Dose Consequence Report


```
RRRR    AAA   DDDD   TTTTT  RRRR    AAA   N   N  55555         6
R   R  A   A  D   D    T    R   R  A   A  NN  N  5             6
R   R  A   A  D   D    T    R   R  A   A  N N N  5             6
RRRR   A   A  D   D    T    RRRR   A   A  N  NN  5555          6666
R R    AAAAA  D   D    T    R R    AAAAA  N   N      5         6   6
R  R   A   A  D   D    T    R  R   A   A  N   N  5   5         6   6
R   R  A   A  DDDD     T    R   R  A   A  N   N  5555      *    666
```

RADTRAN 5.6 February 20, 2006

INPUT ECHO

```
 && Pa'ina  Irradiator
 && Co-60 sources
 && Each shipment has 10 sources
 && Total of 6 shipments
 TITLE Irradiator sources
 INPUT STANDARD
STD: 0 10 18                                && DIMEN=NSEV NRAD NAREAS
STD: 1 3 3 0                                && PARM=IRNKC IANA ISEN IPSQSB
STD: .TRUE. .FALSE.                         && FORM = UNIT, SI-UNITS?
STD: 2.3E12                                 && NEVAL FOR CF252
STD: 9.25E5 5.77E6 1.27E6                   && RPCTHY FOR I125, I129, I131
STD: 0.0 0.0 0.0 0.0 0.0                    && TRANSFER GAMMA
STD: 7.42E-3 2.02E-2 6.17E-5 3.17E-8 0.0    && TRANSFER NEUTRON
STD: 30  24                                 && MITDDIST  MITDVEL
STD: 1  2   .0018                           && ITRAIN FMINCL DDRWEF
STD:    33    68    105   244   369                 && CENTER LINE
STD:   561  1018   1628  2308  4269                 && DISTANCES
STD:  5468 11136  13097 21334 40502                 && FOR AVERAGE
STD: 69986 89860 120878 0 0 0 0 0 0 0 0 0 0 0 0     && US CLOUD
STD: 4.59E+02 1.53E+03 3.94E+03 1.25E+04 3.04E+04 6.85E+04 1.76E+05
4.45E+05
STD: 8.59E+05 2.55E+06 4.45E+06 1.03E+07 2.16E+07 5.52E+07 1.77E+08
4.89E+08
STD: 8.12E+08 1.35E+09 0 0 0 0 0 0 0 0 0 0 0 0      && AREADA
STD: 3.42E-03 1.72E-03 8.58E-04 3.42E-04 1.72E-04 8.58E-05 3.42E-05
1.72E-05
STD:  8.58E-06 3.42E-06 1.72E-06 8.58E-07 3.42E-07 1.72E-07 8.58E-08
5.42E-08
STD:  4.30E-08 3.42E-08 0 0 0 0 0 0 0 0 0 0 0 0      && DFLEV
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0
STD: 3 6 9 12 15 30 61 91 152 305 0 0 0 0 0 && RADIST
STD: 0.5                                 && SMLPKG
STD: 1.0  0.87  0.018                    && SHIELDING FACTORS RR  RS  RU
STD:  30  30  800                        && OFFLINK {FREEWAY}
STD:  27  30  800                        && OFFLINK {NON-FREEWAY}
STD:   5   8  800                        && OFFLINK {CITY STREETS}
STD:  30  30  800                        && OFFLINK {RAILWAY}
STD: 200 200 1000                        && OFFLINK {WATERWAY}
STD: 15  3  3  3  4                      && ONLINK {FWAY NONFWY STREET RAIL
ADJ}
STD: 6.0  4  40.0                        && RPD FNOATT INTERDICT
STD: 0.05   0.2   3.3E-4                 && BDF CULVL BRATE
```

```
STD: 0.9   0.1                    && UBF USWF
STD: 1.0  10.0 1.0                && EVACUATION SURVEY CAMPAIGN
```

