000841394	129124.6147	0.000812264	124654.1387	0.000784142	120338.4369	0.000756994	116172.1507
1,3-Dichlorobenzene	0.002452436	6588885.256	0.002447423	6575415.314	0.002442419	6561972.91	0.002437426	6548557.986
1,4-Dichlorobenzene	0.219543112	257178738.2	0.218516454	255976083.7	0.217494597	254779053.3	0.216477519	253587620.5
1,4-Dioxane g	0.000102706	9152.298258	9.67321E-05	8619.911481	9.11052E-05	8118.493502	8.58056E-05	7646.242875
2,4,5-Trichlorophenol	0.019228424	25562010.7	0.019149146	25456619.06	0.019070194	25351661.96	0.018991568	25247137.59
2,4,6-Trichlorophenol	0.002359335	10617665.36	0.002356453	10604696.09	0.002353574	10591742.66	0.0023507	10578805.06
2,4-Dichlorophenol	0.017414157	12147214.35	0.017277834	12052121.9	0.017142577	11957773.87	0.017008379	11864164.43
2,4-Dimethylphenol	0.021986754	10062977.17	0.021725501	9943405.989	0.021467352	9825255.585	0.021212271	9708509.077
2,4-Dinitrophenol	0.193157553	23992743.08	0.18496213	22974762.38	0.177114429	21999973.27	0.169599696	21066543.18
2,4-Dinitrotoluene	0.023154703	5991777.613	0.022672489	5866994.467	0.022200318	5744810.021	0.02173798	5625170.155
2,6-Dinitrotoluene	0.050229522	10647084.99	0.048958329	10377631.81	0.047719306	10114997.88	0.046511641	9859010.597
2-Butanone	0.101232044	11389882.41	0.096511059	10858712.08	0.092010239	10352313.02	0.087719316	9869530.031
2-Chlorophenol	0.039562254	9543224.804	0.038679731	9330342.2	0.037816895	9122208.41	0.036973306	8918717.502
2-Hexanone	0.011065501	1245008.495	0.010549458	1186947.178	0.010057481	1131593.567	0.009588448	1078821.387
2-Methylphenol	0.035454944	8759881.648	0.034682363	8568999.458	0.033926617	8382276.686	0.033187339	8199622.697
2-Nitroaniline	0.107154528	12683128.72	0.102393369	12119583.78	0.097843761	11581078.62	0.093496304	11066500.68
2-Nitrophenol	0.054901425	9067839.032	0.053130972	8775420.771	0.051417613	8492432.369	0.049759506	8218569.732
3,3'-Dichlorobenzidine	0.005317461	6508999	0.00529366	6479864.153	0.005269965	6450859.717	0.005246376	6421985.106
3-Nitroaniline	0.111433052	12537624.61	0.106236341	11952929.01	0.10128198	11395500.84	0.096558666	10864068.5
4-Chloro-3-methylphenol	0.00721821	10482603.48	0.007190958	10443026.43	0.007163808	10403598.8	0.007136762	10364320.02
4-Chloroaniline	0.122623761	20253254.35	0.118669409	19600130.55	0.114842576	18968068.6	0.111139151	18356389.28
4-Methylphenol	0.171580211	17297328.37	0.162697883	16401883.96	0.154275374	15552794.73	0.146288879	14747660.97
4-Nitrophenol	0.146293558	25874434.62	0.141878586	25093573.9	0.137596853	24336278.66	0.133444338	23601837.72
Acenaphthene	0.010997794	95496971.93	0.010990828	95436481.44	0.010983866	95376029.26	0.010976909	95315615.37
Acetone f	3.018851901	269013502.7	2.843246082	253365058.2	2.677855207	238626879.5	2.522085075	224746016.8
Acetonitrile g	0.000102706	9152.298258	9.67321E-05	8619.911481	9.11052E-05	8118.493502	8.58056E-05	7646.242875
Acrolein	3.56871E-05	3180.120528	3.36112E-05	2995.133755	3.1656E-05	2820.907614	2.98146E-05	2656.816162
Acrylonitrile	3.56871E-05	3180.120528	3.36112E-05	2995.133755	3.1656E-05	2820.907614	2.98146E-05	2656.816162
Benzene f	1.538975887	308207559	1.497813275	299964006.7	1.457751629	291940942.6	1.418761501	284132469.5
Benzidine g	0.001210289	136172.8042	0.001153847	129822.3476	0.001100037	123768.0464	0.001048736	117996.0892
Benzo(b)fluoranthene	0.865648547	78075773.38	0.815863433	73585485.41	0.768941557	69353442.53	0.724718248	65364792.59
Benzoic acid g	0.024963321	4269131.789	0.024184988	4136024.265	0.023430923	4007066.909	0.022700369	3882130.322
bis(2-Chloroethoxy)methane	0.052889201	5022440.631	0.049991806	4747299.478	0.047253137	4487231.207	0.044664499	4241410.089
ORGANICS (Continued)								

Appendix D Model Calculations	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
ORGANICS								
1,1,1-Trichloroethane f	0.024023792	7903245.895	0.02362849	7773201.184	0.023239693	7645296.305	0.022857293	7519496.049
1,1,2,2-Tetrachloroethane	8.69473E-05	19956.12971	8.49112E-05	19488.80169	8.29228E-05	19032.41745	8.09809E-05	18586.72071
1,1,2-Trichloroethane	0.000488022	109155.4963	0.000476302	106534.0638	0.000464863	103975.5865	0.000453699	101478.5525
1,1-Dichloroethane	0.005744005	1049526.708	0.005576045	1018837.687	0.005412997	989046.0385	0.005254717	960125.5221
1,1-Dichloroethene	0.003308641	681971.4273	0.003222592	664235.1688	0.003138781	646960.1831	0.003057149	630134.4737
1,2,4-Trichlorobenzene	0.001765773	5301890.975	0.001762543	5292190.425	0.001759318	5282507.623	0.001756099	5272842.537
1,2-Dichlorobenzene	0.008248101	6235991.692	0.008188493	6190924.48	0.008129315	6146182.966	0.008070565	6101764.797
1,2-Dichloroethane	1.21007E-05	1857.030996	1.16817E-05	1792.737967	1.12773E-05	1730.670854	1.08869E-05	1670.752592
1,2-Dichloroethene (total)	0.000730786	112150.1072	0.000705485	108267.3125	0.00068106	104518.9457	0.000657481	100900.3526
1,3-Dichlorobenzene	0.002432443	6535170.487	0.002427471	6521810.357	0.002422508	6508477.54	0.002417556	6495171.979
1,4-Dichlorobenzene	0.215465198	252401759.3	0.21445761	251221443.6	0.213454734	250046647.5	0.212456547	248877345.1
1,4-Dioxane g	8.08143E-05	7201.462943	7.61134E-05	6782.555742	7.16859E-05	6388.016262	6.7516E-05	6016.42704
2,4,5-Trichlorophenol	0.018913267	25143044.17	0.018835288	25039379.93	0.01875763	24936143.09	0.018680293	24833331.89
2,4,6-Trichlorophenol	0.002347828	10565883.26	0.00234496	10552977.24	0.002342096	10540086.99	0.002339235	10527212.48
2,4-Dichlorophenol	0.016875232	11771287.8	0.016743127	11679138.23	0.016612056	11587710.04	0.016482011	11496997.58
2,4-Dimethylphenol	0.020960221	9593149.785	0.020711166	9479161.225	0.02046507	9366527.11	0.020221898	9255231.346
2,4-Dinitrophenol	0.162403802	20172717.32	0.155513222	19316815.31	0.148914999	18497228.11	0.14259673	17712414.92
2,4-Dinitrotoluene	0.021285271	5508021.877	0.02084199	5393313.298	0.02040794	5280993.608	0.01998293	5171013.058
2,6-Dinitrotoluene	0.045334538	9609501.766	0.044187225	9366307.429	0.043068949	9129267.779	0.041978973	8898227.057
2-Butanone	0.083628501	9409261.757	0.079728463	8970458.222	0.076010304	8552118.412	0.072465542	8153287.994
2-Chlorophenol	0.036148535	8719765.905	0.035342163	8525252.361	0.034553778	8335077.87	0.03378298	8149145.638
2-Hexanone	0.009141288	1028510.252	0.008714981	980545.3906	0.008308556	934817.384	0.007921084	891221.9157
2-Methylphenol	0.032464171	8020948.829	0.03175676	7846168.353	0.031064765	7675196.432	0.030387848	7507950.073
2-Nitroaniline	0.089342016	10574786.8	0.085372314	10104921.06	0.081578996	9655932.699	0.077954226	9226894.079
2-Nitrophenol	0.048154869	7953538.576	0.046601978	7697054.102	0.045099165	7448840.7	0.043644814	7208631.645
3,3'-Dichlorobenzidine	0.005222893	6393239.742	0.005199515	6364623.043	0.005176241	6336134.436	0.005153072	6307773.346
3-Nitroaniline	0.092055626	10357419.65	0.087762587	9874398.504	0.083669754	9413903.188	0.079767792	8974883.198
4-Chloro-3-methylphenol	0.007109817	10325189.55	0.007082974	10286206.81	0.007056232	10247371.25	0.007029591	10208682.31
4-Chloroaniline	0.107555153	17764435.29	0.104086731	17191570.55	0.100730158	16637179.46	0.097481828	16100666.29
4-Methylphenol	0.138715828	13984207.2	0.131534816	13260275.75	0.12472555	12573820.62	0.118268784	11922901.75
4-Nitrophenol	0.129417142	22889561.36	0.125511481	22198780.68	0.121723688	21528846.98	0.118050207	20879131.1
Acenaphthene	0.010969956	95255239.75	0.010963007	95194902.38	0.010956063	95134603.22	0.010949123	95074342.26
Acetone f	2.375376051	211672600.3	2.237201053	199359660.9	2.107063657	187762962	1.984496319	176840840
Acetonitrile g	8.08143E-05	7201.462943	7.61134E-05	6782.555742	7.16859E-05	6388.016262	6.7516E-05	6016.42704
Acrolein	2.80803E-05	2502.269866	2.64469E-05	2356.713487	2.49085E-05	2219.624085	2.34596E-05	2090.509137
Acrylonitrile	2.80803E-05	2502.269866	2.64469E-05	2356.713487	2.49085E-05	2219.624085	2.34596E-05	2090.509137
Benzene f	1.380814234	276532847.6	1.343881933	269136491	1.30793745	261937963	1.272954367	254931972.2
Benzidine g	0.000999828	112493.3088	0.000953201	107247.1521	0.000908748	102245.6514	0.000866369	97477.39703
Benzo(b)fluoranthene	0.683038307	61605537.58	0.64375546	58062484.57	0.606731845	54723199.34	0.571837529	51575962.84
Benzoic acid g	0.021992593	3761089.14	0.021306884	3643821.909	0.020642555	3530210.961	0.01999894	3420142.295
bis(2-Chloroethoxy)methane	0.042217672	4009055.633	0.039904888	3789430.102	0.037718804	3581836.176	0.035652479	3385614.736
ORGANICS (Continued)								

Appendix D Model Calculations	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
ORGANICS						
1,1,1-Trichloroethane f	0.022481186	7395765.786	0.022111267	7274071.453	0.021747435	7154379.552
1,1,2,2-Tetrachloroethane	7.90845E-05	18151.46119	7.72325E-05	17726.39447	7.54239E-05	17311.28188
1,1,2-Trichloroethane	0.000442803	99041.48627	0.000432169	96662.94757	0.00042179	94341.53086
1,1-Dichloroethane	0.005101065	932050.6652	0.004951905	904796.7402	0.004807108	878339.7423
1,1-Dichloroethene	0.002977641	613746.3562	0.002900201	597784.4499	0.002824774	582237.6702
1,2,4-Trichlorobenzene	0.001752886	5263195.135	0.001749679	5253565.384	0.001746478	5243953.252
1,2-Dichlorobenzene	0.008012239	6057667.636	0.007954335	6013889.163	0.00789685	5970427.075
1,2-Dichloroethane	1.05099E-05	1612.908784	1.01461E-05	1557.06761	9.7948E-06	1503.159736
1,2-Dichloroethene (total)	0.000634718	97407.04027	0.000612743	94034.67135	0.000591529	90779.05858
1,3-Dichlorobenzene	0.002412613	6481893.62	0.002407681	6468642.406	0.002402759	6455418.282
1,4-Dichlorobenzene	0.211463029	247713510.7	0.210474156	246555118.8	0.209489908	245402144
1,4-Dioxane g	6.35886E-05	5666.453065	5.98896E-05	5336.836984	5.64059E-05	5026.394583
2,4,5-Trichlorophenol	0.018603274	24730944.59	0.018526573	24628979.42	0.018450189	24527434.66
2,4,6-Trichlorophenol	0.002336378	10514353.7	0.002333524	10501510.62	0.002330674	10488683.24
2,4-Dichlorophenol	0.016352985	11406995.25	0.016224968	11317697.49	0.016097954	11229098.78
2,4-Dimethylphenol	0.019981615	9145258.03	0.019744188	9036591.449	0.019509582	8929216.075
2,4-Dinitrophenol	0.136546538	16960900.33	0.130753047	16241271.51	0.125205366	15552175.61
2,4-Dinitrotoluene	0.019566771	5063322.934	0.019159278	4957875.534	0.018760272	4854624.154
2,6-Dinitrotoluene	0.040916582	8673033.443	0.039881077	8453538.96	0.038871779	8239599.376
2-Butanone	0.069086092	7773057.145	0.065864243	7410558.466	0.062792645	7064965.014
2-Chlorophenol	0.033029376	7967361.034	0.032292584	7789631.534	0.031572226	7615866.682
2-Hexanone	0.007551682	849659.5342	0.007199507	810035.4258	0.006863756	772259.1988
2-Methylphenol	0.029725682	7344348.097	0.029077944	7184311.089	0.028444321	7027761.367
2-Nitroaniline	0.074490513	8816918.78	0.071180703	8425159.767	0.068017956	8050807.642
2-Nitrophenol	0.042237363	6976168.815	0.040875299	6751202.409	0.039557159	6533490.685
3,3'-Dichlorobenzidine	0.005130006	6279539.203	0.005107044	6251431.438	0.005084184	6223449.487
3-Nitroaniline	0.076047799	8556337.028	0.072501288	8157309.874	0.069120171	7776891.463
4-Chloro-3-methylphenol	0.007003051	10170139.45	0.006976611	10131742.1	0.006950271	10093489.72
4-Chloroaniline	0.094338249	15581454.51	0.091296044	15078986.19	0.088351943	14592721.39
4-Methylphenol	0.112146271	11305679.52	0.106340707	10720409.51	0.100835684	10165437.64
4-Nitrophenol	0.114487588	20249022.9	0.111032484	19637930.64	0.107681651	19045280.45
Acenaphthene	0.010942187	95014119.47	0.010935256	94953934.83	0.010928329	94893788.31
Acetone f	1.869058692	166554054.9	1.76033604	156865649.5	1.657937757	147740816
Acetonitrile g	6.35886E-05	5666.453065	5.98896E-05	5336.836984	5.64059E-05	5026.394583
Acrolein	2.20949E-05	1968.904772	2.08097E-05	1854.3741	1.95992E-05	1746.505647
Acrylonitrile	2.20949E-05	1968.904772	2.08097E-05	1854.3741	1.95992E-05	1746.505647
Benzene f	1.238906967	248113369	1.205770225	241477141.3	1.173519783	235018411.1
Benzidine g	0.000825965	92931.51155	0.000787446	88597.6247	0.000750723	84465.84987
Benzo(b)fluoranthene	0.538950052	48609729.97	0.507953997	45814090.85	0.478740585	43179234.33
Benzoic acid g	0.019375392	3313505.467	0.018771285	3210193.475	0.018186014	3110102.654
bis(2-Chloroethoxy)methane	0.033699352	3200142.769	0.031853222	3024831.394	0.030108227	2859123.991
ORGANICS (Continued)						

