

Table L-19. Risks—current occupational worker at ARA-25.

Contaminant	Soil Ingestion	Soil Absorption	Inhalation of Fugitive		Hazard Index
			Dust	Inhalation of Volatiles	
Aroclor-1242	—	—	—	—	—
Aroclor-1254	—	—	—	—	—
Bis(2-ethylhexyl)phthalate	—	—	—	NTD	—
Diethylphthalate	—	—	—	—	—
Diethylether	—	—	—	—	—
Methylmethacrylate	—	—	—	NTD	—
Antimony	—	—	—	—	—
Arsenic	7E-02	8E-01	NTD	—	9E-01
Barium	—	—	—	—	—
Cadmium	—	—	—	—	—
Chromium III	—	—	—	—	—
Chromium VI	—	—	—	—	—
Cobalt	—	—	—	—	—
Copper	—	—	—	—	—
Lead	—	—	—	—	—
Manganese	5E-03	—	1E-02	—	2E-02
Mercury	—	—	—	—	—
Nickel	—	—	—	—	—
Selenium	—	—	—	—	—
Silver	—	—	—	—	—
Thallium	—	—	—	—	—
Vanadium	—	—	—	—	—

Table L-19. (continued).

Contaminant	Soil Ingestion	Soil Absorption	Inhalation of Fugitive		Hazard Index
			Dust	Inhalation of Volatiles	
Zinc	—	—	—	—	—
Chloride	—	—	—	—	—
Orthophosphate	—	—	—	—	—
Sulfate	—	—	—	—	—
Total risks by pathway and site:	7E-02	8E-01	1E-02	0E+00	9E-01

"—" indicates that the contaminant is not a COPC in the medium or at the site.
 NTD indicates that toxicity data is not available.

Table L-20. Risks—100-year occupational worker.

Contaminant	Soil Ingestion	Soil Absorption	External Exposure	Inhalation of Fugitive Dust	Inhalation of Volatiles	Total Risk ARA-25
Aroclor-1242	—	—	—	—	—	—
Aroclor-1254	—	—	—	—	—	—
Bis(2-ethylhexyl)phthalate	—	—	—	—	NTD	—
Diethylphthalate	—	—	—	—	—	—
Diethylether	—	—	—	—	—	—
Methylmethacrylate	—	—	—	—	NTD	—
Antimony	—	—	—	—	—	—
Arsenic	1E-05	1E-04	—	5E-07	—	1E-04
Barium	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—
Chromium III	—	—	—	—	—	—
Chromium VI	—	—	—	—	—	—
Cobalt	—	—	—	—	—	—
Copper	—	—	—	—	—	—
Lead	—	—	—	—	—	—
Manganese	NTD	—	—	NTD	—	—
Mercury	—	—	—	—	—	—
Nickel	—	—	—	—	—	—
Selenium	—	—	—	—	—	—
Silver	—	—	—	—	—	—
Thallium	—	—	—	—	—	—
Vanadium	—	—	—	—	—	—
Zinc	—	—	—	—	—	—
Chloride	—	—	—	—	—	—
Orthophosphate	—	—	—	—	—	—

Table L-20. (continued).

Contaminant	Soil Ingestion	Soil Absorption	External Exposure	Inhalation of Fugitive Dust	Inhalation of Volatiles	Total Risk ARA-25
Sulfate	—	—	—	—	—	—
Ag-108m	—	—	—	—	—	—
Am-241	—	—	—	—	—	—
Co-60	7E-15	—	6E-11	4E-20	—	6E-11
Cs-134	4E-24	—	1E-20	5E-13	—	5E-13
Cs-137	3E-07	—	4E-04	3E-13	—	4E-04
Eu-152	3E-11	—	4E-07	7E-16	—	4E-07
Eu-154	1E-13	—	1E-09	2E-18	—	1E-09
Np-237	—	—	—	—	—	—
Pu-238	—	—	—	—	—	—
Pu-239/240	—	—	—	—	—	—
Ra-226	3E-06	—	1E-03	4E-11	—	1E-03
Sr-90	8E-08	—	NTD	2E-13	—	8E-08
Tc-99	—	—	—	—	—	—
Th-228	—	—	—	—	—	—
Th-230	—	—	—	—	—	—
Th-232	—	—	—	—	—	—
U-234	—	—	—	—	—	—
U-235	—	—	—	—	—	—
U-238	—	—	—	—	—	—
Total risks by pathway and site:	1E-05	1E-04	1E-03	5E-07	0E+00	2E-03

"—" indicates that the contaminant is not a COPC in the medium or at the site.