Irradiator sources

```
STD: 0.0  0.0     1.5E-8  5.3E-8      && HIGHWAY - RURAL - NONRAD
STD: 0.0  0.0     3.7E-9  1.3E-8      && HIGHWAY - SUBURBAN - NONRAD
STD: 0.0  0.0     2.1E-9  7.5E-9      && HIGHWAY - URBAN - NONRAD
STD: 0.0  0.0    1.81E-9  2.64E-8     && GENERAL FREIGHT - R - NONRAD
STD: 0.0  0.0    1.81E-9  2.64E-8     && GENERAL FREIGHT - S - NONRAD
STD: 0.0  0.0    1.81E-9  2.64E-8     && GENERAL FREIGHT - U - NONRAD
STD: 0.0  0.0    1.27E-7  1.85E-6     && DEDICATED RAIL - R - NONRAD
STD: 0.0  0.0    1.27E-7  1.85E-6     && DEDICATED RAIL - S - NONRAD
STD: 0.0  0.0    1.27E-7  1.85E-6     && DEDICATED RAIL - U - NONRAD
STD: 0.0 0.0 0.0 0.0 0.0 0.0          && PSPROB
STD: 0.67  0.67  0.42                 && TIMENDE NON-DISPERSAL EVAC TIME
(LCF&EARLY)
STD: 2 2 1                            && FLAGS=IUOPT IACC REGCHECK
STD: 5E-4, 4E-4, 1.0E-4               && LCFCON(1), LCFCON(2), GECON
STD: R5INGEST.BIN                     && INGESTION FILE
 OUTPUT CI_REM
 FORM UNIT
 DIMEN 1 10 18
 PARM 1 3 4 1
 SEVERITY
    NPOP=1
       NMODE=1
        1.0

    NPOP=2
       NMODE=1
        1.0

    NPOP=3
       NMODE=1
        1.0

 RELEASE
    GROUP=GROUP_1
       RFRAC
          6.5E-5

       AERSOL
          1.0

       RESP
          1.0

       LOS
          0.0

       DEPVEL 0.1
```

Irradiator sources

```
PSPROB
0.0
  0.0  0.0  1.0  0.0  0.0

PACKAGE Co60 13.0 1.0 0.0 1.0
   CO60 17000.0 GROUP_1
END
VEHICLE -1 Delivery 1.00E01 1.0 0.0 53.0 6.0 2.0 3.0 1.0 1.0
      Co60 10.0
FLAGS
   IACC 2
   IUOPT 2
   REGCHECK 1
MODSTD
   DISTOFF FREEWAY 3.00E01 3.00E01 8.00E02
   DISTOFF SECONDARY 2.70E01 3.00E01 8.00E02
   DISTOFF STREET 5.00E00 8.00E00 8.00E02
   DISTON
     FREEWAY 1.50E01
     SECONDARY 3.00E00
     STREET 3.00E00
     ADJACENT 4.00E00
   BDF 5.00E-02
   BRATE 3.30E-04
   CULVL 2.00E-01
   EVACUATION 1.00E00
   GECON 1.00E-04
   INTERDICT 4.00E01
   LCFCON 5.00E-04 4.00E-04
   SURVEY 1.00E01
   UBF 5.20E-01
   USWF 4.80E-01
   CAMPAIGN 8.33E-02
   MITDDIST 3.00E01
   MITDVEL 2.40E01
   RPD 6.00E00
   RR 1.00E00
   RU 1.80E-02
   RS 8.70E-01
   SMALLPKG 5.00E-01
   RPCTHYROID
     I131  1.27E06
EOF
LINK LINK_1 Delivery 1.0 24.0 2.0 1670.0 2800.0 1.0 0.0 U 1 0.0


EOF
```

Irradiator sources

PACKAGE AND MATERIAL CHARACTERISTICS

MATERIAL	DIMENSION (METERS)	EFFECTIVE DIMENSION	K(0) METERS SQ.	FRACTION GAMMA	FRACTION NEUTRON	DOSE RATE (MREM/HR)
Co60	1.000E+00	1.000E+00	2.250E+00	1.000E+00	0.000E+00	1.300E+01

K(0) IS DOSE RATE CONVERSION FACTOR

VEHICLE CHARACTERISTICS

VEHICLE NAME	Delivery
MODE TYPE	HIGHWAY
EXCLUSIVE USE	YES
DOSE RATE (MREM/HR)	1.00E+01
K(0) (SQ. METERS)	1.62E+02
VEHICLE SIZE (M)	5.30E+01
EFFECTIVE SIZE (M)	2.35E+01
NUMBER OF SHIPMENTS	6.00E+00
NUMBER OF CREW	2.00E+00
CREW DISTANCE (M)	3.00E+00
CREW DOSE ADJUSTMENT FACT	1.00E+00
CREW EXPOSER WIDTH (M)	1.00E+00
EFFECTIVE EXPOSER WIDTH	1.00E+00
K(0) (SQ M) CREW EXPOSURE	2.25E+00