Appendix D Model Calculations	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
bis(2-Chloroethyl)ether		0.23			0.011378889		6.6567E+00	0.029046384	0.006680668	2748221.289	3908428.711
bis(2-Chloroisopropyl)ether		0.7			0.011378889		6.6567E+00	0.013203975	0.009242783	1249293.087	5407356.913
bis(2-Ethylhexyl)phthalate		18					6.97E+01	0.006559794	0.118076299	620654.4247	69078837.47
Carbazole		10.17			0.032342222		1.8920E+01	0.003130189	0.031834024	296162.606	18624037.39
Carbon Disulfide f		0.14			0.045536667		2.6639E+01	0.150911877	0.021127663	14278515.28	12360434.72
Chlorobenzene		0.67			0.006565556		3.8409E+00	0.007893421	0.005288592	746835.402	3094014.598
Chloroethane		0.05					1.43E-03	1.15362E-05	5.76811E-07	1091.497904	337.4547685
Chloromethane		0.02			0.000358889		2.0995E-01	0.00197478	3.94956E-05	186843.6666	23106.33343
Diethylphthalate		0.25					5.39E+00	0.022385029	0.005596257	2117957.715	3274009.635
Dimethyl Disulfide g		0.11			0.002955556		1.7290E+00	0.010876346	0.001196398	1029064.577	699935.4231
Dimethylphthalate		0.07			0.011378889		6.6567E+00	0.04910214	0.00343715	4645795.045	2010854.955
Di-n-butylphthalate		4.7					1.13E+01	0.003972328	0.018669941	375841.4845	10922579.94
Ethylbenzene		0.61			0.07809		4.5683E+01	0.10118273	0.061721465	9573395.969	36109254.03
Hexachlorobutadiene		10.17			0.020688889		1.2103E+01	0.00200234	0.020363802	189451.2753	11913548.72
Hexachlorocyclopentadiene		9.707809708			0.011378889		6.6567E+00	0.00115286	0.01119175	109077.803	6547572.197
Hexachloroethane		5.34			0.011378889		6.6567E+00	0.002068114	0.011043731	195674.476	6460975.524
Indeno(1,2,3-cd)pyrene		4.046888648			0.011378889		6.6567E+00	0.00270355	0.010940965	255796.1463	6400853.854
Isophorone		0.14					5.39E+00	0.030542276	0.004275919	2889755.022	2501564.598
Methyl Acetate g		0			0.000485556		2.8405E-01	0.003002169	0	284050	0
Methylene Chloride		0.03			0.083621111		4.8918E+01	0.436124628	0.013083739	41263897.09	7654452.91
Naphthalene		3.57			0.425156667		2.4872E+02	0.113923398	0.406706531	10778853.28	237937796.7
Nitrobenzene		0.36			0.011378889		6.6567E+00	0.021808798	0.007851167	2063437.694	4593212.306
N-Nitroso-di-n-propylamine		0.07					5.39E+00	0.039754218	0.002782795	3761342.162	1628034.266
N-Nitrosodiphenylamine		3.87					5.39E+00	0.00228489	0.008842525	216184.6979	5173191.73
Phenol		0.09					3.78E+01	0.256627717	0.023096495	24280811.1	13512271.38
Pyrene		0.001114606			0.25327		1.4816E+02	1.555238882	0.001733478	147148803.6	1014146.391
Styrene		2.74					4.86E-04	2.86165E-07	7.84093E-07	27.07552168	458.7225135
Tetrachloroethene f		0.8			0.009626667		5.6316E+00	0.010009182	0.008007345	947017.9372	4684582.063
Toluene f		1			0.982046667		5.7450E+02	0.845283404	0.845283404	79976422.27	494520877.7
Trichloroethene f		0.28			0.072052222		4.2151E+01	0.163105615	0.045669572	15432224.8	26718325.2
Xylene (ortho) f		0.72			0.003884444		2.2724E+00	0.004405237	0.003171771	416801.1739	1855598.826
Xylene (total) f		0.59			3.453777778		2.0205E+03	4.594189819	2.710571993	434678905.7	1585781094

Appendix D Model Calculations	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
bis(2-Chloroethyl)ether	6656650	0.029046384	6496786.692	0.028348818	6340762.594	0.027668005	6188485.505	0.027003541	6039865.439
bis(2-Chloroisopropyl)ether	6656650	0.013203975	6583978.95	0.013059827	6512101.255	0.012917252	6441008.253	0.012776233	6370691.377
bis(2-Ethylhexyl)phthalate	69699491.89	0.006559794	69663388.59	0.006556396	69627303.99	0.006553	69591238.07	0.006549606	69555190.84
Carbazole	18920200	0.003130189	18902972.3	0.003127339	18885760.29	0.003124491	18868563.94	0.003121646	18851383.26
Carbon Disulfide f	26638950	0.150911877	25808372.53	0.146206586	25003691.69	0.141648002	24224100.04	0.13723155	23468815.32
Chlorobenzene	3840850	0.007893421	3797406.782	0.00780414	3754454.942	0.007715868	3711988.924	0.007628596	3670003.232
Chloroethane	1428.952672	1.15362E-05	1365.460527	1.10236E-05	1304.789505	1.05338E-05	1246.814258	1.00658E-05	1191.415004
Chloromethane	209950	0.00197478	199081.3532	0.00187255	188775.3521	0.001775612	179002.8699	0.001683693	169736.2875
Diethylphthalate	5391967.35	0.022385029	5268766.308	0.021873553	5148380.286	0.021373765	5030744.964	0.020885395	4915797.491
Dimethyl Disulfide g	1729000	0.010876346	1669139.585	0.010499791	1611351.622	0.010136274	1555564.359	0.009785342	1501708.53
Dimethylphthalate	6656650	0.04910214	6386405.327	0.047108706	6127131.966	0.045196201	5878384.506	0.043361339	5639735.621
Di-n-butylphthalate	11298421.43	0.003972328	11276558.83	0.003964641	11254738.53	0.00395697	11232960.46	0.003949313	11211224.53
Ethylbenzene	45682650	0.10118273	45125768.08	0.099949289	44575674.68	0.098730885	44032287.04	0.097527333	43495523.42
Hexachlorobutadiene	12103000	0.00200234	12091979.67	0.002000517	12080969.37	0.001998696	12069969.1	0.001996876	12058978.85
Hexachlorocyclopentadiene	6656650	0.00115286	6650304.973	0.001151762	6643965.994	0.001150664	6637633.057	0.001149567	6631306.157
Hexachloroethane	6656650	0.002068114	6645267.667	0.002064578	6633904.797	0.002061048	6622561.357	0.002057524	6611237.313
Indeno(1,2,3-cd)pyrene	6656650	0.00270355	6641770.406	0.002697507	6626924.072	0.002691477	6612110.923	0.002685461	6597330.887
Isophorone	5391319.62	0.030542276	5223223.332	0.029589996	5060368.128	0.028667408	4902590.597	0.027773585	4749732.422
Methyl Acetate g	284050	0.003002169	267526.8864	0.002827534	251964.9179	0.002663057	237308.1851	0.002508148	223504.0305
Methylene Chloride	48918350	0.436124628	46518039.98	0.414725003	44235507.61	0.394375409	42064973.82	0.375024322	40000943.08
Naphthalene	248716650	0.113923398	248089646.9	0.113636203	247464224.5	0.113349731	246840378.8	0.113063982	246218105.7
Nitrobenzene	6656650	0.021808798	6536620.373	0.021415552	6418755.065	0.021029397	6303015.05	0.020650204	6189362.004
N-Nitroso-di-n-propylamine	5389376.428	0.039754218	5170580.145	0.038140288	4960666.489	0.03659188	4759274.844	0.035106334	4566059.236
N-Nitrosodiphenylamine	5389376.428	0.00228489	5376801.021	0.002279559	5364254.957	0.00227424	5351738.168	0.002268933	5339250.585
Phenol	37793082.48	0.256627717	36380674.09	0.24703699	35021050.44	0.237804689	33712238.83	0.228917419	32452340.31
Pyrene	148162950	1.555238882	139603342.9	1.465390281	131538237.8	1.380732375	123939066.5	1.30096529	116778911.3
Styrene	485.7980352	2.86165E-07	484.2230592	2.85238E-07	482.6531894	2.84313E-07	481.0884092	2.83391E-07	479.528702
Tetrachloroethene f	5631600	0.010009182	5576512.216	0.009911273	5521963.296	0.009814322	5467947.968	0.009718319	5414461.013
Toluene f	574497300	0.845283404	569845092.6	0.838438404	565230558.2	0.831648835	560653391.7	0.824914247	556113290.5
Trichloroethene f	42150550	0.163105615	41252861.55	0.159631923	40374291.35	0.156232211	39514432.22	0.152904903	38672885.69
Xylene (ortho) f	2272400	0.004405237	2248154.786	0.004358236	2224168.254	0.004311736	2200437.645	0.004265732	2176960.228
Xylene (total) f	2020460000	4.594189819	1995174843	4.536695579	1970206118	4.479920854	1945549865	4.423856639	1921202175

Appendix D Model Calculations	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
bis(2-Chloroethyl)ether	0.026355036	5894814.57	0.025722104	5753247.181	0.025104373	5615079.615	0.024501477	5480230.224
bis(2-Chloroisopropyl)ether	0.012636755	6301142.155	0.012498798	6232352.206	0.012362348	6164313.241	0.012227388	6097017.062
bis(2-Ethylhexyl)phthalate	0.006546213	69519162.28	0.006542823	69483152.39	0.006539433	69447161.15	0.006536046	69411188.54
Carbazole	0.003118804	18834218.22	0.003115964	18817068.81	0.003113127	18799935.01	0.003110292	18782816.82
Carbon Disulfide f	0.132952799	22737079.68	0.128807456	22028158.86	0.12479136	21341341.54	0.120900482	20675938.53
Chlorobenzene	0.00754231	3628492.433	0.007457	3587451.155	0.007372655	3546874.089	0.007289264	3506755.984
Chloroethane	9.61853E-06	1138.477285	9.19115E-06	1087.891729	8.78276E-06	1039.553823	8.39252E-06	993.3636983
Chloromethane	0.001596532	160949.4156	0.001513883	152617.4206	0.001435513	144716.7545	0.001361199	137225.0884
Diethylphthalate	0.020408185	4803476.453	0.019941879	4693721.837	0.019486227	4586475.004	0.019040986	4481678.654
Dimethyl Disulfide g	0.009446559	1449717.266	0.009119506	1399526.012	0.008803776	1351072.45	0.008498977	1304296.419
Dimethylphthalate	0.041600968	5410775.332	0.039912065	5191110.304	0.038291727	4980363.17	0.036737171	4778171.885
Di-n-butylphthalate	0.003941671	11189530.65	0.003934044	11167878.76	0.003926431	11146268.76	0.003918834	11124700.58
Ethylbenzene	0.096338452	42965303.07	0.095164065	42441546.23	0.094003993	41924174.1	0.092858063	41413108.86
Hexachlorobutadiene	0.001995057	12047998.6	0.001993241	12037028.35	0.001991426	12026068.09	0.001989613	12015117.81
Hexachlorocyclopentadiene	0.001148471	6624985.287	0.001147376	6618670.442	0.001146283	6612361.617	0.00114519	6606058.805
Hexachloroethane	0.002054005	6599932.633	0.002050493	6588647.282	0.002046987	6577381.229	0.002043487	6566134.439
Indeno(1,2,3-cd)pyrene	0.002679458	6582583.889	0.002673468	6567869.854	0.002667492	6553188.71	0.00266153	6538540.382
Isophorone	0.026907631	4601640.221	0.026068676	4458165.396	0.025255879	4319163.981	0.024468425	4184496.5
Methyl Acetate g	0.002362249	210502.8599	0.002224838	198257.9641	0.00209542	186725.3506	0.00197353	175863.5861
Methylene Chloride	0.356622748	38038189.54	0.339124097	36171743.78	0.322484064	34396880.17	0.306660518	32709105.01
Naphthalene	0.112778953	245597401.4	0.112494642	244978261.8	0.112211048	244360683.1	0.11192817	243744661.2
Nitrobenzene	0.020277849	6077758.298	0.019912209	5968166.978	0.019553161	5860551.758	0.019200587	5754877.006
N-Nitroso-di-n-propylamine	0.033681098	4380687.738	0.032313722	4202841.895	0.03100186	4032216.185	0.029743256	3868517.486
N-Nitrosodiphenylamine	0.002263639	5326792.14	0.002258357	5314362.765	0.002253087	5301962.393	0.00224783	5289590.955
Phenol	0.220362285	31239526.89	0.212126875	30072038.91	0.204199239	28948182.45	0.196567877	27866326.91
Pyrene	1.225806475	110032409.5	1.154989703	103675663.8	1.088264128	97686157.34	1.025393394	92042674.08
Styrene	2.82472E-07	477.9740515	2.81557E-07	476.4244412	2.80644E-07	474.8798547	2.79734E-07	473.340276
Tetrachloroethene f	0.009623255	5361497.263	0.009529121	5309051.599	0.009435909	5257118.953	0.009343607	5205694.308
Toluene f	0.818234194	551609954.6	0.811608236	547143086	0.805035934	542712389.6	0.798516853	538317572.5
Trichloroethene f	0.149648457	37849261.73	0.146461365	37043178.65	0.143342149	36254262.88	0.140289363	35482148.81
Xylene (ortho) f	0.004220219	2153733.301	0.004175192	2130754.193	0.004130645	2108020.259	0.004086573	2085528.882
Xylene (total) f	4.368494043	1897159185	4.313824285	1873417083	4.259838694	1849972102	4.20652871	1826820525

