

APPENDIX 8.5
Johnson Ettinger Model Parameters
and Example Output

**TABLE 8.5.1
PARAMETERS USED IN DTSC SCREENING LEVEL SOIL GAS JOHNSON AND ETTINGER MODEL
MISSION BAY LANDFILL
SEA WORLD DRIVE
SAN DIEGO, CALIFORNIA**

Parameter	Abbreviation (units)	J&E Model Default	Assumption Used
			Commercial Worker ⁵
Depth below grade to bottom of enclosed space floor ¹	L _F (cm)	15 or 200	15
Soil gas sampling depth below grade ²	L _s (cm)	100	107
Average soil temperature ³	T _s (°C)	24	24
Vadose zone SCS soil type ⁴	(soil type)	S	SI
Exposure duration ⁵	ED (years)	30	25
Exposure frequency ⁵	EF (days/year)	350	250

Notes:

DTSC/HERD Soil Gas Screening Model (EPA Version 2.0, 04/03); DTSC Interim Final 12/04; last modified 1/21/05

¹ Depth below grade to bottom of enclosed space floor was assumed to be slab-on-grade (15 cm)

² Soil gas sampling depth below grade based on average soil gas sampling depth of 3.5 feet (107 cm).

³ Average soil temperature is consistent with DTSC recommendations.

⁴ Vadose zone SCS soil type based on information provided in Review Draft Workplan for Mission Bay Landfill Site Assessment (SCS, 2004).

⁵ The default exposure factors in the J&E Model are based on a residential scenario, exposure factors adjusted to reflect commercial scenario

**TABLE 8.5.2
EMISSIONS OF VOCs FROM SOIL TO INDOOR AIR ¹ (J&E Model)
COMMERCIAL WORKER
MISSION BAY LANDFILL
SEA WORLD DRIVE
SAN DIEGO, CALIFORNIA**

Chemical	Initial Soil Gas Concentration, C _g	Cancer Risk from Vapor Intrusion	Non-Cancer Risk from Vapor Intrusion
	($\mu\text{g}/\text{m}^3$)		
1,2-Dichlorobenzene	2.19E+02	NA	3.53E-04
1,4-Dichlorobenzene	1.33E+03	1.69E-06	5.36E-04
2-Butanone (MEK)	3.09E+02	NA	2.08E-05
Acetone	1.04E+03	NA	1.17E-03
Bromodichloromethane	8.87E+01	3.12E-07	3.38E-04
Chlorobenzene	1.87E+02	NA	6.13E-05
Chlorodifluoromethane	6.46E+02	NA	4.68E-06
Chloroform	4.32E+02	2.99E-07	5.27E-04
Dichlorodifluoromethane	1.80E+03	NA	2.87E-03
Dichlorofluoromethane ²	4.43E+03	NA	7.09E-03
Ethylbenzene	1.91E+03	NA	6.29E-04
Trichloroethene	8.32E+01	1.99E-08	4.64E-05
Vinyl chloride	1.46E+02	1.49E-06	5.36E-04
Total Xylenes ³	6.22E+03	NA	2.06E-02

Notes:

- ¹ Results Based on DTSC Soil Gas Screening Level Johnson and Etinger Model - (SG-SCREEN) EPA Version 2.0; 04/03, DTSC Vapor Intrusion Guidance, Interim Final 12/04. Last modified 01/21/05.
- ² dichlorodifluoromethane used as a surrogate.
- ³ p-xylene used as a surrogate