

Appendix D

GWSCREEN 100-Year Residential Risk Output

OUTPUT FILE FOR 100-YR PBF-05 H-3

TIME OF RUN 11:17:42.9
DATE OF RUN 06/21/96
INPUT FILE NAME: pbf05-h3.par
OUTPUT FILE NAME: pbf05-h3.out

ACKNOWLEDGEMENT OF GOVERNMENT SPONSORSHIP AND
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* This output was produced by the model: *
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* GWSCREEN *
* Version Control Copy, Version 2.4a *
* A semi-analytical model for the assessment *
* of the groundwater pathway from the leaching *
* of surficial and buried contamination and *
* release of contaminants from percolation ponds *
* 02-28-95 *
* Arthur S. Rood *
* Idaho National Engineering Laboratory *
* EG&G Idaho Inc. *
* Subsurface and Environmental Modeling Unit *
* PO Box 1625 *
* Idaho Falls, Idaho 83415 *

>>> TITLE OF PROJECT:
PBF-05 H-3

SIMPSON RULE SOLUTION

JSTART = 6
JMAX = 12
EPS = 5.0000E-03

MODEL OPTIONS

IMODE: 2
KFLAG: 0 (0)CONC VS TIME; (1)PEAK CONC AND LIMITING SOIL CONC
IMODEL:2 (1) SURF OR BURIED SOURCE; (2)POND SOURCE; (3) TABULATED SOURCE FUNCTION
ITYPE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FROM 0 TO ZD

>>> INPUT DATA

NUMBER OF RADIOACTIVE PROGENY 0
LENGTH OF SOURCE PARALLEL TO GW FLOW (m) 1.69E+01
WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m) 1.69E+01
THICKNESS OF SOURCE (m) 1.00E+00
PERCOLATION RATE (darcy vel m/y) 1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE 3.43E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE 4.87E-01
BULK DENSITY AT SOURCE (g/cm**3) 1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g) 0.00E+00
BULK DENSITY IN UNSAT ZONE (g/cm**3) 1.50E+00

UNSATURATED ZONE THICKNESS (m) 1.04E+01
 SORPTION COEFFICIENT IN UNSAT ZONE (ml/g) 0.00E+00
 OPTIONAL LOSS RATE CONSTANT FOR SOURCE ($\gamma^{**}-1$) 0.00E+00
 INITIAL MASS OR ACTIVITY (mg or Ci) 0.00E+00
 MOLECULAR WEIGHT (g/mole) 3.00E+00
 SOLUBILITY LIMIT (mg/L) 1.00E+06
 HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y) 1.23E+01
 BULK DENSITY OF AQUIFER (g/cm**3) 1.90E+00
 POROSITY OF AQUIFER 1.00E-01
 SORPTION COEFFICIENT(S) IN AQUIFER (ml/g) 0.00E+00
 DISPERSIVITY X DIRECTION (m) 9.00E+00
 DISPERSIVITY Y DIRECTION (m) 4.00E+00
 DISPERSIVITY Z DIRECTION (m) 4.00E-01
 PORE VELOCITY (m/y) 5.70E+02
 WELL SCREEN THICKNESS (m) 1.50E+01
 DISTANCE TO RECEPTOR ALONG X AXIS (m) 8.46E+00
 DISTANCE TO RECEPTOR ALONG Y AXIS (m) 0.00E+00
 DISTANCE TO RECEPTOR ALONG Z AXIS (m) 0.00E+00
 RADIOLOGICAL CARCINOGENIC SLOPE FACTOR (1/Ci) 7.15E-02
 MASS RELEASE RATE TO POND (mg or Ci per y) 3.00E-03
 OPERATION TIME OF POND (years) 7.00E+00
 LIQUID EFFLUENT FLOW RATE TO POND (m**3/y) 6.84E+03
 MOISTURE CONTENT OF UNDERLYING SEDIMENTS 4.87E-01
 EVAPORATION RATE CONSTANT FROM POND ($\gamma^{**}-1$) 0.00E+00
 EFFECTIVE WIDTH OF POND AT AQUIFER (m) 2.49E+01
 UNITS OF CONTAMINANT Ci

INPUT DATA FILE CREATED BY: *A. J. R.* DATE 6/12/86

INPUT DATA CHECKED BY: *C. A. Whitaker* DATE 6/12/86

>>> INITIAL ACTIVITY CONVERTED TO MASS (mg) 0.00E+00
 >>> VALUES CALCULATED IN SOURCE SUBROUTINE

 LEACH RATE CONSTANT (1/y) 2.9155E-01
 UNSATURATED PORE VELOCITY (m/y) 4.9147E+01
 DECAY CONSTANT(S) (1/y) 5.6353E-02
 RETARDATION FACTOR(S) (SATURATED) 1.0000E+00
 LEACH RATE CONSTANT FROM POND SEDIMENTS 4.9147E+01
 RETARDATION FACTOR (UNSATURATED) 1.0000E+00
 SOLUBILITY LIMITED MASS (mg) 1.3909E+11
 SOLUBILITY LIMITED ACTIVITY (Ci) 1.3487E+12
 TRANSIT TIME IN UNSAT ZONE (years) 2.1079E-01
 FRACTION DECAYED DURING UNSAT TRANSPORT 1.1809E-02

POND SEDIMENT INVENTORY AT END OF OPERATIONS: 6.10E-05 Ci

>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION

 INTEGRATION TIME (years) 30
 BODY WEIGHT (kg) 7.000E+01
 AVERAGING TIME (days) 2.556E+04
 WATER INTAKE RATE (L/d) 2.000E+00
 EXPOSURE FREQUENCY (days/year) 3.500E+02
 EXPOSURE DURATION (years) 3.000E+01
 RADIOLOGICAL DOSE LIMIT (rem/y) 4.000E-03
 CARCINOGENIC RISK CRITERIA 1.000E-07
 HAZARD QUOTIENT 1.000E-01

>>> RESULTS OF CALCULATIONS

>>> CONCENTRATION VS TIME MODE

TIME (years)	CUMULATIVE SOURCE FLUX (Ci)	CUMULATIVE AQUIFER FLUX (Ci)	AQUIFER FLUX (Ci/year)	GW CONC ... member #1 (Ci/m**3)
1.0000E-02	6.2982E-06	0.0000E+00	0.0000E+00	0.0000E+00
2.0100E+00	5.9622E-03	5.2676E-03	2.9612E-03	9.7792E-08