Appendix D Model Calculations	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
bis(2-Chloroethyl)ether	0.02391306	5348619.319	0.023338774	5220169.126	0.02277828	5094803.738	0.022231246	4972449.074
bis(2-Chloroisopropyl)ether	0.012093901	6030455.559	0.011961871	5964620.712	0.011831282	5899504.588	0.011702119	5835099.34
bis(2-Ethylhexyl)phthalate	0.006532661	69375234.58	0.006529277	69339299.23	0.006525895	69303382.5	0.006522514	69267484.38
Carbazole	0.00310746	18765714.21	0.003104631	18748627.18	0.003101804	18731555.7	0.00309898	18714499.77
Carbon Disulfide f	0.117130919	20031282.16	0.113478887	19406725.58	0.109940721	18801642.08	0.106512873	18215424.52
Chlorobenzene	0.007206817	3467091.647	0.007125301	3427875.948	0.007044708	3389103.81	0.006965027	3350770.218
Chloroethane	8.01962E-06	949.2259227	7.66329E-06	907.0493053	7.32279E-06	866.7467064	6.99741E-06	828.2348586
Chloromethane	0.001290733	130121.2493	0.001223915	123385.1602	0.001160555	116997.7835	0.001100476	110941.0672
Diethylphthalate	0.018605919	4379276.795	0.018180792	4279214.715	0.017765379	4181438.954	0.017359458	4085897.271
Dimethyl Disulfide g	0.00820473	1259139.84	0.007920671	1215546.645	0.007646446	1173462.709	0.007381715	1132835.777
Dimethylphthalate	0.035245726	4584189.101	0.033814831	4398081.572	0.032442026	4219529.58	0.031124955	4048226.388
Di-n-butylphthalate	0.003911251	11103174.13	0.003903682	11081689.34	0.003896129	11060246.11	0.00388859	11038844.39
Ethylbenzene	0.091726102	40908273.62	0.09060794	40409592.44	0.089503408	39916990.29	0.088412341	39430393.08
Hexachlorobutadiene	0.001987801	12004177.5	0.001985991	11993247.15	0.001984183	11982326.76	0.001982376	11971416.3
Hexachlorocyclopentadiene	0.001144099	6599762.001	0.001143008	6593471.199	0.001141919	6587186.393	0.00114083	6580907.577
Hexachloroethane	0.002039993	6554906.881	0.002036504	6543698.52	0.002033022	6532509.326	0.002029546	6521339.263
Indeno(1,2,3-cd)pyrene	0.00265558	6523924.798	0.002649644	6509341.884	0.002643722	6494791.567	0.002637812	6480273.774
Isophorone	0.023705522	4054027.825	0.022966406	3927627.041	0.022250335	3805167.314	0.021556591	3686525.767
Methyl Acetate g	0.00185873	165633.6477	0.001750608	155998.7821	0.001648776	146924.374	0.001552867	138377.8219
Methylene Chloride	0.291613398	31104145.07	0.277304604	29577936.78	0.26369791	28126616	0.250758865	26746508.17
Naphthalene	0.111646004	243130192.3	0.111364549	242517272.4	0.111083805	241905897.7	0.110803768	241296064.3
Nitrobenzene	0.018854371	5651107.732	0.018514398	5549209.577	0.018180555	5449148.802	0.017852732	5350892.277
N-Nitroso-di-n-propylamine	0.028535748	3711464.578	0.027377262	3560787.656	0.026265808	3416227.87	0.025199477	3277536.879
N-Nitrosodiphenylamine	0.002242585	5277248.385	0.002237352	5264934.614	0.002232132	5252649.576	0.002226923	5240393.203
Phenol	0.189221714	26824902.63	0.182150094	25822398.61	0.175342755	24857360.31	0.168789821	23928387.55
Pyrene	0.966154802	86725223.75	0.910338516	81714970.9	0.857746825	76994168.25	0.80819344	72546093.81
Styrene	2.78827E-07	471.8056885	2.77923E-07	470.2760763	2.77022E-07	468.7514231	2.76124E-07	467.2317129
Tetrachloroethene f	0.009252209	5154772.694	0.009161705	5104349.19	0.009072086	5054418.924	0.008983344	5004977.072
Toluene f	0.792050563	533958344	0.785636637	529634416	0.779274649	525345502.6	0.77296418	521091320.3
Trichloroethene f	0.137301594	34726478.59	0.134377455	33986902.04	0.131515592	33263076.38	0.128714679	32554666.19
Xylene (ortho) f	0.004042972	2063277.477	0.003999836	2041263.48	0.00395716	2019484.361	0.003914939	1997937.613
Xylene (total) f	4.153885876	1803958679	4.101901843	1781382939	4.050568368	1759089725	3.999877308	1737075500

Appendix D Model Calculations	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
bis(2-Chloroethyl)ether	0.02169735	4853032.827	0.021176275	4736484.431	0.020667715	4622735.012
bis(2-Chloroisopropyl)ether	0.011574367	5771397.209	0.011448009	5708390.517	0.01132303	5646071.674
bis(2-Ethylhexyl)phthalate	0.006519136	69231604.85	0.006515759	69195743.9	0.006512384	69159901.53
Carbazole	0.003096158	18697459.37	0.003093339	18680434.48	0.003090522	18663425.1
Carbon Disulfide f	0.103191901	17647484.67	0.099974475	17097252.65	0.096857364	16564176.36
Chlorobenzene	0.006886247	3312870.211	0.006808357	3275398.885	0.006731349	3238351.39
Chloroethane	6.6865E-06	791.434194	6.3894E-06	756.2686802	6.1055E-06	722.6656632
Chloromethane	0.001043507	105197.8937	0.000989487	99752.03158	0.000938263	94588.08967
Diethylphthalate	0.016962812	3992538.619	0.016575229	3901313.119	0.016196501	3812172.03
Dimethyl Disulfide g	0.00712615	1093615.407	0.006879433	1055752.901	0.006641257	1019201.249
Dimethylphthalate	0.029861353	3883877.711	0.028649051	3726201.213	0.027485965	3574926.018
Di-n-butylphthalate	0.003881065	11017484.07	0.003873555	10996165.09	0.00386606	10974887.36
Ethylbenzene	0.087334575	38949727.6	0.086269946	38474921.54	0.085218296	38005903.47
Hexachlorobutadiene	0.001980571	11960515.78	0.001978768	11949625.19	0.001976966	11938744.52
Hexachlorocyclopentadiene	0.001139743	6574634.747	0.001138656	6568367.896	0.001137571	6562107.018
Hexachloroethane	0.002026075	6510188.301	0.002022611	6499056.406	0.002019153	6487943.546
Indeno(1,2,3-cd)pyrene	0.002631916	6465788.433	0.002626033	6451335.471	0.002620163	6436914.816
Isophorone	0.020884476	3571583.352	0.020233318	3460224.734	0.019602462	3352338.173
Methyl Acetate g	0.001462537	130328.4205	0.001377462	122747.2506	0.001297335	115607.0754
Methylene Chloride	0.238454709	25434119.02	0.226754289	24186125.77	0.215627982	22999368.66
Naphthalene	0.110524436	240687768.2	0.11024581	240081005.5	0.109967885	239475772.5
Nitrobenzene	0.017530819	5254407.469	0.017214712	5159662.429	0.016904304	5066625.788
N-Nitroso-di-n-propylamine	0.024176436	3144476.424	0.023194928	3016817.916	0.022253268	2894342.05
N-Nitrosodiphenylamine	0.002221727	5228165.429	0.002216543	5215966.187	0.002211371	5203795.411
Phenol	0.162481784	23034132.49	0.156409492	22173297.66	0.150564135	21344634.07
Pyrene	0.761502831	68354991.64	0.717509612	64406016.05	0.676057951	60685179
Styrene	2.75229E-07	465.7169297	2.74336E-07	464.2070575	2.73447E-07	462.7020803
Tetrachloroethene f	0.008895469	4956018.855	0.008808455	4907539.542	0.008722291	4859534.45
Toluene f	0.766704813	516871587.9	0.760496133	512686026.3	0.754337731	508534358.9
Trichloroethene f	0.125973418	31861343.14	0.123290537	31182785.93	0.120664795	30518680.08
Xylene (ortho) f	0.003873169	1976620.756	0.003831844	1955531.337	0.003790961	1934666.931
Xylene (total) f	3.949820624	1715336774	3.900390378	1693870098	3.851578729	1672672068

Appendix D Model Calculations	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
ORGANICS (Unknown kd)											
2-Methylnaphthalene							2.42E+02	2.562636341	0	242463634.3	0
3-Methyl Butanal							1.06E-01	0.001117718	0	105752.8192	0
4,6-Dinitro-2-methylphenol							2.11E+01	0.223304856	0	21127971.25	0
4-Methyl-2-Pentanone							1.40E+01	0.148366011	0	14037638.39	0
4-Nitroaniline							1.29E+01	0.136211489	0	12887639.28	0
Aramite							5.42E-02	0.00057335	0	54247.44726	0
Butane,1,1,3,4-Tetrachloro-							3.74E+00	0.039495829	0	3736894.73	0
Decane, 3,4-Dimethyl							7.64E-02	0.000807989	0	76447.82112	0
Diacetone alcohol							2.05E+03	21.63156173	0	2046668498	0
Dibenzofuran							1.54E+02	1.623000576	0	153560070.8	0
Eicosane							1.34E+00	0.01417799	0	1341449.39	0
Ethyl cyanide							8.91E-03	9.41321E-05	0	8906.297312	0
Famphur							2.75E-02	0.000290954	0	27528.55533	0
Heptadecane, 2,6,10,15-Tetra							1.63E+00	0.017216131	0	1628902.831	0
Isobutyl alcohol							8.91E-03	9.41321E-05	0	8906.297312	0
Isopropyl Alcohol/2-propanol							1.01E+00	0.010622887	0	1005083.565	0
Kepone							4.70E+01	0.496665713	0	46991987.09	0
Mesityl oxide							4.01E+01	0.424326983	0	40147663.9	0
Octane,2,3,7-Trimethyl							7.64E-02	0.000807989	0	76447.82112	0
o-Toluenesulfonamide							2.40E+00	0.025317839	0	2395445.34	0
Phenol,2,6-Bis(1,1-Dimethyl)							1.92E+00	0.020254271	0	1916356.272	0
p-Toluenesulfonamide							2.40E+00	0.025317839	0	2395445.34	0
Tributylphosphate							1.72E+02	1.820097616	0	172208391.7	0
Undecane,4,6-Dimethyl-							7.64E-02	0.000807989	0	76447.82112	0

Appendix D Model Calculations	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
ORGANICS (Unknown kc									
2-Methylnaphthalene	242463634.3	2.562636341	228359588.6	2.41356846	215075971.5	2.273171819	202565059	2.140942014	190781902.9
3-Methyl Butanal	105752.8192	0.001117718	99601.2056	0.001052701	93807.42972	0.000991466	88350.67626	0.000933792	83211.34071
4,6-Dinitro-2-methylphenol	21127971.25	0.223304856	19898962.73	0.210315271	18741445.32	0.198081287	17651260.38	0.186558951	16624491.22
4-Methyl-2-Pentanone	14037638.39	0.148366011	13221072.66	0.139735599	12452006.35	0.131607216	11727676.42	0.123951659	11045480.58
4-Nitroaniline	12887639.28	0.136211489	12137968.7	0.128288103	11431906.26	0.120825618	10766915.29	0.113797224	10140606.66
Aramite	54247.44726	0.00057335	51091.88756	0.000539998	48119.88592	0.000508587	45320.76484	0.000479002	42684.4679
Butane,1,1,3,4-Tetrachloro-	3736894.73	0.039495829	3519520.549	0.037198367	3314790.966	0.035034548	3121970.45	0.032996597	2940366.251
Decane, 3,4-Dimethyl	76447.82112	0.000807989	72000.87152	0.000760989	67812.5998	0.000716722	63867.95874	0.000675031	60152.77642
Diacetone alcohol	2046668498	21.63156173	1927614331	20.37325948	1815485514	19.18815235	1709879200	18.07198259	1610415978
Dibenzofuran	153560070.8	1.623000576	144627522	1.52859106	136214577.2	1.439673321	128291011.1	1.355927903	120828356.8
Eicosane	1341449.39	0.01417799	1263417.633	0.01335326	1189924.962	0.012576504	1120707.341	0.011844932	1055516.09
Ethyl cyanide	8906.297312	9.41321E-05	8388.220345	8.86564E-05	7900.279779	8.34993E-05	7440.722586	7.86422E-05	7007.897715
Famphur	27528.55533	0.000290954	25927.22652	0.000274029	24419.04659	0.000258089	22998.59709	0.000243076	21660.77475
Heptadecane, 2,6,10,15-Tetra	1628902.831	0.017216131	1534149.983	0.016214673	1444908.883	0.01527147	1360858.914	0.014383132	1281698.11
Isobutyl alcohol	8906.297312	9.41321E-05	8388.220345	8.86564E-05	7900.279779	8.34993E-05	7440.722586	7.86422E-05	7007.897715
Isopropyl Alcohol/2-propanol	1005083.565	0.010622887	946618.1188	0.010004956	891553.5923	0.00942297	839692.1549	0.008874839	790847.4836
Kepone	46991987.09	0.496665713	44258475.59	0.4677748	41683971.73	0.440564463	39259226.08	0.414936944	36975527.25
Mesityl oxide	40147663.9	0.424326983	37812284.87	0.399643995	35612754.23	0.376396809	33541169.7	0.354501906	31590088.7
Octane,2,3,7-Trimethyl	76447.82112	0.000807989	72000.87152	0.000760989	67812.5998	0.000716722	63867.95874	0.000675031	60152.77642
o-Toluenesulfonamide	2395445.34	0.025317839	2256102.916	0.023845107	2124866.004	0.022458043	2001263.109	0.021151665	1884850.161
Phenol,2,6-Bis(1,1-Dimethyl)	1916356.272	0.020254271	1804882.333	0.019076086	1699892.803	0.017966435	1601010.487	0.016921332	1507880.129
p-Toluenesulfonamide	2395445.34	0.025317839	2256102.916	0.023845107	2124866.004	0.022458043	2001263.109	0.021151665	1884850.161
Tributylphosphate	172208391.7	1.820097616	162191075	1.714223018	152756462.9	1.614507117	143870659.7	1.520591663	135501741.4
Undecane,4,6-Dimethyl-	76447.82112	0.000807989	72000.87152	0.000760989	67812.5998	0.000716722	63867.95874	0.000675031	60152.77642