NTD indicates that toxicity data is not available.

Table L-21. Risks—100-yr occupational worker at ARA-25.

Contaminant	Soil Ingestion	Soil Absorption	Inhalation of Fugitive		Total Hazard Indices
			Dust	Inhalation of Volatiles	
Aroclor-1242	—	—	—	—	—
Aroclor-1254	—	—	—	—	—
Bis(2-ethylhexyl)phthalate	—	—	—	NTD	—
Diethylphthalate	—	—	—	—	—
Diethylether	—	—	—	—	—
Methylmethacrylate	—	—	—	NTD	—
Antimony	—	—	—	—	—
Arsenic	7E-02	8E-01	NTD	—	9E-01
Barium	—	—	—	—	—
Cadmium	—	—	—	—	—
Chromium III	—	—	—	—	—
Chromium VI	—	—	—	—	—
Cobalt	—	—	—	—	—
Copper	—	—	—	—	—
Lead	—	—	—	—	—
Manganese	5E-03	—	1E-02	—	2E-02
Mercury	—	—	—	—	—
Nickel	—	—	—	—	—
Selenium	—	—	—	—	—
Silver	—	—	—	—	—
Thallium	—	—	—	—	—
Vanadium	—	—	—	—	—

Table L-21. (continued).

Contaminant	Soil Ingestion	Soil Absorption	Inhalation of Fugitive		Total Hazard Indices
			Dust	Inhalation of Volatiles	
Zinc	—	—	—	—	—
Chloride	—	—	—	—	—
Orthophosphate	—	—	—	—	—
Sulfate	—	—	—	—	—
Total risks by pathway and site:	7E-02	8E-01	1E-02	0E+00	9E-01

"—" indicates that the contaminant is not a COPC in the medium or at the site.

NTD indicates that toxicity data is not available.

Table L-22. ARA-25 future residential carcinogenic risks.

Contaminant	Soil Ingestion ARA-25	Dermal Absorption ARA-25	Home Produce Ingestion ARA-25	External Radiation Exposure ARA-25	Inhalation of Fugitive Dust ARA-25	Inhalation of Volatiles ARA-25	Ingestion of Groundwater ARA-25	Dermal Absorption of Groundwater ARA-25	Inhalation of Volatiles from Indoor Water Use ARA-25	Total Risk ARA-25
Arsenic	9E-05	3E-04	1E-05	—	9E-07	—	4E-05	8E-08	—	5E-04
Cs-137	1E-06	—	3E-07	2E-03	2E-11	—	4E-75	5E-84	—	2E-03
Eu-152	1E-10	—	3E-13	2E-06	1E-12	—	—	—	—	2E-06
Ra-226	1E-05	—	5E-07	5E-03	2E-10	—	3E-17	4E-26	—	5E-03
Total risks by site and pathway:	1E-04	3E-04	1E-05	7E-03	9E-07	0E+00	4E-05	8E-08	0E+00	8E-03

Table L-23. ARA-25 future residential noncarcinogenic hazard quotients.

Contaminant	Soil Ingestion ARA-25	Dermal Absorption ARA-25	Home Produce Ingestion ARA-25	Inhalation of fugitive dust ARA-25	Inhalation of Volatiles ARA-25	Ingestion of Groundwater ARA-25	Dermal Absorption of Groundwater ARA-25	Inhalation of Volatiles from Indoor Water Use ARA-25	Total Risk ARA-25
Arsenic	5E-01	2E+00	1E-05	NTD	—	2E-01	1E-02	—	3E+00

Table L-24. ARA-25 future occupational carcinogenic risks.

