C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

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

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem/y)	Collective Population (person-rem/y)
Adrenals	2.49E-03	1.27E-02
B Surfac	5.47E-03	3.20E-02
Breasts	2.92E-03	1.49E-02
St Wall	2.69E-03	1.37E-02
ULI Wall	2.68E-03	1.37E-02
Kidneys	3.00E-03	1.62E-02
Lungs	3.31E-03	1.63E-02
Ovaries	2.61E-03	1.33E-02
R Marrow	3.02E-03	1.59E-02
Spleen	2.90E-03	1.55E-02
Thymus	2.67E-03	1.36E-02
Uterus	2.62E-03	1.34E-02
Bld Wall	2.78E-03	1.42E-02
Brain	2.67E-03	1.36E-02
Esophagu	3.10E-03	1.50E-02
SI Wall	2.65E-03	1.36E-02
LLI Wall	2.74E-03	1.40E-02
Liver	2.83E-03	1.49E-02
Muscle	3.03E-03	1.55E-02
Pancreas	2.53E-03	1.29E-02
Skin	1.66E-02	8.50E-02
Testes	3.03E-03	1.55E-02
Thyroid	2.77E-03	1.42E-02
EFFEC	5.45E-03	2.88E-02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem/y)	Collective Population (person-rem/y)
INGESTION	9.67E-04	7.86E-03
INHALATION	1.52E-03	5.82E-03
AIR IMMERSION	7.42E-06	2.87E-05
GROUND SURFACE	2.96E-03	1.51E-02

INTERNAL	2.49E-03	1.37E-02
EXTERNAL	2.97E-03	1.51E-02
TOTAL	5.45E-03	2.88E-02

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclides	Selected Individual (mrem/y)	Collective Population (person-rem/y)
Rn-222	8.44E-08	6.52E-07
Po-218	1.64E-08	8.20E-08
Pb-214	1.79E-03	7.40E-03
Bi-214	2.69E-03	1.36E-02
Po-214	1.39E-07	7.12E-07
Pb-210	8.64E-04	6.95E-03
Bi-210	1.64E-06	1.04E-05
Po-210	1.02E-04	9.08E-04
At-218	1.33E-09	6.73E-09
TOTAL	5.45E-03	2.88E-02

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
Esophagu	3.06E-11	2.13E-09
Stomach	1.21E-10	8.46E-09
Colon	3.20E-10	2.28E-08
Liver	1.19E-10	1.10E-08
LUNG	1.32E-09	7.15E-08
Bone	3.76E-11	3.77E-09
Skin	1.69E-11	1.13E-09
Breast	1.48E-10	1.00E-08
Ovary	4.02E-11	2.78E-09
Bladder	7.27E-11	5.03E-09
Kidneys	6.54E-11	6.34E-09
Thyroid	9.78E-12	6.84E-10
Leukemia	1.78E-10	1.25E-08
Residual	4.44E-10	3.11E-08
Total	2.92E-09	1.89E-07

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
INGESTION	3.27E-10	3.45E-08
INHALATION	1.02E-09	5.04E-08
AIR IMMERSION	4.00E-12	2.01E-10
GROUND SURFACE	1.57E-09	1.04E-07
INTERNAL	1.34E-09	8.49E-08
EXTERNAL	1.58E-09	1.04E-07
TOTAL	2.92E-09	1.89E-07

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
Rn-222	4.59E-14	4.59E-12
Po-218	8.98E-15	5.83E-13
Pb-214	1.16E-09	6.15E-08
Bi-214	1.43E-09	9.31E-08
Po-214	7.65E-14	5.06E-12
Pb-210	2.87E-10	2.99E-08
Bi-210	1.22E-12	1.20E-10
Po-210	3.91E-11	4.50E-09
At-218	6.32E-16	4.13E-14
TOTAL	2.92E-09	1.89E-07

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Direction	Distance (m) 500	1500	2500	3500	4500	7500	15000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.9E-04	3.0E-04
NNW	0.0E+00	0.0E+00	5.5E-03	0.0E+00	0.0E+00	1.0E-03	3.9E-04
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-03	4.3E-04
WNW	0.0E+00	0.0E+00	0.0E+00	2.9E-03	2.0E-03	9.2E-04	3.4E-04
W	0.0E+00	0.0E+00	0.0E+00	2.9E-03	2.0E-03	8.9E-04	3.3E-04
WSW	0.0E+00	0.0E+00	2.2E-03	0.0E+00	0.0E+00	4.0E-04	1.5E-04
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.2E-04	0.0E+00	0.0E+00
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.6E-04	2.1E-04
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.3E-04	3.1E-04
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.1E-04	1.9E-04
SE	0.0E+00	0.0E+00	1.6E-03	0.0E+00	0.0E+00	2.8E-04	1.1E-04
ESE	0.0E+00	0.0E+00	8.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.8E-05