VEHICLE	MATERIAL	NO.PACKAGES
Delivery		
	Co60	1.00E+01

TRANSFER COEFFICIENTS:	MU	A(1)	A(2)	A(3)	A(4)
GAMMA	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NEUTRON	7.420E-03	2.020E-02	6.170E-05	3.170E-08	0.000E+00

DISTANCES (METERS)	FREEWAY	SECONDARY	STREET	RAIL	WATER ADJACENT
OFFLINK:					
MINIMUM DISTANCE	3.00E+01	2.70E+01	5.00E+00	3.00E+01	2.00E+02
SIDEWALK + MINIMUM	3.00E+01	3.00E+01	8.00E+00	3.00E+01	2.00E+02
MAXIMUM DISTANCE	8.00E+02	8.00E+02	8.00E+02	8.00E+02	1.00E+03
ONLINK:					
OPPOSITE DIRECTION	1.50E+01	3.00E+00	3.00E+00	3.00E+00	

ADJACENT VEHICLE
4.00E+00

Irradiator sources

LINK RELATED DATA

	LINK_1
VEHICLE	Delivery
DISTANCE (KM)	1.00E+00
PERSONS PER VEHICLE	2.00E+00
SPEED (KM/HR)	2.40E+01
POPULATION DENSITY	1.67E+03
VEHICLE DENSITY	2.80E+03
ACCIDENT RATE/KM	1.00E+00
FATALITIES/ACCIDENT	0.00E+00
ZONE	URBAN
ROAD TYPE	FREEWAY
FARMING FRACTION	0.00E+00

Irradiator sources

ISOTOPE RELATED DATA

NUCLIDE	CURIES PER PKG	RELEASE GROUP	SETTLING ONLY RESUSPENSION FACTOR	50YR INHALATION (REM/CI) EFFECTIVE
Co60				
CO60	1.70E+04	GROUP_1	1.08E+00	3.70E+04

NUCLIDE	HALF LIFE	GAMMA ENERGY	CLOUD FACTOR	GROUND FACTOR	INGESTION NUCLIDE	NEUTRON EMISSION neutrons/sec/Ci
Co60						
CO60	1.92E+03	2.50E+00	4.66E-01	7.51E-04	Co-60	0.00E+00

NUCLIDE	1-YR INHALATION (REM/CI) LUNG	MARROW	THYROID
Co60			
CO60	1.78E+05	1.07E+04	0.00E+00

Irradiator sources

RELEASE RELATED DATA
****

RELEASE FRACTIONS

GROUP	SEVER: 1
GROUP_1	6.50E-05

DEPOSITION VELOCITIES

GROUP	M/SEC
GROUP_1	1.00E-01

ACCIDENT SEVERITY FRACTIONS
FOR HIGHWAY

ZONE	SEVER: 1
RURAL	1.00E+00
SUBURBAN	1.00E+00
URBAN	1.00E+00

Irradiator sources

AEROSOLIZED FRACTION OF RELEASED MATERIAL

```
GROUP     SEVER: 1
  GROUP_1 1.00E+00
```

RESPIRABLE FRACTION OF AEROSOLS (BELOW 10 MICRONS AED)

```
GROUP     SEVER: 1
  GROUP_1 1.00E+00
```

Irradiator sources

HEALTH RELATED DATA
****

EARLY MORBIDITY THRESHOLD VALUE FOR LUNG 5.000E+02 REM
EARLY MORBIDITY THRESHOLD VALUE FOR MARROW/WHOLE BODY 5.000E+01 REM
EARLY MORBIDITY THRESHOLD VALUE FOR THYROID 2.000E+02 REM

EARLY FATALITY PROBABILITIES (EF)