Contaminant	Soil Ingestion ARA-25	Soil Absorption ARA-25	External Exposure ARA-25	Inhalation of Fugitive Dust ARA-25	Inhalation of Volatiles ARA-25	Total Risk ARA-25
Arsenic	1E-05	1E-04	—	5E-07	—	1E-04
Cs-137	3E-07	—	4E-04	3E-13	—	4E-04
Ra-226	3E-06	—	1E-03	4E-11	—	1E-03
Total risks by pathway and site:	1E-05	1E-04	1E-03	5E-07	0E+00	2E-03

Table L-25. ARA-25 future occupational noncarcinogenic hazard quotients.

Contaminant	Soil Ingestion ARA-25	Soil Absorption ARA-25	Inhalation of fugitive dust ARA-25	Inhalation of Volatiles ARA-25	Hazard Index ARA-25
Total risks by pathway and site:	7E-02	8E-01	1E-02	0E+00	9E-01

Table L-26. ARA-25 current occupational carcinogenic risks.

Contaminant	Soil Ingestion ARA-25	Soil Absorption ARA-25	External Exposure ARA-25	Inhalation of Fugitive Dust ARA-25	Inhalation of Volatiles ARA-25	Total Risk ARA-25
Arsenic	1E-05	1E-04	—	5E-07	—	1E-04
Co-60	3E-09	—	3E-05	2E-14	—	3E-05
Cs-134	2E-09	—	4E-06	2E-15	—	4E-06
Cs-137	3E-06	—	4E-03	3E-12	—	4E-03
Eu-152	5E-09	—	6E-05	1E-13	—	6E-05
Eu-154	4E-10	—	3E-06	6E-15	—	3E-06
Ra-226	3E-06	—	1E-03	4E-11	—	1E-03
Sr-90	1E-06	—	NTD	2E-12	—	1E-06
Total risks by pathway and site:	2E-05	1E-04	5E-03	5E-07	0E+00	5E-03

Table L-27. ARA-25 current occupational noncarcinogenic hazard quotients.

Contaminant	Soil Ingestion ARA-25	Soil Absorption ARA-25	Inhalation of Fugitive Dust ARA-25	Inhalation of Volatiles ARA-25	Hazard Index ARA-25
Total risks by pathway and site:	7E-02	8E-01	1E-02	0E+00	9E-01

Table L-28. ARA-25 maximum ecological hazard quotients.

Copper	4E+01
Lead	9E+02

TIME OF RUN 12:11:51.5

DATE OF RUN 01/08/99

INPUT FILE NAME: 25-u5-r.inp

OUTPUT FILE NAME: 25-u5-r.out

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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   *