4.0100E+00	1.1955E-02	1.1190E-02	2.9612E-03	9.7227E-08
6.0100E+00	1.7948E-02	1.7112E-02	2.9612E-03	9.7227E-08
8.0100E+00	2.0930E-02	2.0680E-02	1.3302E-05	4.4202E-10
1.0010E+01	2.0948E-02	2.0699E-02	6.6334E-06	2.2041E-10
1.2010E+01	2.0957E-02	2.0709E-02	3.3079E-06	1.0992E-10
1.4010E+01	2.0962E-02	2.0714E-02	1.6496E-06	5.4812E-11
1.6010E+01	2.0964E-02	2.0716E-02	8.2261E-07	2.7334E-11
1.8010E+01	2.0965E-02	2.0717E-02	4.1022E-07	1.3631E-11
2.0010E+01	2.0966E-02	2.0718E-02	2.0457E-07	6.7973E-12
2.2010E+01	2.0966E-02	2.0718E-02	1.0201E-07	3.3896E-12
2.4010E+01	2.0966E-02	2.0718E-02	5.0871E-08	1.6903E-12
2.6010E+01	2.0966E-02	2.0718E-02	2.5368E-08	8.4293E-13
2.8010E+01	2.0966E-02	2.0719E-02	1.2651E-08	4.2035E-13
3.0010E+01	2.0966E-02	2.0719E-02	6.3085E-09	2.0962E-13
3.2010E+01	2.0966E-02	2.0719E-02	3.1459E-09	1.0453E-13
3.4010E+01	2.0966E-02	2.0719E-02	1.5688E-09	5.2128E-14
3.6010E+01	2.0966E-02	2.0719E-02	7.8232E-10	2.5995E-14
3.8010E+01	2.0966E-02	2.0719E-02	3.9013E-10	1.2963E-14
4.0010E+01	2.0966E-02	2.0719E-02	1.9455E-10	6.4644E-15
4.2010E+01	2.0966E-02	2.0719E-02	9.7016E-11	3.2236E-15
4.4010E+01	2.0966E-02	2.0719E-02	4.8380E-11	1.6076E-15
4.6010E+01	2.0966E-02	2.0719E-02	2.4126E-11	8.0165E-16
4.8010E+01	2.0966E-02	2.0719E-02	1.2031E-11	3.9976E-16
5.0010E+01	2.0966E-02	2.0719E-02	5.9996E-12	1.9935E-16
5.2010E+01	2.0966E-02	2.0719E-02	2.9918E-12	9.9412E-17
5.4010E+01	2.0966E-02	2.0719E-02	1.4920E-12	4.9575E-17
5.6010E+01	2.0966E-02	2.0719E-02	7.4401E-13	2.4722E-17
5.8010E+01	2.0966E-02	2.0719E-02	3.7102E-13	1.2328E-17
6.0010E+01	2.0966E-02	2.0719E-02	1.8502E-13	6.1478E-18
6.2010E+01	2.0966E-02	2.0719E-02	9.2264E-14	3.0657E-18
6.4010E+01	2.0966E-02	2.0719E-02	4.6010E-14	1.5288E-18
6.6010E+01	2.0966E-02	2.0719E-02	2.2944E-14	7.6239E-19
6.8010E+01	2.0966E-02	2.0719E-02	1.1442E-14	3.8018E-19
7.0010E+01	2.0966E-02	2.0719E-02	5.7057E-15	1.8959E-19
7.2010E+01	2.0966E-02	2.0719E-02	2.8453E-15	9.4544E-20
7.4010E+01	2.0966E-02	2.0719E-02	1.4189E-15	4.7147E-20
7.6010E+01	2.0966E-02	2.0719E-02	7.0757E-16	2.3511E-20
7.8010E+01	2.0966E-02	2.0719E-02	3.5285E-16	1.1724E-20
8.0010E+01	2.0966E-02	2.0719E-02	1.7596E-16	5.8467E-21
8.2010E+01	2.0966E-02	2.0719E-02	8.7746E-17	2.9156E-21
8.4010E+01	2.0966E-02	2.0719E-02	4.3757E-17	1.4539E-21
8.6010E+01	2.0966E-02	2.0719E-02	2.1820E-17	7.2505E-22
8.8010E+01	2.0966E-02	2.0719E-02	1.0881E-17	3.6156E-22
9.0010E+01	2.0966E-02	2.0719E-02	5.4263E-18	1.8030E-22
9.2010E+01	2.0966E-02	2.0719E-02	2.7060E-18	8.9913E-23
9.4010E+01	2.0966E-02	2.0719E-02	1.3494E-18	4.4838E-23
9.6010E+01	2.0966E-02	2.0719E-02	6.7291E-19	2.2359E-23
9.8010E+01	2.0966E-02	2.0719E-02	3.3557E-19	1.1150E-23
1.0001E+02	2.0966E-02	2.0719E-02	1.6734E-19	5.5603E-24
1.0201E+02	2.0966E-02	2.0719E-02	8.3448E-20	2.7728E-24
1.0600E+02	2.0966E-02	2.0719E-02	2.0824E-20	6.9194E-25
1.0700E+02	2.0966E-02	2.0719E-02	1.4705E-20	4.8863E-25
1.0800E+02	2.0966E-02	2.0719E-02	1.0384E-20	3.4505E-25
1.0900E+02	2.0966E-02	2.0719E-02	7.3332E-21	2.4367E-25
1.1000E+02	2.0966E-02	2.0719E-02	5.1785E-21	1.7207E-25
1.1100E+02	2.0966E-02	2.0719E-02	3.6569E-21	1.2151E-25
1.1200E+02	2.0966E-02	2.0719E-02	2.5824E-21	8.5807E-26
1.1300E+02	2.0966E-02	2.0719E-02	1.8236E-21	6.0595E-26
1.1400E+02	2.0966E-02	2.0719E-02	1.2878E-21	4.2790E-26
1.1500E+02	2.0966E-02	2.0719E-02	9.0939E-22	3.0217E-26
1.1600E+02	2.0966E-02	2.0719E-02	6.4219E-22	2.1338E-26
1.1700E+02	2.0966E-02	2.0719E-02	4.5349E-22	1.5069E-26
1.1800E+02	2.0966E-02	2.0719E-02	3.2024E-22	1.0641E-26
1.1900E+02	2.0966E-02	2.0719E-02	2.2615E-22	7.5144E-27
1.2000E+02	2.0966E-02	2.0719E-02	1.5970E-22	5.3064E-27
1.2100E+02	2.0966E-02	2.0719E-02	1.1277E-22	3.7472E-27
1.2200E+02	2.0966E-02	2.0719E-02	7.9638E-23	2.6462E-27
1.2300E+02	2.0966E-02	2.0719E-02	5.6238E-23	1.8687E-27
1.2400E+02	2.0966E-02	2.0719E-02	3.9713E-23	1.3196E-27

