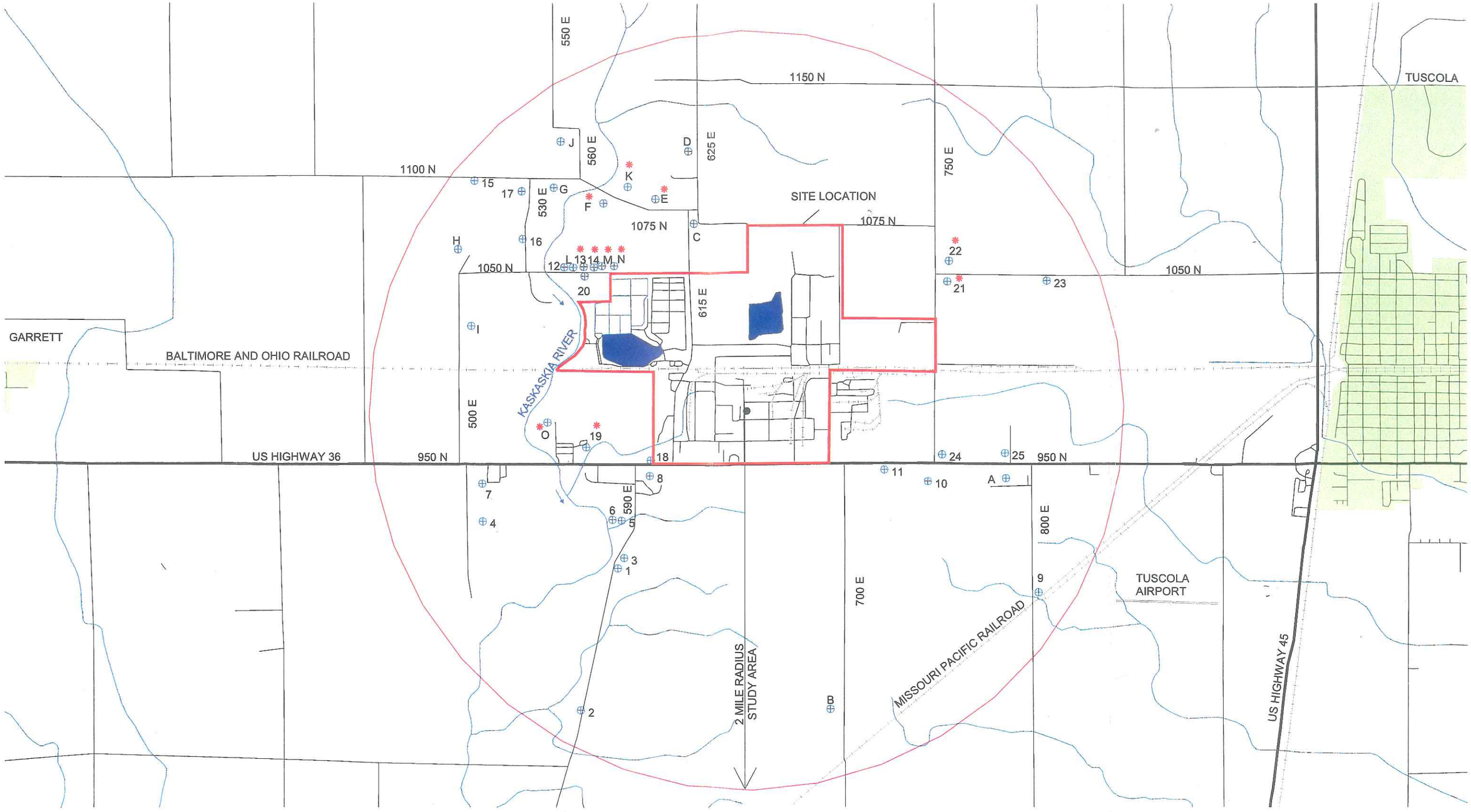
Appendix G

Appendix G

Water Well Search Results



Legend

Road
- US Highway
- State Highway
- County Road
- 2 Mile Radius
- Potable Water Well
- Water Sample Collected
- Rivers & Streams
- Lakes & Ponds
- Railroad
- Airport
- City Boundary
- Facility Boundary

Note:

Potable water wells are based on those tentatively identified in the field following review of available well records for the area.

All other data on map is from the 2000 Tiger Files produced by the United States Census Department.
Projection: Illinois State Plane East, NAD 83 Feet
1" = 1/2 Mile (2640 Feet)

IDENTIFIED POTABLE WATER WELLS WITHIN 2 MILES OF FACILITY

MILLENNIUM PETROCHEMICALS, INC.
DOUGLAS COUNTY, ILLINOIS

CHECKED BY: MMN	Clayton GROUP SERVICES
DRAWN BY: SRS	
DATE: 10/15/01	
SCALE: AS SHOWN	
DRAWING NO: POTABLE.APR	FIGURE 27
PROJECT NO. 15-00116	

TABLE 14A

Potable Water Supply Well Completion Details
Wells Located within a 2-Mile Radius of the Center of the Site
(Identified Prior to June 15, 2001 Draft EI Report)

ILD 005078126 -- Douglas County -- 0418080002
Millennium Petrochemicals, Inc. / Tuscola, Illinois

Well Listing #	Owner	Location (Twp-Rng-Sec)	Date Installed	Well Material	Depth of Well (ft bgs)	Screen Interval (ft bgs)	Hydro-Stratigraphic Unit	Well Construction Log (see Appendix E) Yes/No
1	Ralph G. Calloway	T15N-R7E-01	0-0-18	NA	75.0	NA	Glacial Drift	No
2	Gary Breen	T15N-R7E-01	05/07/93	NA	67.0	NA	Glacial Drift	Yes
3	Bob Henton	T15N-R7E-01	05/25/89	NA	113.0	NA	Glacial Drift	Yes
4	Pat Clifford	T15N-R7E-01	10/02/79	Plastic	82.0	78-82	Glacial Drift	Yes
5	Pandhandle East Pipline	T15N-R7E-01	11/01/39	NA	116.0	NA	Glacial Drift	No
6	Pandhandle East Pipline	T15N-R7E-01	12/01/39	NA	55.0	NA	Glacial Drift	No
7	Cathie Bishop	T15N-R7E-01	09/27/79	Plastic	85.0	81-85	Glacial Drift	Yes
8	Florance Moss	T15N-R7E-01	09/14/84	PVC	60.0	56-60	Glacial Drift	Yes
9	Julian Blagg	T15N-R8E-04	11/19/71	Concrete	78.0	74-78	Glacial Drift	Yes
10	Lloyd Rahn	T15N-R8E-05	1954	Black pipe	63.0	59-63	Glacial Drift	Yes
11	Lighting Supply	T15N-R8E-05	01/20/69	NA	97 (226)	NA	Glacial Drift	Yes
12	Don Cole	T16N-R7E-25	06/15/79	Plastic	67.0	63-67	Glacial Drift	Yes
13	John Most (Blaudau)	T16N-R7E-25	03/24/79	Steel	84.0	80-84	Glacial Drift	Yes
14	John Youder (Lewis)	T16N-R7E-25	04/11/77	Steel	75.0	71-75	Glacial Drift	Yes
15	Millard Lindsey	T16N-R7E-26	1964	Black pipe	82.0	78-82	Glacial Drift	Yes
16	Edwin Puttoss	T16N-R7E-26	09/27/79	Plastic	45.0	41-45	Glacial Drift	Yes
17	Adam Benner	T16N-R7E-26	07/23/91	NA	89.0	NA	Glacial Drift	Yes
18	Emelie Marsh	T16N-R7E-36	09/28/76	Steel	72.0	NA	Glacial Drift	Yes
19	Bache Memorial Chapel	T16N-R7E-36	05/25/72	Black Steel	68.0	64-68	Glacial Drift	Yes
20	Kaskaskia School	T16N-R7E-36	11/01/39	NA	55.0	NA	Glacial Drift	Yes
21	W.J. Buck (Patterson)	T16N-R8E-29	1953	Black pipe	93.0	89-93	Glacial Drift	Yes
22	Walter Buck (Wigall)	T16N-R8E-29	05/16/67	NA	97.0	NA	Glacial Drift	Yes
23	Link Morris/Meister Bros.	T16N-R8E-29	NA	NA	96.0	NA	Glacial Drift	Yes
24	Howard Mage	T16N-R8E-32	NA	NA	100.0	NA	Glacial Drift	No
25	P.Howe/Meister Bros.	T16N-R8E-32	NA	NA	94.0	NA	Glacial Drift	Yes

NOTES:

NA = Not Available
ft bgs = Feet below ground surface

TABLE 14B

Potable Water Supply Well Completion Details
Wells Located within a 2-Mile Radius of the Center of the Site
(Identified After June 15, 2001 Draft EI Report)

ILD 005078126 -- Douglas County -- 0418080002
Millennium Petrochemicals, Inc. / Tuscola, Illinois

Well Listing #	Owner	Location (Twp-Rng-Sec)	Date Installed	Well Material	Depth of Well (ft bgs)	Screen Interval (ft bgs)	Hydro-Stratigraphic Unit	Well Construction Log (see Appendix E) Yes/No
A	C.B. Jackson	T15N-R8E-05	1912	Brick / iron pipe	98	NA	Glacial Drift	No
B	H.L. Wallace	T15N-R8E-06	1910	Brick	60	NA	Glacial Drift	No
C	J.F. Romine	T16N-R7E-25	1898	NA	97	NA	Glacial Drift	No
D	Virgil B. Ross	T16N-R7E-25	NA	NA	30	NA	Glacial Drift	No
E	Leona Howe Joseph	T16N-R7E-25	1957	NA	93	NA	Glacial Drift	Yes
F	J.F. Romine (C. Benner)	T16N-R7E-25	1913	Brick	28 (180)	NA	Glacial Drift	No
G	J. Fred Romine	T16N-R7E-25	1907	Brick	28	NA	Glacial Drift	No
H	J.E. Romine	T16N-R7E-26	1897	Brick / wood	50	NA	Glacial Drift	No
I	J.F. Romine	T16N-R7E-35	1904	Iron pipe	113	NA	Glacial Drift	No
J	Ruth Benner	T16N-R7E-25	2001	Concrete	65	NA	Glacial Drift	No
K	Kenneth Benner	T16N-R7E-25	1977	NA	60	NA	Glacial Drift	No
L	Karl Cochenour	T16N-R7E-25	NA	NA	NA	NA	NA	No
M	John Gianesin	T16N-R7E-25	1976	NA	NA	NA	NA	No
N	Donald Walker	T16N-R7E-25	1977	NA	62	NA	Glacial Drift	No
O	Kevin Smothers	T16N-R7E-35	NA	NA	NA	NA	NA	No

NOTES:

NA = Not Available
ft bgs = Feet below ground surface

Appendix H

Appendix H

Comprehensive Soil Analytical Data Tables for AOCs
2003 and 2005 Data

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																
	Industrial / Commercial		*Construction Worker*		*Migration to Groundwater*	*Sample Location*	AG01	AG02	AG03	AG04	AG04	AG05	AG06	AG06 (dup)	AG07	AG08
	Ingestion	*Inhalation*	*Ingestion*	*Inhalation*	*Class II*	*Sample Date*	7/16/03	7/17/03	7/17/03	7/23/03	7/23/03	7/16/03	7/17/03	7/17/03	7/17/03	7/23/03
						Sample Depth (ft)	0-1	0-1	0-1	6-8	8-10	0-1	0-1	0-1	0-1	6-8
Analyte	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*Units*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
VOCs																
1,1,1-Trichloroethane	--	1200	--	1200	9.6		na	na	na	na	na	na	na	na	na	na
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		na	na	na	na	na	na	na	na	na	na
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethane	200000	1700	200000	130	110		na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethylene	18000	1500	1800	300	0.3		na	na	na	na	na	na	na	na	na	na
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		na	na	na	na	na	na	na	na	na	na
1,2-Dichloropropane	84	23	1800	5	0.15		na	na	na	na	na	na	na	na	na	na
2-Hexanone**	82000	110	8200	0.72	1.3		na	na	na	na	na	na	na	na	na	na
Acetone	200000	100000	200000	100000	16		na	na	na	na	na	na	na	na	na	na
Benzene	100	1.6	2300	2.2	0.17		na	na	na	na	na	na	na	na	na	na
Bromodichloromethane	92	3000	2000	3000	0.6		na	na	na	na	na	na	na	na	na	na
Bromoform	720	100	16000	140	0.8		na	na	na	na	na	na	na	na	na	na
Carbon disulfide	200000	720	20000	9	160		na	na	na	na	na	na	na	na	na	na
Carbon tetrachloride	44	0.64	410	0.9	0.33		na	na	na	na	na	na	na	na	na	na
Chlorobenzene	41000	210	4100	1.3	6.5		na	na	na	na	na	na	na	na	na	na
Chloroethane**	820000	1500	82000	94	70		na	na	na	na	na	na	na	na	na	na
Chloroform	940	0.54	2000	0.76	2.9		na	na	na	na	na	na	na	na	na	na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		na	na	na	na	na	na	na	na	na	na
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na
Dibromochloromethane	41000	1300	41000	1300	0.4		na	na	na	na	na	na	na	na	na	na
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
Ethylbenzene	200000	400	20000	58	19		na	na	na	na	na	na	na	na	na	na
m-Dichlorobenzene**	1800	570	180	570	1		na	na	na	na	na	na	na	na	na	na
Methyl bromide	2900	15	1000	3.9	1.2		na	na	na	na	na	na	na	na	na	na
Methyl chloride	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		na	na	na	na	na	na	na	na	na	na
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		na	na	na	na	na	na	na	na	na	na
Methylene chloride	760	24	1200	34	0.2		na	na	na	na	na	na	na	na	na	na
o-Dichlorobenzene	180000	560	18000	310	43		na	na	na	na	na	na	na	na	na	na
p-Dichlorobenzene	--	17000	--	340	11		na	na	na	na	na	na	na	na	na	na
Styrene	410000	1500	41000	430	18		na	na	na	na	na	na	na	na	na	na
Tetrachloroethylene	110	20	240	28	0.3		na	na	na	na	na	na	na	na	na	na
Toluene	410000	650	410000	42	29		na	na	na	na	na	na	na	na	na	na
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na
Trichloroethylene	520	8.9	1200	12	0.3		na	na	na	na	na	na	na	na	na	na
Vinyl Acetate	1000000	1600	200000	10	170		na	na	na	na	na	na	na	na	na	na
Vinyl chloride	7.9	1.1	170	1.1	0.07		na	na	na	na	na	na	na	na	na	na
Xylene (total)	1000000	320	410000	320	150		na	na	na	na	na	na	na	na	na	na
PAHs																
2-Methylnaphthalene**	8200	--	820	--	39		na	na	na	na	na	na	na	na	na	na
Acenaphthene	120000	--	120000	--	2900		na	na	na	na	na	na	na	na	na	na
Acenaphthylene	61000	--	61000	--	120		na	na	na	na	na	na	na	na	na	na
Anthracene	610000	--	610000	--	59000		na	na	na	na	na	na	na	na	na	na
Benzo(a)anthracene	8	--	170	--	8		na	na	na	na	na	na	na	na	na	na
Benzo(a)pyrene	0.8	--	17	--	82		na	na	na	na	na	na	na	na	na	na
Benzo(b)fluoranthene	8	--	170	--	25		na	na	na	na	na	na	na	na	na	na
Benzo(ghi)perylene**	61000	--	61000	--	160000		na	na	na	na	na	na	na	na	na	na
Benzo(k)fluoranthene	78	--	1700	--	250		na	na	na	na	na	na	na	na	na	na
Chrysene	780	--	17000	-	800		na	na	na	na	na	na	na	na	na	na
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		na	na	na	na	na	na	na	na	na	na
Fluoranthene	82000	--	82000	--	21000		na	na	na	na	na	na	na	na	na	na
Fluorene	82000	--	82000	--	2800		na	na	na	na	na	na	na	na	na	na
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		na	na	na	na	na	na	na	na	na	na
Naphthalene	41000	270	4100	1.8	18		na	na	na	na	na	na	na	na	na	na
Phenanthrene**	61000	--	61000	--	1100		na	na	na	na	na	na	na	na	na	na
Pyrene	61000	--	61000	--	21000		na	na	na	na	na	na	na	na	na	na
METALs																
Arsenic	11.3*	1200	61	25000	110-130		8.7	1 23	10	4	6.2	4.1	1 12	10	1.3 66	5.9
Vanadium	14000	--	1400	--	980		53	44	40	170	54	32	47	45	40	35
Percent moisture							18%	21%	18%	20%	21%	13%	17%	16%	30%	12%
pH (<2.0 or >12.5)							6.8	7	7.5	7.3	7.3	8.3	6.5	6.5	8.0	8

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives															
	Industrial / Commercial		Construction Worker		Migration to Groundwater											
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG01	AG02	AG03	AG04	AG04	AG05	AG06	AG06 (dup)	AG07	AG08
						Sample Date	7/16/03	7/17/03	7/17/03	7/23/03	7/23/03	7/16/03	7/17/03	7/17/03	7/17/03	7/23/03
						Sample Depth (ft)	0-1	0-1	0-1	6-8	8-10	0-1	0-1	0-1	0-1	6-8
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SVOCs																
1,2,4-Trichlorobenzene	20000	3200	2000	920	53		na	na	na	na	na	na	na	na	na	na
2,4,5-Trichlorophenol	200000	--	200000	--	1400		na	na	na	na	na	na	na	na	na	na
2,4,6-Trichlorophenol	520	390	11000	540	0.77		na	na	na	na	na	na	na	na	na	na
2,4-Dichlorophenol	6100	--	610	--	1		na	na	na	na	na	na	na	na	na	na
2,4-Dimethylphenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
2,4-Dinitrophenol	2000	--	410	--	0.2		na	na	na	na	na	na	na	na	na	na
2,4-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
2,6-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
2-Chloronaphthalene**	160000	--	16000	--	1200		na	na	na	na	na	na	na	na	na	na
2-Chlorophenol	10000	53000	10000	53000	20		na	na	na	na	na	na	na	na	na	na
3,3-Dichlorobenzidine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
4,6-Dinitro-o-cresol**	720	--	71	--			na	na	na	na	na	na	na	na	na	na
4-Bromophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
4-Chlorophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		na	na	na	na	na	na	na	na	na	na
Benzoic acid	1000000	--	820000	--	400		na	na	na	na	na	na	na	na	na	na
Benzyl alcohol**	610000	6900	200000	6900	9.4		na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethoxy)methane	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		na	na	na	na	na	na	na	na	na	na
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4		na	na	na	na	na	na	na	na	na	na
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000		na	na	na	na	na	na	na	na	na	na
Butyl benzyl phthalate	410000	930	410000	930	930		na	na	na	na	na	na	na	na	na	na
Dibenzofuran**	8200	--	820	--	76		na	na	na	na	na	na	na	na	na	na
Diethyl phthalate	1000000	2000	1000000	2000	470		na	na	na	na	na	na	na	na	na	na
Dimethyl phthalate**	1000000	1300	1000000	1300	380		na	na	na	na	na	na	na	na	na	na
Di-n-butyl phthalate	200000	2300	200000	2300	2300		na	na	na	na	na	na	na	na	na	na
Di-n-octyl phthalate	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
Hexachlorobenzene	4	1.8	78	2.6	11		na	na	na	na	na	na	na	na	na	na
Hexachlorobutadiene**	410	1000	41	180	15		na	na	na	na	na	na	na	na	na	na
Hexachlorocyclopentadiene	14000	16	14000	1.1	400		na	na	na	na	na	na	na	na	na	na
Hexachloroethane	2000	--	2000	--	2.6		na	na	na	na	na	na	na	na	na	na
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001		na	na	na	na	na	na	na	na	na	na
Isophorone	410000	4600	410000	4600	8		na	na	na	na	na	na	na	na	na	na
m-Nitroaniline**	--	120	--	7.5	--		na	na	na	na	na	na	na	na	na	na
Nitrobenzene	1000	140	1000	9.4	0.1		na	na	na	na	na	na	na	na	na	na
N-Nitrosodimethylamine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
N-Nitrosodiphenylamine	1200	--	25000	--	5.6		na	na	na	na	na	na	na	na	na	na
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		na	na	na	na	na	na	na	na	na	na
o-Cresol	100000	--	100000	--	15		na	na	na	na	na	na	na	na	na	na
o-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
o-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
p-Chloroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
p-Chloro-m-cresol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
PCP (pentachlorophenol)	24	--	520	--	0.14		na	na	na	na	na	na	na	na	na	na
Phenol	1000000	--	120000	--	100		na	na	na	na	na	na	na	na	na	na
p-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
p-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na
Inorganics																
Ammonia (as N)							0 U	0 U	0 U	3.3	0 U	0 U	0 U	0 U	0 U	0 U
Nitrogen							0.61 U	0.63 U	0.61 U	0 U	0 U	0.57 U	0.6 U	0.6 U	0.71 U	3.6
Sulfate***					400 (mg/L)		2.4 U	10000	14	12000	520	24	14000	13000	90	320
Phosphorus							17000	5200	2300	1200	330	2000	6100	7200	3500	260

Legend:
Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present
at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Sulfate soil concentrations in mg/kg not directly comparable to soil to groundwater RO (mg/L).

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier I Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																				
	Industrial / Commercial		Construction Worker		Migration to Groundwater																
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG08	AG09	AG10	AG10D	AG10D	AG11	AG11	AG12	AG12	AG13	AG14	AG15	AG16	AG17
						Sample Date	7/23/03	7/17/03	7/17/03	7/31/03	7/31/03	7/23/03	7/23/03	7/23/03	7/23/03	7/16/03	7/16/03	7/16/03	7/16/03	7/23/03
						Sample Depth (ft)	8-10	0-1	0-1	8-10	10-12	6-8	12-14	10-12	12-14	0-1	0-1	0-1	0-1	6-8
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Analyte																				
VOCs																				
1,1,1-Trichloroethane	--	1200	--	1200	9.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethane	200000	1700	200000	130	110		na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethylene	18000	1500	1800	300	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,2-Dichloropropane	84	23	1800	5	0.15		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Hexanone**	82000	110	8200	0.72	1.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acetone	200000	100000	200000	100000	16		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzene	100	1.6	2300	2.2	0.17		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bromodichloromethane	92	3000	2000	3000	0.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bromoform	720	100	16000	140	0.8		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Carbon disulfide	200000	720	20000	9	160		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Carbon tetrachloride	44	0.64	410	0.9	0.33		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chlorobenzene	41000	210	4100	1.3	6.5		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chloroethane**	820000	1500	82000	94	70		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chloroform	940	0.54	2000	0.76	2.9		na	na	na	na	na	na	na	na	na	na	na	na	na	na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		na	na	na	na	na	na	na	na	na	na	na	na	na	na
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibromochloromethane	41000	1300	41000	1300	0.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Ethylbenzene	200000	400	20000	58	19		na	na	na	na	na	na	na	na	na	na	na	na	na	na
m-Dichlorobenzene**	1800	570	180	570	1		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl bromide	2900	15	1000	3.9	1.2		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl chloride	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methylene chloride	760	24	1200	34	0.2		na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Dichlorobenzene	180000	560	18000	310	43		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Dichlorobenzene	--	17000	--	340	11		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Styrene	410000	1500	41000	430	18		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tetrachloroethylene	110	20	240	28	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Toluene	410000	650	410000	42	29		na	na	na	na	na	na	na	na	na	na	na	na	na	na
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trichloroethylene	520	8.9	1200	12	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vinyl Acetate	1000000	1600	200000	10	170		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vinyl chloride	7.9	1.1	170	1.1	0.07		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Xylene (total)	1000000	320	410000	320	150		na	na	na	na	na	na	na	na	na	na	na	na	na	na
PAHs																				
2-Methylnaphthalene**	8200	--	820	--	39		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthene	120000	--	120000	--	2900		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthylene	61000	--	61000	--	120		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Anthracene	610000	--	610000	--	59000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)anthracene	8	--	170	--	8		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)pyrene	0.8	--	17	--	82		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(b)fluoranthene	8	--	170	--	25		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(ghi)perylene**	61000	--	61000	--	160000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(k)fluoranthene	78	--	1700	--	250		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chrysene	780	--	17000	-	800		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluoranthene	82000	--	82000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluorene	82000	--	82000	--	2800		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Naphthalene	41000	270	4100	1.8	18		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenanthrene**	61000	--	61000	--	1100		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pyrene	61000	--	61000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
METALs																				
Arsenic	11.3*	1200	61	25000	110-130		3.9	17	63	6.6	10	4	3.6	3.7	7.7	6.9	26	7.9	11	4.3
Vanadium	14000	--	1400	--	980		41	44	18	21	28	44	23	20	38	37	33	33	31	33
Percent moisture							19%	21%	20%	20%	23%	19%	18%	10%	22%	13%	15%	15%	15%	22%
pH (<2.0 or >12.5)							7.6	7.3	8.1	7.3	8.1	7.6	7.6	8.0	8	8.1	7.8	8.3	8.4	7.6

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																				
	Industrial / Commercial		Construction Worker		Migration to Groundwater																
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG08	AG09	AG10	AG10D	AG10D	AG11	AG11	AG12	AG12	AG13	AG14	AG15	AG16	AG17
						Sample Date	7/23/03	7/17/03	7/17/03	7/31/03	7/31/03	7/23/03	7/23/03	7/23/03	7/23/03	7/16/03	7/16/03	7/16/03	7/16/03	7/23/03
						Sample Depth (ft)	8-10	0-1	0-1	8-10	10-12	6-8	12-14	10-12	12-14	0-1	0-1	0-1	0-1	6-8
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SVOCs																				
1,2,4-Trichlorobenzene	20000	3200	2000	920	53		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,5-Trichlorophenol	200000	--	200000	--	1400		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,6-Trichlorophenol	520	390	11000	540	0.77		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dichlorophenol	6100	--	610	--	1		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dimethylphenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrophenol	2000	--	410	--	0.2		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,6-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chloronaphthalene**	160000	--	16000	--	1200		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chlorophenol	10000	53000	10000	53000	20		na	na	na	na	na	na	na	na	na	na	na	na	na	na
3,3-Dichlorobenzidine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
4,6-Dinitro-o-cresol**	720	--	71	--			na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Bromophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Chlorophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzoic acid	1000000	--	820000	--	400		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzyl alcohol**	610000	6900	200000	6900	9.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethoxy)methane	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Butyl benzyl phthalate	410000	930	410000	930	930		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzofuran**	8200	--	820	--	76		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Diethyl phthalate	1000000	2000	1000000	2000	470		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dimethyl phthalate**	1000000	1300	1000000	1300	380		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-butyl phthalate	200000	2300	200000	2300	2300		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-octyl phthalate	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobenzene	4	1.8	78	2.6	11		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobutadiene**	410	1000	41	180	15		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorocyclopentadiene	14000	16	14000	1.1	400		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachloroethane	2000	--	2000	--	2.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Isophorone	410000	4600	410000	4600	8		na	na	na	na	na	na	na	na	na	na	na	na	na	na
m-Nitroaniline**	--	120	--	7.5	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nitrobenzene	1000	140	1000	9.4	0.1		na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodimethylamine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodiphenylamine	1200	--	25000	--	5.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Cresol	100000	--	100000	--	15		na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloro-m-cresol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCP (pentachlorophenol)	24	--	520	--	0.14		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenol	1000000	--	120000	--	100		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Inorganics																				
Ammonia (as N)							0 U	0 U	0 U	0 U	0 U	41	11	28	270	NA	0 U	0 U	0 U	8.5
Nitrogen							7.8	0.63 U	0.63 U	17	13	4.7	0 U	0 U	60	0.57 U	0.59 U	0.59 U	0.59 U	18
Sulfate***					400 (mg/L)		900	90	54	500	900	2900	870	230	200	32	59	21	48	1100
Phosphorus							220	6000	2700	260	230	2100	1400	210	240	370	3400	430	640	300

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present
at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Sulfate soil concentrations in mg/kg not directly comparable to soil to groundwater RO (mg/L).