Direction	Distance (m) 25000	35000	45000	55000	65000	75000
N	1.3E-04	8.5E-05	6.0E-05	4.4E-05	2.9E-05	2.4E-05
NNW	1.7E-04	1.1E-04	7.7E-05	5.5E-05	3.6E-05	3.0E-05
NW	0.0E+00	1.2E-04	8.3E-05	5.9E-05	3.8E-05	3.2E-05
WNW	0.0E+00	9.2E-05	6.5E-05	4.6E-05	3.1E-05	2.6E-05
W	0.0E+00	8.3E-05	5.8E-05	4.1E-05	2.6E-05	2.2E-05
WSW	0.0E+00	4.1E-05	2.9E-05	2.2E-05	1.5E-05	1.3E-05
SW	6.3E-05	4.2E-05	3.0E-05	2.3E-05	1.7E-05	1.4E-05
SSW	9.4E-05	6.1E-05	4.4E-05	0.0E+00	2.3E-05	2.0E-05
S	1.3E-04	8.4E-05	0.0E+00	4.3E-05	2.9E-05	2.4E-05
SSE	8.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	1.5E-05	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	1.5E-05	1.2E-05	9.6E-06	7.6E-06	7.1E-06
NE	2.1E-05	1.5E-05	1.2E-05	9.9E-06	8.3E-06	7.7E-06
NNE	3.3E-05	2.3E-05	1.8E-05	1.4E-05	1.1E-05	9.9E-06

COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	500	1500	2500	3500	4500	7500	15000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-05	1.2E-03
NNW	0.0E+00	0.0E+00	3.8E-05	0.0E+00	0.0E+00	7.6E-05	3.1E-03
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.1E-04	7.9E-03
WNW	0.0E+00	0.0E+00	0.0E+00	2.7E-04	6.0E-05	3.4E-04	9.1E-05
W	0.0E+00	0.0E+00	0.0E+00	1.1E-04	5.3E-05	6.0E-04	1.3E-04
WSW	0.0E+00	0.0E+00	1.5E-04	0.0E+00	0.0E+00	1.9E-04	4.3E-05
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-04	0.0E+00	0.0E+00
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-04	1.1E-04
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-05	7.7E-05
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-05	3.6E-05
SE	0.0E+00	0.0E+00	4.7E-06	0.0E+00	0.0E+00	2.5E-05	4.2E-05
ESE	0.0E+00	0.0E+00	7.1E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-06

	Distance (m)					
Direction	25000	35000	45000	55000	65000	75000
N	1.5E-04	1.1E-04	1.3E-04	1.7E-04	7.1E-05	2.2E-04
NNW	2.1E-05	6.7E-05	1.4E-03	9.6E-05	3.9E-05	5.5E-06
NW	0.0E+00	7.7E-05	2.0E-03	4.1E-03	4.3E-05	1.7E-06
WNW	0.0E+00	2.4E-06	3.0E-05	1.2E-05	6.3E-05	3.2E-06
W	0.0E+00	2.1E-04	2.9E-05	7.7E-06	7.9E-06	6.0E-06
WSW	0.0E+00	7.0E-05	1.8E-04	2.1E-06	4.0E-07	2.9E-07
SW	1.6E-06	2.6E-05	2.0E-06	1.8E-07	2.6E-06	3.4E-06
SSW	7.5E-06	3.7E-07	1.7E-07	0.0E+00	4.0E-06	1.6E-07
S	1.9E-05	4.2E-07	0.0E+00	2.2E-06	1.5E-07	7.3E-07
SSE	2.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	9.0E-08	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	1.2E-06	2.4E-05	2.8E-04	2.3E-06	1.3E-06
NE	5.7E-06	4.4E-06	7.2E-04	1.6E-03	1.2E-04	1.2E-04
NNE	1.1E-05	2.3E-05	3.3E-04	3.5E-04	5.0E-05	1.4E-04

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

Direction	Distance (m) 500	1500	2500	3500	4500	7500	15000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-10	1.6E-10
NNW	0.0E+00	0.0E+00	2.9E-09	0.0E+00	0.0E+00	5.5E-10	2.1E-10
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.0E-10	2.3E-10
WNW	0.0E+00	0.0E+00	0.0E+00	1.6E-09	1.1E-09	4.9E-10	1.8E-10
W	0.0E+00	0.0E+00	0.0E+00	1.5E-09	1.0E-09	4.7E-10	1.7E-10
WSW	0.0E+00	0.0E+00	1.2E-09	0.0E+00	0.0E+00	2.1E-10	7.8E-11
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-10	0.0E+00	0.0E+00
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-10	1.1E-10
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.4E-10	1.6E-10
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-10	1.0E-10
SE	0.0E+00	0.0E+00	8.4E-10	0.0E+00	0.0E+00	1.5E-10	5.5E-11
ESE	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-11