Appendix D Model Calculations	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
ORGANICS (Unknown kc								
2-Methylnaphthalene	2.016403981	179684169.9	1.899110293	169231989.1	1.788639548	159387808.9	1.684594857	150116262
3-Methyl Butanal	0.000879474	78370.95896	0.000828315	73812.14093	0.000780132	69518.50815	0.000734752	65474.63486
4,6-Dinitro-2-methylphenol	0.175706866	15657448.95	0.165486044	14746659.27	0.155859765	13888849.99	0.146793443	13080939.24
4-Methyl-2-Pentanone	0.116741424	10402967.88	0.109950606	9797829.984	0.103554808	9227892.796	0.097531052	8691108.705
4-Nitroaniline	0.107177669	9550730.248	0.100943172	8995166.787	0.095071335	8471920.306	0.08954106	7979110.935
Aramite	0.000451139	40201.52365	0.000424896	37863.01162	0.00040018	35660.53021	0.000376902	33586.16657
Butane,1,1,3,4-Tetrachloro-	0.031077194	2769325.922	0.029269442	2608234.963	0.027566846	2456514.623	0.02596329	2313619.814
Decane, 3,4-Dimethyl	0.000635764	56653.70527	0.000598782	53358.17417	0.000563951	50254.34324	0.000531146	47331.06134
Diacetone alcohol	17.02074012	1516738505	16.03064816	1428510226	15.09814958	1345414162	14.2198942	1267151775
Dibenzofuran	1.277053935	113799803.1	1.202768044	107180098.6	1.132803344	100945460.5	1.066908472	95073489.68
Eicosane	0.011155916	994116.9975	0.010506979	936289.4738	0.009895791	881825.7619	0.009320155	830530.1898
Ethyl cyanide	7.40676E-05	6600.250152	6.97591E-05	6216.31534	6.57012E-05	5854.713916	6.18794E-05	5514.14675
Famphur	0.000228936	20400.7732	0.000215619	19214.0656	0.000203076	18096.38847	0.000191264	17043.72632
Heptadecane, 2,6,10,15-Tetra	0.013546469	1207142.068	0.012758475	1136922.932	0.012016318	1070788.425	0.011317332	1008500.945
Isobutyl alcohol	7.40676E-05	6600.250152	6.97591E-05	6216.31534	6.57012E-05	5854.713916	6.18794E-05	5514.14675
Isopropyl Alcohol/2-propanol	0.008358592	744844.0939	0.007872375	701516.7093	0.007414441	660709.6672	0.006983145	622276.36
Kepone	0.390800171	34824670.58	0.368067428	32798928.67	0.346657043	30891023.63	0.326492094	29094100.93
Mesityl oxide	0.333880623	29752501.57	0.314458875	28021806.4	0.296166885	26391785.3	0.278938936	24856582.11
Octane,2,3,7-Trimethyl	0.000635764	56653.70527	0.000598782	53358.17417	0.000563951	50254.34324	0.000531146	47331.06134
o-Toluenesulfonamide	0.019921278	1775208.924	0.018762463	1671945.489	0.017671055	1574688.861	0.016643135	1483089.625
Phenol,2,6-Bis(1,1-Dimethyl)	0.015937023	1420167.139	0.01500997	1337556.391	0.014136844	1259751.088	0.013314508	1186471.7
p-Toluenesulfonamide	0.019921278	1775208.924	0.018762463	1671945.489	0.017671055	1574688.861	0.016643135	1483089.625
Tributylphosphate	1.432139247	127619640.8	1.348832085	120196039.9	1.270370878	113204268	1.196473739	106619205.5
Undecane,4,6-Dimethyl-	0.000635764	56653.70527	0.000598782	53358.17417	0.000563951	50254.34324	0.000531146	47331.06134

Appendix D Model Calculations	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
ORGANICS (Unknown kc								
2-Methylnaphthalene	1.586602418	141384038.7	1.494310174	133159766.4	1.407386545	125413897.9	1.32551924	118118604.5
3-Methyl Butanal	0.000692012	61665.99261	0.000651758	58078.89807	0.000613845	54700.46388	0.000578138	51518.55231
4,6-Dinitro-2-methylphenol	0.138254507	12320024.46	0.130212279	11603371.88	0.122637865	10928406.8	0.115504053	10292704.25
4-Methyl-2-Pentanone	0.091857697	8185549.202	0.086514359	7709397.963	0.081481841	7260944.316	0.076742064	6838577.099
4-Nitroaniline	0.08433248	7514968.155	0.079426882	7077824.439	0.074806641	6666109.257	0.070455159	6278343.438
Aramite	0.000354977	31632.46811	0.000334329	29792.41578	0.000314881	28059.39881	0.000296564	26427.19098
Butane,1,1,3,4-Tetrachloro-	0.024453012	2179037.16	0.023030587	2052283.142	0.021690904	1932902.373	0.02042915	1820465.952
Decane, 3,4-Dimethyl	0.000500249	44577.82598	0.00047115	41984.74559	0.000443743	39542.50401	0.000417931	37242.32697
Diacetone alcohol	13.3927267	1193441891	12.61367532	1124019690	11.87994115	1058635761	11.1888881	997055198.1
Dibenzofuran	1.004846687	89543089.84	0.94639502	84334391.91	0.891343471	79428682.56	0.839494257	74808337.03
Eicosane	0.008778004	782218.4676	0.00826739	736717.0255	0.007786478	693862.3903	0.007333541	653500.598
Ethyl cyanide	5.82799E-05	5193.390287	5.48898E-05	4891.292143	5.16968E-05	4606.766969	4.86896E-05	4338.792548
Famphur	0.000180138	16052.29725	0.000169659	15118.53935	0.00015979	14239.0979	0.000150495	13410.81333
Heptadecane, 2,6,10,15-Tetra	0.010659005	949836.7106	0.010038974	894584.9595	0.009455009	842547.1883	0.008905014	793536.4404
Isobutyl alcohol	5.82799E-05	5193.390287	5.48898E-05	4891.292143	5.16968E-05	4606.766969	4.86896E-05	4338.792548
Isopropyl Alcohol/2-propanol	0.006576937	586078.7082	0.006194358	551986.6642	0.005834034	519877.7455	0.00549467	489636.5941
Kepone	0.307500135	27401704.75	0.289612933	25807754.81	0.272766225	24306524.51	0.256899486	22892620.39
Mesityl oxide	0.262713131	23410681.28	0.247431178	22048888.12	0.233038171	20766310.11	0.219482402	19558339.33
Octane,2,3,7-Trimethyl	0.000500249	44577.82598	0.00047115	41984.74559	0.000443743	39542.50401	0.000417931	37242.32697
o-Toluenesulfonamide	0.015675008	1396818.692	0.014763197	1315566.117	0.013904426	1239039.983	0.013095609	1166965.354
Phenol,2,6-Bis(1,1-Dimethyl)	0.012540006	1117454.954	0.011810557	1052452.894	0.01112354	991231.9862	0.010476487	933572.2828
p-Toluenesulfonamide	0.015675008	1396818.692	0.014763197	1315566.117	0.013904426	1239039.983	0.013095609	1166965.354
Tributylphosphate	1.126875177	100417194.4	1.061325145	94575952.71	0.999588141	89074494.47	0.941442362	83893054.61
Undecane,4,6-Dimethyl-	0.000500249	44577.82598	0.00047115	41984.74559	0.000443743	39542.50401	0.000417931	37242.32697

Appendix D Model Calculations	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
ORGANICS (Unknown kc						
2-Methylnaphthalene	1.248414136	111247676.4	1.175794214	104776428.4	1.107398575	98681611.18
3-Methyl Butanal	0.000544508	48521.73171	0.000512834	45699.23536	0.000483002	43040.92289
4,6-Dinitro-2-methylphenol	0.108785212	9693980.361	0.102457205	9130084.079	0.096497297	8598989.495
4-Methyl-2-Pentanone	0.072277998	6440778.871	0.068073606	6066120.462	0.064113783	5713255.834
4-Nitroaniline	0.066356801	5913133.856	0.062496843	5569168.418	0.058861418	5245211.359
Aramite	0.000279313	24889.92824	0.000263066	23442.08768	0.000247763	22078.46762
Butane,1,1,3,4-Tetrachloro-	0.019240791	1714569.927	0.01812156	1614833.846	0.017067433	1520899.387
Decane, 3,4-Dimethyl	0.00039362	35075.95063	0.000370723	33035.59183	0.000349158	31113.92016
Diacetone alcohol	10.53803343	939056760	9.925038806	884432075.8	9.347701915	832984895.1
Dibenzofuran	0.790661097	70456755.79	0.744668549	66358304.88	0.701351376	62498259.77
Eicosane	0.006906951	615486.6405	0.006505175	579683.9448	0.006126771	545963.8825
Ethyl cyanide	4.58574E-05	4086.40613	4.31899E-05	3848.700962	4.06775E-05	3624.823042
Famphur	0.000141741	12630.70986	0.000133496	11895.98479	0.000125731	11203.99849
Heptadecane, 2,6,10,15-Tetra	0.008387012	747376.6348	0.007899141	703901.933	0.00743965	662956.1431
Isobutyl alcohol	4.58574E-05	4086.40613	4.31899E-05	3848.700962	4.06775E-05	3624.823042
Isopropyl Alcohol/2-propanol	0.005175046	461154.5624	0.004874015	434329.3231	0.004590495	409064.5009
Kepone	0.241955711	21560962.69	0.227881211	20306767.18	0.214625421	19125527.88
Mesityl oxide	0.206715169	18420635.88	0.194690602	17349112.35	0.183365501	16339919.06
Octane,2,3,7-Trimethyl	0.00039362	35075.95063	0.000370723	33035.59183	0.000349158	31113.92016
o-Toluenesulfonamide	0.012333841	1099083.287	0.011616384	1035149.901	0.010940662	974935.5046
Phenol,2,6-Bis(1,1-Dimethyl)	0.009867073	879266.6292	0.009293107	828119.9212	0.00875253	779948.4036
p-Toluenesulfonamide	0.012333841	1099083.287	0.011616384	1035149.901	0.010940662	974935.5046
Tributylphosphate	0.886678908	79013017.74	0.83510103	74416851.32	0.786523423	70088042.7
Undecane,4,6-Dimethyl-	0.00039362	35075.95063	0.000370723	33035.59183	0.000349158	31113.92016

Appendix D Model Calculations	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
RADIONUCLIDES											
C 14	C 14	5	5730	4.46023E+12		8.37871E-12	6.0538E-09	2.0047E-12	1.00235E-11	0.000189674	0.005864102
Cd113m	Cd113m	6	14.6	2.16875E+14		6.05622E-09	4.3757E-06	1.21385E-09	7.28312E-09	0.114848581	4.260882367
H 3	H 3	0	12.3	9.69648E+15		4.14296E-09	2.9934E-06	3.16374E-08	0	2.993368268	0
I129	I129	0	15700000	176665185.4	7.59385E+11	0.005949247	4.2984E+00	0.045430932	0	4298444.058	0
Kr81	Kr81	0	210000	21034685479		2.04314E-13	1.4762E-10	1.56023E-12	0	0.000147621	0
Kr85	Kr85	0	10.73	3.92303E+14		2.39392E-06	1.7297E-03	1.8281E-05	0	1729.653541	0
Np236	Np236	8	115000	13183492999		4.26331E-12	3.0803E-09	6.45107E-13	5.16086E-12	6.10367E-05	0.003019284
Np237	Np237	8	2140000	705469458.6	3.75871E+11	0.000737414	5.3280E-01	0.000111583	0.00089266	10557.37428	522238.1143
Sr 90	Sr 90	12	29.1	1.36617E+14		0.000135559	9.7944E-02	1.37658E-05	0.000165189	1302.44712	96641.57628
Tc 98	Tc 98	0.2	4200000	869290573.4		1.64811E-10	1.1908E-07	5.62696E-10	1.12539E-10	0.053239428	0.065839426
Tc 99	Tc 99	0.2	213000	16967800066		0.000274935	1.9865E-01	0.000938681	0.000187736	88813.24355	109832.3779
U232	U232	6	69.2	2.22867E+13		1.94501E-11	1.4053E-08	3.8984E-12	2.33904E-11	0.000368847	0.013684209
U233	U233	6	159000	9658001997		2.14905E-09	1.5527E-06	4.30736E-10	2.58442E-09	0.040754089	1.511976714
U234	U234	6	246000	6215690362		0.000786046	5.6793E-01	0.000157548	0.000945288	14906.38402	553026.847
U235	U235	6	704000000	2162717.602		0.040563614	2.9308E+01	0.008130201	0.048781206	769238.3249	28538741.85
U236	U236	6	23400000	64790670.72		0.002528763	1.8271E+00	0.000506842	0.003041053	47954.83697	1779124.452
U238	U238	6	4470000000	336322.4484		4.762515583	3.4410E+03	0.954555207	5.727331239	90315165.22	3350692630

Appendix D Model Calculations	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
RADIONUCLIDES									
C 14	0.006053776	2.00446E-12	0.006042012	2.00056E-12	0.006030271	1.99667E-12	0.006018552	1.99279E-12	0.006006856
Cd113m	4.375730948	1.15757E-09	4.166472748	1.10221E-09	3.967221788	1.0495E-09	3.777499499	9.99312E-10	3.596850196
H 3	2.993368268	2.99038E-08	2.664764343	2.66211E-08	2.372233674	2.36987E-08	2.111816236	2.10971E-08	1.879986725
I129	4298444.058	0.04543093	4048404.521	0.042788223	3812909.729	0.040299242	3591113.617	0.037955044	3382219.335
Kr81	0.000147621	1.56022E-12	0.000139033	1.46946E-12	0.000130945	1.38398E-12	0.000123328	1.30347E-12	0.000116154
Kr85	1729.653541	1.71374E-05	1527.132698	1.51308E-05	1348.324518	1.33592E-05	1190.452544	1.1795E-05	1051.065409
Np236	0.003080321	6.45103E-13	0.003076752	6.44356E-13	0.003073187	6.43609E-13	0.003069626	6.42863E-13	0.003066069
Np237	532795.4886	0.000111583	532181.1965	0.000111454	531567.6127	0.000111325	530954.7363	0.000111197	530342.5666
Sr 90	97944.0234	1.34417E-05	95564.6328	1.31152E-05	93243.04563	1.27966E-05	90977.85764	1.24857E-05	88767.6987
Tc 98	0.119078855	5.62696E-10	0.115981912	5.48062E-10	0.112965513	5.33808E-10	0.110027563	5.19925E-10	0.107166022
Tc 99	198645.6214	0.000938678	193478.7488	0.000914263	188446.2692	0.000890482	183544.6869	0.00086732	178770.5972
U232	0.014053056	3.85954E-12	0.013891753	3.81524E-12	0.013732301	3.77145E-12	0.01357468	3.72816E-12	0.013418868
U233	1.552730803	4.30735E-10	1.55035339	4.30075E-10	1.547979617	4.29417E-10	1.545609478	4.28759E-10	1.543242968
U234	567933.231	0.000157547	567064.5328	0.000157306	566197.1633	0.000157066	565331.1205	0.000156826	564466.4024
U235	29307980.18	0.008130201	29263233.76	0.008117788	29218555.66	0.008105394	29173945.77	0.008093019	29129403.99
U236	1827079.289	0.000506842	1824289.714	0.000506068	1821504.399	0.000505296	1818723.337	0.000504524	1815946.52
U238	3441007795	0.954555206	3435754185	0.953097825	3430508596	0.951642669	3425271016	0.950189734	3420041432