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>>> TITLE OF PROJECT:

```

'U-235, ARA-25, risk'           TITLE

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GAUSSIAN QUADRATURE SOLUTION

MODEL OPTIONS

IMODE: 2

KFLAG: 1 (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 0

LENGTH OF SOURCE PARALLEL TO GW FLOW (m) 7.30E+00

WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	4.90E+00
THICKNESS OF SOURCE (m)	1.50E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	4.10E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	4.10E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	6.00E+00
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.90E+00
UNSATURATED ZONE THICKNESS (m)	5.80E+00
SORPTION COEFFICIENT IN UNSAT ZONE (ml/g)	6.00E-01
OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y** ⁻¹)	0.00E+00
INITIAL MASS OR ACTIVITY (mg or Ci)	2.21E-04
MOLECULAR WEIGHT (g/mole)	2.35E+02
SOLUBILITY LIMIT (mg/L)	1.00E+06
HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y)	7.04E+08
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-01
DISPERSIVITY X DIRECTION (m)	9.00E+00
DISPERSIVITY Y DIRECTION (m)	4.00E+00
DISPERSIVITY Z DIRECTION (m)	1.00E+00
PORE VELOCITY (m/y)	5.70E+02
WELL SCREEN THICKNESS (m)	1.50E+01
DISTANCE TO RECEPTOR ALONG X AXIS (m)	3.65E+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)	4.70E+01
UNITS OF CONTAMINANT	Ci

LIMITING SOIL CONCENTRATION CALCULATION

>>> INITIAL ACTIVITY CONVERTED TO MASS (mg) 1.02E+05

>>> VALUES CALCULATED IN SOURCE SUBROUTINE

LEACH RATE CONSTANT (1/y)	7.0847E-03
UNSATURATED PORE VELOCITY (m/y)	2.4390E-01
DECAY CONSTANT(S) (1/y)	9.8458E-10
RETARDATION FACTOR(S) (SATURATED)	1.2400E+01
RETARDATION FACTOR (UNSATURATED)	3.7805E+00
SOLUBILITY LIMITED MASS (mg)	5.0489E+11
SOLUBILITY LIMITED ACTIVITY (Ci)	1.0919E+03
TRANSIT TIME IN UNSAT ZONE (years)	8.9900E+01
FRACTION DECAYED DURING UNSAT TRANSPORT	8.8514E-08

>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION

INTEGRATION TIME (years)	30
BODY WEIGHT (kg)	7.000E+01
AVERAGING TIME (days)	2.550E+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-04
HAZARD QUOTIENT	1.000E+00

>>> RESULTS OF CALCULATIONS

CARCINOGENIC RISK CALCULATION FOR RADIONUCLIDES

MAXIMUM GW CONCENTRATION FOR MBR #1: 9.38E-14 Ci/L

AVERAGE GW CONCENTRATION FOR MBR #1: 8.81E-14 Ci/L RISK = 8.70E-08

MAXIMUM CARCINOGENIC RISK: 8.70E-08

LIMITING PARENT GROUNDWATER CONC. (Ci/L): 1.01E-10

PEAK TIME (y): 9.085228E+01

LIMITING SOIL CONCENTRATION (Ci/m**3): 4.735E-03

LIMITING SOIL CONCENTRATION (Ci/kg): 3.156E-06

LIMITING INVENTORY IN SOIL (Ci): 2.540E-01

LIMITING INVENTORY IN SOIL (mg): 1.175E+08

SPECIFIC ACTIVITY (Ci/g): 2.163E-06

EXECUTION TIME (seconds) 0

TIME OF RUN 12:07:37.7

DATE OF RUN 01/08/99

INPUT FILE NAME: 25-as-h.inp

OUTPUT FILE NAME: 25-as-h.out

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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:

'Arsenic, ARA-25, hazard quotient' TITLE

GAUSSIAN QUADRATURE SOLUTION

MODEL OPTIONS

IMODE: 6

KFLAG: 1 (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 0

LENGTH OF SOURCE PARALLEL TO GW FLOW (m) 7.30E+00

WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	4.90E+00