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																						
	Industrial / Commercial		Construction Worker		Migration to Groundwater																		
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		AG17	AG17	AG17	AG18	AG18D	AG18D	AG18D	AG18DF	AG19	AG19	AG19	AG20	AG20 (dup)	AG21	AG22
						Sample Date		7/23/03	7/23/03	7/23/03	7/17/03	7/31/03	7/31/03	7/31/03	7/31/03	7/23/03	7/23/03	7/23/03	7/16/03	7/16/03	7/16/03	7/16/03
						Sample Depth (ft)		8-10	8-10	10-12	0-1	6-8	12-14	14-16	6-8	4-6	12-14	14-16	0-1	0-1	0-1	0-2
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs																						
1,1,1-Trichloroethane	--	1200	--	1200	9.6			na	na	na	na	0.00082 U	na	na	na	na	na	na	na	na	na	na
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3			na	na	na	na	0.00066 U	na	na	na	na	na	na	na	na	na	na
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3			na	na	na	na	0.00081 U	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethane	200000	1700	200000	130	110			na	na	na	na	0.00068 U	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethylene	18000	1500	1800	300	0.3			na	na	na	na	0.00078 U	na	na	na	na	na	na	na	na	na	na
1,2-Dichloroethane	63	0.7	1400	0.99	0.1			na	na	na	na	0.00096 U	na	na	na	na	na	na	na	na	na	na
1,2-Dichloropropane	84	23	1800	5	0.15			na	na	na	na	0.00061 U	na	na	na	na	na	na	na	na	na	na
2-Hexanone**	82000	110	8200	0.72	1.3			na	na	na	na	0.0087 U	na	na	na	na	na	na	na	na	na	na
Acetone	200000	100000	200000	100000	16			na	na	na	na	0.023	na	na	na	na	na	na	na	na	na	na
Benzene	100	1.6	2300	2.2	0.17			na	na	na	na	0.0022 J	na	na	na	na	na	na	na	na	na	na
Bromodichloromethane	92	3000	2000	3000	0.6			na	na	na	na	0.0007 U	na	na	na	na	na	na	na	na	na	na
Bromoform	720	100	16000	140	0.8			na	na	na	na	0.00056 U	na	na	na	na	na	na	na	na	na	na
Carbon disulfide	200000	720	20000	9	160			na	na	na	na	0.0012 U	na	na	na	na	na	na	na	na	na	na
Carbon tetrachloride	44	0.64	410	0.9	0.33			na	na	na	na	0.00086 U	na	na	na	na	na	na	na	na	na	na
Chlorobenzene	41000	210	4100	1.3	6.5			na	na	na	na	0.00058 U	na	na	na	na	na	na	na	na	na	na
Chloroethane**	820000	1500	82000	94	70			na	na	na	na	0.00085 U	na	na	na	na	na	na	na	na	na	na
Chloroform	940	0.54	2000	0.76	2.9			na	na	na	na	0.00059 U	na	na	na	na	na	na	na	na	na	na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1			na	na	na	na	0.00065 U	na	na	na	na	na	na	na	na	na	na
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			na	na	na	na	0.00052 U	na	na	na	na	na	na	na	na	na	na
Dibromochloromethane	41000	1300	41000	1300	0.4			na	na	na	na	0.00036 U	na	na	na	na	na	na	na	na	na	na
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--			na	na	na	na	0.00088 U	na	na	na	na	na	na	na	na	na	na
Ethylbenzene	200000	400	20000	58	19			na	na	na	na	0.00067 U	na	na	na	na	na	na	na	na	na	na
m-Dichlorobenzene**	1800	570	180	570	1			na	na	na	na	0.00099 U	na	na	na	na	na	na	na	na	na	na
Methyl bromide	2900	15	1000	3.9	1.2			na	na	na	na	0.0013 U	na	na	na	na	na	na	na	na	na	na
Methyl chloride	--	--	--	--	--			na	na	na	na	0.0014 U	na	na	na	na	na	na	na	na	na	na
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17			na	na	na	na	0.0069 U	na	na	na	na	na	na	na	na	na	na
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--			na	na	na	na	0.012 U	na	na	na	na	na	na	na	na	na	na
Methylene chloride	760	24	1200	34	0.2			na	na	na	na	0.0025 U	na	na	na	na	na	na	na	na	na	na
o-Dichlorobenzene	180000	560	18000	310	43			na	na	na	na	0.00064 U	na	na	na	na	na	na	na	na	na	na
p-Dichlorobenzene	--	17000	--	340	11			na	na	na	na	0.0009 U	na	na	na	na	na	na	na	na	na	na
Styrene	410000	1500	41000	430	18			na	na	na	na	0.00053 U	na	na	na	na	na	na	na	na	na	na
Tetrachloroethylene	110	20	240	28	0.3			na	na	na	na	0.00098 U	na	na	na	na	na	na	na	na	na	na
Toluene	410000	650	410000	42	29			na	na	na	na	0.0038 J	na	na	na	na	na	na	na	na	na	na
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			na	na	na	na	0.00046 U	na	na	na	na	na	na	na	na	na	na
Trichloroethylene	520	8.9	1200	12	0.3			na	na	na	na	0.00055 U	na	na	na	na	na	na	na	na	na	na
Vinyl Acetate	1000000	1600	200000	10	170			na	na	na	na	0.002 U	na	na	na	na	na	na	na	na	na	na
Vinyl chloride	7.9	1.1	170	1.1	0.07			na	na	na	na	0.00085 U	na	na	na	na	na	na	na	na	na	na
Xylene (total)	1000000	320	410000	320	150			na	na	na	na	0.0019 U	na	na	na	na	na	na	na	na	na	na
PAHs																						
2-Methylnaphthalene**	8200	--	820	--	39			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthene	120000	--	120000	--	2900			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthylene	61000	--	61000	--	120			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Anthracene	610000	--	610000	--	59000			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)anthracene	8	--	170	--	8			0.0053 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)pyrene	0.8	--	17	--	82			0.009 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(b)fluoranthene	8	--	170	--	25			0.0066 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(ghi)perylene**	61000	--	61000	--	160000			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(k)fluoranthene	78	--	1700	--	250			0.0066 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chrysene	780	--	17000	-	800			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6			0.012 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluoranthene	82000	--	82000	--	21000			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluorene	82000	--	82000	--	2800			0.084 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Indeno(1,2,3-cd)pyrene	8	--	170	--	69			0.017 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Naphthalene	41000	270	4100	1.8	18			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenanthrene**	61000	--	61000	--	1100			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pyrene	61000	--	61000	--	21000			0.11 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
METALs																						
Arsenic	11.3*	1200	61	25000	110-130			2	5.4	5.4	8.6		3.9	4.1	8.1	5.5	4.2	3.5	1 14	9.7	1 19	7
Vanadium	14000	--	1400	--	980			13	28	21	28		15	13	24	39	30	15	50	49	29	24
Percent moisture								10%	17%	15%	17%		13%	14%	19%	22%	16%	11%	16%	17%	18%	11%
pH (<2.0 or >12.5)								8.1	9.8	8.3	8.3		8.4	8.5	7.5	7.5	7.8	8.1	8	7.7	7.8	8.2

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																								
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Location		AG17	AG17	AG17	AG18	AG18D	AG18D	AG18D	AG18DF	AG19	AG19	AG19	AG20	AG20 (dup)	AG21	AG22
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Date		7/23/03	7/23/03	7/23/03	7/17/03	7/31/03	7/31/03	7/31/03	7/31/03	7/23/03	7/23/03	7/23/03	7/16/03	7/16/03	7/16/03	7/16/03
						Sample Depth (ft)		8-10	8-10	10-12	0-1	6-8	12-14	14-16	6-8	4-6	12-14	14-16	0-1	0-1	0-1	0-2
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Analyte																						
SVOCs																						
1,2,4-Trichlorobenzene	20000	3200	2000	920	53			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,5-Trichlorophenol	200000	--	200000	--	1400			0.8 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,6-Trichlorophenol	520	390	11000	540	0.77			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dichlorophenol	6100	--	610	--	1			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dimethylphenol	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrophenol	2000	--	410	--	0.2		5	0.67 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrotoluene	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,6-Dinitrotoluene	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chloronaphthalene**	160000	--	16000	--	1200			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chlorophenol	10000	53000	10000	53000	20			0.8 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
3,3-Dichlorobenzidine	--	--	--	--	--			0.67 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
4,6-Dinitro-o-cresol**	720	--	71	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Bromophenyl phenyl ether	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Chlorophenyl phenyl ether	--	--	--	--	--		1,2,4,5	0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzidine**	0.02	0.02	0.54	0.02	0.0000043			1.3 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzoic acid	1000000	--	820000	--	400			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzyl alcohol**	610000	6900	200000	6900	9.4			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethoxy)methane	--	--	--	--	--		5	0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Butyl benzyl phthalate	410000	930	410000	930	930			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzofuran**	8200	--	820	--	76			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Diethyl phthalate	1000000	2000	1000000	2000	470			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dimethyl phthalate**	1000000	1300	1000000	1300	380			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-butyl phthalate	200000	2300	200000	2300	2300			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-octyl phthalate	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobenzene	4	1.8	78	2.6	11			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobutadiene**	410	1000	41	180	15			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorocyclopentadiene	14000	16	14000	1.1	400			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachloroethane	2000	--	2000	--	2.6		2,4,5	0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Isophorone	410000	4600	410000	4600	8			0.67 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
m-Nitroaniline**	--	120	--	7.5	--		5	0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nitrobenzene	1000	140	1000	9.4	0.1			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodimethylamine	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodiphenylamine	1200	--	25000	--	5.6		5	0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodipropylamine	0.8	--	18	--	0.00005			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Cresol	100000	--	100000	--	15			0.67 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitroaniline	--	--	--	--	--			0.67 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitrophenol	--	--	--	--	--			0.52 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloroaniline	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloro-m-cresol	--	--	--	--	--		5	0.67 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCP (pentachlorophenol)	24	--	520	--	0.14			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenol	1000000	--	120000	--	100			0.67 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitroaniline	--	--	--	--	--			0.13 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitrophenol	--	--	--	--	--																	
Inorganics								12	0 U	0 U	0 U	na	0 U	0 U	0 U	26	1.9	4.7	NA	0 U	0 U	0 U
Ammonia (as N)								0 U	0 U	0 U	0.6 U	na	0.57 U	0.58 U	0.62 U	0 U	0 U	0 U	0.6 U	0.6 U	0.61 U	0.56 U
Nitrogen								100	97	66	96	na	55	45	120	3000	290	71	390	460	830	44
Sulfate***					400 (mg/L)			330	300	230	740	na	160	190	270	300	220	230	340	260	970	340
Phosphorus																						

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Sulfate soil concentrations in mg/kg not directly comparable to soil to groundwater RO (mg/L).

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																						
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Location	AG23	AG24A	AG24A	AG25	AG25 (dup)	AG25	AG26	AG27	AG27	AG27	AG28	AG28	AG28	AG29	AG29	AG30
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Date	7/16/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/16/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/17/03
						Sample Depth (ft)	0-1	0-2	8-10	6-8	6-8	16-18	0-1	0-2	6-8	6-8	2-4	2-4	4-6	2-4	6-8	0-2
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs																						
1,1,1-Trichloroethane	--	1200	--	1200	9.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethane	200000	1700	200000	130	110		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethylene	18000	1500	1800	300	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1,2-Dichloropropane	84	23	1800	5	0.15		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Hexanone**	82000	110	8200	0.72	1.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acetone	200000	100000	200000	100000	16		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzene	100	1.6	2300	2.2	0.17		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bromodichloromethane	92	3000	2000	3000	0.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bromoform	720	100	16000	140	0.8		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Carbon disulfide	200000	720	20000	9	160		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Carbon tetrachloride	44	0.64	410	0.9	0.33		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chlorobenzene	41000	210	4100	1.3	6.5		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chloroethane**	820000	1500	82000	94	70		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chloroform	940	0.54	2000	0.76	2.9		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibromochloromethane	41000	1300	41000	1300	0.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Ethylbenzene	200000	400	20000	58	19		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
m-Dichlorobenzene**	1800	570	180	570	1		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl bromide	2900	15	1000	3.9	1.2		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl chloride	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Methylene chloride	760	24	1200	34	0.2		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Dichlorobenzene	180000	560	18000	310	43		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Dichlorobenzene	--	17000	--	340	11		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Styrene	410000	1500	41000	430	18		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tetrachloroethylene	110	20	240	28	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Toluene	410000	650	410000	42	29		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trichloroethylene	520	8.9	1200	12	0.3		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vinyl Acetate	1000000	1600	200000	10	170		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vinyl chloride	7.9	1.1	170	1.1	0.07		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Xylene (total)	1000000	320	410000	320	150		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PAHs																						
2-Methylnaphthalene**	8200	--	820	--	39		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthene	120000	--	120000	--	2900		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthylene	61000	--	61000	--	120		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Anthracene	610000	--	610000	--	59000		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)anthracene	8	--	170	--	8		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)pyrene	0.8	--	17	--	82		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(b)fluoranthene	8	--	170	--	25		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(ghi)perylene**	61000	--	61000	--	160000		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(k)fluoranthene	78	--	1700	--	250		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chrysene	780	--	17000	-	800		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluoranthene	82000	--	82000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluorene	82000	--	82000	--	2800		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Naphthalene	41000	270	4100	1.8	18		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenanthrene**	61000	--	61000	--	1100		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pyrene	61000	--	61000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
METALs																						
Arsenic	11.3*	1200	61	25000	110-130		1 16	6	4.6	5.5	5.9	4.7	1 12	4.8	4.6	3.7	3	3.1	8.5	8.8	3.4	4.6
Vanadium	14000	--	1400	--	980		28	8.5	22	27	25	13	38	40	27	19	12	8.5	38	42	39	15
Percent moisture							14%	12%	14%	15%	15%	9%	17%	15%	19%	15%	12%	6%	22%	16%	26%	5%
pH (<2.0 or >12.5)							8.5	8.2	8.2	8	8.2	8.2	8.2	8.1	8.1	8.3	9.4	9.3	9	8.4	8.8	8.3

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																					
	Industrial / Commercial		Construction Worker		Migration to Groundwater																	
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG23	AG24A	AG24A	AG25	AG25 (dup)	AG25	AG26	AG27	AG27	AG27	AG28	AG28	AG28	AG29	AG29	AG30
						Sample Date	7/16/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/16/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/17/03
						Sample Depth (ft)	0-1	0-2	8-10	6-8	6-8	16-18	0-1	0-2	6-8	6-8	2-4	2-4	4-6	2-4	6-8	0-2
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SVOCs																						
1,2,4-Trichlorobenzene	20000	3200	2000	920	53		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,5-Trichlorophenol	200000	--	200000	--	1400		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,6-Trichlorophenol	520	390	11000	540	0.77		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dichlorophenol	6100	--	610	--	1		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dimethylphenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrophenol	2000	--	410	--	0.2		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,6-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chloronaphthalene**	160000	--	16000	--	1200		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chlorophenol	10000	53000	10000	53000	20		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
3,3-Dichlorobenzidine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
4,6-Dinitro-o-cresol**	720	--	71	--			na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Bromophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Chlorophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzoic acid	1000000	--	820000	--	400		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzyl alcohol**	610000	6900	200000	6900	9.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethoxy)methane	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Butyl benzyl phthalate	410000	930	410000	930	930		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzofuran**	8200	--	820	--	76		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Diethyl phthalate	1000000	2000	1000000	2000	470		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dimethyl phthalate**	1000000	1300	1000000	1300	380		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-butyl phthalate	200000	2300	200000	2300	2300		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-octyl phthalate	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobenzene	4	1.8	78	2.6	11		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobutadiene**	410	1000	41	180	15		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorocyclopentadiene	14000	16	14000	1.1	400		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachloroethane	2000	--	2000	--	2.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Isophorone	410000	4600	410000	4600	8		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
m-Nitroaniline**	--	120	--	7.5	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nitrobenzene	1000	140	1000	9.4	0.1		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodimethylamine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodiphenylamine	1200	--	25000	--	5.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Cresol	100000	--	100000	--	15		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloro-m-cresol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCP (pentachlorophenol)	24	--	520	--	0.14		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenol	1000000	--	120000	--	100		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Inorganics																						
Ammonia (as N)							0 U	0 U	0 U	8.1	0 U	0 U	0 U	0 U	0 U	0 U	4.7	7.6	0 U	2.9	0 U	0 U
Nitrogen							0.58 U	0 U	0 U	0 U	0 U	0 U	0.6 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0.53 U
Sulfate***					400 (mg/L)		17	12	21	160	200	52	370	130	56	39	26	24	36	75	70	240
Phosphorus							2200	830	230	220	230	190	17	280	260	190	120	390	310	300	440	470

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Sulfate soil concentrations in mg/kg not directly comparable to soil to groundwater RO (mg/L).

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																					
	Industrial / Commercial		Construction Worker		Migration to Groundwater																	
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG31	AG32	AG32	AG33	AG33 (dup)	AG34	AG34	AG35A	AG35A	AG36	AG36	AG36	AG37	AG37
						Sample Date	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/31/03	7/23/03	7/23/03	7/28/03	7/28/03
						Sample Depth (ft)	0-1	4-6	6-8	0-1	0-1	0-2	4-6	4-6	6-8	0-2	6-8	8-10	6-8	8-10
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs																				
1,1,1-Trichloroethane	--	1200	--	1200	9.6		na	na	na	na	na	0.00087 U	na	na	na	na	na	na	na	na
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		na	na	na	na	na	0.0007 U	na	na	na	na	na	na	na	na
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		na	na	na	na	na	0.00086 U	na	na	na	na	na	na	na	na
1,1-Dichloroethane	200000	1700	200000	130	110		na	na	na	na	na	0.00072 U	na	na	na	na	na	na	na	na
1,1-Dichloroethylene	18000	1500	1800	300	0.3		na	na	na	na	na	0.00082 U	na	na	na	na	na	na	na	na
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		na	na	na	na	na	0.001 U	na	na	na	na	na	na	na	na
1,2-Dichloropropane	84	23	1800	5	0.15		na	na	na	na	na	0.00065 U	na	na	na	na	na	na	na	na
2-Hexanone**	82000	110	8200	0.72	1.3		na	na	na	na	na	0.0092 U	na	na	na	na	na	na	na	na
Acetone	200000	100000	200000	100000	16		na	na	na	na	na	0.022	na	na	na	na	na	na	na	na
Benzene	100	1.6	2300	2.2	0.17		na	na	na	na	na	0.0028 J	na	na	na	na	na	na	na	na
Bromodichloromethane	92	3000	2000	3000	0.6		na	na	na	na	na	0.00074 U	na	na	na	na	na	na	na	na
Bromoform	720	100	16000	140	0.8		na	na	na	na	na	0.00059 U	na	na	na	na	na	na	na	na
Carbon disulfide	200000	720	20000	9	160		na	na	na	na	na	0.0013 U	na	na	na	na	na	na	na	na
Carbon tetrachloride	44	0.64	410	0.9	0.33		na	na	na	na	na	0.00091 U	na	na	na	na	na	na	na	na
Chlorobenzene	41000	210	4100	1.3	6.5		na	na	na	na	na	0.00061 U	na	na	na	na	na	na	na	na
Chloroethane**	820000	1500	82000	94	70		na	na	na	na	na	0.0009 U	na	na	na	na	na	na	na	na
Chloroform	940	0.54	2000	0.76	2.9		na	na	na	na	na	0.00062 U	na	na	na	na	na	na	na	na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		na	na	na	na	na	0.00069 U	na	na	na	na	na	na	na	na
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	0.00055 U	na	na	na	na	na	na	na	na
Dibromochloromethane	41000	1300	41000	1300	0.4		na	na	na	na	na	0.00039 U	na	na	na	na	na	na	na	na
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		na	na	na	na	na	0.00093 U	na	na	na	na	na	na	na	na
Ethylbenzene	200000	400	20000	58	19		na	na	na	na	na	0.0046	na	na	na	na	na	na	na	na
m-Dichlorobenzene**	1800	570	180	570	1		na	na	na	na	na	0.001 U	na	na	na	na	na	na	na	na
Methyl bromide	2900	15	1000	3.9	1.2		na	na	na	na	na	0.0014 U	na	na	na	na	na	na	na	na
Methyl chloride	--	--	--	--	--		na	na	na	na	na	0.0015 U	na	na	na	na	na	na	na	na
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		na	na	na	na	na	0.0073 U	na	na	na	na	na	na	na	na
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		na	na	na	na	na	0.012 U	na	na	na	na	na	na	na	na
Methylene chloride	760	24	1200	34	0.2		na	na	na	na	na	0.0026 U	na	na	na	na	na	na	na	na
o-Dichlorobenzene	180000	560	18000	310	43		na	na	na	na	na	0.00068 U	na	na	na	na	na	na	na	na
p-Dichlorobenzene	--	17000	--	340	11		na	na	na	na	na	0.00095 U	na	na	na	na	na	na	na	na
Styrene	410000	1500	41000	430	18		na	na	na	na	na	0.00056 U	na	na	na	na	na	na	na	na
Tetrachloroethylene	110	20	240	28	0.3		na	na	na	na	na	0.001 U	na	na	na	na	na	na	na	na
Toluene	410000	650	410000	42	29		na	na	na	na	na	0.0051	na	na	na	na	na	na	na	na
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	0.00049 U	na	na	na	na	na	na	na	na
Trichloroethylene	520	8.9	1200	12	0.3		na	na	na	na	na	0.00059 U	na	na	na	na	na	na	na	na
Vinyl Acetate	1000000	1600	200000	10	170		na	na	na	na	na	0.0021 U	na	na	na	na	na	na	na	na
Vinyl chloride	7.9	1.1	170	1.1	0.07		na	na	na	na	na	0.0009 U	na	na	na	na	na	na	na	na
Xylene (total)	1000000	320	410000	320	150		na	na	na	na	na	0.0075	na	na	na	na	na	na	na	na
PAHs																				
2-Methylnaphthalene**	8200	--	820	--	39		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Acenaphthene	120000	--	120000	--	2900		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Acenaphthylene	61000	--	61000	--	120		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Anthracene	610000	--	610000	--	59000		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Benzo(a)anthracene	8	--	170	--	8		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Benzo(a)pyrene	0.8	--	17	--	82		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Benzo(b)fluoranthene	8	--	170	--	25		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Benzo(k)fluoranthene	78	--	1700	--	250		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Chrysene	780	--	17000	-	800		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Fluoranthene	82000	--	82000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 J
Fluorene	82000	--	82000	--	2800		na	na	na	na	na	na	na	na	na	na	na	na	0.0081 J	0.0058 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		na	na	na	na	na	na	na	na	na	na	na	na	0.0061 U	0.0058 U
Naphthalene	41000	270	4100	1.8	18		na	na	na	na	na	na	na	na	na	na	na	na	0.015 J	0.0058 U
Phenanthrene**	61000	--	61000	--	1100		na	na	na	na	na	na	na	na	na	na	na	na	0.025 J	0.0058 J
Pyrene	61000	--	61000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	0.0098 J	0.0062 J
METALs																				
Arsenic	11.3*	1200	61	25000	110-130		9.7	1 12	6.8	7.3	10		3.4	3.6	3.2	0.79	1 25	3.9	11	4
Vanadium	14000	--	1400	--	980		67	46	26	39	65		39	17	8.8	0.55	48	19	37	17
Percent moisture							21%	20%	17%	15%	22%		22%	14%	13%	17%	20%	17%	18%	14%
pH (<2.0 or >12.5)							7.5	8	8.1	8.2	8.1		8.2	8.4	8.4	1	6.4	6.9	8.1	8.1

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																						
	Industrial / Commercial		Construction Worker		Migration to Groundwater																		
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG31	AG32	AG32	AG33	AG33 (dup)	AG34	AG34	AG35A	AG35A	AG36	AG36	AG36	AG37	AG37
						Sample Date	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/23/03	7/31/03	7/23/03	7/23/03	7/28/03	7/28/03
						Sample Depth (ft)	0-1	4-6	6-8	0-1	0-1	0-2	4-6	4-6	6-8	0-2	6-8	8-10	6-8	8-10
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SVOCs																				
1,2,4-Trichlorobenzene	20000	3200	2000	920	53		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
2,4,5-Trichlorophenol	200000	--	200000	--	1400		na	na	na	na	na	na	na	na	na	na	na	na	0.8 U	0.77 U
2,4,6-Trichlorophenol	520	390	11000	540	0.77		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
2,4-Dichlorophenol	6100	--	610	--	1		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
2,4-Dimethylphenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
2,4-Dinitrophenol	2000	--	410	--	0.2		na	na	na	na	na	na	na	na	na	na	na	na	0.68 U	0.65 U
2,4-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
2,6-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
2-Chloronaphthalene**	160000	--	16000	--	1200		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
2-Chlorophenol	10000	53000	10000	53000	20		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
3,3-Dichlorobenzidine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.8 U	0.77 U
4,6-Dinitro-o-cresol**	720	--	71	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.68 U	0.65 U
4-Bromophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
4-Chlorophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U 1,2,4,5	0.13 U 1,2,4,5
Benzoic acid	1000000	--	820000	--	400		na	na	na	na	na	na	na	na	na	na	na	na	1.3 U	1.3 U
Benzyl alcohol**	610000	6900	200000	6900	9.4		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Bis(2-chloroethoxy)methane	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U 5	0.13 U 5
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000		na	na	na	na	na	na	na	na	na	na	na	na	0.14 J	0.35 J
Butyl benzyl phthalate	410000	930	410000	930	930		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Dibenzofuran**	8200	--	820	--	76		na	na	na	na	na	na	na	na	na	na	na	na	1	0.13 U
Diethyl phthalate	1000000	2000	1000000	2000	470		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Dimethyl phthalate**	1000000	1300	1000000	1300	380		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Di-n-butyl phthalate	200000	2300	200000	2300	2300		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Di-n-octyl phthalate	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Hexachlorobenzene	4	1.8	78	2.6	11		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Hexachlorobutadiene**	410	1000	41	180	15		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Hexachlorocyclopentadiene	14000	16	14000	1.1	400		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Hexachloroethane	2000	--	2000	--	2.6		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U 2,4,5	0.13 U 2,4,5
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
Isophorone	410000	4600	410000	4600	8		na	na	na	na	na	na	na	na	na	na	na	na	0.68 U	0.65 U
m-Nitroaniline**	--	120	--	7.5	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U 5	0.13 U 5
Nitrobenzene	1000	140	1000	9.4	0.1		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
N-Nitrosodimethylamine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
N-Nitrosodiphenylamine	1200	--	25000	--	5.6		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U 5	0.13 U 5
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
o-Cresol	100000	--	100000	--	15		na	na	na	na	na	na	na	na	na	na	na	na	0.68 U	0.65 U
o-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.68 U	0.65 U
o-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.52 U	0.5 U
p-Chloroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
p-Chloro-m-cresol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.68 U 5	0.65 U 5
PCP (pentachlorophenol)	24	--	520	--	0.14		na	na	na	na	na	na	na	na	na	na	na	na	0.29 J	0.16 J
Phenol	1000000	--	120000	--	100		na	na	na	na	na	na	na	na	na	na	na	na	0.68 U	0.65 U
p-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	0.13 U	0.13 U
p-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na		
Inorganics																				
Ammonia (as N)							8.5	53	0 U	0 U	0 U	0 U	0 U	0 U	26	26	30		0 U	0 U
Nitrogen							0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0.6 U	0 U	0 U		0.61 U	0.58 U
Sulfate***					400 (mg/L)		1100	110	76	24	30	110	59	33	43000	15000	9000		44	75
Phosphorus							240	410	230	300	220	300	230	210	29	390	270		310	220

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Sulfate soil concentrations in mg/kg not directly comparable to soil to groundwater RO (mg/L).