Appendix D Model Calculations	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
RADIONUCLIDES								
C 14	1.98892E-12	0.005995183	1.98506E-12	0.005983533	1.9812E-12	0.005971905	1.97735E-12	0.0059603
Cd113m	9.51523E-10	3.424839986	9.06019E-10	3.261055726	8.62691E-10	3.105104033	8.21435E-10	2.956610332
H 3	1.87811E-08	1.673606834	1.67194E-08	1.489882773	1.4884E-08	1.326327446	1.325E-08	1.180726783
I129	0.035747207	3185476.387	0.0336678	3000177.933	0.031709352	2825658.249	0.029864826	2661290.336
Kr81	1.22764E-12	0.000109397	1.15623E-12	0.000103033	1.08896E-12	9.7039E-05	1.02562E-12	9.13939E-05
Kr85	1.04139E-05	927.9987669	9.1946E-06	819.341693	8.11803E-06	723.4070064	7.16751E-06	638.7050743
Np236	6.42118E-13	0.003062517	6.41374E-13	0.003058969	6.40631E-13	0.003055424	6.39889E-13	0.003051884
Np237	0.000111069	529731.1027	0.000110941	529120.3437	0.000110813	528510.289	0.000110685	527900.9376
Sr 90	1.21824E-05	86611.23197	1.18864E-05	84507.1531	1.15977E-05	82454.18939	1.13159E-05	80451.0991
Tc 98	5.06403E-10	0.104378902	4.93233E-10	0.101664268	4.80405E-10	0.099020235	4.67911E-10	0.096444967
Tc 99	0.000844761	174120.684	0.000822788	169591.7174	0.000801387	165180.5515	0.000780543	160884.1222
U232	3.68537E-12	0.013264845	3.64307E-12	0.013112589	3.60125E-12	0.012962081	3.55992E-12	0.012813301
U233	4.28103E-10	1.540880082	4.27447E-10	1.538520814	4.26793E-10	1.536165157	4.26139E-10	1.533813108
U234	0.000156586	563603.007	0.000156346	562740.9321	0.000156107	561880.1759	0.000155868	561020.7363
U235	0.008080663	29084930.21	0.008068326	29040524.34	0.008056007	28996186.26	0.008043708	28951915.88
U236	0.000503754	1813173.943	0.000502985	1810405.6	0.000502217	1807641.483	0.00050145	1804881.586
U238	0.948739018	3414819833	0.947290516	3409606206	0.945844226	3404400539	0.944400145	3399202820

Appendix D Model Calculations	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
RADIONUCLIDES								
C 14	1.97351E-12	0.005948717	1.96967E-12	0.005937157	1.96584E-12	0.00592562	1.96202E-12	0.005914105
Cd113m	7.82152E-10	2.815217965	7.44747E-10	2.680587327	7.09132E-10	2.552395058	6.75219E-10	2.430333258
H 3	1.17955E-08	1.05110977	1.05006E-08	0.935721764	9.34788E-09	0.833000743	8.32169E-09	0.74155616
I129	0.028127595	2506483.668	0.02649142	2360682.069	0.02495042	2223361.717	0.023499059	2094029.26
Kr81	9.65954E-13	8.60773E-05	9.09761E-13	8.10699E-05	8.56838E-13	7.63539E-05	8.06993E-13	7.19121E-05
Kr85	6.32828E-06	563.9206814	5.58732E-06	497.8926075	4.93311E-06	439.595597	4.35551E-06	388.1244389
Np236	6.39148E-13	0.003048348	6.38407E-13	0.003044816	6.37667E-13	0.003041288	6.36929E-13	0.003037764
Np237	0.000110557	527292.2888	0.00011043	526684.3417	0.000110303	526077.0955	0.000110175	525470.5495
Sr 90	1.1041E-05	78496.67062	1.07728E-05	76589.7218	1.05111E-05	74729.0992	1.02558E-05	72913.6774
Tc 98	4.55742E-10	0.093936675	4.43889E-10	0.091493618	4.32344E-10	0.089114098	4.211E-10	0.086796464
Tc 99	0.00076024	156699.4452	0.000740466	152623.6138	0.000721206	148653.7967	0.000702447	144787.2367
U232	3.51906E-12	0.012666228	3.47866E-12	0.012520844	3.43874E-12	0.012377128	3.39927E-12	0.012235062
U233	4.25487E-10	1.53146466	4.24835E-10	1.529119808	4.24185E-10	1.526778546	4.23535E-10	1.524440868
U234	0.00015563	560162.6113	0.000155392	559305.7988	0.000155154	558450.2969	0.000154917	557596.1036
U235	0.008031427	28907713.08	0.008019165	28863577.78	0.008006921	28819509.86	0.007994697	28775509.22
U236	0.000500684	1802125.903	0.00049992	1799374.427	0.000499157	1796627.153	0.000498395	1793884.073
U238	0.942958268	3394013036	0.941518592	3388831176	0.940081115	3383657228	0.938645832	3378491179

Appendix D Model Calculations	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
RADIONUCLIDES						
C 14	1.95821E-12	0.005902612	1.9544E-12	0.005891141	1.95061E-12	0.005879693
Cd113m	6.42929E-10	2.314108753	6.12182E-10	2.203442389	5.82906E-10	2.098068362
H 3	7.40816E-09	0.660150117	6.59491E-09	0.587680611	5.87094E-09	0.523166613
I129	0.022132124	1972220.043	0.020844703	1857496.441	0.019632172	1749446.285
Kr81	7.60048E-13	6.77288E-05	7.15834E-13	6.37888E-05	6.74192E-13	6.00781E-05
Kr85	3.84553E-06	342.679911	3.39527E-06	302.5563702	2.99772E-06	267.1307953
Np236	6.36191E-13	0.003034245	6.35453E-13	0.003030729	6.34717E-13	0.003027217
Np237	0.000110048	524864.7028	0.000109922	524259.5547	0.000109795	523655.1042
Sr 90	1.00066E-05	71142.35831	9.76351E-06	69414.07053	9.52632E-06	67727.7687
Tc 98	4.10148E-10	0.084539105	3.99482E-10	0.082340455	3.89092E-10	0.080198986
Tc 99	0.000684176	141021.2478	0.00066638	137353.2142	0.000649048	133780.5879
U232	3.36025E-12	0.012094626	3.32168E-12	0.011955802	3.28355E-12	0.011818572
U233	4.22887E-10	1.52210677	4.22239E-10	1.519776246	4.21593E-10	1.51744929
U234	0.00015468	556743.2168	0.000154443	555891.6346	0.000154207	555041.3549
U235	0.007982491	28731575.76	0.007970303	28687709.37	0.007958134	28643909.96
U236	0.000497634	1791145.181	0.000496874	1788410.47	0.000496115	1785679.936
U238	0.93721274	3373333017	0.935781837	3368182731	0.934353118	3363040308

Appendix D Model Calculations (2)	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
INORGANICS											
Arsenic	As	3						1.533640529	4.600921588	145105277.1	2691702891
Astitine	At	1						0	0	0	0
Boron	B	5						40.65348681	203.267434	3846426432	1.18919E+11
Cadmium	Cd	6						0	0	0	0
Carbon (non-Rad)								0.491128312	0	46468066.29	0
Calcium	Ca	5						4.860929877	24.30464938	459916495.1	14219084972
Chlorine	Cl	0						16.59564153	0	1570195308	0
Cobalt	Co	10						0	0	0	0
Copper	Cu	20						0	0	0	0
Cyanide	CN	0						0	0	0	0
Fluorine	F	0						44.34573947	0	4195768626	0
Krypton	Kr	0						0	0	0	0
Magnesium	Mg	5						0.250312405	1.251562025	23683288.36	732208331.9
Molybdenum	Mo	10						0	0	0	0
Nitrogen	N	0						0	0	0	0
	NO3	0						30.3986	0	2876161130	0
	NO2	0						0	0	0	0
Phosphorous	P	5						6.803459636	34.01729818	643708794.3	19901330223
Potassium	K	15						0.089506699	1.342600481	8468669.205	785469068.7
Radon	Rn	0						0	0	0	0
Selenium	Se	4						0.073516483	0.294065932	6955756.206	172039036.8
Strontium	Sr	12						0	0	0	0
Sulfur	S	14									
	S(-2)	14						0	0	0	0
	SO4	14						373.0371377	5222.519928	35294879217	3.05536E+12
Vanadium	V	6						3.47714796	20.86288776	328990078.7	12205531919
Xenon	Xe	0						0	0	0	0
Zinc	Zn	16						0.031270669	0.5003307	2958671.848	292711268.2

Appendix D Model Calculations (2)	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
INORGANICS									
Arsenic	2836808168	1.533640529	2828367432	1.529077283	2819951812	1.524527614	2811561231	1.519991483	2803195616
Astitine	0	0	0	0	0	0	0	0	0
Boron	1.22765E+11	40.65348681	1.22541E+11	40.57939378	1.22318E+11	40.50543578	1.22095E+11	40.43161258	1.21873E+11
Cadmium	0	0	0	0	0	0	0	0	0
Carbon (non-Rad)	46468066.29	0.491128312	43765031.12	0.462559507	41219230.8	0.435652543	38821519.01	0.410310749	36563281.48
Calcium	14679001468	4.860929877	14652248246	4.852070587	14625543784	4.843227443	14598887992	4.834400417	14572280782
Chlorine	1570195308	16.59564153	1478857461	15.63027743	1392832712	14.72106832	1311812000	13.86474765	1235504242
Cobalt	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0	0	0
Fluorine	4195768626	44.34573947	3951701871	41.7661595	3721832414	39.33663301	3505334404	37.04843143	3301430026
Krypton	0	0	0	0	0	0	0	0	0
Magnesium	755891620.2	0.250312405	754513969.6	0.249856198	753138829.8	0.249400822	751766196.2	0.248946277	750396064.4
Molybdenum	0	0	0	0	0	0	0	0	0
Nitrogen	0	0	0	0	0	0	0	0	0
	2876161130	30.3986	2708855595	28.63032145	2551282179	26.9649032	2402874767	25.39636189	2263100175
	0	0	0	0	0	0	0	0	0
Phosphorous	20545039017	6.803459636	20507594646	6.791059987	20470218520	6.778682938	20432910513	6.766328446	20395670502
Potassium	793937737.9	0.089506699	793445117.7	0.089451162	792952803.1	0.089395659	792460794	0.089340191	791969090.1
Radon	0	0	0	0	0	0	0	0	0
Selenium	178994793	0.073516483	178590178.5	0.0733503	178186478.6	0.073184493	177783691.3	0.073019061	177381814.5
Strontium	0	0	0	0	0	0	0	0	0
Sulfur									
	0	0	0	0	0	0	0	0	0
	3.09065E+12	373.0371377	3.0886E+12	372.7893325	3.08655E+12	372.541692	3.0845E+12	372.2942159	3.08245E+12
Vanadium	12534521997	3.47714796	12515384731	3.471839173	12496276683	3.466538492	12477197808	3.461245903	12458148063
Xenon	0	0	0	0	0	0	0	0	0
Zinc	295669940	0.031270669	295497834.9	0.031252467	295325829.9	0.031234275	295153925	0.031216094	294982120.2

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
INORGANICS								
Arsenic	1.515468849	2794854892	1.510959671	2786538985	1.50646391	2778247822	1.501981526	2769981329
Astitine	0	0	0	0	0	0	0	0
Boron	40.35792393	1.2165E+11	40.28436957	1.21429E+11	40.21094927	1.21207E+11	40.13766279	1.20987E+11
Cadmium	0	0	0	0	0	0	0	0
Carbon (non-Rad)	0.386443081	34436405.03	0.363963789	32433248.43	0.342792111	30546614.92	0.322851984	28769726.38
Calcium	4.825589478	14545722064	4.816794597	14519211751	4.808015746	14492749755	4.799252895	14466335987
Chlorine	13.05823894	1163635286	12.29864462	1095946928	11.5832357	1032195984	10.90944194	972153415.9
Cobalt	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0	0
Fluorine	34.89333394	3109386711	32.86359791	2928514506	30.95193108	2758163589	29.15146541	2597721940
Krypton	0	0	0	0	0	0	0	0
Magnesium	0.24849256	749028429.7	0.248039669	747663287.5	0.247587605	746300633.5	0.247136364	744940462.9
Molybdenum	0	0	0	0	0	0	0	0
Nitrogen	0	0	0	0	0	0	0	0
	23.91906221	2131456235	22.52769667	2007469987	21.21726649	1890695987	19.98306369	1780714700
	0	0	0	0	0	0	0	0
Phosphorous	6.753996471	20358498363	6.741686971	20321393971	6.729399906	20284357205	6.717135235	20247387940
Potassium	0.089284758	791477691.4	0.089229359	790986597.5	0.089173994	790495808.4	0.089118664	790005323.7
Radon	0	0	0	0	0	0	0	0
Selenium	0.072854003	176980846.1	0.072689318	176580784.1	0.072525005	176181626.4	0.072361063	175783371
Strontium	0	0	0	0	0	0	0	0
Sulfur								
	0	0	0	0	0	0	0	0
	372.0469043	3.0804E+12	371.7997569	3.07836E+12	371.5527737	3.07631E+12	371.3059546	3.07427E+12
Vanadium	3.455961395	12439127402	3.450684955	12420135781	3.445416571	12401173155	3.44015623	12382239481
Xenon	0	0	0	0	0	0	0	0
Zinc	0.031197924	294810415.4	0.031179764	294638810.6	0.031161614	294467305.6	0.031143476	294295900.5

