C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

G E N E R A L D A T A

Non-Radon Population Assessment
Nov 21, 2010 01:26 pm

Facility: Kingsville Dome
Address:
City: Kingsville
State: TX Zip: 78363

Source Category: Rn-222
Source Type: Area
Emission Year: 2010

Comments: NA
NA

Dataset Name: Kingsville
Dataset Date: 11/21/2010 1:15:00 PM
Wind File: C:\Documents and Settings\Administrator.SC&A_MCLEAN.000\Desktop\TEXAS.WND
Population File: C:\Program Files\CAP88-PC30\Popfiles\Kingsville Dome newer.pop

VALUES FOR RADIONUCLIDE-DEPENDENT PARAMETERS

Nuclide	Clearance Type	Particle Size (microns)	Scavenging Coefficient (per second)	Dry Deposition Velocity (m/s)
Rn-222	G	0	0.00E+00	0.00E+00
Po-218	M	1	1.00E-05	1.80E-03
Pb-214	M	1	1.00E-05	1.80E-03
Bi-214	M	1	1.00E-05	1.80E-03
Po-214	M	1	1.00E-05	1.80E-03
Pb-210	M	1	1.00E-05	1.80E-03
Bi-210	M	1	1.00E-05	1.80E-03
Po-210	M	1	1.00E-05	1.80E-03
At-218	M	1	1.00E-05	1.80E-03

VALUES FOR RADIONUCLIDE-DEPENDENT PARAMETERS

	DECAY CONSTANT (PER DAY)			TRANSFER COEFFICIENT	
Nuclide	Radio-active (1)	Surface	Water	Milk (2)	Meat (3)
Rn-222	1.81E-01	5.48E-05	0.00E+00	0.00E+00	0.00E+00
Po-218	3.27E+02	5.48E-05	0.00E+00	4.00E-04	5.00E-03
Pb-214	3.72E+01	5.48E-05	0.00E+00	3.00E-04	8.00E-04
Bi-214	5.02E+01	5.48E-05	0.00E+00	1.00E-03	2.00E-03
Po-214	3.64E+08	5.48E-05	0.00E+00	4.00E-04	5.00E-03
Pb-210	8.51E-05	5.48E-05	0.00E+00	3.00E-04	8.00E-04
Bi-210	1.38E-01	5.48E-05	0.00E+00	1.00E-03	2.00E-03
Po-210	5.01E-03	5.48E-05	0.00E+00	4.00E-04	5.00E-03
At-218	2.99E+04	5.48E-05	0.00E+00	1.00E-02	1.00E-02

FOOTNOTES:

(1) Fraction of animal's daily intake of nuclide which appears in each L of milk (days/L)

(2) Fraction of animal's daily intake of nuclide which appears in each kg of meat (days/kg)

VALUES FOR RADIONUCLIDE-DEPENDENT PARAMETERS

	CONCENTRATION UPTAKE FACTOR		GI UPTAKE FRACTION	
Nuclide	Forage (1)	Edible (2)	Inhalation	Ingestion
Rn-222	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Po-218	1.00E-01	1.00E-03	1.00E-01	1.00E-01
Pb-214	1.00E-01	4.00E-03	2.00E-01	2.00E-01
Bi-214	5.00E-01	1.00E-01	5.00E-02	5.00E-02
Po-214	1.00E-01	1.00E-03	1.00E-01	1.00E-01
Pb-210	1.00E-01	4.00E-03	2.00E-01	2.00E-01
Bi-210	5.00E-01	1.00E-01	5.00E-02	5.00E-02
Po-210	1.00E-01	1.00E-03	1.00E-01	1.00E-01
At-218	9.00E-01	2.00E-01	1.00E+00	1.00E+00

FOOTNOTES: (1) Concentration factor for uptake of nuclide from soil for pasture and forage (in pCi/kg dry weight per pCi/kg dry soil)

(2) Concentration factor for uptake of nuclide from soil by edible parts of crops (in pCi/kg wet weight per pCi/kg dry soil)