	TACO Tier 1 Soil Remediation Objectives					Sample Location	AG37	AG38	AG38	AG38	AG39	AG39	AG39	AG40	AG40	AG40	AG41
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Date	7/28/03	7/28/03	7/28/03	7/28/03	7/28/03	7/28/03	7/28/03	7/28/03	7/28/03	7/28/03	7/31/03
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Depth (ft)	10-12	6-8	8-10	12-14	6-8	8-10	10-12	6-8	8-10	10-12	8-10
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs																	
1,1,1-Trichloroethane	--	1200	--	1200	9.6		na	na	na	na	na	na	na	na	na	na	na
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		na	na	na	na	na	na	na	na	na	na	na
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		na	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethane	200000	1700	200000	130	110		na	na	na	na	na	na	na	na	na	na	na
1,1-Dichloroethylene	18000	1500	1800	300	0.3		na	na	na	na	na	na	na	na	na	na	na
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		na	na	na	na	na	na	na	na	na	na	na
1,2-Dichloropropane	84	23	1800	5	0.15		na	na	na	na	na	na	na	na	na	na	na
2-Hexanone**	82000	110	8200	0.72	1.3		na	na	na	na	na	na	na	na	na	na	na
Acetone	200000	100000	200000	100000	16		na	na	na	na	na	na	na	na	na	na	na
Benzene	100	1.6	2300	2.2	0.17		na	na	na	na	na	na	na	na	na	na	na
Bromodichloromethane	92	3000	2000	3000	0.6		na	na	na	na	na	na	na	na	na	na	na
Bromoform	720	100	16000	140	0.8		na	na	na	na	na	na	na	na	na	na	na
Carbon disulfide	200000	720	20000	9	160		na	na	na	na	na	na	na	na	na	na	na
Carbon tetrachloride	44	0.64	410	0.9	0.33		na	na	na	na	na	na	na	na	na	na	na
Chlorobenzene	41000	210	4100	1.3	6.5		na	na	na	na	na	na	na	na	na	na	na
Chloroethane**	820000	1500	82000	94	70		na	na	na	na	na	na	na	na	na	na	na
Chloroform	940	0.54	2000	0.76	2.9		na	na	na	na	na	na	na	na	na	na	na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		na	na	na	na	na	na	na	na	na	na	na
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na	na
Dibromochloromethane	41000	1300	41000	1300	0.4		na	na	na	na	na	na	na	na	na	na	na
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na
Ethylbenzene	200000	400	20000	58	19		na	na	na	na	na	na	na	na	na	na	na
m-Dichlorobenzene**	1800	570	180	570	1		na	na	na	na	na	na	na	na	na	na	na
Methyl bromide	2900	15	1000	3.9	1.2		na	na	na	na	na	na	na	na	na	na	na
Methyl chloride	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		na	na	na	na	na	na	na	na	na	na	na
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		na	na	na	na	na	na	na	na	na	na	na
Methylene chloride	760	24	1200	34	0.2		na	na	na	na	na	na	na	na	na	na	na
o-Dichlorobenzene	180000	560	18000	310	43		na	na	na	na	na	na	na	na	na	na	na
p-Dichlorobenzene	--	17000	--	340	11		na	na	na	na	na	na	na	na	na	na	na
Styrene	410000	1500	41000	430	18		na	na	na	na	na	na	na	na	na	na	na
Tetrachloroethylene	110	20	240	28	0.3		na	na	na	na	na	na	na	na	na	na	na
Toluene	410000	650	410000	42	29		na	na	na	na	na	na	na	na	na	na	na
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	na	na	na	na	na	na	na	na	na	na
Trichloroethylene	520	8.9	1200	12	0.3		na	na	na	na	na	na	na	na	na	na	na
Vinyl Acetate	1000000	1600	200000	10	170		na	na	na	na	na	na	na	na	na	na	na
Vinyl chloride	7.9	1.1	170	1.1	0.07		na	na	na	na	na	na	na	na	na	na	na
Xylene (total)	1000000	320	410000	320	150		na	na	na	na	na	na	na	na	na	na	na
PAHs																	
2-Methylnaphthalene**	8200	--	820	--	39		0.0058 U	0.0063 U	0.0059 U	0.0059 U	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Acenaphthene	120000	--	120000	--	2900		0.0058 U	0.0063 U	0.0059 U	0.0059 U	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Acenaphthylene	61000	--	61000	--	120		0.0058 U	0.0063 U	0.0059 U	0.0059 U	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Anthracene	610000	--	610000	--	59000		0.0058 U	0.0063 U	0.0059 U	0.0059 U	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Benzo(a)anthracene	8	--	170	--	8		0.0058 U	0.0084 J	0.0059 U	0.0082 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Benzo(a)pyrene	0.8	--	17	--	82		0.0058 U	0.0063 U	0.0059 U	0.0082 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Benzo(b)fluoranthene	8	--	170	--	25		0.0058 U	0.0068 J	0.0059 U	0.0094 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.012 J	0.0063 U	0.0059 U	0.013 J	0.0062 U	0.0065 U	0.0059 U	0.0068 J	0.0058 U	0.0068 J	na
Benzo(k)fluoranthene	78	--	1700	--	250		0.0058 U	0.0063 U	0.0059 U	0.0078 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Chrysene	780	--	17000	-	800		0.0058 U	0.0097 J	0.0059 U	0.011 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0058 U	0.0063 U	0.0059 U	0.0059 U	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Fluoranthene	82000	--	82000	--	21000		0.0058 U	0.012 J	0.0059 U	0.015 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Fluorene	82000	--	82000	--	2800		0.0058 U	0.0063 U	0.0059 U	0.0059 U	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0058 U	0.0063 U	0.0059 U	0.0071 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Naphthalene	41000	270	4100	1.8	18		0.015 J	0.0063 U	0.0059 U	0.0059 U	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Phenanthrene**	61000	--	61000	--	1100		0.0058 U	0.011 J	0.0059 U	0.0086 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
Pyrene	61000	--	61000	--	21000		0.0058 U	0.0097 J	0.0067 J	0.018 J	0.0062 U	0.0065 U	0.0059 U	0.0054 U	0.0058 U	0.0057 U	na
METALs																	
Arsenic	11.3*	1200	61	25000	110-130		8.6	6.5	4.6	1.5	6.6	5.2	4.3	1.5	5.8	4	4.5
Vanadium	14000	--	1400	--	980		16	31	14	13	20	19	16	4.7	24	14	15
Percent moisture							14%	21%	15%	15%	19%	23%	15%	7%	14%	12%	15%
pH (<2.0 or >12.5)							8.3	8	8.2	8.1	7.5	7.9	8.2	8.5	8.4	8.3	8.4

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																													
	Industrial / Commercial		Construction Worker		Migration to Groundwater																									
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		AG37		AG38		AG38		AG38		AG39		AG39		AG39		AG40		AG40		AG40	AG41
						Sample Date		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03	7/31/03
						Sample Depth (ft)		10-12		6-8		8-10		12-14		6-8		8-10		10-12		6-8		8-10		10-12	8-10
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	mg/kg
SVOCs																														
1,2,4-Trichlorobenzene	20000	3200	2000	920	53			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
2,4,5-Trichlorophenol	200000	--	200000	--	1400			0.77 U		0.84 U		0.78 U		0.78 U		0.81 U		0.86 U		0.78 U		0.71 U		0.77 U		0.75 U	na
2,4,6-Trichlorophenol	520	390	11000	540	0.77			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
2,4-Dichlorophenol	6100	--	610	--	1			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
2,4-Dimethylphenol	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
2,4-Dinitrophenol	2000	--	410	--	0.2			0.65 U	5	0.71 U	5	0.66 U	5	0.66 U	5	0.69 U	5	0.73 U	5	0.66 U	5	0.6 U	5	0.65 U	5	0.64 U	na
2,4-Dinitrotoluene	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
2,6-Dinitrotoluene	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
2-Chloronaphthalene**	160000	--	16000	--	1200			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
2-Chlorophenol	10000	53000	10000	53000	20			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
3,3-Dichlorobenzidine	--	--	--	--	--			0.77 U		0.84 U		0.78 U		0.78 U		0.81 U		0.86 U		0.78 U		0.71 U		0.77 U		0.75 U	na
4,6-Dinitro-o-cresol**	720	--	71	--	--			0.65 U		0.71 U		0.66 U		0.66 U		0.69 U		0.73 U		0.66 U		0.6 U		0.65 U		0.64 U	na
4-Bromophenyl phenyl ether	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
4-Chlorophenyl phenyl ether	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		1,2,4,5	0.13 U	1,2,4,5	0.14 U	1,2,4,5	0.13 U	1,2,4,5	0.13 U	1,2,4,5	0.14 U	1,2,4,5	0.14 U	1,2,4,5	0.13 U	1,2,4,5	0.12 U	1,2,4,5	0.13 U	1,2,4,5	0.13 U	na
Benzoic acid	1000000	--	820000	--	400			1.3 U		1.4 U		1.3 U		1.3 U		1.4 U		1.4 U		1.3 U		1.2 U		1.3 U		1.3 U	na
Benzyl alcohol**	610000	6900	200000	6900	9.4			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Bis(2-chloroethoxy)methane	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		5	0.13 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.13 U	5	0.12 U	5	0.13 U	5	0.13 U	na
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000			0.13 U		0.14 U		0.13 U		1.1		0.55		0.36 J		0.13 U		0.12 U		0.13 U		0.13 U	na
Butyl benzyl phthalate	410000	930	410000	930	930			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Dibenzofuran**	8200	--	820	--	76			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Diethyl phthalate	1000000	2000	1000000	2000	470			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Dimethyl phthalate**	1000000	1300	1000000	1300	380			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Di-n-butyl phthalate	200000	2300	200000	2300	2300			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Di-n-octyl phthalate	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Hexachlorobenzene	4	1.8	78	2.6	11			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Hexachlorobutadiene**	410	1000	41	180	15			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Hexachlorocyclopentadiene	14000	16	14000	1.1	400			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Hexachloroethane	2000	--	2000	--	2.6			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001		2,4,5	0.13 U	2,4,5	0.14 U	2,4,5	0.13 U	2,4,5	0.13 U	2,4,5	0.14 U	2,4,5	0.14 U	2,4,5	0.13 U	2,4,5	0.12 U	2,4,5	0.13 U	2,4,5	0.13 U	na
Isophorone	410000	4600	410000	4600	8			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
m-Nitroaniline**	--	120	--	7.5	--			0.65 U		0.71 U		0.66 U		0.66 U		0.69 U		0.73 U		0.66 U		0.6 U		0.65 U		0.64 U	na
Nitrobenzene	1000	140	1000	9.4	0.1		5	0.13 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.13 U	5	0.12 U	5	0.13 U	5	0.13 U	na
N-Nitrosodimethylamine	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
N-Nitrosodiphenylamine	1200	--	25000	--	5.6			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		5	0.13 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.13 U	5	0.12 U	5	0.13 U	5	0.13 U	na
o-Cresol	100000	--	100000	--	15			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
o-Nitroaniline	--	--	--	--	--			0.65 U		0.71 U		0.66 U		0.66 U		0.69 U		0.73 U		0.66 U		0.6 U		0.65 U		0.64 U	na
o-Nitrophenol	--	--	--	--	--			0.65 U		0.71 U		0.66 U		0.66 U		0.69 U		0.73 U		0.66 U		0.6 U		0.65 U		0.64 U	na
p-Chloroaniline	--	--	--	--	--			0.5 U		0.54 U		0.51 U		0.51 U		0.53 U		0.56 U		0.51 U		0.46 U		0.5 U		0.49 U	na
p-Chloro-m-cresol	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
PCP (pentachlorophenol)	24	--	520	--	0.14		5	0.65 U	5	0.71 U	5	0.66 U	5	0.66 U	5	0.69 U	5	0.73 U	5	0.66 U	5	0.6 U	5	0.65 U	5	0.64 U	na
Phenol	1000000	--	120000	--	100			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
p-Nitroaniline	--	--	--	--	--			0.65 U		0.71 U		0.66 U		0.66 U		0.69 U		0.73 U		0.66 U		0.6 U		0.65 U		0.64 U	na
p-Nitrophenol	--	--	--	--	--			0.13 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.13 U		0.12 U		0.13 U		0.13 U	na
Inorganics																											
Ammonia (as N)								0 U		40		4.1		0 U		0 U		0 U		0 U		0 U		0 U		0 U	0 U
Nitrogen								0.58 U		0.63 U		0.59 U		0.59 U		0.62 U		0.65 U		0.59 U		0.54 U		0.58 U		0.57 U	0.59 U
Sulfate***					400 (mg/L)			2.3 U		190		70		190		150		230		180		42		35		36	67
Phosphorus								210		180		170		190		220		190		170		330		180		130	180

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Sulfate soil concentrations in mg/kg not directly comparable to soil to groundwater RO (mg/L).

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																			
	Industrial / Commercial		Construction Worker		Migration to Groundwater															
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG41	AG42	AG42	AG42	AG43	AG43	AG43	AG44	AG44	AG44	AG45	AG45	AG45	AG45
						Sample Date	7/31/03	8/7/03	8/7/03	8/7/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03
						Sample Depth (ft)	10-12	2-4	10-12	16-18	2-4	10-12	14-16	2-4	10-12	14-16	2-4	2-4	10-12	14-16
						Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg															
VOCs																				
1,1,1-Trichloroethane	--	1200	--	1200	9.6		na	0.0011 U	0.00076 U	0.00068 U	0.00095 U	0.00075 U	0.00073 U	0.00093 U	0.00084 U	0.00076 U	0.00095 U	0.00091 U	0.0009 U	0.00076 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		na	0.00087 U	0.00061 U	0.00054 U	0.00076 U	0.0006 U	0.00059 U	0.00075 U	0.00067 U	0.00061 U	0.00076 U	0.00073 U	0.00072 U	0.00061 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		na	0.0011 U	0.00074 U	0.00067 U	0.00093 U	0.00074 U	0.00072 U	0.00092 U	0.00082 U	0.00075 U	0.00093 U	0.00089 U	0.00088 U	0.00075 U
1,1-Dichloroethane	200000	1700	200000	130	110		na	0.00089 U	0.00062 U	0.00056 U	0.00078 U	0.00062 U	0.0006 U	0.00077 U	0.00069 U	0.00062 U	0.00078 U	0.00074 U	0.00074 U	0.00063 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		na	0.001 U	0.00071 U	0.00064 U	0.00089 U	0.00071 U	0.00069 U	0.00088 U	0.00079 U	0.00072 U	0.00089 U	0.00085 U	0.00085 U	0.00072 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		na	0.0013 U	0.00089 U	0.00079 U	0.0011 U	0.00088 U	0.00086 U	0.0011 U	0.00098 U	0.00089 U	0.0011 U	0.0011 U	0.0011 U	0.00089 U
1,2-Dichloropropane	84	23	1800	5	0.15		na	0.0008 U	0.00056 U	0.0005 U	0.0007 U	0.00056 U	0.00054 U	0.00069 U	0.00062 U	0.00056 U	0.0007 U	0.00067 U	0.00066 U	0.00056 U
2-Hexanone**	82000	110	8200	0.72	1.3		na	0.011 U	0.008 U	0.0072 U	0.01 U	0.008 U	0.0078 U	0.0099 U	0.0089 U	0.0081 U	0.01 U	0.0096 U	0.0095 U	0.0081 U
Acetone	200000	100000	200000	100000	16		na	0.073	0.0093 U	0.037	0.1	0.015 J	0.051	0.066	0.011 J	0.018	0.11	0.15	0.091	0.081
Benzene	100	1.6	2300	2.2	0.17		na	0.00067 U	0.0054	0.0051	0.00059 U	0.0029 J	0.0012 J	0.00058 U	0.0032 J	0.0015 J	0.00059 U	0.00056 U	0.0021 J	0.0014 J
Bromodichloromethane	92	3000	2000	3000	0.6		na	0.00091 U	0.00064 U	0.00057 U	0.0008 U	0.00064 U	0.00062 U	0.00079 U	0.00071 U	0.00064 U	0.0008 U	0.00077 U	0.00076 U	0.00065 U
Bromoform	720	100	16000	140	0.8		na	0.00073 U	0.00051 U	0.00046 U	0.00064 U	0.00051 U	0.0005 U	0.00063 U	0.00056 U	0.00051 U	0.00064 U	0.00061 U	0.00061 U	0.00051 U
Carbon disulfide	200000	720	20000	9	160		na	0.0018 J	0.0011 U	0.00098 U	0.0014 U	0.0011 U	0.0011 U	0.02	0.0012 U	0.0011 U	0.047	0.054	0.0069	0.0013 J
Carbon tetrachloride	44	0.64	410	0.9	0.33		na	0.0011 U	0.00079 U	0.00071 U	0.00098 U	0.00078 U	0.00076 U	0.00097 U	0.00087 U	0.00079 U	0.00099 U	0.00094 U	0.00093 U	0.0008 U
Chlorobenzene	41000	210	4100	1.3	6.5		na	0.00076 U	0.00053 U	0.00047 U	0.00066 U	0.00053 U	0.00051 U	0.00065 U	0.00059 U	0.00053 U	0.00066 U	0.00063 U	0.00063 U	0.00053 U
Chloroethane**	820000	1500	82000	94	70		na	0.0011 U	0.00078 U	0.0007 U	0.00097 U	0.00077 U	0.00076 U	0.00096 U	0.00086 U	0.00078 U	0.00098 U	0.00093 U	0.00092 U	0.00079 U
Chloroform	940	0.54	2000	0.76	2.9		na	0.00077 U	0.00054 U	0.00048 U	0.00067 U	0.00054 U	0.00052 U	0.00066 U	0.0006 U	0.00054 U	0.00067 U	0.00064 U	0.00064 U	0.00054 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		na	0.00085 U	0.0006 U	0.00053 U	0.00074 U	0.00059 U	0.00058 U	0.00073 U	0.00066 U	0.0006 U	0.00075 U	0.00071 U	0.00071 U	0.0006 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	0.00068 U	0.00048 U	0.00043 U	0.0006 U	0.00048 U	0.00046 U	0.00059 U	0.00053 U	0.00048 U	0.0006 U	0.00057 U	0.00057 U	0.00048 U
Dibromochloromethane	41000	1300	41000	1300	0.4		na	0.00048 U	0.00034 U	0.0003 U	0.00042 U	0.00033 U	0.00033 U	0.00041 U	0.00037 U	0.00034 U	0.00042 U	0.0004 U	0.0004 U	0.00034 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		na	0.0012 U	0.00081 U	0.00072 U	0.001 U	0.0008 U	0.00078 U	0.00099 U	0.00089 U	0.00081 U	0.001 U	0.00097 U	0.00096 U	0.00081 U
Ethylbenzene	200000	400	20000	58	19		na	0.00088 U	0.0024 J	0.0011 J	0.00077 U	0.0022 J	0.0006 U	0.00076 U	0.0024 J	0.00062 U	0.00077 U	0.00074 U	0.0013 J	0.00062 U
m-Dichlorobenzene**	1800	570	180	570	1		na	0.0013 U	0.00091 U	0.00081 U	0.0011 U	0.0009 U	0.00088 U	0.0011 U	0.001 U	0.00091 U	0.0011 U	0.0011 U	0.0011 U	0.00092 U
Methyl bromide	2900	15	1000	3.9	1.2		na	0.0018 U	0.0012 U	0.0011 U	0.0015 U	0.0012 U	0.0012 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U	0.0015 U	0.0015 U	0.0012 U
Methyl chloride	--	--	--	--	--		na	0.0019 U	0.0013 U	0.0012 U	0.0016 U	0.0013 U	0.0013 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0016 U	0.0016 U	0.0013 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		na	0.0096 J	0.0063 U	0.01	0.0079 U	0.0063 U	0.0061 U	0.0078 U	0.007 U	0.0063 U	0.012	0.022	0.016	0.0064 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		na	0.015 U	0.011 U	0.0095 U	0.013 U	0.011 U	0.01 U	0.013 U	0.012 U	0.011 U	0.013 U	0.013 U	0.013 U	0.011 U
Methylene chloride	760	24	1200	34	0.2		na	0.0033 U	0.0023 U	0.0021 U	0.0029 U	0.0023 U	0.0022 U	0.0028 U	0.0025 U	0.0023 U	0.0029 U	0.0027 U	0.0027 U	0.0023 U
o-Dichlorobenzene	180000	560	18000	310	43		na	0.00084 U	0.00059 U	0.00053 U	0.00073 U	0.00058 U	0.00057 U	0.00072 U	0.00065 U	0.00059 U	0.00074 U	0.0007 U	0.0007 U	0.00059 U
p-Dichlorobenzene	--	17000	--	340	11		na	0.0012 U	0.00083 U	0.00074 U	0.001 U	0.00082 U	0.0008 U	0.001 U	0.00091 U	0.00083 U	0.001 U	0.00099 U	0.00098 U	0.00083 U
Styrene	410000	1500	41000	430	18		na	0.00069 U	0.00048 U	0.00043 U	0.0006 U	0.00048 U	0.00047 U	0.00059 U	0.00053 U	0.00049 U	0.0006 U	0.0012 J	0.00057 U	0.00049 U
Tetrachloroethylene	110	20	240	28	0.3		na	0.0013 U	0.0009 U	0.00081 U	0.0011 U	0.00089 U	0.00087 U	0.0011 U	0.00099 U	0.00091 U	0.0011 U	0.0011 U	0.0011 U	0.00091 U
Toluene	410000	650	410000	42	29		na	0.0048 U	0.0083	0.0066	0.0042 U	0.0066	0.0032 U	0.0041 U	0.0075	0.0034 U	0.0042 U	0.004 U	0.004 U	0.0034 U
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		na	0.00061 U	0.00042 U	0.00038 U	0.00053 U	0.00042 U	0.00041 U	0.00052 U	0.00047 U	0.00043 U	0.00053 U	0.00051 U	0.0005 U	0.00043 U
Trichloroethylene	520	8.9	1200	12	0.3		na	0.00073 U	0.00051 U	0.00046 U	0.00064 U	0.00051 U	0.00049 U	0.00063 U	0.00056 U	0.00051 U	0.00064 U	0.00061 U	0.0006 U	0.00051 U
Vinyl Acetate	1000000	1600	200000	10	170		na	0.0026 U	0.0018 U	0.0016 U	0.0023 U	0.0018 U	0.0018 U	0.0022 U	0.002 U	0.0018 U	0.0023 U	0.0022 U	0.0022 U	0.0018 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		na	0.0011 U	0.00078 U	0.0007 U	0.00097 U	0.00077 U	0.00076 U	0.00096 U	0.00086 U	0.00078 U	0.00097 U	0.00093 U	0.00092 U	0.00079 U
Xylene (total)	1000000	320	410000	320	150		na	0.0025 U	0.0047	0.0022 J	0.0022 U	0.0044	0.0017 U	0.0022 U	0.0047	0.0018 U	0.0022 U	0.0021 U	0.0029 J	0.0018 U
PAHs																				
2-Methylnaphthalene**	8200	--	820	--	39		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthene	120000	--	120000	--	2900		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Acenaphthylene	61000	--	61000	--	120		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Anthracene	610000	--	610000	--	59000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)anthracene	8	--	170	--	8		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(a)pyrene	0.8	--	17	--	82		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(b)fluoranthene	8	--	170	--	25		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(ghi)perylene**	61000	--	61000	--	160000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzo(k)fluoranthene	78	--	1700	--	250		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chrysene	780	--	17000	-	800		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluoranthene	82000	--	82000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fluorene	82000	--	82000	--	2800		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Naphthalene	41000	270	4100	1.8	18		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenanthrene**	61000	--	61000	--	1100		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pyrene	61000	--	61000	--	21000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
METALs																				
Arsenic	11.3*	1200	61	25000	110-130		2.5	3.6	4.8	3.1	10	4.6	23	4.8	4.5	4.2	5.8	4.9	0.66	3.4
Vanadium	14000	--	1400	--	980		16	35	22	18	38	15	69	32	17	17	29	30	2.3	16
Percent moisture							14%	24%	12%	12%	21%	11%	12%	18%	14%	12%	19%	19%	18%	14%
pH (<2.0 or >12.5)							8.7	6.3	8.3	8.4	7.5	8.0	8.2	4	8	8	7.4	7	7.8	8.1

Table H-17. Former Agricultural Chemical Production Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																			
	Industrial / Commercial		Construction Worker		Migration to Groundwater															
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	AG41	AG42	AG42	AG42	AG43	AG43	AG43	AG44	AG44	AG44	AG45	AG45	AG45	AG45
						Sample Date	7/31/03	8/7/03	8/7/03	8/7/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/12/03
						Sample Depth (ft)	10-12	2-4	10-12	16-18	2-4	10-12	14-16	2-4	10-12	14-16	2-4	2-4	10-12	14-16
						Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg															
SVOCs																				
1,2,4-Trichlorobenzene	20000	3200	2000	920	53		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,5-Trichlorophenol	200000	--	200000	--	1400		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4,6-Trichlorophenol	520	390	11000	540	0.77		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dichlorophenol	6100	--	610	--	1		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dimethylphenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrophenol	2000	--	410	--	0.2		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2,6-Dinitrotoluene	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chloronaphthalene**	160000	--	16000	--	1200		na	na	na	na	na	na	na	na	na	na	na	na	na	na
2-Chlorophenol	10000	53000	10000	53000	20		na	na	na	na	na	na	na	na	na	na	na	na	na	na
3,3-Dichlorobenzidine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
4,6-Dinitro-o-cresol**	720	--	71	--			na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Bromophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
4-Chlorophenyl phenyl ether	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzoic acid	1000000	--	820000	--	400		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Benzyl alcohol**	610000	6900	200000	6900	9.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethoxy)methane	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Butyl benzyl phthalate	410000	930	410000	930	930		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dibenzofuran**	8200	--	820	--	76		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Diethyl phthalate	1000000	2000	1000000	2000	470		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dimethyl phthalate**	1000000	1300	1000000	1300	380		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-butyl phthalate	200000	2300	200000	2300	2300		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Di-n-octyl phthalate	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobenzene	4	1.8	78	2.6	11		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorobutadiene**	410	1000	41	180	15		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachlorocyclopentadiene	14000	16	14000	1.1	400		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hexachloroethane	2000	--	2000	--	2.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Isophorone	410000	4600	410000	4600	8		na	na	na	na	na	na	na	na	na	na	na	na	na	na
m-Nitroaniline**	--	120	--	7.5	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nitrobenzene	1000	140	1000	9.4	0.1		na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodimethylamine	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodiphenylamine	1200	--	25000	--	5.6		na	na	na	na	na	na	na	na	na	na	na	na	na	na
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Cresol	100000	--	100000	--	15		na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
o-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Chloro-m-cresol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCP (pentachlorophenol)	24	--	520	--	0.14		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phenol	1000000	--	120000	--	100		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitroaniline	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
p-Nitrophenol	--	--	--	--	--		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Inorganics																				
Ammonia (as N)							0 U	0 U	0 U	0 U	0 U	0 U	0 U	35	0 U	0 U	8.8	13	14	0 U
Nitrogen							0.58 U	0.66 U	0.57 U	0.57 U	0.63 U	0.56 U	0.57 U	0.61 U	0.58 U	0.57 U	0.62 U	0.62 U	0.61 U	0.58 U
Sulfate***					400 (mg/L)		56	430	49	24	220	60	71	5800	46	79	79	130	34	44
Phosphorus							250	370	200	230	170	210	180	260	170	170	210	230	430	170

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present
at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Sulfate soil concentrations in mg/kg not directly comparable to soil to groundwater RO (mg/L).