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
INORGANICS								
Arsenic	1.497512479	2761739432	1.493056729	2753522059	1.488614237	2745329135	1.484184964	2737160589
Astitine	0	0	0	0	0	0	0	0
Boron	40.06450987	1.20766E+11	39.99149028	1.20546E+11	39.91860377	1.20326E+11	39.8458501	1.20107E+11
Cadmium	0	0	0	0	0	0	0	0
Carbon (non-Rad)	0.30407177	27096198.98	0.286383995	25520020.23	0.269725113	24035527.38	0.254035275	22637387.09
Calcium	4.790506014	14439970359	4.781775075	14413652784	4.773060048	14387383174	4.764360905	14361161442
Chlorine	10.27484257	915603507.9	9.67715769	862343093.2	9.114239978	812180822.8	8.584067041	764936478.4
Cobalt	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0	0
Fluorine	27.45573235	2446613140	25.85863963	2304294298	24.35444938	2170254106	22.93775748	2044010997
Krypton	0	0	0	0	0	0	0	0
Magnesium	0.246685945	743582771.3	0.246236348	742227554.1	0.245787569	740874806.9	0.245339609	739524525.2
Molybdenum	0	0	0	0	0	0	0	0
Nitrogen	0	0	0	0	0	0	0	0
	18.82065414	1677130995	17.72586165	1579572728	16.69475295	1487689398	15.72362357	1401150898
	0	0	0	0	0	0	0	0
Phosphorous	6.704892917	20210486053	6.692672911	20173651422	6.680475177	20136883924	6.668299674	20100183436
Potassium	0.089063367	789515143.5	0.089008106	789025267.3	0.088952878	788535695.1	0.088897685	788046426.7
Radon	0	0	0	0	0	0	0	0
Selenium	0.072197492	175386015.9	0.072034291	174989558.9	0.071871459	174593998.2	0.071708995	174199331.6
Strontium	0	0	0	0	0	0	0	0
Sulfur								
	0	0	0	0	0	0	0	0
	371.0592995	3.07223E+12	370.8128082	3.07019E+12	370.5664806	3.06815E+12	370.3203167	3.06611E+12
Vanadium	3.434903921	12363334715	3.429659631	12344458811	3.424423347	12325611727	3.419195058	12306793418
Xenon	0	0	0	0	0	0	0	0
Zinc	0.031125347	294124595.2	0.03110723	293953389.5	0.031089123	293782283.5	0.031071026	293611277.2

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
INORGANICS						
Arsenic	1.479768869	2729016348	1.475365914	2720896340	1.47097606	2712800492
Astitine	0	0	0	0	0	0
Boron	39.77322903	1.19888E+11	39.70074031	1.1967E+11	39.6283837	1.19451E+11
Cadmium	0	0	0	0	0	0
Carbon (non-Rad)	0.23925811	21320576.25	0.225340529	20080363.95	0.212232529	18912294.47
Calcium	4.755677617	14334987500	4.747010155	14308861262	4.738358489	14282782640
Chlorine	8.084734124	720440325.1	7.614447271	678532501.3	7.171516881	639062444.5
Cobalt	0	0	0	0	0	0
Copper	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0
Fluorine	21.60347417	1925111416	20.34680578	1813128192	19.16323745	1707659003
Krypton	0	0	0	0	0	0
Magnesium	0.244892465	738176704.4	0.244446137	736831340.1	0.244000621	735488427.8
Molybdenum	0	0	0	0	0	0
Nitrogen	0	0	0	0	0	0
	14.80898454	1319646320	13.94754981	1242882841	13.13622451	1170584674
	0	0	0	0	0	0
Phosphorous	6.656146361	20063549837	6.644015198	20026983004	6.631906145	19990482817
Potassium	0.088842526	787557461.9	0.088787401	787068800.5	0.088732311	786580442.2
Radon	0	0	0	0	0	0
Selenium	0.071546898	173805557.1	0.071385167	173412672.8	0.071223803	173020676.6
Strontium	0	0	0	0	0	0
Sulfur						
	0	0	0	0	0	0
	370.0743163	3.06407E+12	369.8284793	3.06204E+12	369.5828056	3.06E+12
Vanadium	3.413974752	12288003840	3.408762416	12269242949	3.403558038	12250510701
Xenon	0	0	0	0	0	0
Zinc	0.03105294	293440370.3	0.031034865	293269563	0.0310168	293098855

Appendix D Model Calculations (2)	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
ORGANICS											
1,1,1-Trichloroethane f		0.41						0	0	0	0
1,1,2,2-Tetrachloroethane		0.24						0	0	0	0
1,1,2-Trichloroethane		0.23						0	0	0	0
1,1-Dichloroethane		0.16						0	0	0	0
1,1-Dichloroethene		0.2						0	0	0	0
1,2,4-Trichlorobenzene		4.98						0	0	0	0
1,2-Dichlorobenzene		1.14						0	0	0	0
1,2-Dichloroethane		0.11						0	0	0	0
1,2-Dichloroethene (total)		0.11						0	0	0	0
1,3-Dichlorobenzene		4.44						0	0	0	0
1,4-Dichlorobenzene		1.85						0	0	0	0
1,4-Dioxane g		0						0	0	0	0
2,4,5-Trichlorophenol		2.12						0	0	0	0
2,4,6-Trichlorophenol		7.54						0	0	0	0
2,4-Dichlorophenol		1.04						0	0	0	0
2,4-Dimethylphenol		0.63						0	0	0	0
2,4-Dinitrophenol		0.06						0	0	0	0
2,4-Dinitrotoluene		0.29						0	0	0	0
2,6-Dinitrotoluene		0.21						0	0	0	0
2-Butanone		0.04						0	0	0	0
2-Chlorophenol		0.26						0	0	0	0
2-Hexanone		0.04						0	0	0	0
2-Methylphenol		0.27						0	0	0	0
2-Nitroaniline		0.05						0	0	0	0
2-Nitrophenol		0.13						0	0	0	0
3,3'-Dichlorobenzidine		1.94						0	0	0	0
3-Nitroaniline		0.04						0	0	0	0
4-Chloro-3-methylphenol		2.33						0	0	0	0
4-Chloroaniline		0.13						0	0	0	0
4-Methylphenol		0.02						0	0	0	0
4-Nitrophenol		0.15						0	0	0	0
Acenaphthene		14.69						0	0	0	0
Acetone f		0						0	0	0	0
Acetonitrile g		0						0	0	0	0
Acrolein		0						0	0	0	0
Acrylonitrile		0						0	0	0	0
Benzene f		0.19						0	0	0	0
Benzidine g		0.04						0	0	0	0
Benzo(b)fluoranthene		0.001849785						0	0	0	0
Benzoic acid g		0.14						0	0	0	0
bis(2-Chloroethoxy)methane		0.01						0	0	0	0
ORGANICS (Continued)											

Appendix D Model Calculations (2)	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
ORGANICS									
1,1,1-Trichloroethane f	0	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	0	0	0	0	0	0	0	0	0
1,1,2-Trichloroethane	0	0	0	0	0	0	0	0	0
1,1-Dichloroethane	0	0	0	0	0	0	0	0	0
1,1-Dichloroethene	0	0	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	0	0	0	0	0	0	0	0	0
1,2-Dichlorobenzene	0	0	0	0	0	0	0	0	0
1,2-Dichloroethane	0	0	0	0	0	0	0	0	0
1,2-Dichloroethene (total)	0	0	0	0	0	0	0	0	0
1,3-Dichlorobenzene	0	0	0	0	0	0	0	0	0
1,4-Dichlorobenzene	0	0	0	0	0	0	0	0	0
1,4-Dioxane g	0	0	0	0	0	0	0	0	0
2,4,5-Trichlorophenol	0	0	0	0	0	0	0	0	0
2,4,6-Trichlorophenol	0	0	0	0	0	0	0	0	0
2,4-Dichlorophenol	0	0	0	0	0	0	0	0	0
2,4-Dimethylphenol	0	0	0	0	0	0	0	0	0
2,4-Dinitrophenol	0	0	0	0	0	0	0	0	0
2,4-Dinitrotoluene	0	0	0	0	0	0	0	0	0
2,6-Dinitrotoluene	0	0	0	0	0	0	0	0	0
2-Butanone	0	0	0	0	0	0	0	0	0
2-Chlorophenol	0	0	0	0	0	0	0	0	0
2-Hexanone	0	0	0	0	0	0	0	0	0
2-Methylphenol	0	0	0	0	0	0	0	0	0
2-Nitroaniline	0	0	0	0	0	0	0	0	0
2-Nitrophenol	0	0	0	0	0	0	0	0	0
3,3'-Dichlorobenzidine	0	0	0	0	0	0	0	0	0
3-Nitroaniline	0	0	0	0	0	0	0	0	0
4-Chloro-3-methylphenol	0	0	0	0	0	0	0	0	0
4-Chloroaniline	0	0	0	0	0	0	0	0	0
4-Methylphenol	0	0	0	0	0	0	0	0	0
4-Nitrophenol	0	0	0	0	0	0	0	0	0
Acenaphthene	0	0	0	0	0	0	0	0	0
Acetone f	0	0	0	0	0	0	0	0	0
Acetonitrile g	0	0	0	0	0	0	0	0	0
Acrolein	0	0	0	0	0	0	0	0	0
Acrylonitrile	0	0	0	0	0	0	0	0	0
Benzene f	0	0	0	0	0	0	0	0	0
Benzidine g	0	0	0	0	0	0	0	0	0
Benzo(b)fluoranthene	0	0	0	0	0	0	0	0	0
Benzoic acid g	0	0	0	0	0	0	0	0	0
bis(2-Chloroethoxy)methane	0	0	0	0	0	0	0	0	0

ORGANICS (Continued)

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
ORGANICS								
1,1,1-Trichloroethane f	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	0	0	0	0	0	0	0	0
1,1,2-Trichloroethane	0	0	0	0	0	0	0	0
1,1-Dichloroethane	0	0	0	0	0	0	0	0
1,1-Dichloroethene	0	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	0	0	0	0	0	0	0	0
1,2-Dichlorobenzene	0	0	0	0	0	0	0	0
1,2-Dichloroethane	0	0	0	0	0	0	0	0
1,2-Dichloroethene (total)	0	0	0	0	0	0	0	0
1,3-Dichlorobenzene	0	0	0	0	0	0	0	0
1,4-Dichlorobenzene	0	0	0	0	0	0	0	0
1,4-Dioxane g	0	0	0	0	0	0	0	0
2,4,5-Trichlorophenol	0	0	0	0	0	0	0	0
2,4,6-Trichlorophenol	0	0	0	0	0	0	0	0
2,4-Dichlorophenol	0	0	0	0	0	0	0	0
2,4-Dimethylphenol	0	0	0	0	0	0	0	0
2,4-Dinitrophenol	0	0	0	0	0	0	0	0
2,4-Dinitrotoluene	0	0	0	0	0	0	0	0
2,6-Dinitrotoluene	0	0	0	0	0	0	0	0
2-Butanone	0	0	0	0	0	0	0	0
2-Chlorophenol	0	0	0	0	0	0	0	0
2-Hexanone	0	0	0	0	0	0	0	0
2-Methylphenol	0	0	0	0	0	0	0	0
2-Nitroaniline	0	0	0	0	0	0	0	0
2-Nitrophenol	0	0	0	0	0	0	0	0
3,3'-Dichlorobenzidine	0	0	0	0	0	0	0	0
3-Nitroaniline	0	0	0	0	0	0	0	0
4-Chloro-3-methylphenol	0	0	0	0	0	0	0	0
4-Chloroaniline	0	0	0	0	0	0	0	0
4-Methylphenol	0	0	0	0	0	0	0	0
4-Nitrophenol	0	0	0	0	0	0	0	0
Acenaphthene	0	0	0	0	0	0	0	0
Acetone f	0	0	0	0	0	0	0	0
Acetonitrile g	0	0	0	0	0	0	0	0
Acrolein	0	0	0	0	0	0	0	0
Acrylonitrile	0	0	0	0	0	0	0	0
Benzene f	0	0	0	0	0	0	0	0
Benzidine g	0	0	0	0	0	0	0	0
Benzo(b)fluoranthene	0	0	0	0	0	0	0	0
Benzoic acid g	0	0	0	0	0	0	0	0
bis(2-Chloroethoxy)methane	0	0	0	0	0	0	0	0

ORGANICS (Continued)

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
ORGANICS								
1,1,1-Trichloroethane f	0	0	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	0	0	0	0	0	0	0	0
1,1,2-Trichloroethane	0	0	0	0	0	0	0	0
1,1-Dichloroethane	0	0	0	0	0	0	0	0
1,1-Dichloroethene	0	0	0	0	0	0	0	0
1,2,4-Trichlorobenzene	0	0	0	0	0	0	0	0
1,2-Dichlorobenzene	0	0	0	0	0	0	0	0
1,2-Dichloroethane	0	0	0	0	0	0	0	0
1,2-Dichloroethene (total)	0	0	0	0	0	0	0	0
1,3-Dichlorobenzene	0	0	0	0	0	0	0	0
1,4-Dichlorobenzene	0	0	0	0	0	0	0	0
1,4-Dioxane g	0	0	0	0	0	0	0	0
2,4,5-Trichlorophenol	0	0	0	0	0	0	0	0
2,4,6-Trichlorophenol	0	0	0	0	0	0	0	0
2,4-Dichlorophenol	0	0	0	0	0	0	0	0
2,4-Dimethylphenol	0	0	0	0	0	0	0	0
2,4-Dinitrophenol	0	0	0	0	0	0	0	0
2,4-Dinitrotoluene	0	0	0	0	0	0	0	0
2,6-Dinitrotoluene	0	0	0	0	0	0	0	0
2-Butanone	0	0	0	0	0	0	0	0
2-Chlorophenol	0	0	0	0	0	0	0	0
2-Hexanone	0	0	0	0	0	0	0	0
2-Methylphenol	0	0	0	0	0	0	0	0
2-Nitroaniline	0	0	0	0	0	0	0	0
2-Nitrophenol	0	0	0	0	0	0	0	0
3,3'-Dichlorobenzidine	0	0	0	0	0	0	0	0
3-Nitroaniline	0	0	0	0	0	0	0	0
4-Chloro-3-methylphenol	0	0	0	0	0	0	0	0
4-Chloroaniline	0	0	0	0	0	0	0	0
4-Methylphenol	0	0	0	0	0	0	0	0
4-Nitrophenol	0	0	0	0	0	0	0	0
Acenaphthene	0	0	0	0	0	0	0	0
Acetone f	0	0	0	0	0	0	0	0
Acetonitrile g	0	0	0	0	0	0	0	0
Acrolein	0	0	0	0	0	0	0	0
Acrylonitrile	0	0	0	0	0	0	0	0
Benzene f	0	0	0	0	0	0	0	0
Benzidine g	0	0	0	0	0	0	0	0
Benzo(b)fluoranthene	0	0	0	0	0	0	0	0
Benzoic acid g	0	0	0	0	0	0	0	0
bis(2-Chloroethoxy)methane	0	0	0	0	0	0	0	0