1.2500E+02	2.0966E-02	2.0719E-02	2.8044E-23	9.3186E-28
1.2600E+02	2.0966E-02	2.0719E-02	1.9804E-23	6.5805E-28
1.2700E+02	2.0966E-02	2.0719E-02	1.3985E-23	4.6470E-28
1.2800E+02	2.0966E-02	2.0719E-02	9.8759E-24	3.2815E-28
1.2900E+02	2.0966E-02	2.0719E-02	6.9740E-24	2.3173E-28
1.3000E+02	2.0966E-02	2.0719E-02	4.9249E-24	1.6364E-28
1.3100E+02	2.0966E-02	2.0719E-02	3.4778E-24	1.1556E-28
1.3200E+02	2.0966E-02	2.0719E-02	2.4559E-24	8.1605E-29
1.3300E+02	2.0966E-02	2.0719E-02	1.7343E-24	5.7627E-29
1.3400E+02	2.0966E-02	2.0719E-02	1.2247E-24	4.0694E-29
1.3500E+02	2.0966E-02	2.0719E-02	8.6485E-25	2.8737E-29
1.3600E+02	2.0966E-02	2.0719E-02	6.1073E-25	2.0293E-29
1.4000E+02	2.0966E-02	2.0719E-02	1.5188E-25	5.0465E-30
1.5000E+02	2.0966E-02	2.0719E-02	4.6837E-27	1.5563E-31
1.6000E+02	2.0966E-02	2.0719E-02	1.4444E-28	4.7994E-33
1.7000E+02	2.0966E-02	2.0719E-02	4.4543E-30	1.4801E-34
1.8000E+02	2.0966E-02	2.0719E-02	1.3736E-31	4.5643E-36
1.9000E+02	2.0966E-02	2.0719E-02	4.2361E-33	1.4076E-37
2.0000E+02	2.0966E-02	2.0719E-02	1.3064E-34	4.3408E-39
2.1000E+02	2.0966E-02	2.0719E-02	4.0286E-36	1.3386E-40
2.2000E+02	2.0966E-02	2.0719E-02	1.2424E-37	4.1282E-42
2.3000E+02	2.0966E-02	2.0719E-02	3.8313E-39	1.2731E-43
2.4000E+02	2.0966E-02	2.0719E-02	1.1815E-40	3.9260E-45
2.5000E+02	2.0966E-02	2.0719E-02	3.6437E-42	1.2107E-46
2.6000E+02	2.0966E-02	2.0719E-02	1.1237E-43	3.7337E-48
2.7000E+02	2.0966E-02	2.0719E-02	3.4652E-45	1.1514E-49
2.8000E+02	2.0966E-02	2.0719E-02	1.0686E-46	3.5508E-51
2.9000E+02	2.0966E-02	2.0719E-02	3.2955E-48	1.0950E-52
3.0000E+02	2.0966E-02	2.0719E-02	1.0163E-49	3.3769E-54
3.1000E+02	2.0966E-02	2.0719E-02	3.1341E-51	1.0414E-55
3.2000E+02	2.0966E-02	2.0719E-02	9.6652E-53	3.2115E-57
3.3000E+02	2.0966E-02	2.0719E-02	2.9806E-54	9.9039E-59
3.4000E+02	2.0966E-02	2.0719E-02	9.1918E-56	3.0542E-60
3.5000E+02	2.0966E-02	2.0719E-02	2.8346E-57	9.4188E-62
3.6000E+02	2.0966E-02	2.0719E-02	8.7416E-59	2.9046E-63
3.7000E+02	2.0966E-02	2.0719E-02	2.6958E-60	8.9575E-65
3.8000E+02	2.0966E-02	2.0719E-02	8.3135E-62	2.7624E-66
3.9000E+02	2.0966E-02	2.0719E-02	2.5638E-63	8.5188E-68
4.0000E+02	2.0966E-02	2.0719E-02	7.9063E-65	2.6271E-69
4.1000E+02	2.0966E-02	2.0719E-02	2.4382E-66	8.1016E-71
4.2000E+02	2.0966E-02	2.0719E-02	7.5191E-68	2.4984E-72
4.3000E+02	2.0966E-02	2.0719E-02	2.3188E-69	7.7048E-74
4.4000E+02	2.0966E-02	2.0719E-02	7.1508E-71	2.3761E-75
4.5000E+02	2.0966E-02	2.0719E-02	2.2052E-72	7.3274E-77
4.6000E+02	2.0966E-02	2.0719E-02	6.8006E-74	2.2597E-78
4.7000E+02	2.0966E-02	2.0719E-02	2.0972E-75	6.9686E-80
4.8000E+02	2.0966E-02	2.0719E-02	6.4675E-77	2.1490E-81
4.9000E+02	2.0966E-02	2.0719E-02	1.9945E-78	6.6273E-83
5.0000E+02	2.0966E-02	2.0719E-02	6.1507E-80	2.0438E-84
5.1000E+02	2.0966E-02	2.0719E-02	1.8968E-81	6.3027E-86
5.2000E+02	2.0966E-02	2.0719E-02	5.8495E-83	1.9437E-87
5.3000E+02	2.0966E-02	2.0719E-02	1.8039E-84	5.9940E-89
5.4000E+02	2.0966E-02	2.0719E-02	5.5630E-86	1.8485E-90
5.5000E+02	2.0966E-02	2.0719E-02	1.7156E-87	5.7004E-92
5.6000E+02	2.0966E-02	2.0719E-02	5.2905E-89	1.7579E-93
5.7000E+02	2.0966E-02	2.0719E-02	1.6315E-90	5.4212E-95
5.8000E+02	2.0966E-02	2.0719E-02	5.0314E-92	1.6718E-96
5.9000E+02	2.0966E-02	2.0719E-02	1.5516E-93	5.1557E-98
6.0000E+02	2.0966E-02	2.0719E-02	4.7850E-95	1.5900E-99
6.1000E+02	2.0966E-02	2.0719E-02	1.4756E-96	4.9032-101
6.2000E+02	2.0966E-02	2.0719E-02	4.5507E-98	1.5121-102
6.3000E+02	2.0966E-02	2.0719E-02	1.4034E-99	4.6631-104
6.4000E+02	2.0966E-02	2.0719E-02	4.3278-101	1.4380-105
6.5000E+02	2.0966E-02	2.0719E-02	1.3346-102	4.4347-107
6.6000E+02	2.0966E-02	2.0719E-02	4.1158-104	1.3676-108
6.7000E+02	2.0966E-02	2.0719E-02	1.2693-105	4.2175-110
6.8000E+02	2.0966E-02	2.0719E-02	3.9142-107	1.3006-111
6.9000E+02	2.0966E-02	2.0719E-02	1.2071-108	4.0109-113
7.0000E+02	2.0966E-02	2.0719E-02	3.7225-110	1.2369-114

7.1000E+02	2.0966E-02	2.0719E-02	1.1480-111	3.8145-116
7.2000E+02	2.0966E-02	2.0719E-02	3.5402-113	1.1763-117
7.3000E+02	2.0966E-02	2.0719E-02	1.0918-114	3.6277-119
7.4000E+02	2.0966E-02	2.0719E-02	3.3668-116	1.1187-120
7.5000E+02	2.0966E-02	2.0719E-02	1.0383-117	3.4500-122
7.6000E+02	2.0966E-02	2.0719E-02	3.2019-119	1.0639-123
7.7000E+02	2.0966E-02	2.0719E-02	9.8743-121	3.2810-125
7.8000E+02	2.0966E-02	2.0719E-02	3.0451-122	1.0118-126
7.9000E+02	2.0966E-02	2.0719E-02	9.3907-124	3.1203-128
8.0000E+02	2.0966E-02	2.0719E-02	2.8960-125	9.6227-130
8.1000E+02	2.0966E-02	2.0719E-02	8.9308-127	2.9675-131
8.2000E+02	2.0966E-02	2.0719E-02	2.7541-128	9.1514-133
8.3000E+02	2.0966E-02	2.0719E-02	8.4934-130	2.8222-134
8.4000E+02	2.0966E-02	2.0719E-02	2.6192-131	8.7032-136
8.5000E+02	2.0966E-02	2.0719E-02	8.0774-133	2.6839-137
8.6000E+02	2.0966E-02	2.0719E-02	2.4910-134	8.2769-139
8.7000E+02	2.0966E-02	2.0719E-02	7.6818-136	2.5525-140
8.8000E+02	2.0966E-02	2.0719E-02	2.3690-137	7.8715-142
8.9000E+02	2.0966E-02	2.0719E-02	7.3055-139	2.4275-143
9.0000E+02	2.0966E-02	2.0719E-02	2.2529-140	7.4860-145
9.1000E+02	2.0966E-02	2.0719E-02	6.9477-142	2.3086-146
9.2000E+02	2.0966E-02	2.0719E-02	2.1426-143	7.1194-148
9.3000E+02	2.0966E-02	2.0719E-02	6.6075-145	2.1955-149
9.4000E+02	2.0966E-02	2.0719E-02	2.0377-146	6.7707-151
9.5000E+02	2.0966E-02	2.0719E-02	6.2838-148	2.0880-152
9.6000E+02	2.0966E-02	2.0719E-02	1.9379-149	6.4391-154
9.7000E+02	2.0966E-02	2.0719E-02	5.9761-151	1.9857-155
9.8000E+02	2.0966E-02	2.0719E-02	1.8429-152	6.1237-157
9.9000E+02	2.0966E-02	2.0719E-02	5.6834-154	1.8885-158
1.0000E+03	2.0966E-02	2.0719E-02	1.7527-155	5.8238-160