DECAY CHAIN ACTIVITIES

Nuclide	Stack	Activity at 500. seconds	Activity at 100.00 years
Rn-222	1	9.9900E-01	1.3750E-02
Po-218	1	8.4890E-01	1.3760E-02
Pb-214	1	1.0960E-01	1.3820E-02
Bi-214	1	1.1430E-02	1.3880E-02
Po-214	1	1.1430E-02	1.3870E-02
Pb-210	1	1.5670E-09	2.0790E-04
Bi-210	1	0.0000E+00	1.9880E-04
Po-210	1	0.0000E+00	7.1980E-05
At-218	1	1.6940E-04	2.7460E-06

NUMBER OF BEEF CATTLE

Direction	Distance (meters) 500	1500	2500	3500	4500	7500	15000
N	4	11	19	26	34	280	1119
NNW	4	11	19	26	34	280	1119
NW	4	11	19	26	34	280	1119
WNW	4	11	19	26	34	280	1119
W	4	11	19	26	34	280	1119
WSW	4	11	19	26	34	280	1119
SW	4	11	19	26	34	280	1119
SSW	4	11	19	26	34	280	1119
S	4	11	19	26	34	280	1119
SSE	4	11	19	26	34	280	1119
SE	4	11	19	26	34	280	1119
ESE	4	11	19	26	34	280	1119
E	4	11	19	26	34	280	1119
ENE	4	11	19	26	34	280	1119
NE	4	11	19	26	34	280	1119
NNE	4	11	19	26	34	280	1119

Direction	Distance (meters) 25000	35000	45000	55000	65000	75000
N	1865	2611	3358	4104	4850	5596
NNW	1865	2611	3358	4104	4850	5596
NW	1865	2611	3358	4104	4850	5596
WNW	1865	2611	3358	4104	4850	5596
W	1865	2611	3358	4104	4850	5596
WSW	1865	2611	3358	4104	4850	5596
SW	1865	2611	3358	4104	4850	5596
SSW	1865	2611	3358	4104	4850	5596
S	1865	2611	3358	4104	4850	5596
SSE	1865	2611	3358	4104	4850	5596
SE	1865	2611	3358	4104	4850	5596

ESE	1865	2611	3358	4104	4850	5596
E	1865	2611	3358	4104	4850	5596
ENE	1865	2611	3358	4104	4850	5596
NE	1865	2611	3358	4104	4850	5596
NNE	1865	2611	3358	4104	4850	5596

NUMBER OF MILK CATTLE

Direction	Distance (meters) 500	1500	2500	3500	4500	7500	15000
N	0	0	1	1	1	8	31
NNW	0	0	1	1	1	8	31
NW	0	0	1	1	1	8	31
WNW	0	0	1	1	1	8	31
W	0	0	1	1	1	8	31
WSW	0	0	1	1	1	8	31
SW	0	0	1	1	1	8	31
SSW	0	0	1	1	1	8	31
S	0	0	1	1	1	8	31
SSE	0	0	1	1	1	8	31
SE	0	0	1	1	1	8	31
ESE	0	0	1	1	1	8	31
E	0	0	1	1	1	8	31
ENE	0	0	1	1	1	8	31
NE	0	0	1	1	1	8	31
NNE	0	0	1	1	1	8	31

Direction	Distance (meters) 25000	35000	45000	55000	65000	75000
N	52	73	94	114	135	156
NNW	52	73	94	114	135	156
NW	52	73	94	114	135	156
WNW	52	73	94	114	135	156
W	52	73	94	114	135	156
WSW	52	73	94	114	135	156
SW	52	73	94	114	135	156
SSW	52	73	94	114	135	156
S	52	73	94	114	135	156
SSE	52	73	94	114	135	156
SE	52	73	94	114	135	156

ESE	52	73	94	114	135	156
E	52	73	94	114	135	156
ENE	52	73	94	114	135	156
NE	52	73	94	114	135	156
NNE	52	73	94	114	135	156

AREA OF VEGETABLE CROP PRODUCTION (M**2)