DOSE(REM)	EF MARROW	DOSE(REM)	EF LUNG
680.00	1.00000	1525.00	1.00000
670.00	0.99999	1500.00	0.99999
660.00	0.99998	1475.00	0.99997
650.00	0.99996	1450.00	0.99991
640.00	0.99992	1425.00	0.99974
630.00	0.99983	1400.00	0.99933
620.00	0.99967	1375.00	0.99840
610.00	0.99938	1350.00	0.99653
600.00	0.99889	1325.00	0.99306
590.00	0.99808	1300.00	0.98709
580.00	0.99679	1275.00	0.97755
570.00	0.99482	1250.00	0.96331
560.00	0.99192	1225.00	0.94326
550.00	0.98776	1200.00	0.91656
540.00	0.98199	1175.00	0.88274
530.00	0.97423	1150.00	0.84178
520.00	0.96406	1125.00	0.79420
510.00	0.95111	1100.00	0.74095
500.00	0.93502	1075.00	0.68335
490.00	0.91551	1050.00	0.62293
480.00	0.89237	1025.00	0.56130
470.00	0.86552	1000.00	0.50000
460.00	0.83499	975.00	0.44042
450.00	0.80096	950.00	0.38372
440.00	0.76371	925.00	0.33077
430.00	0.72363	900.00	0.28218
420.00	0.68123	875.00	0.23830
410.00	0.63706	850.00	0.19925
400.00	0.59172	825.00	0.16498
390.00	0.54583	800.00	0.13529
380.00	0.50000	775.00	0.10988
370.00	0.45481	750.00	0.08837
360.00	0.41078	725.00	0.07038
350.00	0.36838	700.00	0.05548
340.00	0.32798	675.00	0.04329
330.00	0.28990	650.00	0.03341
320.00	0.25438	625.00	0.02549
310.00	0.22155	600.00	0.01922
300.00	0.19150	575.00	0.01430
290.00	0.16425	550.00	0.01050
280.00	0.13977	525.00	0.00759
270.00	0.11797	500.00	0.00000
260.00	0.09872		

250.00	0.08188
240.00	0.06729
230.00	0.05475
220.00	0.04408
210.00	0.03510
200.00	0.02761
190.00	0.02143
180.00	0.01639
170.00	0.01234
160.00	0.00913
150.00	0.00000

Irradiator sources

METEOROLOGICAL DATA BASED ON PASQUILL CATEGORIES

PROB. A	PROB. B	PROB. C	PROB. D	PROB. E	PROB. F
0.0000	0.0000	0.0000	1.0000	0.0000	0.0000

AREA (M SQ)	*PASQUILL CATEGORY A	B	C	D	E	F
4.60E+02	6.00E-03	4.00E-03	4.00E-03	4.30E-03	9.60E-03	6.20E-02
1.50E+03	1.70E-03	1.30E-03	1.10E-03	1.30E-03	3.20E-03	1.80E-02
3.90E+03	8.40E-04	5.50E-04	5.70E-04	6.50E-04	1.60E-03	8.40E-03
1.30E+04	1.70E-04	1.30E-04	1.30E-04	1.80E-04	4.00E-04	2.00E-03
3.00E+04	7.80E-05	6.00E-05	6.70E-05	9.50E-05	2.10E-04	9.20E-04
6.90E+04	2.80E-05	2.70E-05	3.00E-05	4.30E-05	1.40E-04	4.40E-04
1.80E+05	8.00E-06	1.00E-05	1.00E-05	1.80E-05	4.40E-05	2.00E-04
4.50E+05	2.20E-06	3.50E-06	5.00E-06	8.50E-06	2.10E-05	1.00E-04
8.60E+05	9.00E-07	1.60E-06	2.80E-06	5.00E-06	1.20E-05	6.20E-05
2.60E+06	1.40E-07	4.10E-07	1.00E-06	1.90E-06	4.80E-06	2.60E-05
4.50E+06	7.00E-08	2.20E-07	6.00E-07	1.30E-06	3.60E-06	1.90E-05
1.70E+07	1.10E-08	5.00E-08	1.70E-07	4.00E-07	1.40E-06	8.40E-06
2.20E+07	7.76E-09	3.20E-08	1.30E-07	3.00E-07	1.20E-06	7.00E-06
5.50E+07	2.24E-09	1.10E-08	5.70E-08	1.50E-07	6.00E-07	4.00E-06
1.80E+08	4.50E-10	2.50E-09	1.70E-08	5.50E-08	2.80E-07	2.00E-06
5.00E+08	1.13E-10	7.24E-10	6.32E-09	2.41E-08	1.38E-07	1.09E-06
8.00E+08	5.96E-11	4.09E-10	4.01E-09	1.65E-08	9.97E-08	8.22E-07
1.40E+09	2.76E-11	2.08E-10	2.33E-09	1.05E-08	6.77E-08	5.89E-07

* DILUTION FACTOR UNITS ARE (CI-SEC/M**3/CI-RELEASED)