AVERAGE INTEGRATED CONCENTRATION FROM 1.0000E-02 TO 1.0400E+02 YEARS = 8.99E-09 Ci/m**3

AVERAGE INTEGRATED CONCENTRATION FROM 1.0600E+02 TO 1.3600E+02 YEARS = 6.63E-26 Ci/m**3

AVERAGE INTEGRATED CONCENTRATION FROM 1.4000E+02 TO 1.0000E+03 YEARS = 1.41E-32 Ci/m**3

MAXIMUM CONCENTRATION(S) Ci/m**3

9.78E-08

TIME(S) OF MAXIMUM CONCENTRATIONS (years)

2.01E+00

EXECUTION TIME (seconds) 48

OUTPUT FILE FOR 100-yr PBF-05 Sr-90

TIME OF RUN 11:19:05.5
DATE OF RUN 06/21/96
INPUT FILE NAME: pbf05-sr.par
OUTPUT FILE NAME: pbf05-sr.out

=====
ACKNOWLEDGEMENT OF GOVERNMENT SPONSORSHIP AND
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* This output was produced by the model: *
*
* GWScreen *
* Version Control Copy, Version 2.4a *
* A semi-analytical model for the assessment *
* of the groundwater pathway from the leaching *
* of surficial and buried contamination and *
* release of contaminants from percolation ponds *
* 02-28-95 *
* Arthur S. Rood *
* Idaho National Engineering Laboratory *
* EG&G Idaho Inc. *
* Subsurface and Environmental Modeling Unit *
* PO Box 1625 *
* Idaho Falls, Idaho 83415 *

>>> TITLE OF PROJECT:
PBF-05 Sr-90

SIMPSON RULE SOLUTION

JSTART = 6
JMAX = 12
EPS = 5.0000E-03

MODEL OPTIONS

IMODE: 2
KFLAG: 0 (0)CONC VS TIME; (1)PEAK CONC AND LIMITING SOIL CONC
IMODEL:2 (1) SURF OR BURIED SOURCE; (2)POND SOURCE; (3) TABULATED SOURCE FUNCTION
ITYPE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FROM 0 TO ZD

>>> INPUT DATA

NUMBER OF RADIOACTIVE PROGENY 0
LENGTH OF SOURCE PARALLEL TO GW FLOW (m) 1.69E+01
WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m) 1.69E+01
THICKNESS OF SOURCE (m) 1.00E+00
PERCOLATION RATE (darcy vel m/y) 1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE 3.43E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE 4.87E-01
BULK DENSITY AT SOURCE (g/cm**3) 1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g) 1.50E+01
BULK DENSITY IN UNSAT ZONE (g/cm**3) 1.50E+00

UNSATURATED ZONE THICKNESS (m) 1.04E+01
 SORPTION COEFFICIENT IN UNSAT ZONE (ml/g) 1.50E+01
 OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y**(-1)) 0.00E+00
 INITIAL MASS OR ACTIVITY (mg or Ci) 0.00E+00
 MOLECULAR WEIGHT (g/mole) 9.00E+01
 SOLUBILITY LIMIT (mg/L) 1.00E+06
 HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y) 2.91E+01
 BULK DENSITY OF AQUIFER (g/cm**3) 1.90E+00
 POROSITY OF AQUIFER 1.00E-01
 SORPTION COEFFICIENT(S) IN AQUIFER (ml/g) 2.40E+01
 DISPERSIVITY X DIRECTION (m) 9.00E+00
 DISPERSIVITY Y DIRECTION (m) 4.00E+00
 DISPERSIVITY Z DIRECTION (m) 4.00E-01
 PORE VELOCITY (m/y) 5.70E+02
 WELL SCREEN THICKNESS (m) 1.50E+01
 DISTANCE TO RECEPTOR ALONG X AXIS (m) 8.46E+00
 DISTANCE TO RECEPTOR ALONG Y AXIS (m) 0.00E+00
 DISTANCE TO RECEPTOR ALONG Z AXIS (m) 0.00E+00
 RADIOLOGICAL CARCINOGENIC SLOPE FACTOR (1/Ci) 5.59E+01
 MASS RELEASE RATE TO POND (mg or Ci per y) 3.01E-04
 OPERATION TIME OF POND (years) 6.00E+00
 LIQUID EFFLUENT FLOW RATE TO POND (m**3/y) 6.84E+03
 MOISTURE CONTENT OF UNDERLYING SEDIMENTS 4.87E-01
 EVAPORATION RATE CONSTANT FROM POND (y**(-1)) 0.00E+00
 EFFECTIVE WIDTH OF POND AT AQUIFER (m) 2.49E+01
 UNITS OF CONTAMINANT Ci

INPUT DATA FILE CREATED BY: *UJK* DATE 6/12/96

INPUT DATA CHECKED BY: *TA Whitaker* DATE 6/24/96

>>> INITIAL ACTIVITY CONVERTED TO MASS (mg) 0.00E+00

>>> VALUES CALCULATED IN SOURCE SUBROUTINE

LEACH RATE CONSTANT (1/y)	4.3777E-03
UNSATURATED PORE VELOCITY (m/y)	4.9147E+01
DECAY CONSTANT(S) (1/y)	2.3819E-02
RETARDATION FACTOR(S) (SATURATED)	4.5700E+02
LEACH RATE CONSTANT FROM POND SEDIMENTS	1.0412E+00
RETARDATION FACTOR (UNSATURATED)	4.7201E+01
SOLUBILITY LIMITED MASS (mg)	6.5653E+12
SOLUBILITY LIMITED ACTIVITY (Ci)	8.9691E+11
TRANSIT TIME IN UNSAT ZONE (years)	9.9498E+00
FRACTION DECAYED DURING UNSAT TRANSPORT	2.1101E-01