Table H-18. Former Fire Training Grounds
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																														
	Industrial / Commercial		Construction Worker		Migration to Groundwater																										
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	FT01	FT02	FP02	FT02	FT02	FT03	FT04	FT04	FT05	FT06	FT06	FT07	FT07	FT08	FT10	FT10	FT10
						Sample Date	7/15/03	7/15/03	7/29/03	7/29/03	7/29/03	7/25/03	7/29/03	7/29/03	7/15/03	37827	37827	7/25/03	7/25/03	7/29/03	37827	7/25/03	7/25/03
						Sample Depth (ft)	0-2	0-2	6-8	12-14	14-16	6-8	6-8	6-8	0.5-1	4-6	8-10	0-2	6-8	10-12	0-2	6-8	8-10
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Analyte																							
VOCs																							
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00086 U	0.00078 U	0.0012 U	0.00078 U	0.00079 U	0.0011 U	0.00078 U	0.00087 U	0.00089 U	0.047 U	0.00084 U	0.00095 U	0.0011 U	0.0009 U	0.00092 U	0.00091 U	0.0024 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00069 U	0.00062 U	0.00094 U	0.00062 U	0.00064 U	0.00088 U	0.00063 U	0.0007 U	0.00071 U	0.037 U	0.00067 U	0.00076 U	0.00088 U	0.00072 U	0.00074 U	0.00073 U	0.0019 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00084 U	0.00077 U	0.0012 U	0.00076 U	0.00078 U	0.0011 U	0.00077 U	0.00086 U	0.00087 U	0.046 U	0.00083 U	0.00094 U	0.0011 U	0.00089 U	0.0009 U	0.00089 U	0.0024 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.0007 U	0.00064 U	0.00096 U	0.00064 U	0.00065 U	0.0009 U	0.00064 U	0.00071 U	0.00073 U	0.038 U	0.00069 U	0.00078 U	0.0009 U	0.00074 U	0.00075 U	0.00074 U	0.002 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00081 U	0.00073 U	0.0011 U	0.00073 U	0.00075 U	0.001 U	0.00074 U	0.00082 U	0.00083 U	0.044 U	0.00079 U	0.0009 U	0.001 U	0.00085 U	0.00087 U	0.00085 U	0.0023 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.001 U	0.00091 U	0.0014 U	0.00091 U	0.00093 U	0.0013 U	0.00092 U	0.001 U	0.001 U	0.054 U	0.00098 U	0.0011 U	0.0013 U	0.0011 U	0.0011 U	0.0011 U	0.0028 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00063 U	0.00058 U	0.00087 U	0.00057 U	0.00059 U	0.00082 U	0.00058 U	0.00064 U	0.00065 U	0.034 U	0.00062 U	0.0007 U	0.00081 U	0.00067 U	0.00068 U	0.00067 U	0.0018 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0091 U	0.0082 U	0.012 U	0.0082 U	0.0084 U	0.012 U	0.0083 U	0.0092 U	0.0094 U	0.49 U	0.0089 U	0.01 U	0.012 U	0.0095 U	0.0097 U	0.0096 U	0.026 U
Acetone	200000	100000	200000	100000	16		0.024	0.071	0.028	0.023	0.057	0.084	0.0096 U	0.011 U	0.028	0.57 U	0.014 J	0.047	0.026	0.013 J	0.028	0.042	0.042 J
Benzene	100	1.6	2300	2.2	0.17		0.00053 U	0.00048 U	0.00073 U	0.0039 J	0.0027 J	0.00069 U	0.0043	0.0049	0.00055 U	5 0.23 J	0.026	0.0049 J	0.0056 J	0.0061	0.00057 U	0.002 J	0.0044 J
Bromodichloromethane	92	3000	2000	3000	0.6		0.00072 U	0.00066 U	0.00099 U	0.00066 U	0.00067 U	0.00093 U	0.00066 U	0.00073 U	0.00075 U	0.039 U	0.00071 U	0.00081 U	0.00093 U	0.00076 U	0.00078 U	0.00076 U	0.002 U
Bromoform	720	100	16000	140	0.8		0.00058 U	0.00052 U	0.00079 U	0.00052 U	0.00053 U	0.00074 U	0.00053 U	0.00059 U	0.0006 U	0.031 U	0.00057 U	0.00064 U	0.00074 U	0.00061 U	0.00062 U	0.00061 U	0.0016 U
Carbon disulfide	200000	720	20000	9	160		0.0012 U	0.0011 U	0.0019 J	0.0016 J	0.0018 J	0.0016 U	0.0011 U	0.0013 U	0.0023 J	0.067 U	0.0012 U	0.0014 U	0.0016 U	0.0013 U	0.0013 U	0.0013 U	0.0035 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00089 U	0.00081 U	0.0012 U	0.00081 U	0.00082 U	0.0011 U	0.00082 U	0.00091 U	0.00092 U	0.048 U	0.00087 U	0.00099 U	0.0011 U	0.00094 U	0.00096 U	0.00094 U	0.0025 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.0006 U	0.00054 U	0.00082 U	0.00054 U	0.00055 U	0.00077 U	0.00055 U	0.00061 U	0.00062 U	0.033 U	0.00059 U	0.00067 U	0.00077 U	0.00063 U	0.00064 U	0.00063 U	0.0017 U
Chloroethane**	820000	1500	82000	94	70		0.00088 U	0.0008 U	0.0012 U	0.0008 U	0.00081 U	0.0011 U	0.00081 U	0.00089 U	0.00091 U	0.048 U	0.00086 U	0.00098 U	0.0011 U	0.00093 U	0.00095 U	0.00093 U	0.0025 U
Chloroform	940	0.54	2000	0.76	2.9		0.00061 U	0.00055 U	0.00084 U	0.00055 U	0.00056 U	0.00079 U	0.00056 U	0.00062 U	0.00063 U	0.033 U	0.0006 U	0.00068 U	0.00078 U	0.00064 U	0.00065 U	0.00064 U	0.0017 U
Chloromethane**	8200	170	820	1.1	0.68		0.00067 U	0.00061 U	0.0031 J	0.00061 U	0.00062 U	0.00087 U	0.00062 U	0.00068 U	0.0017 J	0.051 J	4.5 1.2	0.0095	0.0067	0.00071 U	0.00072 U	0.00071 U	0.0019 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00054 U	0.00049 U	0.00074 U	0.00049 U	0.0005 U	0.0007 U	0.0005 U	0.00055 U	0.00056 U	0.029 U	0.00053 U	0.0006 U	0.00069 U	0.00057 U	0.00058 U	0.00057 U	0.0015 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00038 U	0.00034 U	0.00052 U	0.00034 U	0.00035 U	0.00049 U	0.00035 U	0.00039 U	0.00039 U	0.021 U	0.00037 U	0.00042 U	0.00049 U	0.0004 U	0.00041 U	0.0004 U	0.0011 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00091 U	0.00083 U	0.0013 U	0.00083 U	0.00084 U	0.0012 U	0.00084 U	0.00093 U	0.00094 U	0.05 U	0.011	0.001 U	0.0012 U	0.00096 U	0.00098 U	0.00097 U	0.0026 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.0007 U	0.0012 J	0.00096 U	0.0019 J	0.0011 J	0.0009 U	0.0039 J	0.0043 J	0.00072 U	0.26	0.0064	0.0023 J	0.00089 U	0.005	0.00075 U	0.00074 U	0.002 U
Ethylbenzene	200000	400	20000	58	19		0.001 U	0.00093 U	0.0014 U	0.00093 U	0.00095 U	0.0013 U	0.00094 U	0.001 U	0.0011 U	0.056 U	0.001 U	0.0011 U	0.0013 U	0.0011 U	0.0011 U	0.0011 U	0.0029 U
m-Dichlorobenzene**	1800	570	180	570	1		0.0014 U	0.0013 U	0.0019 U	0.0013 U	0.0013 U	0.0018 U	0.0013 U	0.0014 U	0.0014 U	0.076 U	0.0014 U	0.0015 U	0.0018 U	0.0015 U	0.0015 U	0.0015 U	0.0039 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0015 U	0.0013 U	0.002 U	0.0013 U	0.0014 U	0.0019 U	0.0014 U	0.0015 U	0.0015 U	0.08 U	0.0015 U	0.0016 U	0.0019 U	0.0016 U	0.0016 U	0.0016 U	0.0042 U
Methyl chloride	--	--	--	--	--		0.0071 U	0.0065 U	0.0098 U	0.0094	0.013	0.0092 U	0.0065 U	0.0072 U	0.0074 U	0.39 U	0.007 U	0.0079 U	0.0091 U	0.0075 U	0.0076 U	0.0075 U	0.02 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.012 U	0.011 U	0.016 U	0.011 U	0.011 U	0.015 U	0.011 U	0.012 U	0.012 U	0.65 U	0.012 U	0.013 U	0.015 U	0.013 U	0.013 U	0.013 U	0.034 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.0026 U	0.0024 U	0.0036 U	0.0023 U	0.0024 U	0.0033 U	0.0024 U	0.0026 U	0.0027 U	0.14 U	0.0025 U	0.0029 U	0.0033 U	0.0027 U	0.0028 U	0.0027 U	0.0073 U
Methylene chloride	760	24	1200	34	0.2		0.00067 U	0.0006 U	0.00091 U	0.0006 U	0.00062 U	0.00086 U	0.00061 U	0.00068 U	0.00069 U	0.036 U	0.00065 U	0.00074 U	0.00085 U	0.0007 U	0.00071 U	0.0007 U	0.0019 U
o-Dichlorobenzene	180000	560	18000	310	43		0.00093 U	0.00085 U	0.0013 U	0.00085 U	0.00086 U	0.0012 U	0.00085 U	0.00095 U	0.00097 U	0.051 U	0.00092 U	0.001 U	0.0012 U	0.00098 U	0.001 U	0.00099 U	0.0026 U
p-Dichlorobenzene	--	17000	--	340	11		0.00055 U	0.0005 U	0.00075 U	0.00049 U	0.00051 U	0.0007 U	0.0005 U	0.00055 U	0.00056 U	0.03 U	0.00054 U	0.00061 U	0.0007 U	0.00057 U	0.00059 U	0.00058 U	0.0015 U
Styrene	410000	1500	41000	430	18		0.001 U	0.019	0.0014 U	0.00092 U	0.00094 U	0.0013 U	0.0057	0.0049	0.0011 U	0.055 U	0.001 U	0.014	0.0013 U	0.0011 U	0.0011 U	0.0011 U	0.0029 U
Tetrachloroethylene	110	20	240	28	0.3		0.0038 U	0.0053	0.0052 U	0.0077	0.0079	0.0098	0.0049 U	0.011	0.0039 U	0.21 J	0.016	0.0071	0.0048 U	0.013	0.004 U	0.004 U	0.011 U
Toluene	410000	650	410000	42	29		0.00048 U	0.00044 U	0.00066 U	0.00043 U	0.00044 U	0.00062 U	0.00044 U	0.00049 U	0.00045 U	0.026 U	0.00047 U	0.00053 U	0.00062 U	0.00051 U	0.00052 U	0.00051 U	0.0014 U
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00058 U	0.00084 J	0.00079 U	0.00052 U	0.00053 U	0.00074 U	0.00053 U	0.00059 U	0.0006 U	0.031 U	0.01	0.00064 U	0.00074 U	0.00061 U	0.00062 U	0.00061 U	0.0016 U
Trichloroethylene	520	8.9	1200	12	0.3		0.0021 U	0.0019 U	0.0028 U	0.0019 U	0.0019 U	0.0026 U	0.0019 U	0.0021 U	0.0021 U	0.11 U	0.002 U	0.0023 U	0.0026 U	0.0022 U	0.0022 U	0.0022 U	0.0058 U
Vinyl Acetate	1000000	1600	200000	10	170		0.00088 U	0.0008 U	0.0012 U	0.0008 U	0.00081 U	0.0011 U	0.00081 U	0.00089 U	0.00091 U	0.048 U	0.045	0.00098 U	0.0011 U	0.00093 U	0.00095 U	0.00093 U	0.0025 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.002 U	0.0028 J	0.0027 U	0.0039 J	0.0037 J	0.0026 U	0.0073	0.0083	0.0021 U	0.53	0.014	0.0055	0.0026 U	0.01	0.0021 U	0.0021 U	0.0056 U
PAHs																							
2-Methylnaphthalene**	8200	--	820	--	39		0.006 U	0.008 J	0.0061 U	0.018 J	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.28 J	0.0057 U	0.0064 J	0.0062 U	0.0059 U	1	0.0059 U	0.0059 U
Acenaphthene	120000	--	120000	--	2900		0.006 U	0.0057 U	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	0.26 J	0.0059 U	0.0059 U
Acenaphthylene	61000	--	61000	--	120		0.006 U	0.0057 U	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	0.055 J	0.0059 U	0.0059 U
Anthracene	610000	--	610000	--	59000		0.006 U	0.0073 J	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	1	0.0059 U	0.0059 U
Benzo(a)anthracene	8	--	170	--	8		0.006 U	0.021	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	2.5	0.0059 U	0.0059 U
Benzo(a)pyrene	0.8	--	17	--	82		0.006 U	0.02	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	1 2.2	0.0059 U	0.0059 U
Benzo(b)fluoranthene	8	--	170	--	25		0.006 U	0.068	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	2.4	0.0059 U	0.0059 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.006 U	0.036 J	0.0061 U	0.0086 J	0.0087 J	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0064 J	0.0062 U	0.0059 U	0.72	0.01 J	0.0086 J
Benzo(k)fluoranthene	78	--	1700	--	250		0.006 U	0.046	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	2	0.0059 U	0.0059 U
Chrysene	780	--	17000	-	800		0.006 U	0.057 J	0.0061 U	0.0075 J	0.008 J	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0068 J	0.0062 U	0.0059 U	2.7	0.0082 J	0.009 J
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.006 U	0.0057 U	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	0.27	0.0059 U	0.0059 U
Fluoranthene	82000	--	82000	--	21000		0.006 U	0.031 J	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.01 J	0.0062 U	0.0059 U	5.1	0.0059 U	0.0059 U
Fluorene	82000	--	82000	--	2800		0.006 U	0.0057 U	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	0.22	0.0059 U	0.0059 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.006 U	0.025 J	0.0061 U	0.0056 U	0.0057 U	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0057 U	0.0062 U	0.0059 U	0.86	0.0059 U	0.0059 U
Naphthalene	41000	270	4100	1.8	18		0.006 U	0.0069 J	0.0061 U	0.061 J	0.0057 U	0.011 J	0.0058 J	0.0058 U	0.0061 U	0.12 J	0.017 J	0.015 J	0.0062 U	0.0059 U	0.64	0.0059 U	0.0086 J
Phenanthrene**	61000	--	61000	--	1100		0.006 J	0.026 J	0.0061 U	0.0056 U	0.0076 J	0.0078 J	0.0058 U	0.0058 U	0.0085 J	0.014 J	0.01 J	0.022 J	0.0062 U	0.0059 U	3.9	0.0086 J	0.01 J
Pyrene	61000	--	61000	--	21000		0.006 U	0.073 J	0.0061 U	0.0056 U	0.0068 J	0.0065 U	0.0058 U	0.0058 U	0.0061 U	0.0063 U	0.0057 U	0.0095 J	0.0062 U	0.0059 U	3.6	0.0078 J	0.009 J
METALS																							
Lead*	400	--	400	--	20.9		14	17	13	14	9.7	9.3	10	16	13	10	6	2.9	12	19	5 63	6.6	7.2
pH																							
							na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Percent moisture							17	13	18	11	12	23	14	14	18	20	12	12	19	15	18	15	15
PCBs																							
Aroclor 1016	1	--	1	--	--		0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U 1,3	2.7 U	0.13 U	0.13 U
Aroclor 1221	1	--	1	--	--		0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U 1,3	2.7 U	0.13 U	0.13 U
Aroclor 1232	1	--	1	--	--		0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U 1,3	2.7 U	0.13 U	0.13 U
Aroclor 1242	1	--	1	--	--		0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U 1,3	2.7 U	0.13 U	0.13 U
Aroclor 1248	1	--	1	--	--		0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U 1,3	2.7 U	0.13 U	0.13 U
Aroclor 1254	1	--	1	--	--		0.13 U	0.13 U	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U 1,3	2.7 U	0.13 U	0.13 U
Aroclor 1260	1	--	1	--	--		0.13 U 1,3	1.1	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U 1,3	11	0.13 U	0.13 U

Legend:
Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Lead: Migration to Groundwater RO shown is Statewide Background Concentration for Counties Outside Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-18. Former Fire Training Grounds
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

Analyte	TACO Tier 1 Soil Remediation Objectives: Industrial / Commercial Ingestion mg/kg	Industrial / Commercial Inhalation mg/kg	Construction Worker Ingestion mg/kg	Construction Worker Inhalation mg/kg	Migration to Groundwater Class II mg/kg
VOCs					
1,1,1-Trichloroethane	--	1200	--	1200	9.6
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3
1,1-Dichloroethane	200000	1700	200000	130	110
1,1-Dichloroethylene	18000	1500	1800	300	0.3
1,2-Dichloroethane	63	0.7	1400	0.99	0.1
1,2-Dichloropropane	84	23	1800	5	0.15
2-Hexanone**	82000	110	8200	0.72	1.3
Acetone	200000	100000	200000	100000	16
Benzene	100	1.6	2300	2.2	0.17
Bromodichloromethane	92	3000	2000	3000	0.6
Bromoform	720	100	16000	140	0.8
Carbon disulfide	200000	720	20000	9	160
Carbon tetrachloride	44	0.64	410	0.9	0.33
Chlorobenzene	41000	210	4100	1.3	6.5
Chloroethane**	820000	1500	82000	94	70
Chloroform	940	0.54	2000	0.76	2.9
Chloromethane**	8200	170	820	1.1	0.68
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02
Dibromochloromethane	41000	1300	41000	1300	0.4
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--
Ethylbenzene	200000	400	20000	58	19
m-Dichlorobenzene**	1800	570	180	570	1
Methyl bromide	2900	15	1000	3.9	1.2
Methyl chloride	--	--	--	--	--
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--
Methylene chloride	760	24	1200	34	0.2
o-Dichlorobenzene	180000	560	18000	310	43
p-Dichlorobenzene	--	17000	--	340	11
Styrene	410000	1500	41000	430	18
Tetrachloroethylene	110	20	240	28	0.3
Toluene	410000	650	410000	42	29
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02
Trichloroethylene	520	8.9	1200	12	0.3
Vinyl Acetate	1000000	1600	200000	10	170
Vinyl chloride	7.9	1.1	170	1.1	0.07
PAHs					
2-Methylnaphthalene**	8200	--	820	--	39
Acenaphthene	120000	--	120000	--	2900
Acenaphthylene	61000	--	61000	--	120
Anthracene	610000	--	610000	--	59000
Benzo(a)anthracene	8	--	170	--	8
Benzo(a)pyrene	0.8	--	17	--	82
Benzo(b)fluoranthene	8	--	170	--	25
Benzo(ghi)perylene**	61000	--	61000	--	160000
Benzo(k)fluoranthene	78	--	1700	--	250
Chrysene	780	--	17000	--	800
Dibenzo(a,h)anthracene	0.8	--	17	-	7.6
Fluoranthene	82000	--	82000	--	21000
Fluorene	82000	--	82000	--	2800
Indeno(1,2,3-cd)pyrene	8	--	170	--	69
Naphthalene	41000	270	4100	1.8	18
Phenanthrene**	61000	--	61000	--	1100
Pyrene	61000	--	61000	--	21000
METALS					
Lead*	400	--	400	--	20.9
pH					
Percent moisture					
PCBs					
Aroclor 1016	1	--	1	--	--
Aroclor 1221	1	--	1	--	--
Aroclor 1232	1	--	1	--	--
Aroclor 1242	1	--	1	--	--
Aroclor 1248	1	--	1	--	--
Aroclor 1254	1	--	1	--	--
Aroclor 1260	1	--	1	--	--

Sample Location / Sample Date / Sample Depth (ft) / Units	FT11 7/29/03 6-8 mg/kg	FT11 8/11/03 6-8 mg/kg DUP	FT12 7/29/03 8-10 mg/kg	FT14 8/11/03 0-2 mg/kg	FT14 8/11/03 6-8 mg/kg
VOCs					
1,1,1-Trichloroethane	0.00084 U	0.00093 U	0.00086 U	0.0011 U	0.00069 U
1,1,2,2-Tetrachloroethane**	0.00068 U	0.00075 U	0.00069 U	0.00085 U	0.00056 U
1,1,2-Trichloroethane	0.00083 U	0.00091 U	0.00085 U	0.001 U	0.00068 U
1,1-Dichloroethane	0.00069 U	0.00076 U	0.00071 U	0.00087 U	0.00057 U
1,1-Dichloroethylene	0.00079 U	0.00088 U	0.00081 U	0.00099 U	0.00065 U
1,2-Dichloroethane	0.00099 U	0.0011 U	0.001 U	0.0012 U	0.00081 U
1,2-Dichloropropane	0.00062 U	0.00069 U	0.00064 U	0.00078 U	0.00051 U
2-Hexanone**	0.0089 U	0.0098 U	0.0091 U	0.011 U	0.0074 U
Acetone	0.062	0.016 J	0.011 U	0.22	0.082 B
Benzene	0.0043 J	0.0058	0.0049	0.0039 J	0.0059
Bromodichloromethane	0.00071 U	0.00079 U	0.00073 U	0.00089 U	0.00059 U
Bromoform	0.00057 U	0.00063 U	0.00058 U	0.00071 U	0.00047 U
Carbon disulfide	0.0016 J	0.0013 U	0.0012 U	0.0019 J	0.003 J
Carbon tetrachloride	0.00088 U	0.00097 U	0.0009 U	0.0011 U	0.00072 U
Chlorobenzene	0.00059 U	0.00065 U	0.0006 U	0.00074 U	0.00049 U
Chloroethane**	0.00087 U	0.00096 U	0.00089 U	0.0011 U	0.00071 U
Chloroform	0.0006 U	0.00066 U	0.00061 U	0.00075 U	0.00049 U
Chloromethane**	0.005	0.0061	0.00068 U	0.00083 U	0.00055 U
cis-1,2-Dichloroethylene	0.00053 U	0.00059 U	0.00055 U	0.00067 U	0.00044 U
cis-1,3-Dichloropropene	0.00037 U	0.00041 U	0.00038 U	0.00047 U	0.00031 U
Dibromochloromethane	0.0009 U	0.00099 U	0.00092 U	0.0011 U	0.00074 U
Ethene, 1,2-dichloro-, (E)-	0.0031 J	0.0042 J	0.0033 J	0.0017 J	0.0027 J
Ethylbenzene	0.001 U	0.0011 U	0.001 U	0.0013 U	0.00083 U
m-Dichlorobenzene**	0.0014 U	0.0015 U	0.0014 U	0.0017 U	0.0011 U
Methyl bromide	0.0015 U	0.0016 U	0.0015 U	0.0018 U	0.0012 U
Methyl chloride	0.019	0.0077 U	0.0072 U	0.0088 U	0.0058 U
Methyl ethyl ketone** (MEK)	0.012 U	0.013 U	0.012 U	0.015 U	0.0097 U
Methyl isobutyl ketone (MIBK)*	0.0026 U	0.0028 U	0.0026 U	0.0032 U	0.0021 U
Methylene chloride	0.00066 U	0.00072 U	0.00067 U	0.00082 U	0.00054 U
o-Dichlorobenzene	0.00092 U	0.0024 J	0.00094 U	0.0011 U	0.00076 U
p-Dichlorobenzene	0.00054 U	0.00059 U	0.00055 U	0.00067 U	0.00044 U
Styrene	0.001 U	0.0011 U	0.001 U	0.0013 U	0.00083 U
Tetrachloroethylene	0.012	0.013	0.0098	0.0046 U	0.0063
Toluene	0.00047 U	0.00052 U	0.00048 U	0.00059 U	0.00039 U
trans-1,3-Dichloropropene	0.011	0.014	0.00058 U	0.00071 U	0.00047 U
Trichloroethylene	0.002 U	0.0022 U	0.0021 U	0.0025 U	0.0017 U
Vinyl Acetate	0.00087 U	0.00096 U	0.00089 U	0.0011 U	0.00071 U
Vinyl chloride	0.008	0.0097	0.0064	0.0025 U	0.0047
PAHs					
2-Methylnaphthalene**	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Acenaphthene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Acenaphthylene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Anthracene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Benzo(a)anthracene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Benzo(a)pyrene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Benzo(b)fluoranthene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Benzo(ghi)perylene**	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Benzo(k)fluoranthene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Chrysene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Dibenzo(a,h)anthracene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Fluoranthene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Fluorene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Indeno(1,2,3-cd)pyrene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
Naphthalene	0.0057 U	0.025 J	0.0056 U	0.0062 U	0.01 J
Phenanthrene**	0.0057 U	0.0057 U	0.0056 U	0.0095 J	0.0057 U
Pyrene	0.0057 U	0.0057 U	0.0056 U	0.0062 U	0.0057 U
METALS					
Lead*	10	12	8.8	19	9.6
pH	na	na	na	7.2	8
Percent moisture	12	13	11	19	13
PCBs					
Aroclor 1016	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U
Aroclor 1221	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U
Aroclor 1232	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U
Aroclor 1242	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U
Aroclor 1248	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U
Aroclor 1254	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U
Aroclor 1260	0.13 U	0.13 U	0.12 U	0.14 U	0.13 U

Sample Location / Sample Date / Sample Depth (ft) / Units	FT14 8/11/03 10-12 mg/kg	FT15 8/11/03 6-8 mg/kg	FT15 8/11/03 12-14 mg/kg	FT15 8/11/03 12-14 mg/kg DUP	FT15 8/11/03 18-20 mg/kg
VOCs					
1,1,1-Trichloroethane	0.00091 U	0.047 U	0.047 U	0.048 U	0.00093 U
1,1,2,2-Tetrachloroethane**	0.00073 U	0.038 U	0.038 U	0.039 U	0.00075 U
1,1,2-Trichloroethane	0.0009 U	0.046 U	0.047 U	0.048 U	0.00092 U
1,1-Dichloroethane	0.00075 U	0.039 U	0.039 U	0.04 U	0.00077 U
1,1-Dichloroethylene	0.00086 U	0.044 U	0.045 U	0.046 U	0.00088 U
1,2-Dichloroethane	0.0011 U	0.055 U	0.055 U	0.057 U	0.0011 U
1,2-Dichloropropane	0.00067 U	0.035 U	0.035 U	0.036 U	0.00069 U
2-Hexanone**	0.0097 U	0.5 U	0.5 U	0.51 U	0.0099 U
Acetone	0.019	0.63 J	0.58 U	0.59 U	0.055
Benzene	0.0047 J	0.029 U	0.029 U	0.03 U	0.0022 J
Bromodichloromethane	0.00077 U	0.04 U	0.04 U	0.041 U	0.00079 U
Bromoform	0.00061 U	0.032 U	0.032 U	0.033 U	0.00063 U
Carbon disulfide	0.0013 U	0.068 U	0.068 U	0.07 U	0.0023 J
Carbon tetrachloride	0.00095 U	0.049 U	0.049 U	0.05 U	0.00097 U
Chlorobenzene	0.00064 U	0.033 U	0.033 U	0.034 U	0.00065 U
Chloroethane**	0.00094 U	0.048 U	0.049 U	0.05 U	0.00096 U
Chloroform	0.00065 U	0.033 U	0.034 U	0.034 U	0.00066 U
Chloromethane**	0.00072 U	0.037 U	0.037 U	0.038 U	0.00073 U
cis-1,2-Dichloroethylene	0.00058 U	0.03 U	0.03 U	0.031 U	0.00059 U
cis-1,3-Dichloropropene	0.0004 U	0.021 U	0.021 U	0.021 U	0.00041 U
Dibromochloromethane	0.00097 U	0.05 U	0.051 U	0.052 U	0.001 U
Ethene, 1,2-dichloro-, (E)-	0.0031 J	0.038 U	0.038 U	0.039 U	0.00099 J
Ethylbenzene	0.0011 U	0.056 U	0.057 U	0.058 U	0.0011 U
m-Dichlorobenzene**	0.0015 U	0.076 U	0.077 U	0.079 U	0.0015 U
Methyl bromide	0.0016 U	0.081 U	0.082 U	0.083 U	0.0016 U
Methyl chloride	0.0076 U	0.39 U	0.39 U	0.4 U	0.0078 U
Methyl ethyl ketone** (MEK)	0.013 U	0.66 U	0.66 U	0.68 U	0.013 U
Methyl isobutyl ketone (MIBK)*	0.0028 U	0.14 U	0.14 U	0.15 U	0.0028 U
Methylene chloride	0.00071 U	0.037 U	0.037 U	0.038 U	0.00073 U
o-Dichlorobenzene	0.00099 U	0.051 U	0.052 U	0.053 U	0.001 U
p-Dichlorobenzene	0.00058 U	0.03 U	0.03 U	0.031 U	0.0006 U
Styrene	0.0011 U	0.056 U	0.056 U	0.057 U	0.0011 U
Tetrachloroethylene	0.0099	0.21 U	0.21 U	0.21 U	0.0041 U
Toluene	0.00051 U	0.026 U	0.027 U	0.027 U	0.00052 U
trans-1,3-Dichloropropene	0.00061 U	0.032 U	0.032 U	0.033 U	0.00063 U
Trichloroethylene	0.0022 U	0.11 U	0.11 U	0.12 U	0.0022 U
Vinyl Acetate	0.00094 U	0.048 U	0.049 U	0.05 U	0.00096 U
Vinyl chloride	0.0059	0.11 U	0.11 U	0.11 U	0.0022 U
PAHs					
2-Methylnaphthalene**	0.0057 U	0.0093 J	0.0057 U	0.0057 U	0.0057 U
Acenaphthene	0.0057 U	0.0069 J	0.0057 U	0.0057 U	0.0057 U
Acenaphthylene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Anthracene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Benzo(a)anthracene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Benzo(a)pyrene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Benzo(b)fluoranthene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Benzo(ghi)perylene**	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0073 J
Benzo(k)fluoranthene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Chrysene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.011 J
Dibenzo(a,h)anthracene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Fluoranthene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Fluorene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Indeno(1,2,3-cd)pyrene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 U
Naphthalene	0.053 J	0.015 J	0.008 J	0.0091 J	0.0065 J
Phenanthrene**	0.0057 U	0.0093 J	0.0057 U	0.0064 J	0.0069 J
Pyrene	0.0057 U	0.0061 U	0.0057 U	0.0057 U	0.0057 J
METALS					
Lead*	11	16	8.8	0.002 U	8.5
pH	8.2	7.7	8	8	8
Percent moisture	12	18	13	12	13
PCBs					
Aroclor 1016	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Aroclor 1221	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Aroclor 1232	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Aroclor 1242	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Aroclor 1248	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Aroclor 1254	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Aroclor 1260	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

Sample Location / Sample Date / Sample Depth (ft) / Units	FT16 8/11/03 4-6 mg/kg	FT16 8/11/03 10-12 mg/kg	FT17 8/13/03 2-4 mg/kg	FT17 8/13/03 14-16 mg/kg
VOCs				
1,1,1-Trichloroethane	0.037 U	0.001 U	0.00092 U	0.00074 U
1,1,2,2-Tetrachloroethane**	0.03 U	0.00081 U	0.00074 U	0.00059 U
1,1,2-Trichloroethane	0.036 U	0.001 U	0.00091 U	0.00072 U
1,1-Dichloroethane	0.03 U	0.00083 U	0.00076 U	0.0006 U
1,1-Dichloroethylene	0.035 U	0.00096 U	0.00087 U	0.00069 U
1,2-Dichloroethane	0.043 U	0.0012 U	0.0011 U	0.00086 U
1,2-Dichloropropane	0.027 U	0.00075 U	0.00068 U	0.00054 U
2-Hexanone**	0.39 U	0.011 U	0.0098 U	0.0078 U
Acetone	0.45 U	0.058	0.041	0.061
Benzene	0.023 U	0.0052 J	0.00058 U	0.0027 J
Bromodichloromethane	0.031 U	0.00086 U	0.00078 U	0.00062 U
Bromoform	0.025 U	0.00068 U	0.00062 U	0.0005 U
Carbon disulfide	0.053 U	0.0015 U	0.0013 U	0.0011 U
Carbon tetrachloride	0.038 U	0.0011 U	0.00096 U	0.00077 U
Chlorobenzene	0.026 U	0.00071 U	0.00065 U	0.00052 U
Chloroethane**	0.038 U	0.001 U	0.00095 U	0.00076 U
Chloroform	0.026 U	0.00072 U	0.00066 U	0.00052 U
Chloromethane**	0.029 U	0.0008 U	0.00073 U	0.00058 U
cis-1,2-Dichloroethylene	0.023 U	0.00064 U	0.00058 U	0.00047 U
cis-1,3-Dichloropropene	0.016 U	0.00045 U	0.00041 U	0.00033 U
Dibromochloromethane	0.039 U	0.0011 U	0.00099 U	0.00079 U
Ethene, 1,2-dichloro-, (E)-	0.03 U	0.003 J	0.00075 U	0.001 J
Ethylbenzene	0.044 U	0.0012 U	0.0011 U	0.00088 U
m-Dichlorobenzene**	0.06 U	0.0017 U	0.0015 U	0.0012 U
Methyl bromide	0.064 U	0.0018 U	0.0016 U	0.0013 U
Methyl chloride	0.31 U	0.0085 U	0.0077 U	0.013
Methyl ethyl ketone** (MEK)	0.52 U	0.014 U	0.013 U	0.01 U
Methyl isobutyl ketone (MIBK)*	0.11 U	0.0031 U	0.0028 U	0.0022 U
Methylene chloride	0.029 U	0.00079 U	0.00072 U	0.00057 U
o-Dichlorobenzene	0.04 U	0.0011 U	0.001 U	0.0008 U
p-Dichlorobenzene	0.023 U	0.00065 U	0.00059 U	0.00047 U
Styrene	0.044 U	0.0012 U	0.0011 U	0.00088 U
Tetrachloroethylene	0.16 U	0.01	0.0041 U	0.0043
Toluene	0.021 U	0.00057 U	0.00052 U	0.00041 U
trans-1,3-Dichloropropene	0.025 U	0.00068 U	0.00062 U	0.0005 U
Trichloroethylene	0.088 U	0.0024 U	0.0022 U	0.0018 U
Vinyl Acetate	0.038 U	0.001 U	0.00095 U	0.00076 U
Vinyl chloride	0.086 U	0.0059	0.0022 U	0.0021 J
PAHs				
2-Methylnaphthalene**	0.0057 U	0.0056 U	0.006 U	0.0056 U
Acenaphthene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Acenaphthylene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Anthracene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Benzo(a)anthracene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Benzo(a)pyrene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Benzo(b)fluoranthene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Benzo(ghi)perylene**	0.0057 U	0.0056 U	0.006 U	0.011 J
Benzo(k)fluoranthene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Chrysene	0.0057 U	0.0056 U	0.006 U	0.0085 J
Dibenzo(a,h)anthracene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Fluoranthene	0.0057 U	0.0056 U	0.006 U	0.0059 J
Fluorene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Indeno(1,2,3-cd)pyrene	0.0057 U	0.0056 U	0.006 U	0.0056 U
Naphthalene	0.0057 U	0.0056 U	0.0084 J	0.0096 J
Phenanthrene**	0.0057 U	0.0056 U	0.0064 J	0.011 J
Pyrene	0.0057 U	0.0056 U	0.006 U	0.0085 J
METALS				
Lead*	11	10	18	7.8
pH	8	8.1	7.5	8.1
Percent moisture	13	11	17	10
PCBs				
Aroclor 1016	0.13 U	0.12 U	0.13 U	0.12 U
Aroclor 1221	0.13 U	0.12 U	0.13 U	0.12 U
Aroclor 1232	0.13 U	0.12 U	0.13 U	0.12 U
Aroclor 1242	0.13 U	0.12 U	0.13 U	0.12 U
Aroclor 1248	0.13 U	0.12 U	0.13 U	0.12 U
Aroclor 1254	0.13 U	0.12 U	0.13 U	0.12 U
Aroclor 1260	0.13 U	0.12 U	0.13 U	0.12 U