ORGANICS (Continued)

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
ORGANICS						
1,1,1-Trichloroethane f	0	0	0	0	0	0
1,1,2,2-Tetrachloroethane	0	0	0	0	0	0
1,1,2-Trichloroethane	0	0	0	0	0	0
1,1-Dichloroethane	0	0	0	0	0	0
1,1-Dichloroethene	0	0	0	0	0	0
1,2,4-Trichlorobenzene	0	0	0	0	0	0
1,2-Dichlorobenzene	0	0	0	0	0	0
1,2-Dichloroethane	0	0	0	0	0	0
1,2-Dichloroethene (total)	0	0	0	0	0	0
1,3-Dichlorobenzene	0	0	0	0	0	0
1,4-Dichlorobenzene	0	0	0	0	0	0
1,4-Dioxane g	0	0	0	0	0	0
2,4,5-Trichlorophenol	0	0	0	0	0	0
2,4,6-Trichlorophenol	0	0	0	0	0	0
2,4-Dichlorophenol	0	0	0	0	0	0
2,4-Dimethylphenol	0	0	0	0	0	0
2,4-Dinitrophenol	0	0	0	0	0	0
2,4-Dinitrotoluene	0	0	0	0	0	0
2,6-Dinitrotoluene	0	0	0	0	0	0
2-Butanone	0	0	0	0	0	0
2-Chlorophenol	0	0	0	0	0	0
2-Hexanone	0	0	0	0	0	0
2-Methylphenol	0	0	0	0	0	0
2-Nitroaniline	0	0	0	0	0	0
2-Nitrophenol	0	0	0	0	0	0
3,3'-Dichlorobenzidine	0	0	0	0	0	0
3-Nitroaniline	0	0	0	0	0	0
4-Chloro-3-methylphenol	0	0	0	0	0	0
4-Chloroaniline	0	0	0	0	0	0
4-Methylphenol	0	0	0	0	0	0
4-Nitrophenol	0	0	0	0	0	0
Acenaphthene	0	0	0	0	0	0
Acetone f	0	0	0	0	0	0
Acetonitrile g	0	0	0	0	0	0
Acrolein	0	0	0	0	0	0
Acrylonitrile	0	0	0	0	0	0
Benzene f	0	0	0	0	0	0
Benzidine g	0	0	0	0	0	0
Benzo(b)fluoranthene	0	0	0	0	0	0
Benzoic acid g	0	0	0	0	0	0
bis(2-Chloroethoxy)methane	0	0	0	0	0	0

ORGANICS (Continued)

Appendix D Model Calculations (2)	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
bis(2-Chloroethyl)ether		0.23						0	0	0	0
bis(2-Chloroisopropyl)ether		0.7						0	0	0	0
bis(2-Ethylhexyl)phthalate		18						0	0	0	0
Carbazole		10.17						0	0	0	0
Carbon Disulfide f		0.14						0	0	0	0
Chlorobenzene		0.67						0	0	0	0
Chloroethane		0.05						0	0	0	0
Chloromethane		0.02						0	0	0	0
Diethylphthalate		0.25						0	0	0	0
Dimethyl Disulfide g		0.11						0	0	0	0
Dimethylphthalate		0.07						0	0	0	0
Di-n-butylphthalate		4.7						0	0	0	0
Ethylbenzene		0.61						0	0	0	0
Hexachlorobutadiene		10.17						0	0	0	0
Hexachlorocyclopentadiene		9.707809708						0	0	0	0
Hexachloroethane		5.34						0	0	0	0
Indeno(1,2,3-cd)pyrene		4.046888648						0	0	0	0
Isophorone		0.14						0	0	0	0
Methyl Acetate g		0						0	0	0	0
Methylene Chloride		0.03						0	0	0	0
Naphthalene		3.57						0	0	0	0
Nitrobenzene		0.36						0	0	0	0
N-Nitroso-di-n-propylamine		0.07						0	0	0	0
N-Nitrosodiphenylamine		3.87						0	0	0	0
Phenol		0.09						0	0	0	0
Pyrene		0.001114606						0	0	0	0
Styrene		2.74						0	0	0	0
Tetrachloroethene f		0.8						0	0	0	0
Toluene f		1						0	0	0	0
Trichloroethene f		0.28						0	0	0	0
Xylene (ortho) f		0.72						0	0	0	0
Xylene (total) f		0.59						0	0	0	0

Appendix D Model Calculations (2)	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
bis(2-Chloroethyl)ether	0	0	0	0	0	0	0	0	0
bis(2-Chloroisopropyl)ether	0	0	0	0	0	0	0	0	0
bis(2-Ethylhexyl)phthalate	0	0	0	0	0	0	0	0	0
Carbazole	0	0	0	0	0	0	0	0	0
Carbon Disulfide f	0	0	0	0	0	0	0	0	0
Chlorobenzene	0	0	0	0	0	0	0	0	0
Chloroethane	0	0	0	0	0	0	0	0	0
Chloromethane	0	0	0	0	0	0	0	0	0
Diethylphthalate	0	0	0	0	0	0	0	0	0
Dimethyl Disulfide g	0	0	0	0	0	0	0	0	0
Dimethylphthalate	0	0	0	0	0	0	0	0	0
Di-n-butylphthalate	0	0	0	0	0	0	0	0	0
Ethylbenzene	0	0	0	0	0	0	0	0	0
Hexachlorobutadiene	0	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	0	0	0	0	0	0	0	0	0
Hexachloroethane	0	0	0	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	0	0	0	0	0	0	0	0	0
Isophorone	0	0	0	0	0	0	0	0	0
Methyl Acetate g	0	0	0	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0	0	0	0
Naphthalene	0	0	0	0	0	0	0	0	0
Nitrobenzene	0	0	0	0	0	0	0	0	0
N-Nitroso-di-n-propylamine	0	0	0	0	0	0	0	0	0
N-Nitrosodiphenylamine	0	0	0	0	0	0	0	0	0
Phenol	0	0	0	0	0	0	0	0	0
Pyrene	0	0	0	0	0	0	0	0	0
Styrene	0	0	0	0	0	0	0	0	0
Tetrachloroethene f	0	0	0	0	0	0	0	0	0
Toluene f	0	0	0	0	0	0	0	0	0
Trichloroethene f	0	0	0	0	0	0	0	0	0
Xylene (ortho) f	0	0	0	0	0	0	0	0	0
Xylene (total) f	0	0	0	0	0	0	0	0	0

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
bis(2-Chloroethyl)ether	0	0	0	0	0	0	0	0
bis(2-Chloroisopropyl)ether	0	0	0	0	0	0	0	0
bis(2-Ethylhexyl)phthalate	0	0	0	0	0	0	0	0
Carbazole	0	0	0	0	0	0	0	0
Carbon Disulfide f	0	0	0	0	0	0	0	0
Chlorobenzene	0	0	0	0	0	0	0	0
Chloroethane	0	0	0	0	0	0	0	0
Chloromethane	0	0	0	0	0	0	0	0
Diethylphthalate	0	0	0	0	0	0	0	0
Dimethyl Disulfide g	0	0	0	0	0	0	0	0
Dimethylphthalate	0	0	0	0	0	0	0	0
Di-n-butylphthalate	0	0	0	0	0	0	0	0
Ethylbenzene	0	0	0	0	0	0	0	0
Hexachlorobutadiene	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	0	0	0	0	0	0	0	0
Hexachloroethane	0	0	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	0	0	0	0	0	0	0	0
Isophorone	0	0	0	0	0	0	0	0
Methyl Acetate g	0	0	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0	0	0
Naphthalene	0	0	0	0	0	0	0	0
Nitrobenzene	0	0	0	0	0	0	0	0
N-Nitroso-di-n-propylamine	0	0	0	0	0	0	0	0
N-Nitrosodiphenylamine	0	0	0	0	0	0	0	0
Phenol	0	0	0	0	0	0	0	0
Pyrene	0	0	0	0	0	0	0	0
Styrene	0	0	0	0	0	0	0	0
Tetrachloroethene f	0	0	0	0	0	0	0	0
Toluene f	0	0	0	0	0	0	0	0
Trichloroethene f	0	0	0	0	0	0	0	0
Xylene (ortho) f	0	0	0	0	0	0	0	0
Xylene (total) f	0	0	0	0	0	0	0	0

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
bis(2-Chloroethyl)ether	0	0	0	0	0	0	0	0
bis(2-Chloroisopropyl)ether	0	0	0	0	0	0	0	0
bis(2-Ethylhexyl)phthalate	0	0	0	0	0	0	0	0
Carbazole	0	0	0	0	0	0	0	0
Carbon Disulfide f	0	0	0	0	0	0	0	0
Chlorobenzene	0	0	0	0	0	0	0	0
Chloroethane	0	0	0	0	0	0	0	0
Chloromethane	0	0	0	0	0	0	0	0
Diethylphthalate	0	0	0	0	0	0	0	0
Dimethyl Disulfide g	0	0	0	0	0	0	0	0
Dimethylphthalate	0	0	0	0	0	0	0	0
Di-n-butylphthalate	0	0	0	0	0	0	0	0
Ethylbenzene	0	0	0	0	0	0	0	0
Hexachlorobutadiene	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	0	0	0	0	0	0	0	0
Hexachloroethane	0	0	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	0	0	0	0	0	0	0	0
Isophorone	0	0	0	0	0	0	0	0
Methyl Acetate g	0	0	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0	0	0
Naphthalene	0	0	0	0	0	0	0	0
Nitrobenzene	0	0	0	0	0	0	0	0
N-Nitroso-di-n-propylamine	0	0	0	0	0	0	0	0
N-Nitrosodiphenylamine	0	0	0	0	0	0	0	0
Phenol	0	0	0	0	0	0	0	0
Pyrene	0	0	0	0	0	0	0	0
Styrene	0	0	0	0	0	0	0	0
Tetrachloroethene f	0	0	0	0	0	0	0	0
Toluene f	0	0	0	0	0	0	0	0
Trichloroethene f	0	0	0	0	0	0	0	0
Xylene (ortho) f	0	0	0	0	0	0	0	0
Xylene (total) f	0	0	0	0	0	0	0	0

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
bis(2-Chloroethyl)ether	0	0	0	0	0	0
bis(2-Chloroisopropyl)ether	0	0	0	0	0	0
bis(2-Ethylhexyl)phthalate	0	0	0	0	0	0
Carbazole	0	0	0	0	0	0
Carbon Disulfide f	0	0	0	0	0	0
Chlorobenzene	0	0	0	0	0	0
Chloroethane	0	0	0	0	0	0
Chloromethane	0	0	0	0	0	0
Diethylphthalate	0	0	0	0	0	0
Dimethyl Disulfide g	0	0	0	0	0	0
Dimethylphthalate	0	0	0	0	0	0
Di-n-butylphthalate	0	0	0	0	0	0
Ethylbenzene	0	0	0	0	0	0
Hexachlorobutadiene	0	0	0	0	0	0
Hexachlorocyclopentadiene	0	0	0	0	0	0
Hexachloroethane	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	0	0	0	0	0	0
Isophorone	0	0	0	0	0	0
Methyl Acetate g	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0
Naphthalene	0	0	0	0	0	0
Nitrobenzene	0	0	0	0	0	0
N-Nitroso-di-n-propylamine	0	0	0	0	0	0
N-Nitrosodiphenylamine	0	0	0	0	0	0
Phenol	0	0	0	0	0	0
Pyrene	0	0	0	0	0	0
Styrene	0	0	0	0	0	0
Tetrachloroethene f	0	0	0	0	0	0
Toluene f	0	0	0	0	0	0
Trichloroethene f	0	0	0	0	0	0
Xylene (ortho) f	0	0	0	0	0	0
Xylene (total) f	0	0	0	0	0	0

Appendix D Model Calculations (2)	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
ORGANICS (Unknown kd)											
2-Methylnaphthalene								0	0	0	0
3-Methyl Butanal								0	0	0	0
4,6-Dinitro-2-methylphenol								0	0	0	0
4-Methyl-2-Pentanone								0	0	0	0
4-Nitroaniline								0	0	0	0
Aramite								0	0	0	0
Butane,1,1,3,4-Tetrachloro-								0	0	0	0
Decane, 3,4-Dimethyl								0	0	0	0
Diacetone alcohol								0	0	0	0
Dibenzofuran								0	0	0	0
Eicosane								0	0	0	0
Ethyl cyanide								0	0	0	0
Famphur								0	0	0	0
Heptadecane, 2,6,10,15-Tetra								0	0	0	0
Isobutyl alcohol								0	0	0	0
Isopropyl Alcohol/2-propanol								0	0	0	0
Kepone								0	0	0	0
Mesityl oxide								0	0	0	0
Octane,2,3,7-Trimethyl								0	0	0	0
o-Toluenesulfonamide								0	0	0	0
Phenol,2,6-Bis(1,1-Dimethyl)								0	0	0	0
p-Toluenesulfonamide								0	0	0	0
Tributylphosphate								0	0	0	0
Undecane,4,6-Dimethyl-								0	0	0	0

Appendix D Model Calculations (2)	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
ORGANICS (Unknown kd)									
2-Methylnaphthalene	0	0	0	0	0	0	0	0	0
3-Methyl Butanal	0	0	0	0	0	0	0	0	0
4,6-Dinitro-2-methylphenol	0	0	0	0	0	0	0	0	0
4-Methyl-2-Pentanone	0	0	0	0	0	0	0	0	0
4-Nitroaniline	0	0	0	0	0	0	0	0	0
Aramite	0	0	0	0	0	0	0	0	0
Butane,1,1,3,4-Tetrachloro-	0	0	0	0	0	0	0	0	0
Decane, 3,4-Dimethyl	0	0	0	0	0	0	0	0	0
Diacetone alcohol	0	0	0	0	0	0	0	0	0
Dibenzofuran	0	0	0	0	0	0	0	0	0
Eicosane	0	0	0	0	0	0	0	0	0
Ethyl cyanide	0	0	0	0	0	0	0	0	0
Famphur	0	0	0	0	0	0	0	0	0
Heptadecane, 2,6,10,15-Tetra	0	0	0	0	0	0	0	0	0
Isobutyl alcohol	0	0	0	0	0	0	0	0	0
Isopropyl Alcohol/2-propanol	0	0	0	0	0	0	0	0	0
Kepone	0	0	0	0	0	0	0	0	0
Mesityl oxide	0	0	0	0	0	0	0	0	0
Octane,2,3,7-Trimethyl	0	0	0	0	0	0	0	0	0
o-Toluenesulfonamide	0	0	0	0	0	0	0	0	0
Phenol,2,6-Bis(1,1-Dimethyl)	0	0	0	0	0	0	0	0	0
p-Toluenesulfonamide	0	0	0	0	0	0	0	0	0
Tributylphosphate	0	0	0	0	0	0	0	0	0
Undecane,4,6-Dimethyl-	0	0	0	0	0	0	0	0	0