POND SEDIMENT INVENTORY AT END OF OPERATIONS: 2.82E-04 Ci

>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION

INTEGRATION TIME (years)	30
BODY WEIGHT (kg)	7.000E+01
AVERAGING TIME (days)	2.556E+04
WATER INTAKE RATE (L/d)	2.000E+00
EXPOSURE FREQUENCY (days/year)	3.500E+02
EXPOSURE DURATION (years)	3.000E+01
RADIOLOGICAL DOSE LIMIT (rem/y)	4.000E-03
CARCINOGENIC RISK CRITERIA	1.000E-07
HAZARD QUOTIENT	1.000E-01

>>> RESULTS OF CALCULATIONS

>>> CONCENTRATION VS TIME MODE

TIME (years)	CUMULATIVE SOURCE FLUX (Ci)	CUMULATIVE AQUIFER FLUX (Ci)	AQUIFER FLUX (Ci/year)	GW CONC ... member #1 (Ci/m**3)
1.0000E-01	1.5129E-06	0.0000E+00	0.0000E+00	0.0000E+00
2.1000E+00	3.7118E-04	0.0000E+00	0.0000E+00	0.0000E+00

4.1000E+00	9.3371E-04	0.0000E+00	0.0000E+00	0.0000E+00
6.1000E+00	1.4899E-03	0.0000E+00	0.0000E+00	0.0000E+00
8.1000E+00	1.4923E-03	0.0000E+00	0.0000E+00	0.0000E+00
1.0100E+01	1.4946E-03	2.6471E-06	3.4327E-05	4.7114E-12
1.2100E+01	1.4967E-03	3.0331E-04	2.0867E-04	6.0060E-10
1.4100E+01	1.4987E-03	7.4821E-04	2.2938E-04	1.4861E-09
1.6100E+01	1.5006E-03	1.1756E-03	9.7039E-07	2.2162E-09
1.8100E+01	1.5024E-03	1.1775E-03	9.1718E-07	1.9377E-09
2.0100E+01	1.5041E-03	1.1792E-03	8.6689E-07	1.5674E-09
2.2100E+01	1.5058E-03	1.1809E-03	8.1936E-07	1.2356E-09
2.4100E+01	1.5073E-03	1.1825E-03	7.7443E-07	9.8442E-10
2.6100E+01	1.5087E-03	1.1840E-03	7.3196E-07	7.9303E-10
2.8100E+01	1.5101E-03	1.1854E-03	6.9183E-07	6.4256E-10
3.0100E+01	1.5114E-03	1.1868E-03	6.5389E-07	5.2492E-10
3.2100E+01	1.5126E-03	1.1881E-03	6.1804E-07	4.3224E-10
3.4100E+01	1.5137E-03	1.1893E-03	5.8415E-07	3.6059E-10
3.6100E+01	1.5148E-03	1.1904E-03	5.5212E-07	2.9899E-10
3.8100E+01	1.5159E-03	1.1915E-03	5.2184E-07	2.5079E-10
4.0100E+01	1.5168E-03	1.1925E-03	4.9323E-07	2.1130E-10
4.2100E+01	1.5178E-03	1.1935E-03	4.6618E-07	1.7929E-10
4.4100E+01	1.5186E-03	1.1944E-03	4.4062E-07	1.5187E-10
4.6100E+01	1.5194E-03	1.1952E-03	4.1646E-07	1.2973E-10
4.8100E+01	1.5202E-03	1.1960E-03	3.9362E-07	1.1137E-10
5.0100E+01	1.5209E-03	1.1968E-03	3.7204E-07	9.5813E-11
5.2100E+01	1.5216E-03	1.1975E-03	3.5164E-07	8.2587E-11
5.4100E+01	1.5223E-03	1.1982E-03	3.3236E-07	7.1737E-11
5.6100E+01	1.5229E-03	1.1988E-03	3.1413E-07	6.2034E-11
5.8100E+01	1.5235E-03	1.1995E-03	2.9691E-07	5.4036E-11
6.0100E+01	1.5241E-03	1.2000E-03	2.8063E-07	4.7299E-11
6.2100E+01	1.5246E-03	1.2006E-03	2.6524E-07	4.1301E-11
6.4100E+01	1.5251E-03	1.2011E-03	2.5069E-07	3.6162E-11
6.6100E+01	1.5255E-03	1.2016E-03	2.3695E-07	3.1863E-11
6.8100E+01	1.5260E-03	1.2020E-03	2.2396E-07	2.8265E-11
7.0100E+01	1.5264E-03	1.2025E-03	2.1168E-07	2.4975E-11
7.2100E+01	1.5268E-03	1.2029E-03	2.0007E-07	2.2133E-11
7.4100E+01	1.5272E-03	1.2033E-03	1.8910E-07	1.9645E-11
7.6100E+01	1.5275E-03	1.2036E-03	1.7873E-07	1.7448E-11
7.8100E+01	1.5278E-03	1.2040E-03	1.6893E-07	1.5695E-11
8.0100E+01	1.5282E-03	1.2043E-03	1.5967E-07	1.4063E-11
8.2100E+01	1.5285E-03	1.2046E-03	1.5091E-07	1.2607E-11
8.4100E+01	1.5287E-03	1.2049E-03	1.4264E-07	1.1327E-11
8.6100E+01	1.5290E-03	1.2052E-03	1.3481E-07	1.0183E-11
8.8100E+01	1.5293E-03	1.2055E-03	1.2742E-07	9.2573E-12
9.0100E+01	1.5295E-03	1.2057E-03	1.2043E-07	8.3425E-12
9.2100E+01	1.5297E-03	1.2059E-03	1.1383E-07	7.6017E-12
9.4100E+01	1.5299E-03	1.2062E-03	1.0759E-07	6.8839E-12
9.6100E+01	1.5301E-03	1.2064E-03	1.0169E-07	6.3174E-12
9.8100E+01	1.5303E-03	1.2066E-03	9.6114E-08	5.7609E-12
1.0010E+02	1.5305E-03	1.2068E-03	9.0843E-08	5.2704E-12
1.0210E+02	1.5307E-03	1.2069E-03	8.5862E-08	4.8320E-12
1.0600E+02	1.5310E-03	1.2073E-03	7.6921E-08	4.0808E-12
1.0700E+02	1.5310E-03	1.2073E-03	7.4782E-08	3.9346E-12
1.0800E+02	1.5311E-03	1.2074E-03	7.2703E-08	3.7736E-12
1.0900E+02	1.5312E-03	1.2075E-03	7.0681E-08	3.6227E-12
1.1000E+02	1.5312E-03	1.2075E-03	6.8716E-08	3.4710E-12
1.1100E+02	1.5313E-03	1.2076E-03	6.6806E-08	3.3286E-12
1.1200E+02	1.5314E-03	1.2077E-03	6.4948E-08	3.2126E-12
1.1300E+02	1.5314E-03	1.2077E-03	6.3142E-08	3.0877E-12
1.1400E+02	1.5315E-03	1.2078E-03	6.1387E-08	2.9811E-12
1.1500E+02	1.5316E-03	1.2079E-03	5.9680E-08	2.8546E-12
1.1600E+02	1.5316E-03	1.2079E-03	5.8021E-08	2.7256E-12
1.1700E+02	1.5317E-03	1.2080E-03	5.6408E-08	2.6333E-12
1.1800E+02	1.5317E-03	1.2080E-03	5.4839E-08	2.5445E-12
1.1900E+02	1.5318E-03	1.2081E-03	5.3315E-08	2.4588E-12
1.2000E+02	1.5318E-03	1.2081E-03	5.1832E-08	2.3664E-12
1.2100E+02	1.5319E-03	1.2082E-03	5.0391E-08	2.2876E-12
1.2200E+02	1.5319E-03	1.2082E-03	4.8990E-08	2.1958E-12
1.2300E+02	1.5320E-03	1.2083E-03	4.7628E-08	2.1234E-12
1.2400E+02	1.5320E-03	1.2083E-03	4.6304E-08	2.0499E-12