Direction	Distance (meters) 500	1500	2500	3500	4500	7500	15000
N	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
NNW	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
NW	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
WNW	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
W	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
WSW	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
SW	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
SSW	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
S	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
SSE	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
SE	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
ESE	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
E	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
ENE	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
NE	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05
NNE	1.1E+03	3.4E+03	5.7E+03	7.9E+03	1.0E+04	8.5E+04	3.4E+05

Direction	Distance (meters) 25000	35000	45000	55000	65000	75000
N	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
NNW	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
NW	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
WNW	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
W	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
WSW	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
SW	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
SSW	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
S	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
SSE	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
SE	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06

ESE	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
E	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
ENE	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
NE	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06
NNE	5.7E+05	7.9E+05	1.0E+06	1.2E+06	1.5E+06	1.7E+06

VALUES FOR RADIONUCLIDE-INDEPENDENT PARAMETERS

HUMAN INHALATION RATE	
Cubic centimeters/hr	9.17E+05
SOIL PARAMETERS	
Effective surface density (kg/sq m, dry weight) (Assumes 15 cm plow layer)	2.15E+02
BUILDUP TIMES	
For activity in soil (years)	1.00E+02
For radionuclides deposited on ground/water (days)	3.65E+02
DELAY TIMES	
Ingestion of pasture grass by animals (hr)	0.00E+00
Ingestion of stored feed by animals (hr)	2.16E+03
Ingestion of leafy vegetables by man (hr)	3.36E+02
Ingestion of produce by man (hr)	3.36E+02
Transport time from animal feed-milk-man (day)	2.00E+00
Time from slaughter to consumption (day)	2.00E+01
WEATHERING	
Removal rate constant for physical loss (per hr)	2.90E-03
CROP EXPOSURE DURATION	
Pasture grass (hr)	7.20E+02
Crops/leafy vegetables (hr)	1.44E+03
AGRICULTURAL PRODUCTIVITY	
Grass-cow-milk-man pathway (kg/sq m)	2.80E-01
Produce/leafy veg for human consumption (kg/sq m)	7.16E-01
FALLOUT INTERCEPTION FRACTIONS	
Vegetables	2.00E-01
Pasture	5.70E-01
GRAZING PARAMETERS	
Fraction of year animals graze on pasture	4.00E-01
Fraction of daily feed that is pasture grass when animal grazes on pasture	4.30E-01

VALUES FOR RADIONUCLIDE-INDEPENDENT PARAMETERS

ANIMAL FEED CONSUMPTION FACTORS

Contaminated feed/forage (kg/day, dry weight)	1.56E+01

DAIRY PRODUCTIVITY

Milk production of cow (L/day)	1.10E+01

MEAT ANIMAL SLAUGHTER PARAMETERS

Muscle mass of animal at slaughter (kg)	2.00E+02
Fraction of herd slaughtered (per day)	3.81E-03

DECONTAMINATION

Fraction of radioactivity retained after washing for leafy vegetables and produce	5.00E-01

FRACTIONS GROWN IN GARDEN OF INTEREST

Produce ingested	1.00E+00
Leafy vegetables ingested	1.00E+00

INGESTION RATIOS:

IMMEDIATE SURROUNDING AREA/TOTAL WITHIN AREA

Vegetables	7.00E-01
Meat	4.40E-01
Milk	4.00E-01

MINIMUM INGESTION FRACTIONS FROM OUTSIDE AREA
(Actual fractions of food types from outside area can be greater than the minimum fractions listed below.)

Vegetables	0.00E+00
Meat	0.00E+00
Milk	0.00E+00

HUMAN FOOD UTILIZATION FACTORS

Produce ingestion (kg/y)	1.76E+02
Milk ingestion (L/y)	1.12E+02
Meat ingestion (kg/y)	8.50E+01
Leafy vegetable ingestion (kg/y)	1.80E+01

SWIMMING PARAMETERS

Fraction of time spent swimming	0.00E+00
Dilution factor for water (cm)	1.00E+00