AREA (M SQ)	CENTER LINE DISTANCES (M) A	B	C	D	E	F
4.60E+02	2.40E+01	3.00E+01	3.30E+01	3.60E+01	4.20E+01	2.50E+01

1.50E+03	4.50E+01	5.40E+01	6.80E+01	7.70E+01	8.40E+01	6.00E+01
3.90E+03	6.50E+01	8.50E+01	9.80E+01	1.18E+02	1.30E+02	1.04E+02
1.30E+04	1.48E+02	1.82E+02	2.23E+02	2.61E+02	3.12E+02	2.90E+02
3.00E+04	2.21E+02	2.74E+02	3.22E+02	3.87E+02	4.68E+02	5.05E+02
6.90E+04	3.74E+02	4.17E+02	5.03E+02	6.33E+02	6.05E+02	8.57E+02
1.80E+05	5.89E+02	7.04E+02	9.25E+02	1.08E+03	1.26E+03	1.51E+03
4.50E+05	8.99E+02	1.22E+03	1.36E+03	1.73E+03	2.00E+03	2.48E+03
8.60E+05	1.20E+03	1.85E+03	1.87E+03	2.40E+03	2.85E+03	3.49E+03
2.60E+06	2.22E+03	3.80E+03	3.31E+03	4.37E+03	5.09E+03	6.51E+03
4.50E+06	2.78E+03	5.27E+03	4.40E+03	5.53E+03	6.10E+03	8.16E+03
1.70E+07	5.11E+03	1.15E+04	8.85E+03	1.15E+04	1.19E+04	1.46E+04
2.20E+07	5.72E+03	1.46E+04	1.03E+04	1.37E+04	1.35E+04	1.67E+04
5.50E+07	8.65E+03	2.56E+04	1.62E+04	2.11E+04	2.37E+04	2.49E+04
1.80E+08	1.46E+04	5.59E+04	3.17E+04	3.92E+04	4.39E+04	4.09E+04
5.00E+08	2.31E+04	1.08E+05	5:50E+04	6.56E+04	7.70E+04	6.29E+04
8.00E+08	2.82E+04	1.45E+05	7.07E+04	8.12E+04	1.01E+05	7.76E+04
1.40E+09	3.62E+04	2.06E+05	9.61E+04	1.06E+05	1.38E+05	9.71E+04

OTHER DISPERSAL ACCIDENT INPUT PARAMETERS
****

```
BUILDING DOSE FACTOR                                  (BDF) = 5.000E-02
CONTAMINATION CLEAN UP LEVEL (UCI/M**2)             (CULVL) = 2.000E-01
BREATHING RATE (M**3/SEC)                           (BRATE) = 3.300E-04
INTERDICTION THRESHOLD (Ci/micro-Ci)          (INTERDICT) = 4.000E+01
EVACUATION TIME (DAYS)                       (EVACUATION) = 1.000E+00
SURVEY INTERVAL (DAYS)                          (SURVEY) = 1.000E+01
CAMPAIGN LENGTH (YEARS)                       (CAMPAIGN) = 8.330E-02
FRACTION OF URBAN AREAS WITH BUILDINGS              (UBF) = 5.200E-01
FRACTION OF URBAN AREAS WITH SIDEWALKS             (USWF) = 4.800E-01
RATIO OF SIDEWALK PEDESTRIAN DENSITY (RPD)               = 6.000E+00
MAXIMUM IN-TRANSIT DOSE DISTANCE (M) (MITDDIST)          = 3.000E+01
MAXIMUM IN-TRANSIT DOSE VELOCITY (KM/H) (MITDVEL)        = 2.400E+01
IACC VALUE: 1=NON-DISPERSAL, 2=DISPERSAL                 = 2
REGULATORY CHECK, 1=DO CHECKS, 0=NO CHECKS               = 1
BUILDING SHIELDING OPTION (IUOPT)                        = 2
       RURAL SHIELDING FACTOR     = 1.000E+00
       SUBURBAN SHIELDING FACTOR  = 8.700E-01
       URBAN SHIELDING FACTOR     = 1.800E-02
```

Irradiator sources

INGESTION RELATED DATA

COMIDA INGESTION FILE USED: R5INGEST.BIN

COMIDA FILE HEADER

COMIDA2 07/22/03 08:58:40 Ver. 1.11a, 1/28/96: avoiding use of UNIT 6 for HP

DOSE CONVERSION FILE USED IN COMIDA

FGRDCF 07/10/03 21:45:47 Version 1.10
Implicit daughter halflives (m) less than 90 and less than 0.100 of parent

Irradiator sources

BACKYARD FARMER INGESTION DOSE (REM/CI DEPOSITED)

NUCLIDE	EFFECTIVE	THYROID
Co-60	1.328E+04	3.779E+03

SOCIETAL INGESTION DOSE (PERSON-REM/CI DEPOSITED)