1.2500E+02	1.5321E-03	1.2084E-03	4.5016E-08	1.9763E-12
1.2600E+02	1.5321E-03	1.2084E-03	4.3765E-08	1.9027E-12
1.2700E+02	1.5321E-03	1.2085E-03	4.2548E-08	1.8412E-12
1.2800E+02	1.5322E-03	1.2085E-03	4.1365E-08	1.7818E-12
1.2900E+02	1.5322E-03	1.2086E-03	4.0215E-08	1.6925E-12
1.3000E+02	1.5323E-03	1.2086E-03	3.9097E-08	1.6387E-12
1.3100E+02	1.5323E-03	1.2086E-03	3.8010E-08	1.5866E-12
1.3200E+02	1.5323E-03	1.2087E-03	3.6953E-08	1.5363E-12
1.3300E+02	1.5324E-03	1.2087E-03	3.5926E-08	1.4878E-12
1.3400E+02	1.5324E-03	1.2087E-03	3.4927E-08	1.4409E-12
1.3500E+02	1.5324E-03	1.2088E-03	3.3956E-08	1.3956E-12
1.3600E+02	1.5325E-03	1.2088E-03	3.3012E-08	1.3518E-12
1.4000E+02	1.5326E-03	1.2089E-03	2.9491E-08	1.1907E-12
1.5000E+02	1.5328E-03	1.2092E-03	2.2245E-08	8.5316E-13
1.6000E+02	1.5330E-03	1.2094E-03	1.6779E-08	6.3148E-13
1.7000E+02	1.5332E-03	1.2095E-03	1.2656E-08	4.7068E-13
1.8000E+02	1.5333E-03	1.2096E-03	9.5466E-09	3.4986E-13
1.9000E+02	1.5333E-03	1.2097E-03	7.2009E-09	2.6216E-13
2.0000E+02	1.5334E-03	1.2098E-03	5.4316E-09	1.9648E-13
2.1000E+02	1.5334E-03	1.2098E-03	4.0970E-09	1.4752E-13
2.2000E+02	1.5335E-03	1.2099E-03	3.0904E-09	1.1096E-13
2.3000E+02	1.5335E-03	1.2099E-03	2.3311E-09	8.3491E-14
2.4000E+02	1.5335E-03	1.2099E-03	1.7583E-09	6.2874E-14
2.5000E+02	1.5335E-03	1.2099E-03	1.3263E-09	4.7372E-14
2.6000E+02	1.5335E-03	1.2099E-03	1.0004E-09	3.5700E-14
2.7000E+02	1.5336E-03	1.2100E-03	7.5460E-10	2.6910E-14
2.8000E+02	1.5336E-03	1.2100E-03	5.6919E-10	2.0287E-14
2.9000E+02	1.5336E-03	1.2100E-03	4.2934E-10	1.5296E-14
3.0000E+02	1.5336E-03	1.2100E-03	3.2385E-10	1.1534E-14
3.1000E+02	1.5336E-03	1.2100E-03	2.4428E-10	8.6973E-15
3.2000E+02	1.5336E-03	1.2100E-03	1.8426E-10	6.5752E-15
3.3000E+02	1.5336E-03	1.2100E-03	1.3898E-10	4.9589E-15
3.4000E+02	1.5336E-03	1.2100E-03	1.0483E-10	3.7400E-15
3.5000E+02	1.5336E-03	1.2100E-03	7.9076E-11	2.8208E-15
3.6000E+02	1.5336E-03	1.2100E-03	5.9647E-11	2.1274E-15
3.7000E+02	1.5336E-03	1.2100E-03	4.4991E-11	1.6046E-15
3.8000E+02	1.5336E-03	1.2100E-03	3.3937E-11	1.2102E-15
3.9000E+02	1.5336E-03	1.2100E-03	2.5598E-11	9.1277E-16
4.0000E+02	1.5336E-03	1.2100E-03	1.9309E-11	6.8844E-16
4.1000E+02	1.5336E-03	1.2100E-03	1.4564E-11	5.1924E-16
4.2000E+02	1.5336E-03	1.2100E-03	1.0986E-11	3.9162E-16
4.3000E+02	1.5336E-03	1.2100E-03	8.2866E-12	2.9538E-16
4.4000E+02	1.5336E-03	1.2100E-03	6.2505E-12	2.2278E-16
4.5000E+02	1.5336E-03	1.2100E-03	4.7147E-12	1.6803E-16
4.6000E+02	1.5336E-03	1.2100E-03	3.5563E-12	1.2673E-16
4.7000E+02	1.5336E-03	1.2100E-03	2.6825E-12	9.5587E-17
4.8000E+02	1.5336E-03	1.2100E-03	2.0234E-12	7.2094E-17
4.9000E+02	1.5336E-03	1.2100E-03	1.5262E-12	5.4376E-17
5.0000E+02	1.5336E-03	1.2100E-03	1.1512E-12	4.1012E-17
5.1000E+02	1.5336E-03	1.2100E-03	8.6837E-13	3.0933E-17
5.2000E+02	1.5336E-03	1.2100E-03	6.5501E-13	2.3330E-17
5.3000E+02	1.5336E-03	1.2100E-03	4.9407E-13	1.7597E-17
5.4000E+02	1.5336E-03	1.2100E-03	3.7267E-13	1.3272E-17
5.5000E+02	1.5336E-03	1.2100E-03	2.8110E-13	1.0010E-17
5.6000E+02	1.5336E-03	1.2100E-03	2.1204E-13	7.5500E-18
5.7000E+02	1.5336E-03	1.2100E-03	1.5994E-13	5.6944E-18
5.8000E+02	1.5336E-03	1.2100E-03	1.2064E-13	4.2950E-18
5.9000E+02	1.5336E-03	1.2100E-03	9.0998E-14	3.2394E-18
6.0000E+02	1.5336E-03	1.2100E-03	6.8639E-14	2.4433E-18
6.1000E+02	1.5336E-03	1.2100E-03	5.1774E-14	1.8428E-18
6.2000E+02	1.5336E-03	1.2100E-03	3.9053E-14	1.3899E-18
6.3000E+02	1.5336E-03	1.2100E-03	2.9458E-14	1.0483E-18
6.4000E+02	1.5336E-03	1.2100E-03	2.2220E-14	7.9066E-19
6.5000E+02	1.5336E-03	1.2100E-03	1.6760E-14	5.9635E-19
6.6000E+02	1.5336E-03	1.2100E-03	1.2642E-14	4.4978E-19
6.7000E+02	1.5336E-03	1.2100E-03	9.5359E-15	3.3924E-19
6.8000E+02	1.5336E-03	1.2100E-03	7.1929E-15	2.5587E-19
6.9000E+02	1.5336E-03	1.2100E-03	5.4256E-15	1.9298E-19
7.0000E+02	1.5336E-03	1.2100E-03	4.0925E-15	1.4556E-19