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Lead: Migration to Groundwater RO shown is Statewide Background Concentration for Counties Outside Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-19. Former Polymer Pilot Plant Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

Analyte	TACO Tier 1 Soil Remediation Objectives: Industrial / Commercial Ingestion	Industrial / Commercial Inhalation	Construction Worker Ingestion	Construction Worker Inhalation	Migration to Groundwater Class II	Sample Location / Sample Date / Sample Depth (ft) / Units	PP01 7/15/03 0-2	PP02 7/18/03 10-12	PP02 7/18/03 10-12 DUP	PP03 7/15/03 0-2	PP03 7/15/03 3-5	PP04 7/18/03 6-8	PP05 7/15/03 0-2	PP06 8/18/03 8-10	PP07 7/15/03 0-2	PP08 7/18/03 4-6		PP08 7/18/03 10-12 mg/kg	PP08 7/18/03 14-16	PP09 7/15/03 0-2		PP10 7/22/03 4-6 mg/kg	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg																		
VOCs																							
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00078 U	0.00079 U	0.00082 U	0.00079 U	na	0.00086 U	0.00086 U	0.00088 U	0.00091 U	0.00091 U		0.00081 U	0.00069 U	0.00074 U		0.051 U	
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00063 U	0.00064 U	0.00066 U	0.00063 U	na	0.00069 U	0.00069 U	0.00071 U	0.00073 U	0.00073 U		0.00065 U	0.00056 U	0.0006 U		0.041 U	
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00077 U	0.00078 U	0.00081 U	0.00077 U	na	0.00084 U	0.00084 U	0.00086 U	0.0009 U	0.0009 U		0.0008 U	0.00068 U	0.00073 U		0.051 U	
1,1-Dichloroethane	200000	1700	200000	130	110		0.00064 U	0.00065 U	0.00067 U	0.00065 U	na	0.0007 U	0.0007 U	0.00072 U	0.00075 U	0.00075 U		0.00067 U	0.00057 U	0.00061 U		0.042 U	
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00073 U	0.00075 U	0.00077 U	0.00074 U	na	0.00081 U	0.00081 U	0.00083 U	0.00086 U	0.00086 U		0.00077 U	0.00065 U	0.0007 U		0.048 U	
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.00091 U	0.00093 U	0.00096 U	0.00092 U	na	0.001 U	0.001 U	0.001 U	0.0011 U	0.0011 U		0.00095 U	0.00081 U	0.00087 U		0.06 U	
1,2-Dichloropropane	84	23	1800	5	0.15		0.00058 U	0.00059 U	0.00061 U	0.00058 U	na	0.00063 U	0.00063 U	0.00065 U	0.00068 U	0.00068 U		0.0006 U	0.00051 U	0.00055 U		0.038 U	
2-Hexanone**	82000	110	8200	0.72	1.3		0.0083 U	0.0084 U	0.0087 U	0.0083 U	na	0.0091 U	0.0091 U	0.0093 U	0.0097 U	0.0097 U		0.0086 U	0.0073 U	0.0079 U		0.54 U	
Acetone	200000	100000	200000	100000	16		0.013 J	0.0097 U	0.01 U	0.02	na	0.01 U	0.031	0.011 U	0.048	0.039		0.01 U	0.044	0.026		0.63 U	
Benzene	100	1.6	2300	2.2	0.17		0.0031 J	0.00049 U	0.00051 U	0.0021 J	na	0.00053 U	0.0011 J	0.0029 J	0.00057 U	0.00057 U		0.011	0.0018 J	0.0023 J		0.032 U	
Bromodichloromethane	92	3000	2000	3000	0.6		0.00066 U	0.00067 U	0.00069 U	0.00066 U	na	0.00072 U	0.00073 U	0.00074 U	0.00077 U	0.00077 U		0.00069 U	0.00059 U	0.00063 U		0.043 U	
Bromoform	720	100	16000	140	0.8		0.00053 U	0.00053 U	0.00055 U	0.00053 U	na	0.00058 U	0.00058 U	0.00059 U	0.00062 U	0.00062 U		0.00055 U	0.00047 U	0.0005 U		0.035 U	
Carbon disulfide	200000	720	20000	9	160		0.0011 U	0.0011 U	0.0012 U	0.0011 U	na	0.0012 U	0.0012 U	0.0013 U	0.0013 U	0.0013 U		0.0012 U	0.001 U	0.0011 U		0.074 U	
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00081 U	0.00082 U	0.00085 U	0.00082 U	na	0.00089 U	0.00089 U	0.00092 U	0.00095 U	0.00095 U		0.00085 U	0.00072 U	0.00077 U		0.054 U	
Chlorobenzene	41000	210	4100	1.3	6.5		0.00055 U	0.00055 U	0.00057 U	0.00055 U	na	0.0006 U	0.0006 U	0.00062 U	0.00064 U	0.00064 U		0.00057 U	0.00048 U	0.00052 U		0.036 U	
Chloroethane**	820000	1500	82000	94	70		0.0008 U	0.00081 U	0.00084 U	0.00081 U	na	0.00088 U	0.00088 U	0.0009 U	0.00094 U	0.00094 U		0.00084 U	0.00071 U	0.00077 U		0.053 U	
Chloroform	940	0.54	2000	0.76	2.9		0.00056 U	0.00056 U	0.00058 U	0.00056 U	na	0.00061 U	0.00061 U	0.00063 U	0.00065 U	0.00065 U		0.00058 U	0.00049 U	0.00053 U		0.037 U	
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00061 U	0.00062 U	0.00064 U	0.00062 U	na	0.00067 U	0.00068 U	0.00069 U	0.00072 U	0.033		0.92	0.00054 U	0.00059 U		1	
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00049 U	0.0005 U	0.00052 U	0.0005 U	na	0.00054 U	0.00054 U	0.00056 U	0.00058 U	0.00058 U		0.00051 U	0.00044 U	0.00047 U	5	0.033 U	5
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00035 U	0.00035 U	0.00036 U	0.00035 U	na	0.00038 U	0.00038 U	0.00039 U	0.0004 U	0.00041 U		0.00036 U	0.00031 U	0.00033 U		0.023 U	
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00083 U	0.00084 U	0.00087 U	0.00084 U	na	0.00091 U	0.00092 U	0.00094 U	0.00097 U	0.00098 U		0.013	0.00074 U	0.00079 U		0.055 U	
Ethylbenzene	200000	400	20000	58	19		0.0029 J	0.00064 U	0.00067 U	0.0011 J	na	0.00069 U	0.0007 U	0.0021 J	0.00074 U	0.00074 U		0.0013 J	0.00056 U	0.0006 U		0.042 U	
m-Dichlorobenzene**	1800	570	180	570	1		0.00093 U	0.00095 U	0.00098 U	0.00094 U	na	0.001 U	0.001 U	0.0011 U	0.0011 U	0.0011 U		0.00098 U	0.00083 U	0.00089 U		0.062 U	
Methyl bromide	2900	15	1000	3.9	1.2		0.0013 U	0.0013 U	0.0013 U	0.0013 U	na	0.0014 U	0.0014 U	0.0014 U	0.0015 U	0.0015 U		0.0013 U	0.0011 U	0.0012 U		0.084 U	
Methyl chloride	--	--	--	--	--		0.0013 U	0.0014 U	0.0014 U	0.0014 U	na	0.0015 U	0.0015 U	0.0015 U	0.0016 U	0.0016 U		0.0014 U	0.0012 U	0.0013 U		0.089 U	
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0065 U	0.0066 U	0.0068 U	0.0065 U	na	0.0071 U	0.0071 U	0.0073 U	0.0076 U	0.0076 U		0.0068 U	0.0058 U	0.0062 U		0.43 U	
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.011 U	0.011 U	0.011 U	0.011 U	na	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U		0.011 U	0.0097 U	0.01 U		0.72 U	
Methylene chloride	760	24	1200	34	0.2		0.0024 U	0.0024 U	0.0025 U	0.0024 U	na	0.0026 U	0.0026 U	0.0027 U	0.0028 U	0.0028 U		0.0025 U	0.0021 U	0.0023 U		0.16 U	
o-Dichlorobenzene	180000	560	18000	310	43		0.00061 U	0.00062 U	0.00064 U	0.00061 U	na	0.00066 U	0.00067 U	0.00068 U	0.00071 U	0.00071 U		0.00063 U	0.00054 U	0.00058 U		0.04 U	
p-Dichlorobenzene	--	17000	--	340	11		0.00085 U	0.00086 U	0.00089 U	0.00086 U	na	0.00093 U	0.00094 U	0.00096 U	0.001 U	0.001 U		0.00089 U	0.00075 U	0.00081 U		0.056 U	
Styrene	410000	1500	41000	430	18		0.0005 U	0.00051 U	0.00052 U	0.0005 U	na	0.00055 U	0.00055 U	0.00056 U	0.00058 U	0.00058 U		0.00052 U	0.00044 U	0.00047 U		0.033 U	
Tetrachloroethylene	110	20	240	28	0.3		0.00093 U	0.00094 U	0.00097 U	0.00093 U	na	0.022	0.001 U	0.027	0.0011 U	0.0022 J		0.03	0.00082 U	0.00088 U	5	1.7	
Toluene	410000	650	410000	42	29		0.0071	0.0035 U	0.0036 U	0.0039 J	na	0.0039 J	0.0038 U	0.0039 U	0.004 U	0.004 U		0.0048	0.003 U	0.0033 U		0.23 U	
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00044 U	0.00044 U	0.00046 U	0.00044 U	na	0.00048 U	0.00048 U	0.00049 U	0.00051 U	0.00051 U		0.00046 U	0.00039 U	0.00042 U	5	0.029 U	5
Trichloroethylene	520	8.9	1200	12	0.3		0.00052 U	0.00053 U	0.00055 U	0.00053 U	na	0.00058 U	0.00058 U	0.00059 U	0.00062 U	0.00062 U		0.04	0.00047 U	0.0005 U	5	0.73	
Vinyl Acetate	1000000	1600	200000	10	170		0.0019 U	0.0019 U	0.002 U	0.0019 U	na	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0022 U		0.002 U	0.0017 U	0.0018 U		0.12 U	
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.0008 U	0.00081 U	0.00084 U	0.00081 U	na	0.00088 U	0.00088 U	0.0009 U	0.00094 U	0.00094 U	5	0.1	0.00071 U	0.00077 U		0.053 U	
Xylene (total)	1000000	320	410000	320	150		0.0053	0.0019 U	0.0019 U	0.0018 U	na	0.002 U	0.002 U	0.0038 J	0.0021 U	0.0021 U		0.0031 J	0.0016 U	0.0017 U		0.12 U	
PAHs																							
2-Methylnaphthalene**	8200	--	820	--	39		0.0053 U	0.0059 U	0.0059 U	na	0.0053 J	0.0058 U	0.061 J	0.006 U	0.006 U	0.029 J		0.0061 J	0.0056 U	0.0077 J		0.073 J	
Acenaphthene	120000	--	120000	--	2900		0.0053 U	0.0059 U	0.0059 U	na	0.0053 U	0.0058 U	0.054 J	0.006 U	0.006 U	0.006 U		0.0057 U	0.0056 U	0.02 J		0.0063 U	
Acenaphthylene	61000	--	61000	--	120		0.0053 U	0.0059 U	0.0059 U	na	0.0053 J	0.0058 U	0.32 J	0.006 U	0.006 U	0.006 U		0.0057 U	0.0056 U	0.016 J		0.0063 U	
Anthracene	610000	--	610000	--	59000		0.0053 U	0.0059 U	0.0059 U	na	0.0053 U	0.0058 U	0.2 J	0.006 U	0.006 U	0.006 U		0.0057 U	0.0056 U	0.034 J		0.0063 U	
Benzo(a)anthracene	8	--	170	--	8		0.0053 U	0.0059 U	0.0059 U	na	0.016	0.0058 U	0.52	0.0088 J	0.015	0.0076 J		0.0057 U	0.0056 U	0.23		0.0063 U	
Benzo(a)pyrene	0.8	--	17	--	82		0.0053 U	0.0059 U	0.0059 U	na	0.016 J	0.0058 U	0.62	0.0072 J	0.017 J	0.006 J		0.0057 U	0.0056 U	0.21		0.0063 U	
Benzo(b)fluoranthene	8	--	170	--	25		0.0053 U	0.0059 U	0.0059 U	na	0.017	0.0058 U	0.61	0.006 J	0.017	0.006 U		0.0057 U	0.0056 U	0.2		0.0063 U	
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0053 U	0.0059 U	0.0059 U	na	0.0053 J	0.0058 U	0.2 J	0.006 U	0.013 J	0.006 U		0.0057 U	0.011 J	0.089 J		0.0063 U	
Benzo(k)fluoranthene	78	--	1700	--	250		0.0053 U	0.0059 U	0.0059 U	na	0.011 J	0.0058 U	0.58	0.006 U	0.011 J	0.006 U		0.0057 U	0.0056 U	0.14		0.0063 U	
Chrysene	780	--	17000	-	800		0.0053 U	0.0059 U	0.0059 U	na	0.025 J	0.0058 U	0.59	0.0084 J	0.021 J	0.0092 J		0.0057 U	0.0071 J	0.25		0.0063 U	
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0053 U	0.0059 U	0.0059 U	na	0.0053 U	0.0058 U	0.08	0.006 U	0.006 U	0.006 U		0.0057 U	0.0056 U	0.044		0.0063 U	
Fluoranthene	82000	--	82000	--	21000		0.0053 U	0.0059 U	0.0059 U	na	0.024 J	0.0058 U	0.96	0.019 J	0.03 J	0.014 J		0.0057 U	0.0056 U	0.31 J		0.0063 U	
Fluorene	82000	--	82000	--	2800		0.0053 U	0.0059 U	0.0059 U	na	0.0053 U	0.0058 U	0.085 J	0.006 U	0.006 U	0.006 U		0.0057 U	0.0056 U	0.015 J		0.0063 U	
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0053 U	0.0059 U	0.0059 U	na	0.006 J	0.0058 U	0.22	0.006 U	0.011 J	0.006 U		0.0057 U	0.0056 U	0.11		0.0063 U	
Naphthalene	41000	270	4100	1.8	18		0.0082 J	0.0059 U	0.0059 U	na	0.029 J	0.048 J	0.047 J	0.006 U	0.006 U	0.006 U		0.52	0.0056 U	0.0091 J		0.0063 U	
Phenanthrene**	61000	--	61000	--	1100		0.0053 J	0.0059 U	0.012 J	na	0.025 J	0.011 J	0.74	0.021 J	0.015 J	0.037 J		0.0061 J	0.0097 J	0.15 J		0.0063 U	
Pyrene	61000	--	61000	--	21000		0.0053 U	0.0059 U	0.0059 U	na	0.024 J	0.0058 U	0.87	0.017 J	0.032 J	0.013 J		0.0057 U	0.0079 J	0.31		0.0063 U	
Percent moisture							6	15	15	na	6	14	15	17	16	17		12	11	5		21	

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-19. Former Polymer Pilot Plant Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																																	
	Industrial / Commercial		Construction Worker		Migration to Groundwater																													
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	PP01		PP02		PP02		PP03		PP03		PP04		PP05		PP06		PP07		PP08		PP08		PP08		PP09		PP10		
						Sample Date	7/15/03		7/18/03		7/18/03		7/15/03		7/15/03		7/18/03		7/15/03		8/18/03		7/15/03		7/18/03		7/18/03		7/18/03		7/15/03		7/22/03		
						Sample Depth (ft)	0-2		10-12		10-12		0-2		3-5		6-8		0-2		8-10		0-2		4-6		10-12		14-16		0-2		4-6		
											DUP																							
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units																					mg/kg						mg/kg		
VOCs																																		
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00078	U	0.00079	U	0.00082	U	0.00079	U	na		0.00086	U	0.00086	U	0.00088	U	0.00091	U	0.00091	U	0.00081	U	0.00069	U	0.00074	U	0.051	U	
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00063	U	0.00064	U	0.00066	U	0.00063	U	na		0.00069	U	0.00069	U	0.00071	U	0.00073	U	0.00073	U	0.00065	U	0.00056	U	0.0006	U	0.041	U	
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00077	U	0.00078	U	0.00081	U	0.00077	U	na		0.00084	U	0.00084	U	0.00086	U	0.0009	U	0.0009	U	0.0008	U	0.00068	U	0.00073	U	0.051	U	
1,1-Dichloroethane	200000	1700	200000	130	110		0.00064	U	0.00065	U	0.00067	U	0.00065	U	na		0.0007	U	0.0007	U	0.00072	U	0.00075	U	0.00075	U	0.00067	U	0.00057	U	0.00061	U	0.042	U	
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00073	U	0.00075	U	0.00077	U	0.00074	U	na		0.00081	U	0.00081	U	0.00083	U	0.00086	U	0.00086	U	0.00077	U	0.00065	U	0.0007	U	0.048	U	
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.00091	U	0.00093	U	0.00096	U	0.00092	U	na		0.001	U	0.001	U	0.001	U	0.0011	U	0.0011	U	0.00095	U	0.00081	U	0.00087	U	0.06	U	
1,2-Dichloropropane	84	23	1800	5	0.15		0.00058	U	0.00059	U	0.00061	U	0.00058	U	na		0.00063	U	0.00063	U	0.00065	U	0.00068	U	0.00068	U	0.0006	U	0.00051	U	0.00055	U	0.038	U	
2-Hexanone**	82000	110	8200	0.72	1.3		0.0083	U	0.0084	U	0.0087	U	0.0083	U	na		0.0091	U	0.0091	U	0.0093	U	0.0097	U	0.0097	U	0.0086	U	0.0073	U	0.0079	U	0.54	U	
Acetone	200000	100000	200000	100000	16		0.013	J	0.0097	U	0.01	U	0.02		na		0.01	U	0.031		0.011	U	0.048		0.039		0.01	U	0.044		0.026		0.63	U	
Benzene	100	1.6	2300	2.2	0.17		0.0031	J	0.00049	U	0.00051	U	0.0021	J	na		0.00053	U	0.0011	J	0.0029	J	0.00057	U	0.00057	U	0.011		0.0018	J	0.0023	J	0.032	U	
Bromodichloromethane	92	3000	2000	3000	0.6		0.00066	U	0.00067	U	0.00069	U	0.00066	U	na		0.00072	U	0.00073	U	0.00074	U	0.00077	U	0.00077	U	0.00069	U	0.00059	U	0.00063	U	0.043	U	
Bromoform	720	100	16000	140	0.8		0.00053	U	0.00053	U	0.00055	U	0.00053	U	na		0.00058	U	0.00058	U	0.00059	U	0.00062	U	0.00062	U	0.00055	U	0.00047	U	0.0005	U	0.035	U	
Carbon disulfide	200000	720	20000	9	160		0.0011	U	0.0011	U	0.0012	U	0.0011	U	na		0.0012	U	0.0012	U	0.0013	U	0.0013	U	0.0013	U	0.0012	U	0.001	U	0.0011	U	0.074	U	
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00081	U	0.00082	U	0.00085	U	0.00082	U	na		0.00089	U	0.00089	U	0.00092	U	0.00095	U	0.00095	U	0.00085	U	0.00072	U	0.00077	U	0.054	U	
Chlorobenzene	41000	210	4100	1.3	6.5		0.00055	U	0.00055	U	0.00057	U	0.00055	U	na		0.0006	U	0.0006	U	0.00062	U	0.00064	U	0.00064	U	0.00057	U	0.00048	U	0.00052	U	0.036	U	
Chloroethane**	820000	1500	82000	94	70		0.0008	U	0.00081	U	0.00084	U	0.00081	U	na		0.00088	U	0.00088	U	0.0009	U	0.00094	U	0.00094	U	0.00084	U	0.00071	U	0.00077	U	0.053	U	
Chloroform	940	0.54	2000	0.76	2.9		0.00056	U	0.00056	U	0.00058	U	0.00056	U	na		0.00061	U	0.00061	U	0.00063	U	0.00065	U	0.00065	U	0.00058	U	0.00049	U	0.00053	U	0.037	U	
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00061	U	0.00062	U	0.00064	U	0.00062	U	na		0.00067	U	0.00068	U	0.00069	U	0.00072	U	0.033		0.92		0.00054	U	0.00059	U	1		
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00049	U	0.0005	U	0.00052	U	0.0005	U	na		0.00054	U	0.00054	U	0.00056	U	0.00058	U	0.00058	U	0.00051	U	0.00044	U	0.00047	U	5	0.033	U	5
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00035	U	0.00035	U	0.00036	U	0.00035	U	na		0.00038	U	0.00038	U	0.00039	U	0.0004	U	0.00041	U	0.00036	U	0.00031	U	0.00033	U	0.023	U	
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00083	U	0.00084	U	0.00087	U	0.00084	U	na		0.00091	U	0.00092	U	0.00094	U	0.00097	U	0.00098	U	0.013		0.00074	U	0.00079	U	0.055	U	
Ethylbenzene	200000	400	20000	58	19		0.0029	J	0.00064	U	0.00067	U	0.0011	J	na		0.00069	U	0.0007	U	0.0021	J	0.00074	U	0.00074	U	0.0013	J	0.00056	U	0.0006	U	0.042	U	
m-Dichlorobenzene**	1800	570	180	570	1		0.00093	U	0.00095	U	0.00098	U	0.00094	U	na		0.001	U	0.001	U	0.0011	U	0.0011	U	0.0011	U	0.00098	U	0.00083	U	0.00089	U	0.062	U	
Methyl bromide	2900	15	1000	3.9	1.2		0.0013	U	0.0013	U	0.0013	U	0.0013	U	na		0.0014	U	0.0014	U	0.0014	U	0.0015	U	0.0015	U	0.0013	U	0.0011	U	0.0012	U	0.084	U	
Methyl chloride	--	--	--	--	--		0.0013	U	0.0014	U	0.0014	U	0.0014	U	na		0.0015	U	0.0015	U	0.0015	U	0.0016	U	0.0016	U	0.0014	U	0.0012	U	0.0013	U	0.089	U	
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0065	U	0.0066	U	0.0068	U	0.0065	U	na		0.0071	U	0.0071	U	0.0073	U	0.0076	U	0.0076	U	0.0068	U	0.0058	U	0.0062	U	0.43	U	
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.011	U	0.011	U	0.011	U	0.011	U	na		0.012	U	0.012	U	0.012	U	0.013	U	0.013	U	0.011	U	0.0097	U	0.01	U	0.72	U	
Methylene chloride	760	24	1200	34	0.2		0.0024	U	0.0024	U	0.0025	U	0.0024	U	na		0.0026	U	0.0026	U	0.0027	U	0.0028	U	0.0028	U	0.0025	U	0.0021	U	0.0023	U	0.16	U	
o-Dichlorobenzene	180000	560	18000	310	43		0.00061	U	0.00062	U	0.00064	U	0.00061	U	na		0.00066	U	0.00067	U	0.00068	U	0.00071	U	0.00071	U	0.00063	U	0.00054	U	0.00058	U	0.04	U	
p-Dichlorobenzene	--	17000	--	340	11		0.00085	U	0.00086	U	0.00089	U	0.00086	U	na		0.00093	U	0.00094	U	0.00096	U	0.001	U	0.001	U	0.00089	U	0.00075	U	0.00081	U	0.056	U	
Styrene	410000	1500	41000	430	18		0.0005	U	0.00051	U	0.00052	U	0.0005	U	na		0.00055	U	0.00055	U	0.00056	U	0.00058	U	0.00058	U	0.00052	U	0.00044	U	0.00047	U	0.033	U	
Tetrachloroethylene	110	20	240	28	0.3		0.00093	U	0.00094	U	0.00097	U	0.00093	U	na		0.022		0.001	U	0.027		0.0011	U	0.0022	J	0.03		0.00082	U	0.00088	U	5	1.7		
Toluene	410000	650	410000	42	29		0.0071		0.0035	U	0.0036	U	0.0039	J	na		0.0039	J	0.0038	U	0.0039	U	0.004	U	0.004	U	0.0048		0.003	U	0.0033	U		0.23	U	
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00044	U	0.00044	U	0.00046	U	0.00044	U	na		0.00048	U	0.00048	U	0.00049	U	0.00051	U	0.00051	U	0.00046	U	0.00039	U	0.00042	U	5	0.029	U	5
Trichloroethylene	520	8.9	1200	12	0.3		0.00052	U	0.00053	U	0.00055	U	0.00053	U	na		0.00058	U	0.00058	U	0.00059	U	0.00062	U	0.00062	U	0.04		0.00047	U	0.0005	U	5	0.73		
Vinyl Acetate	1000000	1600	200000	10	170		0.0019	U	0.0019	U	0.002	U	0.0019	U	na		0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0022	U	0.002	U	0.0017	U	0.0018	U		0.12	U	
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.0008	U	0.00081	U	0.00084	U	0.00081	U	na		0.00088	U	0.00088	U	0.0009	U	0.00094	U	0.00094	U	5	0.1		0.00071	U	0.00077	U		0.053	U	
Xylene (total)	1000000	320	410000	320	150		0.0053		0.0019	U	0.0019	U	0.0018	U	na		0.002	U	0.002	U	0.0038	J	0.0021	U	0.0021	U	0.0031	J	0.0016	U	0.0017	U		0.12	U	
PAHs																																		
2-Methylnaphthalene**	8200	--	820	--	39		0.0053	U	0.0059	U	0.0059	U	na		0.0053	J	0.0058	U	0.061	J	0.006	U	0.006	U	0.029	J	0.0061	J	0.0056	U	0.0077	J		0.073	J	
Acenaphthene	120000	--	120000	--	2900		0.0053	U	0.0059	U	0.0059	U	na		0.0053	U	0.0058	U	0.054	J	0.006	U	0.006	U	0.006	U	0.0057	U	0.0056	U	0.02	J		0.0063	U	
Acenaphthylene	61000	--	61000	--	120		0.0053	U	0.0059	U	0.0059	U	na		0.0053	J	0.0058	U	0.32	J	0.006	U	0.006	U	0.006	U	0.0057	U	0.0056	U	0.016	J		0.0063	U	
Anthracene	610000	--	610000	--	59000		0.0053	U	0.0059	U	0.0059	U	na		0.0053	U	0.0058	U	0.2	J	0.006	U	0.006	U	0.006	U	0.0057	U	0.0056	U	0.034	J		0.0063	U	
Benzo(a)anthracene	8	--	170	--	8		0.0053	U	0.0059	U	0.0059	U	na		0.016		0.0058	U	0.52		0.0088	J	0.015		0.0076	J	0.0057	U	0.0056	U	0.23			0.0063	U	
Benzo(a)pyrene	0.8	--	17	--	82		0.0053	U	0.0059	U	0.0059	U	na		0.016	J	0.0058	U	0.62		0.0072	J	0.017	J	0.006	J	0.0057	U	0.0056	U	0.21			0.0063	U	
Benzo(b)fluoranthene	8	--	170	--	25		0.0053	U	0.0059	U	0.0059	U	na		0.017		0.0058	U	0.61		0.006	J	0.017		0.006	U	0.0057	U	0.0056	U	0.2			0.0063	U	
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0053	U	0.0059	U	0.0059	U	na		0.0053	J	0.0058	U	0.2	J	0.006	U	0.013	J	0.006	U	0.0057	U	0.011	J	0.089	J		0.0063	U	
Benzo(k)fluoranthene	78	--	1700	--	250		0.0053	U	0.0059	U	0.0059	U	na		0.011	J	0.0058	U	0.58		0.006	U	0.011	J	0.006	U	0.0057	U	0.0056	U	0.14			0.0063	U	
Chrysene	780	--	17000	-	800		0.0053	U	0.0059	U	0.0059	U	na		0.025	J	0.0058	U	0.59		0.0084	J	0.021	J	0.0092	J	0.0057	U	0.0071	J	0.25			0.0063	U	
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0053	U	0.0059	U	0.0059	U	na		0.0053	U	0.0058	U	0.08		0.006	U	0.006	U	0.006	U	0.0057	U	0.0056	U	0.044			0.0063	U	
Fluoranthene	82000	--	82000	--	21000		0.0053	U	0.0059	U	0.0059	U	na		0.024	J	0.0058	U	0.96		0.019	J	0.03	J	0.014	J	0.0057	U	0.0056	U	0.31	J		0.0063	U	
Fluorene	82000	--	82000	--	2800		0.0053	U	0.0059	U	0.0059	U	na		0.0053	U	0.0058	U	0.085	J	0.006	U	0.006	U	0.006	U	0.0057	U	0.0056	U	0.015	J		0.0063	U	
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0053	U	0.0059	U	0.0059	U	na		0.006	J	0.0058	U	0.22		0.006	U	0.011	J	0.006	U	0.0057	U	0.0056	U	0.11			0.0063	U	
Naphthalene	41000	270	4100	1.8	18		0.0082	J	0.0059	U	0.0059	U	na		0.029	J	0.048	J	0.047	J	0.006	U	0.006	U	0.006	U	0.52		0.0056	U	0.0091	J		0.0063	U	
Phenanthrene**	61000	--	61000	--	1100		0.0053	J	0.0059	U	0.012	J	na		0.025	J	0.011	J	0.74		0.021	J	0.015	J	0.037	J	0.0061	J	0.0097	J	0.15	J		0.0063	U	
Pyrene	61000	--	61000	--	21000		0.0053	U	0.0059	U	0.0059	U	na		0.024	J	0.0058	U	0.87		0.017	J	0.032	J	0.013	J	0.0057	U	0.0079	J	0.31			0.0063	U	
Percent moisture							6		15		15		na		6		14		15		17		16		17		12		11		5			21		