THICKNESS OF SOURCE (m)	1.50E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	4.10E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	4.10E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	3.00E+00
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.90E+00
UNSATURATED ZONE THICKNESS (m)	5.80E+00
SORPTION COEFFICIENT IN UNSAT ZONE (ml/g)	3.00E-01
OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y** ⁻¹)	0.00E+00
INITIAL MASS OR ACTIVITY (mg or Ci)	3.29E+06
MOLECULAR WEIGHT (g/mole)	7.49E+01
SOLUBILITY LIMIT (mg/L)	1.00E+06
HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y)	1.00E+38
BULK DENSITY OF AQUIFER (g/cm**3)	1.90E+00
POROSITY OF AQUIFER	1.00E-01
SORPTION COEFFICIENT(S) IN AQUIFER (ml/g)	3.00E-01
DISPERSIVITY X DIRECTION (m)	9.00E+00
DISPERSIVITY Y DIRECTION (m)	4.00E+00
DISPERSIVITY Z DIRECTION (m)	1.00E-09
PORE VELOCITY (m/y)	5.70E+02
WELL SCREEN THICKNESS (m)	1.50E+01
DISTANCE TO RECEPTOR ALONG X AXIS (m)	3.65E+00
DISTANCE TO RECEPTOR ALONG Y AXIS (m)	0.00E+00
DISTANCE TO RECEPTOR ALONG Z AXIS (m)	0.00E+00
NON-CARCINOGENIC REFERENCE DOSE RfD (mg/kg/d)	3.00E-04
UNITS OF CONTAMINANT	mg

LIMITING SOIL CONCENTRATION CALCULATION

>>> VALUES CALCULATED IN SOURCE SUBROUTINE

LEACH RATE CONSTANT (1/y)	1.3578E-02
UNSATURATED PORE VELOCITY (m/y)	2.4390E-01
DECAY CONSTANT(S) (1/y)	6.9315E-39
RETARDATION FACTOR(S) (SATURATED)	6.7000E+00
RETARDATION FACTOR (UNSATURATED)	2.3902E+00
SOLUBILITY LIMITED MASS (mg)	2.6345E+11
SOLUBILITY LIMITED ACTIVITY (Ci)	0.0000E+00
TRANSIT TIME IN UNSAT ZONE (years)	5.6840E+01
FRACTION DECAYED DURING UNSAT TRANSPORT	0.0000E+00

>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION

INTEGRATION TIME (years)	30
BODY WEIGHT (kg)	7.000E+01
AVERAGING TIME (days)	1.100E+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-04
HAZARD QUOTIENT	1.000E+00

>>> RESULTS OF CALCULATIONS

LIMITING GROUNDWATER CONCENTRATION (mg/L): 1.10E-02
MAXIMUM GROUNDWATER CONCENTRATION (mg/L): 2.68E-03
AVERAGE GROUNDWATER CONCENTRATION (mg/L): 2.25E-03
HAZARD QUOTIENT FOR INPUT MASS: 2.05E-01
PEAK TIME (y): 5.735454E+01
LIMITING SOIL CONCENTRATION (mg/m**3): 2.998E+05
LIMITING SOIL CONCENTRATION (mg/kg): 1.998E+02
LIMITING INVENTORY IN SOIL (mg): 1.608E+07
EXECUTION TIME (seconds) 0

'Arsenic, ARA-25, risk'										TITLE					
1	0										KFLAG, NPROG				
30	0										INTIME				
7.3	4.9	1.5									AL, WA, THICKS				
0.1	.41	.41									PERC, THETAS, THETAU				
1.5	3.	0.									RHOS, ZKDS, RC2				
1.9	.3										RHOU, ZKDU				
1.E38											ATHALF				
3.29E+06	74.9	1.0e6									QI, ZMW, SL				
1.9	.1	.3									RHOA, PHI, AKD				
9.	4.	1.0E-9	570.0								AX, AY, VX				
15.0	5.8										THICK, DEPTH				
5	1										IMODE, IMODEL				
9E2	2.	7.58E5	.41	0.	165.						RMI, TOPER, PNDFLX, THETAP, EVAP, WAEFF				
1.8											SFACTOR				
3.65	0.	0.									XD, YD				
70.	2.55e4	2.	350.	30.	4.e-3	1.0e-4	1.	BW	AT	WI	EF	ED	DLIM	CRISK	HQ
1	6	7	1.0e-6												
1															

TIME OF RUN 12:08:03.5

DATE OF RUN 01/08/99

INPUT FILE NAME: 25-as-r.inp

OUTPUT FILE NAME: 25-as-r.out

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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           *