7.1000E+02	1.5336E-03	1.2100E-03	3.0869E-15	1.0978E-19
7.2000E+02	1.5336E-03	1.2100E-03	2.3285E-15	8.2801E-20
7.3000E+02	1.5336E-03	1.2100E-03	1.7563E-15	6.2451E-20
7.4000E+02	1.5336E-03	1.2100E-03	1.3248E-15	4.7102E-20
7.5000E+02	1.5336E-03	1.2100E-03	9.9929E-16	3.5526E-20
7.6000E+02	1.5336E-03	1.2100E-03	7.5376E-16	2.6795E-20
7.7000E+02	1.5336E-03	1.2100E-03	5.6856E-16	2.0210E-20
7.8000E+02	1.5336E-03	1.2100E-03	4.2886E-16	1.5243E-20
7.9000E+02	1.5336E-03	1.2100E-03	3.2349E-16	1.1497E-20
8.0000E+02	1.5336E-03	1.2100E-03	2.4400E-16	8.6712E-21
8.1000E+02	1.5336E-03	1.2100E-03	1.8405E-16	6.5400E-21
8.2000E+02	1.5336E-03	1.2100E-03	1.3883E-16	4.9327E-21
8.3000E+02	1.5336E-03	1.2100E-03	1.0472E-16	3.7204E-21
8.4000E+02	1.5336E-03	1.2100E-03	7.8988E-17	2.8061E-21
8.5000E+02	1.5336E-03	1.2100E-03	5.9580E-17	2.1164E-21
8.6000E+02	1.5336E-03	1.2100E-03	4.4941E-17	1.5963E-21
8.7000E+02	1.5336E-03	1.2100E-03	3.3899E-17	1.2040E-21
8.8000E+02	1.5336E-03	1.2100E-03	2.5570E-17	9.0807E-22
8.9000E+02	1.5336E-03	1.2100E-03	1.9287E-17	6.8495E-22
9.0000E+02	1.5336E-03	1.2100E-03	1.4548E-17	5.1665E-22
9.1000E+02	1.5336E-03	1.2100E-03	1.0974E-17	3.8971E-22
9.2000E+02	1.5336E-03	1.2100E-03	8.2773E-18	2.9395E-22
9.3000E+02	1.5336E-03	1.2100E-03	6.2435E-18	2.2173E-22
9.4000E+02	1.5336E-03	1.2100E-03	4.7095E-18	1.6725E-22
9.5000E+02	1.5336E-03	1.2100E-03	3.5523E-18	1.2615E-22
9.6000E+02	1.5336E-03	1.2100E-03	2.6795E-18	9.5158E-23
9.7000E+02	1.5336E-03	1.2100E-03	2.0211E-18	7.1777E-23
9.8000E+02	1.5336E-03	1.2100E-03	1.5245E-18	5.4141E-23
9.9000E+02	1.5336E-03	1.2100E-03	1.1499E-18	4.0838E-23
1.0000E+03	1.5336E-03	1.2100E-03	8.6740E-19	3.0804E-23

AVERAGE INTEGRATED CONCENTRATION FROM 1.0000E-01 TO 1.0400E+02 YEARS = 2.88E-10 Ci/m**3

AVERAGE INTEGRATED CONCENTRATION FROM 1.0600E+02 TO 1.3600E+02 YEARS = 2.42E-12 Ci/m**3

AVERAGE INTEGRATED CONCENTRATION FROM 1.4000E+02 TO 1.0000E+03 YEARS = 4.50E-14 Ci/m**3

MAXIMUM CONCENTRATION(S) Ci/m**3

2.22E-09

TIME(S) OF MAXIMUM CONCENTRATIONS (years)

1.61E+01

EXECUTION TIME (seconds) 35

OUTPUT FILE FOR 100-YR PBF-22 U-234

TIME OF RUN 10:33:45.6
DATE OF RUN 06/10/96
INPUT FILE NAME: pbf22-u4.par
OUTPUT FILE NAME: pbf22-u4.out

=====

ACKNOWLEDGEMENT OF GOVERNMENT SPONSORSHIP AND
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* GWSCREEN *

* Version Control Copy, Version 2.4a *

* A semi-analytical model for the assessment *

* of the groundwater pathway from the leaching *

* of surficial and buried contamination and *

* release of contaminants from percolation ponds *

* 02-28-95 *

* Arthur S. Rood *

* Idaho National Engineering Laboratory *

* EG&G Idaho Inc. *

* Subsurface and Environmental Modeling Unit *

* PO Box 1625 *

* Idaho Falls, Idaho 83415 *

>>> TITLE OF PROJECT:
PBF-22 U-234

SIMPSON RULE SOLUTION

JSTART = 6

JMAX = 12

EPS = 5.0000E-03

MODEL OPTIONS

IMODE: 2

KFLAG: 0 (0)CONC VS TIME; (1)PEAK CONC AND LIMITING SOIL CONC

IMODEL:1 (1) SURF OR BURIED SOURCE; (2)POND SOURCE; (3) TABULATED SOURCE FUNCTION

ITYPE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FROM 0 TO ZD

>>> INPUT DATA

NUMBER OF RADIOACTIVE PROGENY	2
LENGTH OF SOURCE PARALLEL TO GW FLOW (m)	6.51E+01
WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	6.51E+01
THICKNESS OF SOURCE (m)	3.00E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	3.43E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	3.43E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	3.50E+01
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.50E+00

UNSATURATED ZONE THICKNESS (m) 1.04E+01
 SORPTION COEFFICIENT IN UNSAT ZONE (ml/g) 3.50E+01
 OPTIONAL LOSS RATE CONSTANT FOR SOURCE (γ^{*-1}) 0.00E+00
 INITIAL MASS OR ACTIVITY (mg or Ci) 5.44E-02
 MOLECULAR WEIGHT (g/mole) 2.34E+02
 SOLUBILITY LIMIT (mg/L) 1.00E+06
 HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y) 2.45E+05 7.70E+04 1.60E+03
 BULK DENSITY OF AQUIFER (g/cm³) 1.90E+00
 POROSITY OF AQUIFER 1.00E-01
 SORPTION COEFFICIENT(S) IN AQUIFER (ml/g) 6.00E+00 0.00E+00 0.00E+00
 DISPERSIVITY X DIRECTION (m) 9.00E+00
 DISPERSIVITY Y DIRECTION (m) 4.00E+00
 DISPERSIVITY Z DIRECTION (m) 4.00E-01
 PORE VELOCITY (m/y) 5.70E+02
 WELL SCREEN THICKNESS (m) 1.50E+01
 DISTANCE TO RECEPTOR ALONG X AXIS (m) 3.25E+01
 DISTANCE TO RECEPTOR ALONG Y AXIS (m) 0.00E+00
 DISTANCE TO RECEPTOR ALONG Z AXIS (m) 0.00E+00
 RADIOLOGICAL CARCINOGENIC SLOPE FACTOR (1/Ci) 4.44E+01 3.75E+01 2.95E+02
 UNITS OF CONTAMINANT Ci