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO

Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-19. Former Polymer Pilot Plant Area
Analytical Data Compared to Tier I Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

Analyte	TACO Tier 1 Soil Remediation Objectives: Industrial / Commercial Ingestion	Industrial / Commercial Inhalation	Construction Worker Ingestion	Construction Worker Inhalation	Migration to Groundwater Class II	Sample Location / Sample Date / Sample Depth (ft) / Units	PP10 7/22/03 10-12	PP10 7/22/03 14-16	PP11 7/22/03 4-6	PP11 7/22/03 10-12	PP11 7/22/03 14-16	PP12 7/22/03 4-6	PP12 7/22/03 10-12
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs													
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.041 U	0.0007 U	0.00093 U	0.00087 U	0.00077 U	0.00084 U	0.00069 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.033 U	0.00057 U	0.00075 U	0.0007 U	0.00062 U	0.00067 U	0.00055 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.04 U	0.00069 U	0.00092 U	0.00086 U	0.00076 U	0.00082 U	0.00068 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.033 U	0.00058 U	0.00077 U	0.00072 U	0.00063 U	0.00069 U	0.00056 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.038 U	0.00066 U	0.00088 U	0.00082 U	0.00073 U	0.00079 U	0.00065 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.048 U	0.00082 U	0.0011 U	0.001 U	0.0009 U	0.00098 U	0.0008 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.03 U	0.00052 U	0.00069 U	0.00064 U	0.00057 U	0.00062 U	0.00051 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.43 U	0.0075 U	0.0099 U	0.0092 U	0.0082 U	0.0089 U	0.0073 U
Acetone	200000	100000	200000	100000	16		0.5 U	0.061	0.027	0.017 J	0.065	0.052	0.014 J
Benzene	100	1.6	2300	2.2	0.17		0.025 U	0.0015 J	0.00058 U	0.0083	0.0014 J	0.0051	0.0049
Bromodichloromethane	92	3000	2000	3000	0.6		0.034 U	0.0006 U	0.00079 U	0.00074 U	0.00065 U	0.00071 U	0.00058 U
Bromoform	720	100	16000	140	0.8		0.027 U	0.00047 U	0.00063 U	0.00059 U	0.00052 U	0.00056 U	0.00046 U
Carbon disulfide	200000	720	20000	9	160		0.059 U	0.001 U	0.0013 U	0.0013 U	0.0012 J	0.0012 U	0.00099 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.042 U	0.00073 U	0.00097 U	0.00091 U	0.0008 U	0.00087 U	0.00071 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.029 U	0.00049 U	0.00065 U	0.00061 U	0.00054 U	0.0014 J	0.0011 J
Chloroethane**	820000	1500	82000	94	70		0.042 U	0.00072 U	0.00096 U	0.0009 U	0.00079 U	0.00086 U	0.00071 U
Chloroform	940	0.54	2000	0.76	2.9		0.029 U	0.0005 U	0.00066 U	0.00062 U	0.00055 U	0.0006 U	0.0075
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.66	0.00055 U	0.022	0.25	0.00061 U	0.01	0.15
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.026 U	0.00045 U	0.00059 U	0.00055 U	0.00049 U	0.00053 U	0.00043 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.018 U	0.00031 U	0.00041 U	0.00039 U	0.00034 U	0.00037 U	0.0003 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.043 U	0.00075 U	0.001 U	0.017	0.00082 U	0.00089 U	0.0031 J
Ethylbenzene	200000	400	20000	58	19		0.033 U	0.00057 U	0.00076 U	0.0023 J	0.00063 U	0.0056	0.0026 J
m-Dichlorobenzene**	1800	570	180	570	1		0.049 U	0.00084 U	0.0011 U	0.001 U	0.00092 U	0.001 U	0.00082 U
Methyl bromide	2900	15	1000	3.9	1.2		0.066 U	0.0011 U	0.0015 U	0.0014 U	0.0013 U	0.0014 U	0.0011 U
Methyl chloride	--	--	--	--	--		0.07 U	0.0012 U	0.0016 U	0.0015 U	0.0013 U	0.0014 U	0.0012 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.34 U	0.0083	0.0078 U	0.0073 U	0.0064 U	0.0078 J	0.0057 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.57 U	0.0099 U	0.013 U	0.012 U	0.011 U	0.012 U	0.0096 U
Methylene chloride	760	24	1200	34	0.2		0.12 U	0.0021 U	0.0028 U	0.0026 U	0.0023 U	0.0025 U	0.0021 U
o-Dichlorobenzene	180000	560	18000	310	43		0.032 U	0.00055 U	0.00073 U	0.00068 U	0.0006 U	0.00065 U	0.00053 U
p-Dichlorobenzene	--	17000	--	340	11		0.044 U	0.00077 U	0.001 U	0.00095 U	0.00084 U	0.00091 U	0.00075 U
Styrene	410000	1500	41000	430	18		0.026 U	0.00045 U	0.0006 U	0.00056 U	0.00049 U	0.00053 U	0.00044 U
Tetrachloroethylene	110	20	240	28	0.3		0.16 J	0.00084 U	0.0075	0.055	0.00092 U	0.00099 U	0.1
Toluene	410000	650	410000	42	29		0.18 U	0.0031 U	0.0041 U	0.0089	0.0034 U	0.014	0.008
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.023 U	0.00039 U	0.00052 U	0.00049 U	0.00043 U	0.00047 U	0.00038 U
Trichloroethylene	520	8.9	1200	12	0.3		0.071 J	0.00047 U	0.0039 J	0.038	0.00052 U	0.00056 U	0.057
Vinyl Acetate	1000000	1600	200000	10	170		0.098 U	0.0017 U	0.0022 U	0.0021 U	0.0018 U	0.002 U	0.0016 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.042 U	0.0036 J	0.00096 U	0.012	0.00079 U	0.0071 J	0.032
Xylene (total)	1000000	320	410000	320	150		0.095 U	0.0016 U	0.0022 U	0.0047	0.0018 U	0.0084	0.0054
PAHs													
2-Methylnaphthalene**	8200	--	820	--	39		0.0057 U	0.0056 U	0.0063 U	0.01 J	0.0056 U	0.0075 J	0.0057 U
Acenaphthene	120000	--	120000	--	2900		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Acenaphthylene	61000	--	61000	--	120		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Anthracene	610000	--	610000	--	59000		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Benzo(a)anthracene	8	--	170	--	8		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Benzo(a)pyrene	0.8	--	17	--	82		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Benzo(b)fluoranthene	8	--	170	--	25		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Benzo(k)fluoranthene	78	--	1700	--	250		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Chrysene	780	--	17000	-	800		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Fluoranthene	82000	--	82000	--	21000		0.0057 U	0.0056 U	0.021 J	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Fluorene	82000	--	82000	--	2800		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Naphthalene	41000	270	4100	1.8	18		0.0057 U	0.0056 U	0.0063 U	0.0057 U	0.0056 U	0.0059 U	0.0057 U
Phenanthrene**	61000	--	61000	--	1100		0.0057 U	0.0056 U	0.022 J	0.02 J	0.029 J	0.02 J	0.026 J
Pyrene	61000	--	61000	--	21000		0.0057 U	0.0056 U	0.013 J	0.0057 U	0.0056 J	0.0059 U	0.0057 U
Percent moisture							13	11	21	12	11	15	12

Analyte	PP12 7/22/03 14-16	PP13 7/22/03 4-6	PP13 7/22/03 10-12	PP13 7/22/03 14-16	PP14 7/28/03 4-6	PP14 7/28/03 10-12	PP14 7/28/03 14-16
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs							
1,1,1-Trichloroethane	0.00088 U	0.00088 U	0.012	0.00073 U	0.00083 U	0.001 U	0.0008 U
1,1,2,2-Tetrachloroethane**	0.00071 U	0.0007 U	0.00058 U	0.00059 U	0.00066 U	0.0008 U	0.00064 U
1,1,2-Trichloroethane	0.00087 U	0.00086 U	0.00071 U	0.00072 U	0.00081 U	0.00098 U	0.00079 U
1,1-Dichloroethane	0.00072 U	0.00072 U	0.0025 J	0.0006 U	0.00068 U	0.00082 U	0.00066 U
1,1-Dichloroethylene	0.00083 U	0.00083 U	0.0049	0.00069 U	0.00078 U	0.00094 U	0.17
1,2-Dichloroethane	0.001 U	0.001 U	0.00084 U	0.00086 U	0.00097 U	0.0012 U	0.00094 U
1,2-Dichloropropane	0.00065 U	0.00065 U	0.00053 U	0.00054 U	0.00061 U	0.00074 U	0.00059 U
2-Hexanone**	0.0093 U	0.0093 U	0.0076 U	0.0077 U	0.0088 U	0.011 U	0.0085 U
Acetone	0.082	0.02	0.013 J	0.049	0.023	0.03	0.038
Benzene	0.002 J	0.0061	0.0047	0.0016 J	0.0046	0.0025 J	0.0005 U
Bromodichloromethane	0.00074 U	0.00074 U	0.00061 U	0.00062 U	0.0007 U	0.00084 U	0.00068 U
Bromoform	0.00059 U	0.00059 U	0.00049 U	0.00049 U	0.00056 U	0.00067 U	0.00054 U
Carbon disulfide	0.0025 J	0.0015 J	0.001 U	0.0011 U	0.0012 U	0.0014 U	0.0012 U
Carbon tetrachloride	0.00092 U	0.00091 U	0.00075 U	0.00076 U	0.00086 U	0.001 U	0.00084 U
Chlorobenzene	0.00062 U	0.00061 U	0.0005 U	0.00051 U	0.00058 U	0.0007 U	0.00056 U
Chloroethane**	0.00091 U	0.0009 U	0.00074 U	0.00075 U	0.00085 U	0.001 U	0.00083 U
Chloroform	0.00063 U	0.00063 U	0.0013 J	0.00052 U	0.00059 U	0.00071 U	0.00057 U
cis-1,2-Dichloroethylene	0.00069 U	0.01	0.23	0.00058 U	0.048	0.024	0.085
cis-1,3-Dichloropropene	0.00056 U	0.00056 U	0.00045 U	0.00046 U	0.00052 U	0.00063 U	0.00051 U
Dibromochloromethane	0.00039 U	0.00039 U	0.00032 U	0.00032 U	0.00037 U	0.00044 U	0.00036 U
Ethene, 1,2-dichloro-, (E)-	0.00094 U	0.00094 U	0.012	0.00078 U	0.00088 U	0.0011 U	0.023
Ethylbenzene	0.00072 U	0.0054	0.00084 J	0.00059 U	0.0049	0.0024 J	0.0018 J
m-Dichlorobenzene**	0.0011 U	0.0011 U	0.00086 U	0.00088 U	0.00099 U	0.0012 U	0.00096 U
Methyl bromide	0.0014 U	0.0014 U	0.0012 U	0.0012 U	0.0013 U	0.0016 U	0.0013 U
Methyl chloride	0.0015 U	0.0015 U	0.0012 U	0.0013 U	0.0014 U	0.0017 U	0.0014 U
Methyl ethyl ketone** (MEK)	0.01	0.0073 U	0.006 U	0.0087	0.0069 U	0.0083 U	0.0067 U
Methyl isobutyl ketone (MIBK)*	0.012 U	0.012 U	0.01 U	0.01 U	0.012 U	0.014 U	0.011 U
Methylene chloride	0.0027 U	0.0027 U	0.0022 U	0.0022 U	0.0025 U	0.003 U	0.0024 U
o-Dichlorobenzene	0.00068 U	0.00068 U	0.00056 U	0.00057 U	0.00064 U	0.00077 U	0.00062 U
p-Dichlorobenzene	0.00096 U	0.00096 U	0.00078 U	0.0008 U	0.0009 U	0.0011 U	0.00088 U
Styrene	0.00056 U	0.00056 U	0.00046 U	0.00047 U	0.00053 U	0.00064 U	0.00051 U
Tetrachloroethylene	0.001 U	0.11	0.0031 J	0.00087 U	0.016	0.018	2,4,5 44
Toluene	0.0039 U	0.015	0.0038 J	0.0032 U	0.013	0.0066	0.0075
trans-1,3-Dichloropropene	0.00049 U	0.00049 U	0.0004 U	0.00041 U	0.00046 U	0.00056 U	0.00045 U
Trichloroethylene	0.00059 U	0.017	0.007	0.00049 U	0.007	0.00067 U	5 2.1 J
Vinyl Acetate	0.0021 U	0.0021 U	0.0017 U	0.0018 U	0.002 U	0.0024 U	0.0019 U
Vinyl chloride	5 0.084	0.0009 U	0.013	0.00075 U	0.00085 U	0.001 U	0.046
Xylene (total)	0.0021 U	0.011	0.0018 J	0.0017 U	0.01	0.0056	0.0038 J
PAHs							
2-Methylnaphthalene**	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 J
Acenaphthene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Acenaphthylene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Anthracene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Benzo(a)anthracene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Benzo(a)pyrene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Benzo(b)fluoranthene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Benzo(ghi)perylene**	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.013 J
Benzo(k)fluoranthene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Chrysene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0075 J
Dibenzo(a,h)anthracene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Fluoranthene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0073 J	0.0056 U
Fluorene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Indeno(1,2,3-cd)pyrene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Naphthalene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0061 U	0.0056 U
Phenanthrene**	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.0079 J	0.017 J	0.018 J
Pyrene	0.0056 U	0.0061 U	0.0057 U	0.0056 U	0.006 U	0.0073 J	0.009 J
Percent moisture	10	18	12	10	16	18	11

Legend:
Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-19. Former Polymer Pilot Plant Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																					
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Location		PP14 (dup)			PP15			PP15 (dup)			PP15			PP15		
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Date		7/28/03			7/28/03			7/28/03			7/28/03			7/28/03		
						Sample Depth (ft)		14-16			4-6			4-6			10-12			14-16		
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
VOCs																						
1,1,1-Trichloroethane	--	1200	--	1200	9.6			0.00085	U		0.00089	U		0.00098	U		0.00085	U		0.00088	U	
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3			0.00068	U		0.00072	U		0.00078	U		0.00068	U		0.0007	U	
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3			0.00084	U		0.00088	U		0.00096	U		0.00083	U		0.00086	U	
1,1-Dichloroethane	200000	1700	200000	130	110			0.0007	U		0.00073	U		0.0008	U		0.0007	U		0.00072	U	
1,1-Dichloroethylene	18000	1500	1800	300	0.3			0.15			0.00084	U		0.00092	U		0.0008	U		0.0043	J	
1,2-Dichloroethane	63	0.7	1400	0.99	0.1			0.001	U		0.001	U		0.0011	U		0.00099	U		0.001	U	
1,2-Dichloropropane	84	23	1800	5	0.15			0.00063	U		0.00066	U		0.00072	U		0.00063	U		0.00065	U	
2-Hexanone**	82000	110	8200	0.72	1.3			0.009	U		0.0095	U		0.01	U		0.009	U		0.0093	U	
Acetone	200000	100000	200000	100000	16			0.053			0.053			0.047			0.016	J		0.056		
Benzene	100	1.6	2300	2.2	0.17			0.00053	U		0.00056	U		0.00061	U		0.0043	J		0.0053		
Bromodichloromethane	92	3000	2000	3000	0.6			0.00072	U		0.00075	U		0.00083	U		0.00072	U		0.00074	U	
Bromoform	720	100	16000	140	0.8			0.00057	U		0.0006	U		0.00066	U		0.00057	U		0.00059	U	
Carbon disulfide	200000	720	20000	9	160			0.0012	U		0.0013	U		0.0014	U		0.0012	U		0.0024	J	
Carbon tetrachloride	44	0.64	410	0.9	0.33			0.00089	U		0.00093	U		0.001	U		0.00088	U		0.00091	U	
Chlorobenzene	41000	210	4100	1.3	6.5			0.0006	U		0.00063	U		0.00068	U		0.00059	U		0.0021	J	
Chloroethane**	820000	1500	82000	94	70			0.00088	U		0.00092	U		0.001	U		0.00087	U		0.0009	U	
Chloroform	940	0.54	2000	0.76	2.9			0.00061	U		0.00064	U		0.0007	U		0.0006	U		0.00062	U	
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1			0.062			0.46			0.22			0.34			0.29		
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00054	U		0.00056	U		0.00062	U		0.00054	U		0.00055	U	
Dibromochloromethane	41000	1300	41000	1300	0.4			0.00038	U		0.0004	U		0.00043	U		0.00038	U		0.00039	U	
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--			0.018			0.0053			0.001	U		0.0009	U		0.00093	U	
Ethylbenzene	200000	400	20000	58	19			0.0013	J		0.00073	U		0.00079	U		0.0039	J		0.002	J	
m-Dichlorobenzene**	1800	570	180	570	1			0.001	U		0.0011	U		0.0012	U		0.001	U		0.0011	U	
Methyl bromide	2900	15	1000	3.9	1.2			0.0014	U		0.0015	U		0.0016	U		0.0014	U		0.0014	U	
Methyl chloride	--	--	--	--	--			0.0015	U		0.0015	U		0.0017	U		0.0015	U		0.0015	U	
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17			0.0071	U		0.0074	U		0.0081	U		0.0071	U		0.0073	U	
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--			0.012	U		0.013	U		0.014	U		0.012	U		0.012	U	
Methylene chloride	760	24	1200	34	0.2			0.0026	U		0.0027	U		0.003	U		0.0026	U		0.0027	U	
o-Dichlorobenzene	180000	560	18000	310	43			0.00066	U		0.00069	U		0.00076	U		0.00066	U		0.00068	U	
p-Dichlorobenzene	--	17000	--	340	11			0.00093	U		0.00097	U		0.0011	U		0.00092	U		0.00096	U	
Styrene	410000	1500	41000	430	18			0.00054	U		0.00057	U		0.00062	U		0.00054	U		0.00056	U	
Tetrachloroethylene	110	20	240	28	0.3		2,4,5	33		5	1.3		5	1.5		5	1.6		2,4,5	53		
Toluene	410000	650	410000	42	29			0.0059			0.0039	U		0.0043	U		0.011			0.047		
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00048	U		0.0005	U		0.00055	U		0.00048	U		0.00049	U	
Trichloroethylene	520	8.9	1200	12	0.3		5	2.2	J	5	0.43			0.2		5	0.35		5	2.3		
Vinyl Acetate	1000000	1600	200000	10	170			0.002	U		0.0021	U		0.0023	U		0.002	U		0.0021	U	
Vinyl chloride	7.9	1.1	170	1.1	0.07			0.042			0.00092	U		0.001	U		0.037		5	0.28		
Xylene (total)	1000000	320	410000	320	150			0.003	J		0.0021	U		0.0023	U		0.0081			0.0033	J	
PAHs																						
2-Methylnaphthalene**	8200	--	820	--	39			0.0056	U		0.0061	U		0.006	U		0.006	U		0.022	J	
Acenaphthene	120000	--	120000	--	2900			0.0056	U		0.0061	U		0.006	U		0.006	U		0.0057	U	
Acenaphthylene	61000	--	61000	--	120			0.0056	U		0.0061	U		0.006	J		0.006	U		0.0057	U	
Anthracene	610000	--	610000	--	59000			0.0056	U		0.0061	U		0.006	U		0.006	U		0.0057	U	
Benzo(a)anthracene	8	--	170	--	8			0.0056	U		0.011	J		0.0096	J		0.006	U		0.0057	U	
Benzo(a)pyrene	0.8	--	17	--	82			0.0056	U		0.0098	J		0.0096	J		0.006	U		0.0057	U	
Benzo(b)fluoranthene	8	--	170	--	25			0.0056	U		0.0081	J		0.0072	J		0.006	U		0.0057	U	
Benzo(ghi)perylene**	61000	--	61000	--	160000			0.014	J		0.0065	J		0.0068	J		0.006	U		0.014	J	
Benzo(k)fluoranthene	78	--	1700	--	250			0.0056	U		0.0081	J		0.0072	J		0.006	U		0.0057	U	
Chrysene	780	--	17000	-	800			0.0094	J		0.011	J		0.01	J		0.006	U		0.01	J	
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6			0.0056	U		0.0061	U		0.006	U		0.006	U		0.0057	U	
Fluoranthene	82000	--	82000	--	21000			0.0056	U		0.018	J		0.012	J		0.006	U		0.0095	J	
Fluorene	82000	--	82000	--	2800			0.0056	U		0.0061	U		0.006	U		0.006	U		0.0057	U	
Indeno(1,2,3-cd)pyrene	8	--	170	--	69			0.0056	U		0.0061	U		0.006	U		0.006	U		0.0057	U	
Naphthalene	41000	270	4100	1.8	18			0.0056	U		0.0061	U		0.006	U		0.008	J		0.26	J	
Phenanthrene**	61000	--	61000	--	1100			0.018	J		0.027	J		0.011	J		0.0068	J		0.017	J	
Pyrene	61000	--	61000	--	21000			0.009	J		0.021	J		0.017	J		0.006	U		0.015	J	
Percent moisture								11			18			17			17			12		

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																				
	Industrial / Commercial		Construction Worker		Migration to Groundwater																
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL01		CL01 (dup)		CL01		CL01		CL02		CL02		CL02 (dup)		CL04
						Sample Date		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/24/03
						Sample Depth (ft)		4-6		4-6		10-12		14-16		4-6		6-8		6-8		6-8
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
VOCs																						
1,1,1-Trichloroethane	--	1200	--	1200	9.6			0.00083 U		0.0011 U		0.00083 U		0.00094 U		0.0011 U		0.00099 U		0.00084 U		0.055 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3			0.00067 U		0.00086 U		0.00067 U		0.00075 U		0.00087 U		0.00079 U		0.00068 U		0.044 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3			0.00082 U		0.001 U		0.00082 U		0.00092 U		0.0011 U		0.00097 U		0.00083 U		0.054 U
1,1-Dichloroethane	200000	1700	200000	130	110			0.00068 U		0.00087 U		0.00068 U		0.00077 U		0.00089 U		0.00081 U		0.00069 U		0.045 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3			0.00078 U		0.001 U		0.00079 U		0.00088 U		0.001 U		0.00093 U		0.0008 U		0.051 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1			0.00097 U		0.0012 U		0.00098 U		0.0011 U		0.0013 U		0.0012 U		0.00099 U		0.064 U
1,2-Dichloropropane	84	23	1800	5	0.15			0.00061 U		0.00079 U		0.00062 U		0.00069 U		0.0008 U		0.00073 U		0.00062 U		0.04 U
2-Hexanone**	82000	110	8200	0.72	1.3			0.0088 U		0.011 U		0.0088 U		0.0099 U		0.012 U		0.01 U		0.0089 U		0.58 U
Acetone	200000	100000	200000	100000	16			0.077		0.074		0.033		0.043		0.07		0.049		0.041		0.67 U
Benzene	100	1.6	2300	2.2	0.17			0.00052 U		0.00066 U		0.00052 U		0.0022 J		0.00068 U		0.00061 U		0.00052 U	2,4,5	54
Bromodichloromethane	92	3000	2000	3000	0.6			0.0007 U		0.0009 U		0.00071 U		0.00079 U		0.00092 U		0.00083 U		0.00071 U		0.046 U
Bromoform	720	100	16000	140	0.8			0.00056 U		0.00072 U		0.00056 U		0.00063 U		0.00073 U		0.00066 U		0.00057 U		0.037 U
Bromomethane	--	--	--	--	--			na		na		na		na		na		na		na		na
Carbon disulfide	200000	720	20000	9	160			0.0051		0.0064		0.0012 U		0.0014 U		0.01		0.0054		0.0044 J		0.079 U
Carbon tetrachloride	44	0.64	410	0.9	0.33			0.00086 U		0.0011 U		0.00087 U		0.00097 U		0.0011 U		0.001 U		0.00088 U		0.057 U
Chlorobenzene	41000	210	4100	1.3	6.5			0.00058 U		0.00075 U		0.00058 U		0.00065 U		0.00076 U		0.00069 U		0.00059 U		0.038 U
Chloroethane**	820000	1500	82000	94	70			0.00085 U		0.0011 U		0.00086 U		0.094		0.0011 U		0.001 U		0.00087 U		0.056 U
Chloroform	940	0.54	2000	0.76	2.9			0.00059 U		0.00076 U		0.00059 U		0.00067 U		0.00078 U		0.0007 U		0.0006 U		0.039 U
Chloromethane**	8200	170	820	1.1	0.68			na		na		na		na		na		na		na		na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1			0.00065 U		0.00084 U		0.00066 U		0.00074 U		0.00086 U		0.00078 U		0.00066 U		0.043 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00052 U		0.00067 U		0.00053 U		0.00059 U		0.00069 U		0.00062 U		0.00053 U	5	0.034 U
Dibromochloromethane	41000	1300	41000	1300	0.4			0.00037 U		0.00047 U		0.00037 U		0.00041 U		0.00048 U		0.00044 U		0.00037 U		0.024 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--			0.00088 U		0.0011 U		0.00089 U		0.001 U		0.0012 U		0.0011 U		0.0009 U		0.058 U
Ethylbenzene	200000	400	20000	58	19			0.00067 U		0.00087 U		0.00068 U		0.0009 J		0.00088 U		0.0008 U		0.00069 U		0.82
m-Dichlorobenzene**	1800	570	180	570	1			0.001 U		0.0013 U		0.001 U		0.0011 U		0.0013 U		0.0012 U		0.001 U		0.065 U
Methyl bromide	2900	15	1000	3.9	1.2			0.0013 U		0.0017 U		0.0014 U		0.0015 U		0.0018 U		0.0016 U		0.0014 U		0.089 U
Methyl chloride	--	--	--	--	--			0.0014 U		0.0018 U		0.0014 U		0.0016 U		0.0019 U		0.0017 U		0.0015 U		0.094 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17			0.028		0.017		0.0069 U		0.0078 U		0.0091 U		0.0082 U		0.0081		0.45 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--			0.012 U		0.015 U		0.012 U		0.013 U		0.015 U		0.014 U		0.012 U		0.76 U
Methylene chloride	760	24	1200	34	0.2			0.0025 U		0.0032 U		0.0025 U		0.0028 U		0.0033 U		0.003 U		0.0026 U		0.17 U
o-Dichlorobenzene	180000	560	18000	310	43			0.00064 U		0.00083 U		0.00065 U		0.00073 U		0.00085 U		0.00077 U		0.00066 U		0.042 U
p-Dichlorobenzene	--	17000	--	340	11			0.0009 U		0.0012 U		0.00091 U		0.001 U		0.0012 U		0.0011 U		0.00092 U		0.059 U
Styrene	410000	1500	41000	430	18			0.00053 U		0.00068 U		0.00053 U		0.0006 U		0.00069 U		0.00063 U		0.00054 U		1.8
Tetrachloroethylene	110	20	240	28	0.3			0.00099 U		0.0013 U		0.00099 U		0.0011 U		0.0013 U		0.0012 U		0.001 U		0.065 U
Toluene	410000	650	410000	42	29			0.0037 U		0.0047 U		0.0037 U		0.0041 U		0.0048 U		0.0043 U		0.0037 U		5.7
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00047 U		0.0006 U		0.00047 U		0.00052 U		0.00061 U		0.00055 U		0.00047 U	5	0.031 U
Trichloroethylene	520	8.9	1200	12	0.3			0.00056 U		0.00072 U		0.00056 U		0.00063 U		0.00073 U		0.00066 U		0.00057 U		0.037 U
Vinyl Acetate	1000000	1600	200000	10	170			0.002 U		0.0026 U		0.002 U		0.0022 U		0.0026 U		0.0024 U		0.002 U		0.13 U
Vinyl chloride	7.9	1.1	170	1.1	0.07			0.00085 U		0.0011 U		0.00086 U		0.00096 U		0.0011 U		0.001 U		0.00087 U		0.056 U
Xylene (total)	1000000	320	410000	320	150			0.0019 U		0.0025 U		0.002 U		0.0022 U		0.0025 U		0.0023 U		0.002 U		0.66
PAHs																						
2-Methylnaphthalene**	8200	--	820	--	39			0.057 J		0.0064 J		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Acenaphthene	120000	--	120000	--	2900			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Acenaphthylene	61000	--	61000	--	120			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Anthracene	610000	--	610000	--	59000			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Benzo(a)anthracene	8	--	170	--	8			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Benzo(a)pyrene	0.8	--	17	--	82			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Benzo(b)fluoranthene	8	--	170	--	25			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Benzo(ghi)perylene**	61000	--	61000	--	160000			0.0065 U		0.0064 U		0.0061 U		0.012 J		0.0064 U		0.0062 U		0.14 U		0.21 U
Benzo(k)fluoranthene	78	--	1700	--	250			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Chrysene	780	--	17000	-	800			0.0065 U		0.0064 U		0.0061 U		0.011 J		0.0064 U		0.0062 U		0.14 U		0.21 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Fluoranthene	82000	--	82000	--	21000			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Fluorene	82000	--	82000	--	2800			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69			0.0065 U		0.0064 U		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.21 U
Naphthalene	41000	270	4100	1.8	18			0.019 J		0.0064 J		0.0061 U		0.0057 U		0.0064 U		0.0062 U		0.14 U		0.85
Phenanthrene**	61000	--	61000	--	1100			0.01 J		0.0064 U		0.0061 U		0.0068 J		0.0064 U		0.021 J		0.14 U		0.21 U
Pyrene	61000	--	61000	--	21000			0.0069 J		0.0064 U		0.0061 U		0.011 J		0.0064 U		0.0066 J		0.14 U		0.21 U
METALS																						
Arsenic	11.3*	1200	61	25000	100-130			0.94		0.9		4.5		3.4		0.037 U		0.038 U		0.43		9.5
Barium	140000	910000	14000	870000	260-2,100			170		180		25		32		140		100		94		110
Cadmium	2000	2800	200	59000	10-4,300			0.18		0.19		0.087		0.05 J		0.066		0.13		0.16		0.16
Chromium	6100	420	4100	690	21-70			23		23		8		17		21		20		21		17
Lead	400	--	400	--	20.9***			13		13		15		10		13		12		12		18
Mercury	610	540000	61	52000	0.05-40			0.088		0.062 J		0.032 J		0.039 J		0.042 J		0.05 J		0.062 J		0.088
Selenium	10000	--	1000	--	1.3-24			0.35 J		0.54 J		0.57 J		0.61		0.45 J		0.31 U		0.31 U		0.43
Percent moisture								23		22		18		12		22		19		20		22
pH								7.9		8.1		7.9		8		8.1		8.5		8.9		12