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
ORGANICS (Unknown kd)								
2-Methylnaphthalene	0	0	0	0	0	0	0	0
3-Methyl Butanal	0	0	0	0	0	0	0	0
4,6-Dinitro-2-methylphenol	0	0	0	0	0	0	0	0
4-Methyl-2-Pentanone	0	0	0	0	0	0	0	0
4-Nitroaniline	0	0	0	0	0	0	0	0
Aramite	0	0	0	0	0	0	0	0
Butane,1,1,3,4-Tetrachloro-	0	0	0	0	0	0	0	0
Decane, 3,4-Dimethyl	0	0	0	0	0	0	0	0
Diacetone alcohol	0	0	0	0	0	0	0	0
Dibenzofuran	0	0	0	0	0	0	0	0
Eicosane	0	0	0	0	0	0	0	0
Ethyl cyanide	0	0	0	0	0	0	0	0
Famphur	0	0	0	0	0	0	0	0
Heptadecane, 2,6,10,15-Tetra	0	0	0	0	0	0	0	0
Isobutyl alcohol	0	0	0	0	0	0	0	0
Isopropyl Alcohol/2-propanol	0	0	0	0	0	0	0	0
Kepone	0	0	0	0	0	0	0	0
Mesityl oxide	0	0	0	0	0	0	0	0
Octane,2,3,7-Trimethyl	0	0	0	0	0	0	0	0
o-Toluenesulfonamide	0	0	0	0	0	0	0	0
Phenol,2,6-Bis(1,1-Dimethyl)	0	0	0	0	0	0	0	0
p-Toluenesulfonamide	0	0	0	0	0	0	0	0
Tributylphosphate	0	0	0	0	0	0	0	0
Undecane,4,6-Dimethyl-	0	0	0	0	0	0	0	0

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
ORGANICS (Unknown kd)								
2-Methylnaphthalene	0	0	0	0	0	0	0	0
3-Methyl Butanal	0	0	0	0	0	0	0	0
4,6-Dinitro-2-methylphenol	0	0	0	0	0	0	0	0
4-Methyl-2-Pentanone	0	0	0	0	0	0	0	0
4-Nitroaniline	0	0	0	0	0	0	0	0
Aramite	0	0	0	0	0	0	0	0
Butane,1,1,3,4-Tetrachloro-	0	0	0	0	0	0	0	0
Decane, 3,4-Dimethyl	0	0	0	0	0	0	0	0
Diacetone alcohol	0	0	0	0	0	0	0	0
Dibenzofuran	0	0	0	0	0	0	0	0
Eicosane	0	0	0	0	0	0	0	0
Ethyl cyanide	0	0	0	0	0	0	0	0
Famphur	0	0	0	0	0	0	0	0
Heptadecane, 2,6,10,15-Tetra	0	0	0	0	0	0	0	0
Isobutyl alcohol	0	0	0	0	0	0	0	0
Isopropyl Alcohol/2-propanol	0	0	0	0	0	0	0	0
Kepone	0	0	0	0	0	0	0	0
Mesityl oxide	0	0	0	0	0	0	0	0
Octane,2,3,7-Trimethyl	0	0	0	0	0	0	0	0
o-Toluenesulfonamide	0	0	0	0	0	0	0	0
Phenol,2,6-Bis(1,1-Dimethyl)	0	0	0	0	0	0	0	0
p-Toluenesulfonamide	0	0	0	0	0	0	0	0
Tributylphosphate	0	0	0	0	0	0	0	0
Undecane,4,6-Dimethyl-	0	0	0	0	0	0	0	0

Appendix D Model Calculations (2)	**Leachate Concentration (mg/L) (13 Yr)**	**Remaining ICDF Contaminant Mass (mg) (13 Yr)**	**Leachate Concentration (mg/L) (14 Yr)**	**Remaining ICDF Contaminant Mass (mg) (14 Yr)**	**Leachate Concentration (mg/L) (15 Yr)**	**Remaining ICDF Contaminant Mass (mg) (15 Yr)**
ORGANICS (Unknown kd)						
2-Methylnaphthalene	0	0	0	0	0	0
3-Methyl Butanal	0	0	0	0	0	0
4,6-Dinitro-2-methylphenol	0	0	0	0	0	0
4-Methyl-2-Pentanone	0	0	0	0	0	0
4-Nitroaniline	0	0	0	0	0	0
Aramite	0	0	0	0	0	0
Butane,1,1,3,4-Tetrachloro-	0	0	0	0	0	0
Decane, 3,4-Dimethyl	0	0	0	0	0	0
Diacetone alcohol	0	0	0	0	0	0
Dibenzofuran	0	0	0	0	0	0
Eicosane	0	0	0	0	0	0
Ethyl cyanide	0	0	0	0	0	0
Famphur	0	0	0	0	0	0
Heptadecane, 2,6,10,15-Tetra	0	0	0	0	0	0
Isobutyl alcohol	0	0	0	0	0	0
Isopropyl Alcohol/2-propanol	0	0	0	0	0	0
Kepone	0	0	0	0	0	0
Mesityl oxide	0	0	0	0	0	0
Octane,2,3,7-Trimethyl	0	0	0	0	0	0
o-Toluenesulfonamide	0	0	0	0	0	0
Phenol,2,6-Bis(1,1-Dimethyl)	0	0	0	0	0	0
p-Toluenesulfonamide	0	0	0	0	0	0
Tributylphosphate	0	0	0	0	0	0
Undecane,4,6-Dimethyl-	0	0	0	0	0	0

Appendix D Model Calculations (2)	Elemental Formula	Kd (mL/g) or (L/kg)	Half-Life in years	Isotope Specific Activity (pCi/g)	mg/kg from non-rads	mg/kg from rads	Total Inventory (kg)	Initial Soil Water Concentration (mg/L)	Initial Soil Concentration (mg/kg)	Initial Contaminant Mass in Soil Water (mg)	Initial Contaminant Mass on Soil (mg)
RADIONUCLIDES											
C 14	C 14	5	5730	4.46023E+12		8.37871E-12		0	0	0	0
Cd113m	Cd113m	6	14.6	2.16875E+14		6.05622E-09		0	0	0	0
H 3	H 3	0	12.3	9.69648E+15		4.14296E-09		0	0	0	0
I129	I129	0	15700000	176665185.4		0.005949247		0.045421645	0	4297565.384	0
Kr81	Kr81	0	210000	21034685479		2.04314E-13		0	0	0	0
Kr85	Kr85	0	10.73	3.92303E+14		2.39392E-06		0	0	0	0
Np236	Np236	8	115000	13183492999		4.26331E-12		0	0	0	0
Np237	Np237	8	2140000	705469458.6		0.000737414		0	0	0	0
Sr 90	Sr 90	12	29.1	1.36617E+14		0.000135559		0	0	0	0
Tc 98	Tc 98	0.2	4200000	869290573.4		1.64811E-10		0	0	0	0
Tc 99	Tc 99	0.2	213000	16967800066		0.000274935		0.0009379	0.00018758	88739.35769	109741.0057
U232	U232	6	69.2	2.22867E+13		1.94501E-11		0	0	0	0
U233	U233	6	159000	9658001997		2.14905E-09		0	0	0	0
U234	U234	6	246000	6215690362		0.000786046		0	0	0	0
U235	U235	6	704000000	2162717.602		0.040563614		0	0	0	0
U236	U236	6	23400000	64790670.72		0.002528763		0	0	0	0
U238	U238	6	4470000000	336322.4484		4.762515583		0.059445397	0.35667238	5624421.495	208666037.5

Appendix D Model Calculations (2)	Remaining ICDF Contaminant Mass (mg) (0 Yr)	Leachate Concentration (mg/L) (1 Yr)	Remaining ICDF Contaminant Mass (mg) (1 Yr)	Leachate Concentration (mg/L) (2 Yr)	Remaining ICDF Contaminant Mass (mg) (2 Yr)	Leachate Concentration (mg/L) (3 Yr)	Remaining ICDF Contaminant Mass (mg) (3 Yr)	Leachate Concentration (mg/L) (4 Yr)	Remaining ICDF Contaminant Mass (mg) (4 Yr)
RADIONUCLIDES									
C 14	0	0	0	0	0	0	0	0	0
Cd113m	0	0	0	0	0	0	0	0	0
H 3	0	0	0	0	0	0	0	0	0
I129	4297565.384	0.045421643	4047576.96	0.042779477	3812130.307	0.040291004	3590379.533	0.037947285	3381527.953
Kr81	0	0	0	0	0	0	0	0	0
Kr85	0	0	0	0	0	0	0	0	0
Np236	0	0	0	0	0	0	0	0	0
Np237	0	0	0	0	0	0	0	0	0
Sr 90	0	0	0	0	0	0	0	0	0
Tc 98	0	0	0	0	0	0	0	0	0
Tc 99	198480.3634	0.000937897	193317.7892	0.000913502	188289.4962	0.000889741	183391.9917	0.000866599	178621.8737
U232	0	0	0	0	0	0	0	0	0
U233	0	0	0	0	0	0	0	0	0
U234	0	0	0	0	0	0	0	0	0
U235	0	0	0	0	0	0	0	0	0
U236	0	0	0	0	0	0	0	0	0
U238	214290458.9	0.059445397	213963287.8	0.059354638	213636616.2	0.059264017	213310443.3	0.059173535	212984768.4

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (5 Yr)	Remaining ICDF Contaminant Mass (mg) (5 Yr)	Leachate Concentration (mg/L) (6 Yr)	Remaining ICDF Contaminant Mass (mg) (6 Yr)	Leachate Concentration (mg/L) (7 Yr)	Remaining ICDF Contaminant Mass (mg) (7 Yr)	Leachate Concentration (mg/L) (8 Yr)	Remaining ICDF Contaminant Mass (mg) (8 Yr)
RADIONUCLIDES								
C 14	0	0	0	0	0	0	0	0
Cd113m	0	0	0	0	0	0	0	0
H 3	0	0	0	0	0	0	0	0
I129	0.0357399	3184825.222	0.033660918	2999564.646	0.03170287	2825080.637	0.029858721	2660746.323
Kr81	0	0	0	0	0	0	0	0
Kr85	0	0	0	0	0	0	0	0
Np236	0	0	0	0	0	0	0	0
Np237	0	0	0	0	0	0	0	0
Sr 90	0	0	0	0	0	0	0	0
Tc 98	0	0	0	0	0	0	0	0
Tc 99	0.000844058	173975.8288	0.000822104	169450.63	0.00080072	165043.1338	0.000779893	160750.2788
U232	0	0	0	0	0	0	0	0
U233	0	0	0	0	0	0	0	0
U234	0	0	0	0	0	0	0	0
U235	0	0	0	0	0	0	0	0
U236	0	0	0	0	0	0	0	0
U238	0.059083191	212659590.7	0.058992985	212334909.5	0.058902916	212010724	0.058812985	211687033.5

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (9 Yr)	Remaining ICDF Contaminant Mass (mg) (9 Yr)	Leachate Concentration (mg/L) (10 Yr)	Remaining ICDF Contaminant Mass (mg) (10 Yr)	Leachate Concentration (mg/L) (11 Yr)	Remaining ICDF Contaminant Mass (mg) (11 Yr)	Leachate Concentration (mg/L) (12 Yr)	Remaining ICDF Contaminant Mass (mg) (12 Yr)
RADIONUCLIDES								
C 14	0	0	0	0	0	0	0	0
Cd113m	0	0	0	0	0	0	0	0
H 3	0	0	0	0	0	0	0	0
I129	0.028121846	2505971.3	0.026486004	2360199.506	0.024945319	2222907.225	0.023494256	2093601.205
Kr81	0	0	0	0	0	0	0	0
Kr85	0	0	0	0	0	0	0	0
Np236	0	0	0	0	0	0	0	0
Np237	0	0	0	0	0	0	0	0
Sr 90	0	0	0	0	0	0	0	0
Tc 98	0	0	0	0	0	0	0	0
Tc 99	0.000759608	156569.0832	0.00073985	152496.6425	0.000720606	148530.1281	0.000701863	144666.7847
U232	0	0	0	0	0	0	0	0
U233	0	0	0	0	0	0	0	0
U234	0	0	0	0	0	0	0	0
U235	0	0	0	0	0	0	0	0
U236	0	0	0	0	0	0	0	0
U238	0.058723192	211363837.2	0.058633535	211041134.3	0.058544015	210718924.1	0.058454633	210397205.8

Appendix D Model Calculations (2)	Leachate Concentration (mg/L) (13 Yr)	Remaining ICDF Contaminant Mass (mg) (13 Yr)	Leachate Concentration (mg/L) (14 Yr)	Remaining ICDF Contaminant Mass (mg) (14 Yr)	Leachate Concentration (mg/L) (15 Yr)	Remaining ICDF Contaminant Mass (mg) (15 Yr)
RADIONUCLIDES						
C 14	0	0	0	0	0	0
Cd113m	0	0	0	0	0	0
H 3	0	0	0	0	0	0
I129	0.0221276	1971816.888	0.020840442	1857116.737	0.019628158	1749088.669
Kr81	0	0	0	0	0	0
Kr85	0	0	0	0	0	0
Np236	0	0	0	0	0	0
Np237	0	0	0	0	0	0
Sr 90	0	0	0	0	0	0
Tc 98	0	0	0	0	0	0
Tc 99	0.000683607	140903.9288	0.000665826	137238.9467	0.000648508	133669.2927
U232	0	0	0	0	0	0
U233	0	0	0	0	0	0
U234	0	0	0	0	0	0
U235	0	0	0	0	0	0
U236	0	0	0	0	0	0
U238	0.058365386	210075978.8	0.058276276	209755242.1	0.058187302	209434995.2