NUCLIDE	GONADS	BREAST	LUNGS	RED MAR	BONE SU	THYROID	REMAIND	EFFECTI
Co-60	1.6E+00	5.7E-01	4.5E-01	6.8E-01	4.8E-01	4.1E-01	2.6E+00	1.4E+00

Irradiator sources

NON-RADIOLOGICAL DATA (ACCIDENTS and FATALITIES)
****

HIGHWAY

	ACCIDENT RATE	ACCIDENTS	FATALITIES
LINK_1	1.00E+00	1.00E+00	0.00E+00
TOTALS:	1.00E+00	1.00E+00	0.00E+00

Irradiator sources

REGULATORY CHECKS

FOR THE SHIPMENT BY Delivery
THE DOSE RATE IN THE CREW COMPARTMENT COULD EXCEED 2 MREM/HR
THE DOSE RATE HAS BEEN RESET FROM 2.50 TO 2 FOR CREW CALCULATIONS

Irradiator sources

CALCULATIONAL INFORMATION FOR PASQUILL CATEGORY D

IN CALCULATING THE DEPLETION FOR THE FOLLOWING GROUPS,
THE CONCENTRATIONS IN THE LISTED AREA HAVE BECOME NEGATIVE.
THE CONTAMINATION AND CONCENTRATIONS IN THE LISTED AREA AND
LARGER HAVE BEEN SET TO ZERO.

GROUP GROUP_1 AREA 11

FOR Delivery AREAS WITH TOTAL CONTAMINATION RATIO GREATER THAN 40.000

(THE AREAS MARKED WITH AN 'X' ARE INTERDICTED AND HAVE
NO 50 YEAR GROUNDSHINE DOSE AND NO INGESTION DOSE.)

AREA/SEVERITY	1
1	X
2	X
3	X
4	X
5	X
6	X
7	-
8	-
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-
17	-
18	-

Irradiator sources

RELEASE FRACTIONS

GROUP	SEVER: 1
GROUP_1	6.50E-05

DEPOSITION VELOCITIES

GROUP	M/SEC
GROUP_1	1.00E-01

DILUTION FACTORS FOR PASQUILL CATEGORY D
CHI VALUES AFTER DEPLETION (CI-SEC/M**3/CI-RELEASED)

DISTANCE	GROUP_1
3.60E+01	4.30E-03
7.70E+01	1.30E-03
1.18E+02	4.89E-04
2.61E+02	1.01E-04
3.87E+02	3.42E-05
6.33E+02	1.12E-05
1.08E+03	3.31E-06
1.73E+03	9.90E-07
2.40E+03	3.38E-07
4.37E+03	8.36E-08
5.53E+03	1.92E-08
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

Irradiator sources

DEPOSITION FACTORS
CHI DEPOSITED (CI/M**2/CI-RELEASED)

DISTANCE	GROUP_1
3.60E+01	4.30E-04
7.70E+01	1.30E-04
1.18E+02	4.89E-05
2.61E+02	1.01E-05
3.87E+02	3.42E-06
6.33E+02	1.12E-06
1.08E+03	3.31E-07
1.73E+03	9.90E-08
2.40E+03	3.38E-08
4.37E+03	8.36E-09
5.53E+03	1.92E-09
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

Irradiator sources

PASQUILL CATEGORY D
VEHICLE Delivery

1-YEAR DOSE TO LUNG, INHALATION PATHWAY
BDF = 1 (REM)

CNTR LINE	SEVER: 1
3.60E+01	2.79E+00
7.70E+01	8.42E-01
1.18E+02	3.18E-01
2.61E+02	6.57E-02
3.87E+02	2.22E-02
6.33E+02	7.26E-03
1.08E+03	2.15E-03
1.73E+03	6.43E-04
2.40E+03	2.20E-04
4.37E+03	5.43E-05
5.53E+03	1.25E-05
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

1-YEAR DOSE TO MARROW/WHOLE BODY, INHALATION PATHWAY
BDF = 1 (REM)

CNTR LINE	SEVER: 1
3.60E+01	1.90E-01
7.70E+01	5.73E-02
1.18E+02	2.16E-02
2.61E+02	4.47E-03
3.87E+02	1.51E-03
6.33E+02	4.94E-04
1.08E+03	1.46E-04
1.73E+03	4.37E-05
2.40E+03	1.49E-05
4.37E+03	3.69E-06
5.53E+03	8.49E-07
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

1-YEAR DOSE TO THYROID, INHALATION PATHWAY
BDF = 1 (REM)