Direction	Distance (m) 25000	35000	45000	55000	65000	75000
N	6.8E-11	4.4E-11	3.0E-11	2.2E-11	1.4E-11	1.2E-11
NNW	8.8E-11	5.6E-11	3.9E-11	2.8E-11	1.8E-11	1.4E-11
NW	0.0E+00	6.1E-11	4.2E-11	3.0E-11	1.9E-11	1.5E-11
WNW	0.0E+00	4.7E-11	3.3E-11	2.3E-11	1.5E-11	1.2E-11
W	0.0E+00	4.3E-11	2.9E-11	2.0E-11	1.2E-11	1.0E-11
WSW	0.0E+00	2.0E-11	1.4E-11	1.0E-11	6.9E-12	5.9E-12
SW	3.2E-11	2.1E-11	1.5E-11	1.1E-11	7.5E-12	6.3E-12
SSW	4.8E-11	3.1E-11	2.2E-11	0.0E+00	1.1E-11	9.1E-12
S	6.8E-11	4.3E-11	0.0E+00	2.1E-11	1.4E-11	1.2E-11
SSE	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	6.9E-12	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	7.0E-12	5.2E-12	4.0E-12	3.0E-12	2.7E-12
NE	9.7E-12	6.8E-12	5.2E-12	4.1E-12	3.3E-12	3.0E-12
NNE	1.6E-11	1.1E-11	8.1E-12	6.2E-12	4.7E-12	4.1E-12

COLLECTIVE FATAL CANCER RATE (deaths/y)
(All Radionuclides and Pathways)

Direction	Distance (m) 500	1500	2500	3500	4500	7500	15000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-10	7.8E-09
NNW	0.0E+00	0.0E+00	2.6E-10	0.0E+00	0.0E+00	5.2E-10	2.1E-08
NW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-09	5.4E-08
WNW	0.0E+00	0.0E+00	0.0E+00	1.9E-09	4.2E-10	2.3E-09	6.2E-10
W	0.0E+00	0.0E+00	0.0E+00	7.8E-10	3.7E-10	4.1E-09	9.1E-10
WSW	0.0E+00	0.0E+00	1.0E-09	0.0E+00	0.0E+00	1.3E-09	2.9E-10
SW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.7E-10	0.0E+00	0.0E+00
SSW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.2E-10	7.4E-10
S	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-10	5.2E-10
SSE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-10	2.4E-10
SE	0.0E+00	0.0E+00	3.3E-11	0.0E+00	0.0E+00	1.7E-10	2.8E-10
ESE	0.0E+00	0.0E+00	4.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-12

Direction	Distance (m) 25000	35000	45000	55000	65000	75000
N	1.0E-09	7.0E-10	8.6E-10	1.1E-09	4.4E-10	1.3E-09
NNW	1.4E-10	4.5E-10	9.5E-09	6.2E-10	2.5E-10	3.4E-11
NW	0.0E+00	5.1E-10	1.3E-08	2.7E-08	2.7E-10	1.0E-11
WNW	0.0E+00	1.6E-11	2.0E-10	7.8E-11	3.9E-10	2.0E-11
W	0.0E+00	1.4E-09	1.9E-10	4.9E-11	4.9E-11	3.6E-11
WSW	0.0E+00	4.5E-10	1.1E-09	1.3E-11	2.3E-12	1.7E-12
SW	1.0E-11	1.6E-10	1.3E-11	1.1E-12	1.6E-11	1.9E-11
SSW	5.0E-11	2.4E-12	1.1E-12	0.0E+00	2.4E-11	9.4E-13
S	1.3E-10	2.8E-12	0.0E+00	1.4E-11	9.0E-13	4.5E-12
SSE	1.6E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ESE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
E	0.0E+00	0.0E+00	5.3E-13	0.0E+00	0.0E+00	0.0E+00
ENE	0.0E+00	7.0E-12	1.4E-10	1.5E-09	1.2E-11	6.3E-12
NE	3.5E-11	2.6E-11	4.0E-09	8.5E-09	6.1E-10	5.8E-10
NNE	6.9E-11	1.4E-10	2.0E-09	2.0E-09	2.7E-10	7.7E-10