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>>> TITLE OF PROJECT:

'Arsenic, ARA-25, risk' TITLE

GAUSSIAN QUADRATURE SOLUTION

MODEL OPTIONS

IMODE: 5

KFLAG: 1 (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 0

LENGTH OF SOURCE PARALLEL TO GW FLOW (m) 7.30E+00

WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	4.90E+00
THICKNESS OF SOURCE (m)	1.50E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	4.10E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	4.10E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	3.00E+00
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.90E+00
UNSATURATED ZONE THICKNESS (m)	5.80E+00
SORPTION COEFFICIENT IN UNSAT ZONE (ml/g)	3.00E-01
OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y**-1)	0.00E+00
INITIAL MASS OR ACTIVITY (mg or Ci)	3.29E+06
MOLECULAR WEIGHT (g/mole)	7.49E+01
SOLUBILITY LIMIT (mg/L)	1.00E+06
HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y)	1.00E+38
BULK DENSITY OF AQUIFER (g/cm**3)	1.90E+00
POROSITY OF AQUIFER	1.00E-01
SORPTION COEFFICIENT(S) IN AQUIFER (ml/g)	3.00E-01
DISPERSIVITY X DIRECTION (m)	9.00E+00
DISPERSIVITY Y DIRECTION (m)	4.00E+00
DISPERSIVITY Z DIRECTION (m)	1.00E-09
PORE VELOCITY (m/y)	5.70E+02
WELL SCREEN THICKNESS (m)	1.50E+01
DISTANCE TO RECEPTOR ALONG X AXIS (m)	3.65E+00
DISTANCE TO RECEPTOR ALONG Y AXIS (m)	0.00E+00
DISTANCE TO RECEPTOR ALONG Z AXIS (m)	0.00E+00
CARCINOGENIC SLOPE FACTOR (mg/kg/d)**-1	1.80E+00
UNITS OF CONTAMINANT	mg

LIMITING SOIL CONCENTRATION CALCULATION

>>> VALUES CALCULATED IN SOURCE SUBROUTINE

LEACH RATE CONSTANT (1/y)	1.3578E-02
UNSATURATED PORE VELOCITY (m/y)	2.4390E-01
DECAY CONSTANT(S) (1/y)	6.9315E-39
RETARDATION FACTOR(S) (SATURATED)	6.7000E+00
RETARDATION FACTOR (UNSATURATED)	2.3902E+00
SOLUBILITY LIMITED MASS (mg)	2.6345E+11
SOLUBILITY LIMITED ACTIVITY (Ci)	0.0000E+00
TRANSIT TIME IN UNSAT ZONE (years)	5.6840E+01
FRACTION DECAYED DURING UNSAT TRANSPORT	0.0000E+00

>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION

INTEGRATION TIME (years)	30
BODY WEIGHT (kg)	7.000E+01
AVERAGING TIME (days)	2.550E+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-04
HAZARD QUOTIENT	1.000E+00

>>> RESULTS OF CALCULATIONS

CARCINOGENIC RISK CALCULATION

LIMITING GROUNDWATER CONCENTRATION (mg/L): 4.72E-03
MAXIMUM GROUNDWATER CONCENTRATION (mg/L): 2.68E-03
AVERAGE GROUNDWATER CONCENTRATION (mg/L): 2.25E-03
CARCINOGENIC RISK FOR USER INPUT MASS: 4.77E-05
PEAK TIME (y): 5.735454E+01
LIMITING SOIL CONCENTRATION (mg/m**3): 1.287E+05
LIMITING SOIL CONCENTRATION (mg/kg): 8.579E+01
LIMITING INVENTORY IN SOIL (mg): 6.904E+06
EXECUTION TIME (seconds) . 0

'Co-60, ARA-25, risk'	TITLE
1 0	KFLAG, NPROG
30 0	INTIME
7.3 4.9 1.5	AL, WA, THICKS
0.1 .41 .41	PERC, THETAS, THETAU
1.5 10. 0.	RHOS, ZKDS, RC2
1.9 1.	RHO, ZKDU
5.27	ATHALF
1.58E-04 60. 1.0e6	QI, ZMW, SL
1.9 .1 1.	RHOA, PHI, AKD
9. 4. 1. 570.0	AX, AY, VX
15.0 5.8	THICK, DEPTH
2 1	IMODE, IMODEL
9E2 2. 7.58E5 .41 0. 165.	RMI, TOPER, PNDFLX, THETAP, EVAP, WAEFF
1.9E+01	SFACTOR
3.65 0. 0.	XD, YD
70. 2.55e4 2. 350. 30. 4.e-3 1.0e-4 1. BW AT WI EF ED DLIM CRISK HQ	
1 6 7 1.0e-6	ISOLVE, JSTART, JMAX, EPS
1	NTIMES