CNTR LINE	SEVER: 1
3.60E+01	0.00E+00
7.70E+01	0.00E+00

1.18E+02	0.00E+00
2.61E+02	0.00E+00
3.87E+02	0.00E+00
6.33E+02	0.00E+00
1.08E+03	0.00E+00
1.73E+03	0.00E+00
2.40E+03	0.00E+00
4.37E+03	0.00E+00
5.53E+03	0.00E+00
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

Irradiator sources

PASQUILL CATEGORY D
VEHICLE Delivery

GROUND SURFACE CONTAMINATION TABLE (MICRO CI/M**2)
BEFORE CLEANUP

CNTR LINE	SEVER: 1
3.60E+01	4.75E+03
7.70E+01	1.43E+03
1.18E+02	5.41E+02
2.61E+02	1.12E+02
3.87E+02	3.78E+01
6.33E+02	1.24E+01
1.08E+03	3.66E+00
1.73E+03	1.09E+00
2.40E+03	3.74E-01
4.37E+03	9.24E-02
5.53E+03	2.12E-02
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

Irradiator sources

PASQUILL CATEGORY D
VEHICLE Delivery

MAXIMUM INDIVIDUAL CONSEQUENCE (DOSE IN REM)
FROM INHALATION, CLOUDSHINE, AND GROUNDSHINE EXPOSURE DURING EVACUATION

CNTR LINE	SEVER: 1
3.60E+01	6.55E+00
7.70E+01	1.97E+00
1.18E+02	7.45E-01
2.61E+02	1.54E-01
3.87E+02	5.21E-02
6.33E+02	1.70E-02
1.08E+03	5.04E-03
1.73E+03	1.51E-03
2.40E+03	5.15E-04
4.37E+03	1.27E-04
5.53E+03	2.93E-05
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

Irradiator sources

PASQUILL CATEGORY D
VEHICLE Delivery

BACKYARD FARMER DOSE - EFFECTIVE
MAXIMUM INDIVIDUAL CONSEQUENCE (REM)

CNTR LINE	SEVER: 1
3.60E+01	6.31E+01
7.70E+01	1.90E+01
1.18E+02	7.19E+00
2.61E+02	1.49E+00
3.87E+02	5.02E-01
6.33E+02	1.64E-01
1.08E+03	4.86E-02
1.73E+03	1.45E-02
2.40E+03	4.97E-03
4.37E+03	1.23E-03
5.53E+03	2.82E-04
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

BACKYARD FARMER DOSE - THYROID
MAXIMUM INDIVIDUAL CONSEQUENCE (REM)

CNTR LINE	SEVER: 1
3.60E+01	1.80E+01
7.70E+01	5.42E+00
1.18E+02	2.04E+00
2.61E+02	4.23E-01
3.87E+02	1.43E-01
6.33E+02	4.67E-02
1.08E+03	1.38E-02
1.73E+03	4.13E-03
2.40E+03	1.41E-03
4.37E+03	3.49E-04
5.53E+03	8.03E-05
1.15E+04	0.00E+00
1.37E+04	0.00E+00
2.11E+04	0.00E+00
3.92E+04	0.00E+00
6.56E+04	0.00E+00
8.12E+04	0.00E+00
1.06E+05	0.00E+00

Irradiator sources

INCIDENT-FREE SUMMARY
******** **** *******

IN-TRANSIT POPULATION EXPOSURE IN PERSON-REM
*INPUT DATA WERE ALTERED WITH REGULATORY CHECKS

	PASSENGER	CREW	OFF LINK	ON LINK	TOTALS
LINK_1	0.00E+00	1.01E-03	2.53E-04	5.04E-02	5.17E-02
RURAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUBURB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
URBAN	0.00E+00	1.01E-03	2.53E-04	5.04E-02	5.17E-02
TOTALS:	0.00E+00	1.01E-03	2.53E-04	5.04E-02	5.17E-02