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																							
	Industrial / Commercial		Construction Worker		Migration to Groundwater																			
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL01		CL01 (dup)		CL01		CL01		CL02		CL02		CL02 (dup)		CL04
						Sample Date		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/28/03		7/24/03
						Sample Depth (ft)		4-6		4-6		10-12		14-16		4-6		6-8		6-8		6-8
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
SVOCs																								
1,2,4-Trichlorobenzene	20000	3200	2000	920	53			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
2,4,5-Trichlorophenol	200000	--	200000	--	1400			0.86 U		0.85 U		0.8 U		0.75 U		0.85 U		0.81 U		0.83 U		1.3 U
2,4,6-Trichlorophenol	520	390	11000	540	0.77			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
2,4-Dichlorophenol	6100	--	610	--	1			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
2,4-Dimethylphenol	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
2,4-Dinitrophenol	2000	--	410	--	0.2		5	0.73 U	5	0.72 U	5	0.68 U	5	0.64 U	5	0.72 U	5	0.69 U	5	0.7 U	5	1.1 U
2,4-Dinitrotoluene	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
2,6-Dinitrotoluene	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
2-Chloronaphthalene**	160000	--	16000	--	1200			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
2-Chlorophenol	10000	53000	10000	53000	20			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
3,3-Dichlorobenzidine	--	--	--	--	--			0.86 U		0.85 U		0.8 U		0.75 U		0.85 U		0.81 U		0.83 U		1.3 U
4,6-Dinitro-o-cresol**	720	--	71	--				0.73 U		0.72 U		0.68 U		0.64 U		0.72 U		0.69 U		0.7 U		1.1 U
4-Bromophenyl phenyl ether	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
4-Chlorophenyl phenyl ether	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		1,2,4,5	0.14 U	1,2,4,5	0.14 U	1,2,4,5	0.13 U	1,2,4,5	0.13 U	1,2,4,5	0.14 U	1,2,4,5	0.14 U	1,2,4,5	0.14 U	1,2,4,5	0.21 U
Benzoic acid	1000000	--	820000	--	400			1.4 U		1.4 U		1.3 U		1.3 U		1.4 U		1.4 U		1.4 U		2.1 U
Benzyl alcohol**	610000	6900	200000	6900	9.4			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Bis(2-chloroethoxy)methane	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		5	0.14 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.14 U	5	0.21 U
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000			0.23 J		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Butyl benzyl phthalate	410000	930	410000	930	930			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Dibenzofuran**	8200	--	820	--	76			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Diethyl phthalate	1000000	2000	1000000	2000	470			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Dimethyl phthalate**	1000000	1300	1000000	1300	380			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Di-n-butyl phthalate	200000	2300	200000	2300	2300			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Di-n-octyl phthalate	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Hexachlorobenzene	4	1.8	78	2.6	11			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Hexachlorobutadiene**	410	1000	41	180	15			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Hexachlorocyclopentadiene	14000	16	14000	1.1	400			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Hexachloroethane	2000	--	2000	--	2.6			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
Isophorone	410000	4600	410000	4600	8			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
m-Nitroaniline**	--	120	--	7.5	--			0.73 U		0.72 U		0.68 U		0.64 U		0.72 U		0.69 U		0.7 U		1.1 U
Nitrobenzene	1000	140	1000	9.4	0.1		5	0.14 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.14 U	5	0.21 U
N-Nitrosodimethylamine	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
N-Nitrosodiphenylamine	1200	--	25000	--	5.6			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		5	0.14 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.14 U	5	0.21 U
o-Cresol	100000	--	100000	--	15			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
o-Nitroaniline	--	--	--	--	--			0.73 U		0.72 U		0.68 U		0.64 U		0.72 U		0.69 U		0.7 U		1.1 U
o-Nitrophenol	--	--	--	--	--			0.73 U		0.72 U		0.68 U		0.64 U		0.72 U		0.69 U		0.7 U		1.1 U
p-Chloroaniline	--	--	--	--	--			0.56 U		0.55 U		0.52 U		0.49 U		0.55 U		0.53 U		0.54 U		0.83 U
p-Chloro-m-cresol	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U
PCP (pentachlorophenol)	24	--	520	--	0.14		5	0.73 U	5	0.72 U	5	0.68 U	5	0.64 U	5	0.72 U	5	0.69 U	5	0.7 U	5	1.1 U
Phenol	1000000	--	120000	--	100			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		2.1
p-Nitroaniline	--	--	--	--	--			0.73 U		0.72 U		0.68 U		0.64 U		0.72 U		0.69 U		0.7 U		1.1 U
p-Nitrophenol	--	--	--	--	--			0.14 U		0.14 U		0.13 U		0.13 U		0.14 U		0.14 U		0.14 U		0.21 U

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO

Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Lead: Migration to Groundwater RO shown is Statewide Background Concentration for Counties Outside Metropolitan Statistical Areas (TACO Appendix A, Table G)

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																			
	Industrial / Commercial		Construction Worker		Migration to Groundwater															
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL06		CL06		CL08		CL09		CL09		CL11		CL11		CL13 (dup)
						Sample Date		7/28/03		7/28/03		7/24/03		7/28/03		7/28/03		7/24/03		7/24/03		7/29/03
						Sample Depth (ft)		2-4		4-6		16-18		2-4		4-6		6-8		12-14		4-6
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
VOCs																						
1,1,1-Trichloroethane	--	1200	--	1200	9.6			0.00097 U		0.00097 U		0.00078 U		0.00089 U		0.001 U		0.00099 U		0.0009 U		0.00094 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3			0.00078 U		0.00078 U		0.00062 U		0.00072 U		0.00084 U		0.00079 U		0.00072 U		0.00075 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3			0.00095 U		0.00096 U		0.00076 U		0.00088 U		0.001 U		0.00097 U		0.00088 U		0.00093 U
1,1-Dichloroethane	200000	1700	200000	130	110			0.00079 U		0.0008 U		0.00064 U		0.00073 U		0.00086 U		0.00081 U		0.00074 U		0.00077 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3			0.00091 U		0.00092 U		0.00073 U		0.00084 U		0.00098 U		0.00093 U		0.00085 U		0.00089 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1			0.0011 U		0.0011 U		0.00091 U		0.001 U		0.0012 U		0.0012 U		0.001 U		0.0011 U
1,2-Dichloropropane	84	23	1800	5	0.15			0.00071 U		0.00072 U		0.00057 U		0.00066 U		0.00077 U		0.00073 U		0.00066 U		0.0007 U
2-Hexanone**	82000	110	8200	0.72	1.3			0.01 U		0.01 U		0.0082 U		0.0095 U		0.011 U		0.01 U		0.0095 U		0.01 U
Acetone	200000	100000	200000	100000	16			0.029		0.021 J		0.057		0.17		0.024		0.043		0.076		0.042
Benzene	100	1.6	2300	2.2	0.17			0.0036 J		0.0022 J		0.084		0.0019 J		0.00065 U	5	1		0.013		0.00059 U
Bromodichloromethane	92	3000	2000	3000	0.6			0.00082 U		0.00082 U		0.00066 U		0.00076 U		0.00088 U		0.00083 U		0.00076 U		0.00079 U
Bromoform	720	100	16000	140	0.8			0.00065 U		0.00065 U		0.00052 U		0.0006 U		0.0007 U		0.00066 U		0.0006 U		0.00063 U
Bromomethane	--	--	--	--	--			na		na		na		na		na		na		na		na
Carbon disulfide	200000	720	20000	9	160			0.0014 U		0.0014 U		0.0014 J		0.0013 U		0.0015 U		0.0014 U		0.0023 J		0.0051
Carbon tetrachloride	44	0.64	410	0.9	0.33			0.001 U		0.001 U		0.00081 U		0.00093 U		0.0011 U		0.001 U		0.00093 U		0.00098 U
Chlorobenzene	41000	210	4100	1.3	6.5			0.00068 U		0.00068 U		0.00054 U		0.00063 U		0.00073 U		0.00069 U		0.00063 U		0.00066 U
Chloroethane**	820000	1500	82000	94	70			0.00099 U		0.001 U		0.0008 U		0.00092 U		0.0011 U		0.001 U		0.00092 U		0.00097 U
Chloroform	940	0.54	2000	0.76	2.9			0.00069 U		0.00069 U		0.00055 U		0.00064 U		0.00074 U		0.0007 U		0.00064 U		0.00067 U
Chloromethane**	8200	170	820	1.1	0.68			na		na		na		na		na		na		na		na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1			0.00076 U		0.00076 U		0.00061 U		0.0007 U		0.00082 U		0.00078 U		0.00071 U		0.00074 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00061 U		0.00061 U		0.00049 U		0.00056 U		0.00066 U		0.00062 U		0.00057 U		0.00059 U
Dibromochloromethane	41000	1300	41000	1300	0.4			0.00043 U		0.00043 U		0.00034 U		0.0004 U		0.00046 U		0.00044 U		0.0004 U		0.00042 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--			0.001 U		0.001 U		0.00083 U		0.00095 U		0.0011 U		0.0011 U		0.00096 U		0.001 U
Ethylbenzene	200000	400	20000	58	19			0.00079 U		0.0014 J		0.0013 J		0.0016 J		0.00085 U		0.038		0.0015 J		0.00076 U
m-Dichlorobenzene**	1800	570	180	570	1			0.0012 U		0.0012 U		0.00093 U		0.0011 U		0.0013 U		0.0012 U		0.0011 U		0.0011 U
Methyl bromide	2900	15	1000	3.9	1.2			0.0016 U		0.0016 U		0.0013 U		0.0015 U		0.0017 U		0.0016 U		0.0015 U		0.0015 U
Methyl chloride	--	--	--	--	--			0.0017 U		0.0017 U		0.0013 U		0.0015 U		0.0018 U		0.0017 U		0.0016 U		0.0016 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17			0.008 U		0.0081 U		0.0065 U		0.054		0.0087 U		0.015		0.024		0.0078 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--			0.014 U		0.014 U		0.011 U		0.013 U		0.015 U		0.014 U		0.013 U		0.013 U
Methylene chloride	760	24	1200	34	0.2			0.0029 U		0.0029 U		0.0023 U		0.0027 U		0.0032 U		0.003 U		0.0027 U		0.0028 U
o-Dichlorobenzene	180000	560	18000	310	43			0.00075 U		0.00075 U		0.0006 U		0.00069 U		0.00081 U		0.00077 U		0.0007 U		0.00073 U
p-Dichlorobenzene	--	17000	--	340	11			0.0011 U		0.0011 U		0.00085 U		0.00097 U		0.0011 U		0.0011 U		0.00098 U		0.001 U
Styrene	410000	1500	41000	430	18			0.00062 U		0.00062 U		0.0018 J		0.00057 U		0.00066 U		0.01		0.00057 U		0.0006 U
Tetrachloroethylene	110	20	240	28	0.3			0.0011 U		0.0012 U		0.00092 U		0.0011 U		0.0012 U		0.0012 U		0.0011 U		0.0011 U
Toluene	410000	650	410000	42	29			0.0043 U		0.0043 U		0.016		0.0047		0.0046 U		0.25		0.0071		0.0041 U
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00054 U		0.00054 U		0.00044 U		0.0005 U		0.00058 U		0.00055 U		0.0005 U		0.00053 U
Trichloroethylene	520	8.9	1200	12	0.3			0.00065 U		0.00065 U		0.00052 U		0.0006 U		0.0007 U		0.00066 U		0.0006 U		0.00063 U
Vinyl Acetate	1000000	1600	200000	10	170			0.0023 U		0.0023 U		0.0019 U		0.0021 U		0.0025 U		0.0024 U		0.0022 U		0.0023 U
Vinyl chloride	7.9	1.1	170	1.1	0.07			0.00099 U		0.001 U		0.0008 U		0.00092 U		0.0011 U		0.001 U		0.00092 U		0.00097 U
Xylene (total)	1000000	320	410000	320	150			0.0023 U		0.002		0.002 J		0.0023 J		0.0024 U		0.058		0.0028 J		0.0022 U
PAHs																						
2-Methylnaphthalene**	8200	--	820	--	39			0.013 J		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Acenaphthene	120000	--	120000	--	2900			0.0062 U		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Acenaphthylene	61000	--	61000	--	120			0.12 J		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Anthracene	610000	--	610000	--	59000			0.027 J		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Benzo(a)anthracene	8	--	170	--	8			0.048		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.0055 U
Benzo(a)pyrene	0.8	--	17	--	82			0.088		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.0094 U
Benzo(b)fluoranthene	8	--	170	--	25			0.062		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.0069 U
Benzo(ghi)perylene**	61000	--	61000	--	160000			0.1 J		0.0092 J		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Benzo(k)fluoranthene	78	--	1700	--	250			0.035		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.0069 U
Chrysene	780	--	17000	-	800			0.099 J		0.0084 J		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.063 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6			0.02 J		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.013 U
Fluoranthene	82000	--	82000	--	21000			0.088 J		0.0068 J		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Fluorene	82000	--	82000	--	2800			0.0091 J		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.088 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69			0.037		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.018 U
Naphthalene	41000	270	4100	1.8	18			0.021 J		0.006 U		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Phenanthrene**	61000	--	61000	--	1100			0.077 J		0.011 J		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.14 U
Pyrene	61000	--	61000	--	21000			0.12 J		0.014 J		0.12 U		0.13 U		0.0063 U		0.14 U		0.12 U		0.11 U
METALS																						
Arsenic	11.3*	1200	61	25000	100-130			4.6		5.5		4.1		4.4		4.9		2.9		4.7		1.1
Barium	140000	910000	14000	870000	260-2,100			130		61		25		38		90		93		22		140
Cadmium	2000	2800	200	59000	10-4,300			0.59		0.25		0.017 U		0.053 J		0.15		0.16		0.017 U		0.11
Chromium	6100	420	4100	690	21-70			23		20		15		17		21		19		15		21
Lead	400	--	400	--	20.9***		5	36		11		7.6		14		13		10		7	5	24
Mercury	610	540000	61	52000	0.05-40			0.057 J		0.036 J		0.053 J		0.033 J		0.084		0.084		0.038 J		0.12
Selenium	10000	--	1000	--	1.3-24			0.34 J		0.3 J		0.63		0.31 J		0.32 U		0.59 J		0.38 J		0.3 U
Percent moisture								19		17		12		14		21		21		11		20
pH								8.1		8.3		8.8		8.4		7.8		12		10		8.2

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																					
	Industrial / Commercial		Construction Worker		Migration to Groundwater																	
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL06		CL06		CL08		CL09		CL09		CL11		CL11		CL13 (dup)
						Sample Date		7/28/03		7/28/03		7/24/03		7/28/03		7/28/03		7/24/03		7/24/03		7/29/03
						Sample Depth (ft)		2-4		4-6		16-18		2-4		4-6		6-8		12-14		4-6
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
SVOCs																						
1,2,4-Trichlorobenzene	20000	3200	2000	920	53			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
2,4,5-Trichlorophenol	200000	--	200000	--	1400			0.81 U		0.8 U		0.75 U		0.77 U		0.84 U		0.84 U		0.74 U		0.83 U
2,4,6-Trichlorophenol	520	390	11000	540	0.77			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
2,4-Dichlorophenol	6100	--	610	--	1			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
2,4-Dimethylphenol	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
2,4-Dinitrophenol	2000	--	410	--	0.2		5	0.69 U	5	0.67 U	5	0.64 U	5	0.65 U	5	0.71 U	5	0.71 U	5	0.63 U	5	0.7 U
2,4-Dinitrotoluene	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
2,6-Dinitrotoluene	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
2-Chloronaphthalene**	160000	--	16000	--	1200			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
2-Chlorophenol	10000	53000	10000	53000	20			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
3,3-Dichlorobenzidine	--	--	--	--	--			0.81 U		0.8 U		0.75 U		0.77 U		0.84 U		0.84 U		0.74 U		0.83 U
4,6-Dinitro-o-cresol**	720	--	71	--				0.69 U		0.67 U		0.64 U		0.65 U		0.71 U		0.71 U		0.63 U		0.7 U
4-Bromophenyl phenyl ether	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
4-Chlorophenyl phenyl ether	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		1,2,4,5	0.14 U	1,2,4,5	0.13 U	1,2,4,5	0.12 U	1,2,4,5	0.13 U	1,2,4,5	0.14 U	1,2,4,5	0.14 U	1,2,4,5	0.12 U	1,2,4,5	0.14 U
Benzoic acid	1000000	--	820000	--	400			1.4 U		1.3 U		1.2 U		1.3 U		1.4 U		1.4 U		1.2 U		1.4 U
Benzyl alcohol**	610000	6900	200000	6900	9.4			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Bis(2-chloroethoxy)methane	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		5	0.14 U	5	0.13 U	5	0.12 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.12 U	5	0.14 U
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000			2.7		0.13 U		0.23 J		0.13 U		0.14 U		0.14 U		0.39		0.14 U
Butyl benzyl phthalate	410000	930	410000	930	930			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Dibenzofuran**	8200	--	820	--	76			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Diethyl phthalate	1000000	2000	1000000	2000	470			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Dimethyl phthalate**	1000000	1300	1000000	1300	380			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Di-n-butyl phthalate	200000	2300	200000	2300	2300			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Di-n-octyl phthalate	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Hexachlorobenzene	4	1.8	78	2.6	11			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Hexachlorobutadiene**	410	1000	41	180	15			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Hexachlorocyclopentadiene	14000	16	14000	1.1	400			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Hexachloroethane	2000	--	2000	--	2.6			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
Isophorone	410000	4600	410000	4600	8			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
m-Nitroaniline**	--	120	--	7.5	--			0.69 U		0.67 U		0.64 U		0.65 U		0.71 U		0.71 U		0.63 U		0.7 U
Nitrobenzene	1000	140	1000	9.4	0.1		5	0.14 U	5	0.13 U	5	0.12 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.12 U	5	0.14 U
N-Nitrosodimethylamine	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
N-Nitrosodiphenylamine	1200	--	25000	--	5.6			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		5	0.14 U	5	0.13 U	5	0.12 U	5	0.13 U	5	0.14 U	5	0.14 U	5	0.12 U	5	0.14 U
o-Cresol	100000	--	100000	--	15			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
o-Nitroaniline	--	--	--	--	--			0.69 U		0.67 U		0.64 U		0.65 U		0.71 U		0.71 U		0.63 U		0.7 U
o-Nitrophenol	--	--	--	--	--			0.69 U		0.67 U		0.64 U		0.65 U		0.71 U		0.71 U		0.63 U		0.7 U
p-Chloroaniline	--	--	--	--	--			0.53 U		0.52 U		0.49 U		0.5 U		0.54 U		0.54 U		0.48 U		0.54 U
p-Chloro-m-cresol	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
PCP (pentachlorophenol)	24	--	520	--	0.14		5	0.69 U	5	0.67 U	5	0.64 U	5	0.65 U	5	0.71 U	5	0.71 U	5	0.63 U	5	0.7 U
Phenol	1000000	--	120000	--	100			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U
p-Nitroaniline	--	--	--	--	--			0.69 U		0.67 U		0.64 U		0.65 U		0.71 U		0.71 U		0.63 U		0.7 U
p-Nitrophenol	--	--	--	--	--			0.14 U		0.13 U		0.12 U		0.13 U		0.14 U		0.14 U		0.12 U		0.14 U

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Lead: Migration to Groundwater RO shown is Statewide Background Concentration for Counties Outside Metropolitan Statistical Areas (TACO Appendix A, Table G)

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																					
	Industrial / Commercial		Construction Worker		Migration to Groundwater																	
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL13		CL14		CL14		CL14		CL14 (dup)		CL16		CL16		CL17
						Sample Date		7/29/03		7/29/03		7/29/03		7/29/03		7/29/03		7/31/03		7/31/03		8/12/03
						Sample Depth (ft)		8-10		2-4		4-6		12-14		12-14		6-8		12-14		4-6
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
VOCs																						
1,1,1-Trichloroethane	--	1200	--	1200	9.6			0.0012 U		0.0014 U		0.0011 U		0.001 U		0.0011 U		0.00074 U		0.001 U		0.0009 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3			0.00095 U		0.0011 U		0.00092 U		0.00084 U		0.00084 U		0.0006 U		0.00082 U		0.00072 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3			0.0012 U		0.0014 U		0.0011 U		0.001 U		0.001 U		0.00073 U		0.001 U		0.00089 U
1,1-Dichloroethane	200000	1700	200000	130	110			0.00097 U		0.0011 U		0.00094 U		0.00086 U		0.00086 U		0.00061 U		0.00084 U		0.00074 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3			0.0011 U		0.0013 U		0.0011 U		0.00098 U		0.00099 U		0.0007 U		0.00096 U		0.00085 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1			0.0014 U		0.0016 U		0.0013 U		0.0012 U		0.0012 U		0.00087 U		0.0012 U		0.0011 U
1,2-Dichloropropane	84	23	1800	5	0.15			0.00087 U		0.001 U		0.00085 U		0.00077 U		0.00078 U		0.00055 U		0.00075 U		0.00067 U
2-Hexanone**	82000	110	8200	0.72	1.3			0.012 U		0.015 U		0.012 U		0.011 U		0.011 U		0.0079 U		0.011 U		0.0095 U
Acetone	200000	100000	200000	100000	16			0.021 J		0.034		0.014 U		0.041		0.047		0.0091 U		0.035		0.058
Benzene	100	1.6	2300	2.2	0.17			0.00073 U		0.00086 U		0.00071 U		0.0023 J		0.00065 U		0.0017 J		0.004 J		0.0016 J
Bromodichloromethane	92	3000	2000	3000	0.6			0.001 U		0.0012 U		0.00097 U		0.00088 U		0.00089 U		0.00063 U		0.00086 U		0.00076 U
Bromoform	720	100	16000	140	0.8			0.0008 U		0.00093 U		0.00077 U		0.0007 U		0.00071 U		0.0005 U		0.00069 U		0.00061 U
Bromomethane	--	--	--	--	--			na		na		na		na		na		na		na		na
Carbon disulfide	200000	720	20000	9	160			0.0017 U		0.0023 J		0.0017 U		0.0015 U		0.0015 U		0.0011 J		0.0015 U		0.008
Carbon tetrachloride	44	0.64	410	0.9	0.33			0.0012 U		0.0014 U		0.0012 U		0.0011 U		0.0011 U		0.00077 U		0.0011 U		0.00094 U
Chlorobenzene	41000	210	4100	1.3	6.5			0.00083 U		0.00096 U		0.0008 U		0.00073 U		0.00073 U		0.00052 U		0.00071 U		0.00063 U
Chloroethane**	820000	1500	82000	94	70			0.0012 U		0.0014 U		0.0012 U		0.0011 U		0.0011 U		0.00077 U		0.001 U		0.00093 U
Chloroform	940	0.54	2000	0.76	2.9			0.00084 U		0.00098 U		0.00081 U		0.00074 U		0.00075 U		0.00053 U		0.00073 U		0.00064 U
Chloromethane**	8200	170	820	1.1	0.68			na		na		na		na		na		na		na		na
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1			0.00093 U		0.0011 U		0.0009 U		0.00082 U		0.00083 U		0.00059 U		0.0008 U		0.00071 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00075 U		0.00087 U		0.00072 U		0.00066 U		0.00066 U		0.00047 U		0.00064 U		0.00057 U
Dibromochloromethane	41000	1300	41000	1300	0.4			0.00052 U		0.00061 U		0.00051 U		0.00046 U		0.00047 U		0.00033 U		0.00045 U		0.0004 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--			0.0013 U		0.0015 U		0.0012 U		0.0011 U		0.0011 U		0.00079 U		0.0011 U		0.00096 U
Ethylbenzene	200000	400	20000	58	19			0.00096 U		0.0011 U		0.00093 U		0.00085 U		0.00085 U		0.0006 U		0.0028 J		0.00073 U
m-Dichlorobenzene**	1800	570	180	570	1			0.0014 U		0.0017 U		0.0014 U		0.0013 U		0.0013 U		0.00089 U		0.0012 U		0.0011 U
Methyl bromide	2900	15	1000	3.9	1.2			0.0019 U		0.0022 U		0.0019 U		0.0017 U		0.0017 U		0.0012 U		0.0017 U		0.0015 U
Methyl chloride	--	--	--	--	--			0.002 U		0.0024 U		0.002 U		0.0018 U		0.0018 U		0.0013 U		0.0018 U		0.0016 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17			0.0098 U		0.011 U		0.0095 U		0.0087 U		0.0087 U		0.0062 U		0.0085 U		0.0075 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--			0.017 U		0.019 U		0.016 U		0.015 U		0.015 U		0.01 U		0.014 U		0.013 U
Methylene chloride	760	24	1200	34	0.2			0.0036 U		0.0042 U		0.0035 U		0.0032 U		0.0032 U		0.0023 U		0.0031 U		0.0027 U
o-Dichlorobenzene	180000	560	18000	310	43			0.00092 U		0.0011 U		0.00089 U		0.00081 U		0.00082 U		0.00058 U		0.00079 U		0.0007 U
p-Dichlorobenzene	--	17000	--	340	11			0.0013 U		0.0015 U		0.0012 U		0.0011 U		0.0011 U		0.00081 U		0.0011 U		0.00098 U
Styrene	410000	1500	41000	430	18			0.00075 U		0.00088 U		0.00073 U		0.00067 U		0.00067 U		0.00047 U		0.00065 U		0.00057 U
Tetrachloroethylene	110	20	240	28	0.3			0.0014 U		0.0016 U		0.0014 U		0.0012 U		0.0012 U		0.00089 U		0.0012 U		0.0011 U
Toluene	410000	650	410000	42	29			0.0052 U		0.0061 U		0.005 U		0.0046 U		0.0046 U		0.0033 U		0.0091		0.004 U
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00066 U		0.00077 U		0.00064 U		0.00059 U		0.00059 U		0.00042 U		0.00057 U		0.00051 U
Trichloroethylene	520	8.9	1200	12	0.3			0.00079 U		0.00093 U		0.00077 U		0.0007 U		0.00071 U		0.0005 U		0.00069 U		0.00061 U
Vinyl Acetate	1000000	1600	200000	10	170			0.0028 U		0.0033 U		0.0027 U		0.0025 U		0.0025 U		0.0018 U		0.0024 U		0.0022 U
Vinyl chloride	7.9	1.1	170	1.1	0.07			0.0012 U		0.0014 U		0.0012 U		0.0011 U		0.0011 U		0.00077 U		0.001 U		0.00093 U
Xylene (total)	1000000	320	410000	320	150			0.0028 U		0.0032 U		0.0027 U		0.0024 U		0.0025 U		0.0017 U		0.0054		0.0021 U
PAHs																						
2-Methylnaphthalene**	8200	--	820	--	39			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Acenaphthene	120000	--	120000	--	2900			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Acenaphthylene	61000	--	61000	--	120			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Anthracene	610000	--	610000	--	59000			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Benzo(a)anthracene	8	--	170	--	8			0.0058 U		0.0061 U		0.01 J		0.0051 U		0.005 U		0.0055 U		0.008 J		0.0089 J
Benzo(a)pyrene	0.8	--	17	--	82			0.0099 U		0.01 U		0.0099 U		0.0086 U		0.0085 U		0.0094 U		0.0085 U		0.0095 U
Benzo(b)fluoranthene	8	--	170	--	25			0.0072 U		0.0076 U		0.011 J		0.0063 U		0.0063 U		0.0069 U		0.012 J		0.01 J
Benzo(ghi)perylene**	61000	--	61000	--	160000			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Benzo(k)fluoranthene	78	--	1700	--	250			0.0072 U		0.0076 U		0.01 J		0.0063 U		0.0063 U		0.0069 U		0.0083 J		0.01 J
Chrysene	780	--	17000	-	800			0.066 U		0.069 U		0.066 U		0.057 U		0.057 U		0.063 U		0.057 U		0.063 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6			0.013 U		0.014 U		0.013 U		0.011 U		0.011 U		0.013 U		0.011 U		0.013 U
Fluoranthene	82000	--	82000	--	21000			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Fluorene	82000	--	82000	--	2800			0.092 U		0.097 U		0.092 U		0.08 U		0.08 U		0.088 U		0.08 U		0.089 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69			0.018 U		0.019 U		0.018 U		0.016 U		0.016 U		0.018 U		0.016 U		0.018 U
Naphthalene	41000	270	4100	1.8	18			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Phenanthrene**	61000	--	61000	--	1100			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Pyrene	61000	--	61000	--	21000			0.12 U		0.13 U		0.12 U		0.1 U		0.1 U		0.11 U		0.1 U		0.11 U
METALS																						
Arsenic	11.3*	1200	61	25000	100-130		1	15		3.8		3		2.1		2		10		4.6		1.2
Barium	140000	910000	14000	870000	260-2,100			100		150		63		34		31		110		27		190
Cadmium	2000	2800	200	59000	10-4,300			0.33		0.048 J		0.02 U		0.056 J		0.096		0.028 J		0.093		0.062 J
Chromium	6100	420	4100	690	21-70			22		3.7		2.9		14		15		39		16		22
Lead	400	--	400	--	20.9***		5	26	5	25		10		8.9		8.2		18		8		14
Mercury	610	540000	61	52000	0.05-40			0.095		0.032 J		0.025 U		0.053 J		0.028 J		0.041 J		0.029 J		0.29
Selenium	10000	--	1000	--	1.3-24			0.32 U		0.35 U		0.34 U		0.51 J		0.28 U		1.3		1	5	3.8
Percent moisture								24		28		24		13		12		20		12		21
pH								7.8		7		7.5		8		8		3.7		8		7.9