INPUT DATA FILE CREATED BY: WJL DATE 6/10/96

INPUT DATA CHECKED BY: CA Whitaker DATE 6/24/96

>>> INITIAL ACTIVITY CONVERTED TO MASS (mg) 8.71E+03
 >>> VALUES CALCULATED IN SOURCE SUBROUTINE

 LEACH RATE CONSTANT (1/y) 6.3080E-04
 UNSATURATED PORE VELOCITY (m/y) 2.9155E-01
 DECAY CONSTANT(S) (1/y) 2.8292E-06 9.0019E-06 4.3322E-04
 RETARDATION FACTOR(S) (SATURATED) 1.1500E+02 1.0000E+00 1.0000E+00
 RETARDATION FACTOR (UNSATURATED) 1.5406E+02
 SOLUBILITY LIMITED MASS (mg) 6.7185E+14
 SOLUBILITY LIMITED ACTIVITY (Ci) 4.1929E+09
 TRANSIT TIME IN UNSAT ZONE (years) 5.4745E+03
 FRACTION DECAYED DURING UNSAT TRANSPORT 1.5369E-02

>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION

 INTEGRATION TIME (years) 30
 BODY WEIGHT (kg) 7.000E+01
 AVERAGING TIME (days) 2.556E+04
 WATER INTAKE RATE (L/d) 2.000E+00
 EXPOSURE FREQUENCY (days/year) 3.500E+02
 EXPOSURE DURATION (years) 3.000E+01
 RADIOLOGICAL DOSE LIMIT (rem/y) 1.000E-06
 CARCINOGENIC RISK CRITERIA 1.000E-07
 HAZARD QUOTIENT 1.000E-01

>>> RESULTS OF CALCULATIONS

 >>> CONCENTRATION VS TIME MODE
 CONCENTRATION IS ZERO FOR ALL TIME PERIODS REQUESTED
 LAST TIME PERIOD REQUESTED (T2): 1.0000E+03 YEARS
 TRANSIT TIME IN UNSATURATED ZONE: 5.4745E+03 YEARS
 EXECUTION TIME (seconds) 0

OUTPUT FILE FOR 100-YR PBF-22 U-238

TIME OF RUN 09:27:11.0
DATE OF RUN 06/19/96
INPUT FILE NAME: pbf22-u8.par
OUTPUT FILE NAME: pbf22-u8.out

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ACKNOWLEDGEMENT OF GOVERNMENT SPONSORSHIP AND
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* 02-28-95 *

* Arthur S. Rood *

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* Subsurface and Environmental Modeling Unit *

* PO Box 1625 *

* Idaho Falls, Idaho 83415 *

>>> TITLE OF PROJECT:
PBF-22 U-238

SIMPSON RULE SOLUTION

JSTART = 6

JMAX = 12

EPS = 5.0000E-03

MODEL OPTIONS

IMODE: 2

KFLAG: 0 (0)CONC VS TIME; (1)PEAK CONC AND LIMITING SOIL CONC

IMODEL:1 (1) SURF OR BURIED SOURCE; (2)POND SOURCE; (3) TABULATED SOURCE FUNCTION

ITYPE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FROM 0 TO ZD

>>> INPUT DATA

NUMBER OF RADIOACTIVE PROGENY	3
LENGTH OF SOURCE PARALLEL TO GW FLOW (m)	6.51E+01
WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	6.51E+01
THICKNESS OF SOURCE (m)	3.00E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	3.43E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	3.43E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	3.50E+01
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.50E+00

UNSATURATED ZONE THICKNESS (m) 1.04E+01
 SORPTION COEFFICIENT IN UNSAT ZONE (ml/g) 3.50E+01
 OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y**-1) 0.00E+00
 INITIAL MASS OR ACTIVITY (mg or Ci) 2.29E-02
 MOLECULAR WEIGHT (g/mole) 2.38E+02
 SOLUBILITY LIMIT (mg/L) 1.00E+06
 HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y) 4.47E+09 2.45E+05 7.70E+04 1.60E+03
 BULK DENSITY OF AQUIFER (g/cm**3) 1.90E+00
 POROSITY OF AQUIFER 1.00E-01
 SORPTION COEFFICIENT(S) IN AQUIFER (ml/g) 6.00E+00 0.00E+00 0.00E+00 0.00E+00
 DISPERSIVITY X DIRECTION (m) 9.00E+00
 DISPERSIVITY Y DIRECTION (m) 4.00E+00
 DISPERSIVITY Z DIRECTION (m) 4.00E-01
 PORE VELOCITY (m/y) 5.70E+02
 WELL SCREEN THICKNESS (m) 1.50E+01
 DISTANCE TO RECEPTOR ALONG X AXIS (m) 3.25E+01
 DISTANCE TO RECEPTOR ALONG Y AXIS (m) 0.00E+00
 DISTANCE TO RECEPTOR ALONG Z AXIS (m) 0.00E+00
 RADIOLOGICAL CARCINOGENIC SLOPE FACTOR (1/Ci) 4.27E+01 4.44E+01 3.75E+01 2.95E+02
 UNITS OF CONTAMINANT Ci

INPUT DATA FILE CREATED BY: W. J. R. L. DATE 6/19/96

INPUT DATA CHECKED BY: C. A. Whitaker DATE 6/29/96

>>> INITIAL ACTIVITY CONVERTED TO MASS (mg) 6.81E+07
 >>> VALUES CALCULATED IN SOURCE SUBROUTINE

 LEACH RATE CONSTANT (1/y) 6.3080E-04
 UNSATURATED PORE VELOCITY (m/y) 2.9155E-01
 DECAY CONSTANT(S) (1/y) 1.5507E-10 2.8292E-06 9.0019E-06 4.3322E-04
 RETARDATION FACTOR(S) (SATURATED) 1.1500E+02 1.0000E+00 1.0000E+00 1.0000E+00
 RETARDATION FACTOR (UNSATURATED) 1.5406E+02
 SOLUBILITY LIMITED MASS (mg) 6.7185E+14
 SOLUBILITY LIMITED ACTIVITY (Ci) 2.2595E+05
 TRANSIT TIME IN UNSAT ZONE (years) 5.4745E+03
 FRACTION DECAYED DURING UNSAT TRANSPORT 8.4892E-07

>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION

 INTEGRATION TIME (years) 30
 BODY WEIGHT (kg) 7.000E+01
 AVERAGING TIME (days) 2.556E+04
 WATER INTAKE RATE (L/d) 2.000E+00
 EXPOSURE FREQUENCY (days/year) 3.500E+02
 EXPOSURE DURATION (years) 3.000E+01
 RADIOLOGICAL DOSE LIMIT (rem/y) 1.000E-06
 CARCINOGENIC RISK CRITERIA 1.000E-07
 HAZARD QUOTIENT 1.000E-01

>>> RESULTS OF CALCULATIONS

 >>> CONCENTRATION VS TIME MODE
 CONCENTRATION IS ZERO FOR ALL TIME PERIODS REQUESTED
 LAST TIME PERIOD REQUESTED (T2): 1.0000E+03 YEARS
 TRANSIT TIME IN UNSATURATED ZONE: 5.4745E+03 YEARS
 EXECUTION TIME (seconds) 0