MAXIMUM INDIVIDUAL IN-TRANSIT DOSE

Delivery 3.72E-05 REM

Irradiator sources

INCIDENT-FREE IMPORTANCE ANALYSIS SUMMARY
ESTIMATES THE PERSON-REM INFLUENCE OF A ONE PERCENT INCREASE IN THE PARAMETER

LINK	PARAMETER	IMPORTANCE	CHANGE
LINK_1			
	DISTANCE TRAVELED	5.171E-04	1.0000 %
	NUMBER OF SHIPMENTS	5.171E-04	1.0000 %
	DOSE RATE FOR VEHICLE (TI)	5.171E-04	1.0000 %
	K ZERO FOR VEHICLE	5.070E-04	0.9805 %
	NUMBER OF PEOPLE PER VEHICLE	5.045E-04	0.9756 %
	TRAFFIC COUNT	5.045E-04	0.9756 %
	CREW DOSE ADJUSTMENT FACTOR	1.008E-05	0.0195 %
	K ZERO FOR CREW DOSE	1.008E-05	0.0195 %
	NUMBER OF CREW MEMBERS	1.008E-05	0.0195 %
	POPULATION DENSITY	2.534E-06	0.0049 %
	SHIELDING FACTOR (RR,RS,RU)	2.534E-06	0.0049 %
	NUMBER OF FLIGHT ATTENDANTS	0.000E+00	0.0000 %
	RATIO OF PEDESTRIAN DENSITY (RPD	0.000E+00	0.0000 %
	DIST DEP RAIL WORKR EXPOSR FACTR	0.000E+00	0.0000 %
	DISTANCE FROM PACKAGE TO CREW	-2.240E-06	- 0.0043 %
	VELOCITY	-1.022E-03	- 1.9756 %

Irradiator sources

ACCIDENT SUMMARY
******** *******

NUMBER OF EXPECTED ACCIDENTS

CATEGORY	LINK_1
1	6.00E+00

NUMBER OF EARLY FATALITIES FROM INHALATION

CATEGORY	LINK_1
1	0.00E+00

Irradiator sources

RADIOLOGICAL CONSEQUENCES
50 YEAR POPULATION DOSE IN PERSON-REM

CATEGORY	LINK_1
1	1.53E+03

NUMBER OF EARLY MORBIDITY CASES FROM INHALATION

CATEGORY	LINK_1
1	0.00E+00

MAXIMUM RISK FOR INDIVIDUAL IN NEAREST ISOPLETH (DOSE IN REM)
FROM INHALATION, CLOUDSHINE, AND GROUNDSHINE EXPOSURE DURING
EVACUATION

CATEGORY	LINK_1
1	3.93E+01

RADIOLOGICAL CONSEQUENCES IN PERSON REM
50 YEAR SOCIETAL INGESTION DOSE - EFFECTIVE

LINK SEVER: 1

Irradiator sources

EXPECTED VALUES OF POPULATION RISK IN PERSON-REM

	GROUND	INHALED	RESUSPD	CLOUDSH	TOTAL
LINK_1	9.13E+03	3.90E+01	2.48E-03	1.49E+00	9.17E+03
RURAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUBURB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
URBAN	9.13E+03	3.90E+01	2.48E-03	1.49E+00	9.17E+03
TOTALS:	9.13E+03	3.90E+01	2.48E-03	1.49E+00	9.17E+03

Irradiator sources

SOCIETAL INGESTION RISK - PERSON-REM

LINK	GONADS	EFFECTIVE
TOTAL	0.00E+00	0.00E+00

SOCIETAL INGESTION RISK BY ORGAN - PERSON-REM

LINK	BREAST	LUNGS	RED MARR	BONE SUR	THYROID	REMAINDER
TOTAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

EXPECTED RISK VALUES - OTHER

LINK	EARLY FATALITY	EARLY MORBIDITY
LINK_1	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00

Irradiator sources

TOTAL EXPOSED POPULATION: INCIDENT-FREE

LINK_1 2.80E+03 PERSONS

TOTAL 2.80E+03 PERSONS

PASQUILL CATEGORY A
TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

LINK_1 0.00E+00 PERSONS

Irradiator sources

PASQUILL CATEGORY B
TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

LINK_1 0.00E+00 PERSONS

PASQUILL CATEGORY C
TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

LINK_1 0.00E+00 PERSONS

PASQUILL CATEGORY D
TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

LINK_1 7.52E+03 PERSONS

Irradiator sources

PASQUILL CATEGORY E
TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

LINK_1 0.00E+00 PERSONS

PASQUILL CATEGORY F
TOTAL EXPOSED POPULATION: ACCIDENT
(PERSONS UNDER PLUME FOOTPRINT FOR A SINGLE ACCIDENT)

LINK_1 0.00E+00 PERSONS

Irradiator sources

LINK: LINK_1 EXPECTED VALUES OF POPULATION RISK IN PERSON-REM

MATERIAL	ISOTOPE	GROUND	INHALATN	RESUSP	CLOUDSH	TOTAL
Co60	CO60	9.13E+03	3.90E+01	2.48E-03	1.49E+00	9.17E+03
					TOTAL:	9.17E+03

EOI
END OF RUN
SUCCESSFUL COMPLETION