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																					
	Industrial / Commercial		Construction Worker		Migration to Groundwater																	
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL13		CL14		CL14		CL14		CL14 (dup)		CL16		CL16		CL17
						Sample Date		7/29/03		7/29/03		7/29/03		7/29/03		7/29/03		7/31/03		7/31/03		8/12/03
						Sample Depth (ft)		8-10		2-4		4-6		12-14		12-14		6-8		12-14		4-6
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
SVOCs																						
1,2,4-Trichlorobenzene	20000	3200	2000	920	53			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
2,4,5-Trichlorophenol	200000	--	200000	--	1400			0.87 U		0.92 U		0.87 U		0.76 U		0.75 U		0.83 U		0.75 U		0.84 U
2,4,6-Trichlorophenol	520	390	11000	540	0.77			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
2,4-Dichlorophenol	6100	--	610	--	1			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
2,4-Dimethylphenol	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
2,4-Dinitrophenol	2000	--	410	--	0.2		5	0.74 U	5	0.78 U	5	0.74 U	5	0.64 U	5	0.64 U	5	0.7 U	5	0.64 U	5	0.71 U
2,4-Dinitrotoluene	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
2,6-Dinitrotoluene	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
2-Chloronaphthalene**	160000	--	16000	--	1200			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
2-Chlorophenol	10000	53000	10000	53000	20			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
3,3-Dichlorobenzidine	--	--	--	--	--			0.87 U		0.92 U		0.87 U		0.76 U		0.75 U		0.83 U		0.75 U		0.84 U
4,6-Dinitro-o-cresol**	720	--	71	--				0.74 U		0.78 U		0.74 U		0.64 U		0.64 U		0.7 U		0.64 U		0.71 U
4-Bromophenyl phenyl ether	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
4-Chlorophenyl phenyl ether	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		1,2,4,5	0.14 U	1,2,4,5	0.15 U	1,2,4,5	0.14 U	1,2,4,5	0.13 U	1,2,4,5	0.13 U	1,2,4,5	0.14 U	1,2,4,5	0.13 U	1,2,4,5	0.14 U
Benzoic acid	1000000	--	820000	--	400			1.4 U		1.5 U		1.4 U		1.3 U		1.3 U		1.4 U		1.3 U		1.4 U
Benzyl alcohol**	610000	6900	200000	6900	9.4			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Bis(2-chloroethoxy)methane	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		5	0.14 U	5	0.15 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.13 U	5	0.14 U
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000			0.14 U		0.15 U		0.38 J		0.13 U		0.13 U		0.2 J		0.15 J		0.14 U
Butyl benzyl phthalate	410000	930	410000	930	930			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Dibenzofuran**	8200	--	820	--	76			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Diethyl phthalate	1000000	2000	1000000	2000	470			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Dimethyl phthalate**	1000000	1300	1000000	1300	380			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Di-n-butyl phthalate	200000	2300	200000	2300	2300			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Di-n-octyl phthalate	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Hexachlorobenzene	4	1.8	78	2.6	11			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Hexachlorobutadiene**	410	1000	41	180	15			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Hexachlorocyclopentadiene	14000	16	14000	1.1	400			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Hexachloroethane	2000	--	2000	--	2.6			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
Isophorone	410000	4600	410000	4600	8			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
m-Nitroaniline**	--	120	--	7.5	--			0.74 U		0.78 U		0.74 U		0.64 U		0.64 U		0.7 U		0.64 U		0.71 U
Nitrobenzene	1000	140	1000	9.4	0.1		5	0.14 U	5	0.15 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.13 U	5	0.14 U
N-Nitrosodimethylamine	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
N-Nitrosodiphenylamine	1200	--	25000	--	5.6			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		5	0.14 U	5	0.15 U	5	0.14 U	5	0.13 U	5	0.13 U	5	0.14 U	5	0.13 U	5	0.14 U
o-Cresol	100000	--	100000	--	15			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
o-Nitroaniline	--	--	--	--	--			0.74 U		0.78 U		0.74 U		0.64 U		0.64 U		0.7 U		0.64 U		0.71 U
o-Nitrophenol	--	--	--	--	--			0.74 U		0.78 U		0.74 U		0.64 U		0.64 U		0.7 U		0.64 U		0.71 U
p-Chloroaniline	--	--	--	--	--			0.57 U		0.6 U		0.57 U		0.49 U		0.49 U		0.54 U		0.49 U		0.54 U
p-Chloro-m-cresol	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
PCP (pentachlorophenol)	24	--	520	--	0.14		5	0.74 U	5	0.78 U	5	0.74 U	5	0.64 U	5	0.64 U	5	0.7 U	5	0.64 U	5	0.71 U
Phenol	1000000	--	120000	--	100			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U
p-Nitroaniline	--	--	--	--	--			0.74 U		0.78 U		0.74 U		0.64 U		0.64 U		0.7 U		0.64 U		0.71 U
p-Nitrophenol	--	--	--	--	--			0.14 U		0.15 U		0.14 U		0.13 U		0.13 U		0.14 U		0.13 U		0.14 U

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Lead: Migration to Groundwater RO shown is Statewide Background Concentration for Counties Outside Metropolitan Statistical Areas (TACO Appendix A, Table G)

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																							
	Industrial / Commercial		Construction Worker		Migration to Groundwater																			
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL17		CL20		CL20		CL20		CL21		CL21 (dup)		CL21		CL22		CL22
						Sample Date		8/12/03		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05
						Sample Depth (ft)		12-14		2-3		7-8		9-10		2-3		2-3		6-9		2-3		7-8
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
VOCs																								
1,1,1-Trichloroethane	--	1200	--	1200	9.6			0.00078 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3			0.00062 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3			0.00077 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
1,1-Dichloroethane	200000	1700	200000	130	110			0.00064 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3			0.00073 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1			0.00091 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
1,2-Dichloropropane	84	23	1800	5	0.15			0.00058 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
2-Hexanone**	82000	110	8200	0.72	1.3			0.0082 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Acetone	200000	100000	200000	100000	16			0.032		0.27		0.21 U		0.21 U		0.44		0.35		0.27		0.38		0.24
Benzene	100	1.6	2300	2.2	0.17			0.0019 J	2,4,5	2.5	2,4,5	19	2,4,5	31	2,4,5	2.3	2,4,5	2.3	2,4,5	24	5	1.2	2,4,5	8.4
Bromodichloromethane	92	3000	2000	3000	0.6			0.00066 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Bromoform	720	100	16000	140	0.8			0.00052 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Bromomethane	--	--	--	--	--			na		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Carbon disulfide	200000	720	20000	9	160			0.0011 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Carbon tetrachloride	44	0.64	410	0.9	0.33			0.00081 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
Chlorobenzene	41000	210	4100	1.3	6.5			0.00054 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
Chloroethane**	820000	1500	82000	94	70			0.0008 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Chloroform	940	0.54	2000	0.76	2.9			0.00055 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
Chloromethane**	8200	170	820	1.1	0.68			na		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1			0.00061 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00049 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
Dibromochloromethane	41000	1300	41000	1300	0.4			0.00034 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--			0.00083 U		na		na		na		na		na		na		na		na
Ethylbenzene	200000	400	20000	58	19			0.00095 J		0.64		0.3		0.6		0.029 U		0.028 U		0.55		0.025 U		0.17
m-Dichlorobenzene**	1800	570	180	570	1			0.00093 U		na		na		na		na		na		na		na		na
Methyl bromide	2900	15	1000	3.9	1.2			0.0013 U		na		na		na		na		na		na		na		na
Methyl chloride	--	--	--	--	--			0.0013 U		na		na		na		na		na		na		na		na
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17			0.0065 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--			0.011 U		0.097 U		0.1 U		0.11 U		0.12 U		0.11 U		0.1 U		0.1 U		0.092 U
Methylene chloride	760	24	1200	34	0.2			0.0024 U	5	0.270	5	0.310		0.110 U	5	0.350	5	0.330	5	0.320	5	0.270	5	0.260
o-Dichlorobenzene	180000	560	18000	310	43			0.0006 U		na		na		na		na		na		na		na		na
p-Dichlorobenzene	--	17000	--	340	11			0.00085 U		na		na		na		na		na		na		na		na
Styrene	410000	1500	41000	430	18			0.0005 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.61		0.05 U		0.23
Tetrachloroethylene	110	20	240	28	0.3			0.00092 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
Toluene	410000	650	410000	42	29			0.0035 J		0.024 U		0.026 U		0.99		0.17		0.16		2.0		0.22		1.2
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02			0.00044 U		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.051 U		0.05 U		0.046 U
Trichloroethylene	520	8.9	1200	12	0.3			0.00052 U		0.024 U		0.026 U		0.026 U		0.029 U		0.028 U		0.026 U		0.025 U		0.023 U
Vinyl Acetate	1000000	1600	200000	10	170			0.0019 U		na		na		na		na		na		na		na		na
Vinyl chloride	7.9	1.1	170	1.1	0.07			0.0008 U		0.024 U		0.026 U		0.026 U		0.029 U		0.028 U		0.026 U		0.025 U		0.023 U
Xylene (total)	1000000	320	410000	320	150			0.0021 J		0.049 U		0.051 U		0.053 U		0.058 U		0.056 U		0.36		0.3		0.046 U
PAHs																								
2-Methylnaphthalene**	8200	--	820	--	39			0.13 U		na		na		0.22 U		na		na		na		na		na
Acenaphthene	120000	--	120000	--	2900			0.13 U		na		na		0.044 U		na		na		na		na		na
Acenaphthylene	61000	--	61000	--	120			0.13 U		na		na		0.044 U		na		na		na		na		na
Anthracene	610000	--	610000	--	59000			0.13 U		na		na		0.044 U		na		na		na		na		na
Benzo(a)anthracene	8	--	170	--	8			0.0051 U		na		na		0.044 U		na		na		na		na		na
Benzo(a)pyrene	0.8	--	17	--	82			0.0086 U		na		na		0.044 U		na		na		na		na		na
Benzo(b)fluoranthene	8	--	170	--	25			0.0073 J		na		na		0.044 U		na		na		na		na		na
Benzo(ghi)perylene**	61000	--	61000	--	160000			0.13 U		na		na		0.044 U		na		na		na		na		na
Benzo(k)fluoranthene	78	--	1700	--	250			0.0063 U		na		na		0.044 U		na		na		na		na		na
Chrysene	780	--	17000	-	800			0.057 U		na		na		0.044 U		na		na		na		na		na
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6			0.011 U		na		na		0.044 U		na		na		na		na		na
Fluoranthene	82000	--	82000	--	21000			0.13 U		na		na		0.044 U		na		na		na		na		na
Fluorene	82000	--	82000	--	2800			0.08 U		na		na		0.044 U		na		na		na		na		na
Indeno(1,2,3-cd)pyrene	8	--	170	--	69			0.016 U		na		na		0.044 U		na		na		na		na		na
Naphthalene	41000	270	4100	1.8	18			0.2 J		na		na		0.044 U		na		na		na		na		na
Phenanthrene**	61000	--	61000	--	1100			0.13 U		na		na		0.044 U		na		na		na		na		na
Pyrene	61000	--	61000	--	21000			0.1 U		na		na		0.044 U		na		na		na		na		na
METALS																								
Arsenic	11.3*	1200	61	25000	100-130			2.9		na		na		na		na		na		na		na		na
Barium	140000	910000	14000	870000	260-2,100			29		na		na		na		na		na		na		na		na
Cadmium	2000	2800	200	59000	10-4,300			0.018 U		na		na		na		na		na		na		na		na
Chromium	6100	420	4100	690	21-70			18		na		na		na		na		na		na		na		na
Lead	400	--	400	--	20.9***			8.6		na		na		na		na		na		na		na		na
Mercury	610	540000	61	52000	0.05-40			0.16		na		na		na		na		na		na		na		na
Selenium	10000	--	1000	--	1.3-24			2		na		na		na		na		na		na		na		na
Percent moisture								13		15.5		21.7		25.7		23.6		27.4		22.5		24.9		21
pH								8.2		na		na		na		na		na		na		na		na

Table H-20. Chemical Loading Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																							
	Industrial / Commercial		Construction Worker		Migration to Groundwater																			
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location		CL17		CL20		CL20		CL20		CL21		CL21 (dup)		CL21		CL22		CL22
						Sample Date		8/12/03		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05		7/13/05
						Sample Depth (ft)		12-14		2-3		7-8		9-10		2-3		2-3		8-9		2-3		7-8
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg
SVOCs																								
1,2,4-Trichlorobenzene	20000	3200	2000	920	53			0.13 U		na		na		0.22 U		na		na		na		na		na
2,4,5-Trichlorophenol	200000	--	200000	--	1400			0.76 U		na		na		0.44 U		na		na		na		na		na
2,4,6-Trichlorophenol	520	390	11000	540	0.77			0.13 U		na		na		0.44 U		na		na		na		na		na
2,4-Dichlorophenol	6100	--	610	--	1			0.13 U		na		na		0.44 U		na		na		na		na		na
2,4-Dimethylphenol	--	--	--	--	--			0.13 U		na		na		0.44 U		na		na		na		na		na
2,4-Dinitrophenol	2000	--	410	--	0.2		5	0.64 U		na		na	5	0.9 U		na		na		na		na		na
2,4-Dinitrotoluene	--	--	--	--	--			0.13 U		na		na		0.22 U		na		na		na		na		na
2,6-Dinitrotoluene	--	--	--	--	--			0.13 U		na		na		0.22 U		na		na		na		na		na
2-Chloronaphthalene**	160000	--	16000	--	1200			0.13 U		na		na		0.22 U		na		na		na		na		na
2-Chlorophenol	10000	53000	10000	53000	20			0.13 U		na		na		0.22 U		na		na		na		na		na
3,3-Dichlorobenzidine	--	--	--	--	--			0.76 U		na		na		0.22 U		na		na		na		na		na
4,6-Dinitro-o-cresol**	720	--	71	--				0.64 U		na		na		0.44 U		na		na		na		na		na
4-Bromophenyl phenyl ether	--	--	--	--	--			0.13 U		na		na		0.22 U		na		na		na		na		na
4-Chlorophenyl phenyl ether	--	--	--	--	--			0.13 U		na		na		0.22 U		na		na		na		na		na
Benzidine**	0.02	0.02	0.54	0.02	0.0000043		1,2,4,5	0.13 U		na		na		na		na		na		na		na		na
Benzoic acid	1000000	--	820000	--	400			1.3 U		na		na		na		na		na		na		na		na
Benzyl alcohol**	610000	6900	200000	6900	9.4			0.13 U		na		na		na		na		na		na		na		na
Bis(2-chloroethoxy)methane	--	--	--	--	--			0.13 U		na		na		0.22 U		na		na		na		na		na
Bis(2-chloroethyl)ether	5	0.47	75	0.66	0.0004		5	0.13 U		na		na		0.22 U		na		na		na		na		na
Bis(2-chloroisopropyl)ether**	82000	1300	8200	1300	2.4			0.13 U		na		na		na		na		na		na		na		na
Bis(2-ethylhexyl)phthalate (BEHP)	410	31000	4100	31000	31000			0.13 U		na		na		0.22 U		na		na		na		na		na
Butyl benzyl phthalate	410000	930	410000	930	930			0.13 U		na		na		0.22 U		na		na		na		na		na
Dibenzofuran**	8200	--	820	--	76			0.13 U		na		na		0.22 U		na		na		na		na		na
Diethyl phthalate	1000000	2000	1000000	2000	470			0.13 U		na		na		0.22 U		na		na		na		na		na
Dimethyl phthalate**	1000000	1300	1000000	1300	380			0.13 U		na		na		0.22 U		na		na		na		na		na
Di-n-butyl phthalate	200000	2300	200000	2300	2300			0.13 U		na		na		0.22 U		na		na		na		na		na
Di-n-octyl phthalate	--	--	--	--	--			0.13 U		na		na		0.22 U		na		na		na		na		na
Hexachlorobenzene	4	1.8	78	2.6	11			0.13 U		na		na		0.09 U		na		na		na		na		na
Hexachlorobutadiene**	410	1000	41	180	15			0.13 U		na		na		0.22 U		na		na		na		na		na
Hexachlorocyclopentadiene	14000	16	14000	1.1	400			0.13 U		na		na		0.9 U		na		na		na		na		na
Hexachloroethane	2000	--	2000	--	2.6			0.13 U		na		na		0.22 U		na		na		na		na		na
Hydrazine, 1,2-diphenyl**	1.9	0.048	41	0.068	0.0001			0.13 U		na		na		na		na		na		na		na		na
Isophorone	410000	4600	410000	4600	8			0.13 U		na		na		0.22 U		na		na		na		na		na
m-Nitroaniline**	--	120	--	7.5	--			0.64 U		na		na		0.22 U		na		na		na		na		na
Nitrobenzene	1000	140	1000	9.4	0.1		5	0.13 U		na		na		0.044 U		na		na		na		na		na
N-Nitrosodimethylamine	--	--	--	--	--			0.13 U		na		na		na		na		na		na		na		na
N-Nitrosodiphenylamine	1200	--	25000	--	5.6			0.13 U		na		na		0.22 U		na		na		na		na		na
N-Nitrosodipropylamine	0.8	--	18	--	0.00005		5	0.13 U		na		na		na		na		na		na		na		na
o-Cresol	100000	--	100000	--	15			0.13 U		na		na		0.22 U		na		na		na		na		na
o-Nitroaniline	--	--	--	--	--			0.64 U		na		na		0.44 U		na		na		na		na		na
o-Nitrophenol	--	--	--	--	--			0.64 U		na		na		0.44 U		na		na		na		na		na
p-Chloroaniline	--	--	--	--	--			0.49 U		na		na		0.9 U		na		na		na		na		na
p-Chloro-m-cresol	--	--	--	--	--			0.13 U		na		na		na		na		na		na		na		na
PCP (pentachlorophenol)	24	--	520	--	0.14		5	0.64 U		na		na	5	0.9 U		na		na		na		na		na
Phenol	1000000	--	120000	--	100			0.13 U		na		na		1.3		na		na		na		na		na
p-Nitroaniline	--	--	--	--	--			0.64 U		na		na		0.44 U		na		na		na		na		na
p-Nitrophenol	--	--	--	--	--			0.13 U		na		na		0.9 U		na		na		na		na		na

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.

* Arsenic: Industrial/Commercial Ingestion RO is Statewide Background Concentration for Counties Outside of Metropolitan Statistical Areas (TACO Appendix A, Table G)
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)
*** Lead: Migration to Groundwater RO shown is Statewide Background Concentration for Counties Outside Metropolitan Statistical Areas (TACO Appendix A, Table G)

Table H-21. Former Ethyl Chloride Unit
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives					Sample Location	EC01	EC01	EC01		EC02		EC02	EC02		EC03	EC03	EC04	EC04	EC05
	Industrial / Commercial		Construction Worker		Migration to Groundwater Class II	Sample Date	7/30/03	7/30/03	7/30/03		7/30/03		7/30/03	7/30/03		7/30/03	7/30/03	7/30/03	7/30/03	7/30/03
	Ingestion	Inhalation	Ingestion	Inhalation		Sample Depth (ft)	2-4	4-6	4-6		2-4		8-10	14-16		6-8	10-12	2-4	8-10	2-4
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Analyte									DUP											
VOCs																				
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.001 U	0.00096 U	0.001 U		0.053 U		0.057 U	0.00093 U		0.045 U	0.00082 U	0.0009 U	0.00083 U	0.0011 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00083 U	0.00077 U	0.00083 U		0.043 U		0.045 U	0.00074 U		0.036 U	0.00066 U	0.00072 U	0.00066 U	0.0009 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.001 U	0.00094 U	0.001 U		0.052 U		0.056 U	0.00091 U		0.044 U	0.00081 U	0.00088 U	0.00081 U	0.0011 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.00085 U	0.001 J	0.00085 U		0.044 U		0.046 U	0.015		0.037 U	0.011	0.00074 U	0.00068 U	0.00092 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00098 U	0.0009 U	0.00097 U		0.05 U		0.053 U	0.00087 U		0.043 U	0.00077 U	0.00085 U	0.00078 U	0.0011 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.0071	0.0011 U	0.0012 U		0.062 U		0.066 U	0.023		0.053 U	0.0029 J	0.0011 U	0.00097 U	0.0013 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00077 U	0.00071 U	0.00076 U		0.039 U		0.042 U	0.00069 U		0.033 U	0.00061 U	0.00067 U	0.00061 U	0.00083 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.011 U	0.01 U	0.011 U		0.56 U		0.6 U	0.0098 U		0.48 U	0.0087 U	0.0095 U	0.0087 U	0.012 U
Acetone	200000	100000	200000	100000	16		0.63	0.041	0.085		0.65 U		0.69 U	0.058		0.55 U	0.058	0.057	0.033	0.58
Benzene	100	1.6	2300	2.2	0.17		0.082	0.012	0.012	5	0.3	5	0.41	0.0074	2,4,5	7.8	0.024	0.014	0.0065	0.095
Bromodichloromethane	92	3000	2000	3000	0.6		0.00088 U	0.00081 U	0.00087 U		0.045 U		0.048 U	0.00078 U		0.038 U	0.00069 U	0.00076 U	0.0007 U	0.00095 U
Bromoform	720	100	16000	140	0.8		0.0007 U	0.00064 U	0.0007 U		0.036 U		0.038 U	0.00062 U		0.03 U	0.00055 U	0.00061 U	0.00056 U	0.00076 U
Carbon disulfide	200000	720	20000	9	160		0.037	0.0014 U	0.0015 U		0.077 U		0.082 U	0.0013 U		0.065 U	0.0012 U	0.0097	0.0012 U	0.0016 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.0011 U	0.00099 U	0.0011 U		0.055 U		0.059 U	0.00096 U		0.047 U	0.00085 U	0.00094 U	0.00086 U	0.0012 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00072 U	0.00067 U	0.00072 U		0.037 U		0.04 U	0.00065 U		0.032 U	0.00057 U	0.00063 U	0.00058 U	0.00079 U
Chloroethane**	820000	1500	82000	94	70		0.0011 U	0.00098 U	0.0011 U		0.055 U		0.058 U	0.00095 U		0.047 U	0.00084 U	0.00093 U	0.00085 U	0.0012 U
Chloroform	940	0.54	2000	0.76	2.9		0.00074 U	0.00068 U	0.00074 U		0.038 U		0.04 U	0.00066 U		0.032 U	0.00058 U	0.00064 U	0.00059 U	0.0008 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.0034 J	0.0046 J	0.0044 J		0.07 J		0.077 J	0.001 J		0.036 U	0.0026 J	0.00071 U	0.00065 U	0.018
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00065 U	0.0006 U	0.00065 U	5	0.034 U	5	0.036 U	0.00059 U	5	0.029 U	0.00052 U	0.00057 U	0.00052 U	0.00071 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00046 U	0.00042 U	0.00046 U		0.024 U		0.025 U	0.00041 U		0.02 U	0.00036 U	0.0004 U	0.00037 U	0.0005 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.0011 U	0.001 U	0.0011 U		0.057 U		0.06 U	0.00099 U		0.048 U	0.00087 U	0.00096 U	0.00088 U	0.0012 U
Ethylbenzene	200000	400	20000	58	19		0.073	0.0049 J	0.0013 J		0.087 J		0.16 J	0.0027 J		1.6	0.0068	0.0073	0.0032 J	0.0055 J
m-Dichlorobenzene**	1800	570	180	570	1		0.038	0.0011 U	0.0012 U		0.064 U		0.068 U	0.0011 U		0.054 U	0.00098 U	0.0011 U	0.00099 U	0.0013 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0017 U	0.0016 U	0.0017 U		0.086 U		0.092 U	0.0015 U		0.073 U	0.0013 U	0.0015 U	0.0013 U	0.0018 U
Methyl chloride	--	--	--	--	--		0.0018 U	0.0017 U	0.0018 U		0.092 U		0.098 U	0.0016 U		0.078 U	0.0014 U	0.0016 U	0.0014 U	0.0019 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0086 U	0.0088 J	0.013		0.44 U		0.47 U	0.038		0.38 U	0.022	0.013	0.0069 U	0.0093 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.015 U	0.013 U	0.014 U		0.75 U		0.79 U	0.013 U		0.63 U	0.011 U	0.013 U	0.012 U	0.016 U
Methylene chloride	760	24	1200	34	0.2		0.0031 U	0.0029 U	0.0031 U		0.16 U		0.17 U	0.0028 U		0.14 U	0.0025 U	0.0027 U	0.0025 U	0.0034 U
o-Dichlorobenzene	180000	560	18000	310	43		0.0023 J	0.00074 U	0.0008 U		0.041 U		0.044 U	0.00072 U		0.035 U	0.00064 U	0.0007 U	0.00064 U	0.00087 U
p-Dichlorobenzene	--	17000	--	340	11		0.012	0.001 U	0.0011 U		0.058 U		0.062 U	0.001 U		0.049 U	0.00089 U	0.00098 U	0.0009 U	0.0012 U
Styrene	410000	1500	41000	430	18		0.00066 U	0.00061 U	0.0011 J		0.034 U		0.036 U	0.00059 U		0.029 U	0.00052 U	0.00057 U	0.00053 U	0.00072 U
Tetrachloroethylene	110	20	240	28	0.3		0.0025 J	0.0011 U	0.0012 U		0.2 J		0.067 U	0.0011 U		0.054 U	0.00097 U	0.0011 U	0.00098 U	0.0013 U
Toluene	410000	650	410000	42	29		0.022	0.011	0.0045 U		0.23 U		0.25 U	0.01		0.2 U	0.016	0.022	0.0096	0.019
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00058 U	0.00054 U	0.00058 U	5	0.03 U	5	0.032 U	0.00052 U	5	0.025 U	0.00046 U	0.0005 U	0.00046 U	0.00063 U
Trichloroethylene	520	8.9	1200	12	0.3		0.0007 U	0.00064 U	0.0007 U		0.036 U		0.038 U	0.00062 U		0.03 U	0.00055 U	0.00061 U	0.00056 U	0.00076 U
Vinyl Acetate	1000000	1600	200000	10	170		0.0025 U	0.0023 U	0.0025 U		0.13 U		0.14 U	0.0022 U		0.11 U	0.002 U	0.0022 U	0.002 U	0.0027 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.0011 U	0.0087 J	0.0057 J		0.055 U		0.058 U	0.00095 U		0.046 U	0.00084 U	0.00093 U	0.00085 U	0.0012 U
Xylene (total)	1000000	320	410000	320	150		0.0093	0.0096	0.0024 J		0.12 U		0.13 U	0.0062		0.12 J	0.01	0.011	0.0063	0.0048 J
PAHs																				
2-Methylnaphthalene**	8200	--	820	--	39		0.0062 U	0.01	0.006 U		0.0064 U		0.029 J	0.0057 U		0.0098 J	0.0057 U	0.0059 U	0.0054 U	0.0066 U
Acenaphthene	120000	--	120000	--	2900		0.017 J	0.0061 U	0.006 U		0.0064 U		0.016 J	0.0057 U		0.0061 U	0.0057 U	0.011 J	0.0054 U	0.0066 U
Acenaphthylene	61000	--	61000	--	120		0.0062 U	0.0061 U	0.006 U		0.0064 U		0.014 J	0.0057 U		0.0061 U	0.0057 U	0.0059 U	0.0054 U	0.0066 U
Anthracene	610000	--	610000	--	59000		0.011 J	0.0061 U	0.006 U		0.0064 U		0.039 J	0.0057 U		0.0061 U	0.0057 U	0.015 J	0.0054 U	0.0066 U
Benzo(a)anthracene	8	--	170	--	8		0.028	0.0061 U	0.006 U		0.0064 U		0.12	0.0057 U		0.0061 U	0.0057 U	0.032	0.0054 U	0.0066 U
Benzo(a)pyrene	0.8	--	17	--	82		0.024	0.0061 U	0.006 U		0.0064 U		0.23	0.0057 U		0.0061 U	0.0057 U	0.027	0.0054 U	0.0066 U
Benzo(b)fluoranthene	8	--	170	--	25		0.026	0.0061 U	0.006 U		0.0064 U		0.28	0.0057 U		0.0061 U	0.0057 U	0.028	0.0054 U	0.0066 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.017 J	0.0061 U	0.006 U		0.0064 U		0.17 J	0.0057 U		0.0061 U	0.016 J	0.018 J	0.0054 U	0.0066 U
Benzo(k)fluoranthene	78	--	1700	--	250		0.026	0.0061 U	0.006 U		0.0064 U		0.3	0.0057 U		0.0061 U	0.0057 U	0.03	0.0054 U	0.0066 U
Chrysene	780	--	17000	-	800		0.036 J	0.0061 U	0.006 U		0.0064 U		0.41	0.0057 U		0.0061 U	0.008 J	0.033 J	0.0054 U	0.0066 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0062 U	0.0061 U	0.006 U		0.0064 U		0.055	0.0057 U		0.0061 U	0.0057 U	0.0059 U	0.0054 U	0.0066 U
Fluoranthene	82000	--	82000	--	21000		0.075 J	0.0085 J	0.006 U		0.0085 J		1.1	0.0057 U		0.0061 U	0.0057 U	0.078 J	0.0054 U	0.0066 U
Fluorene	82000	--	82000	--	2800		0.012 J	0.0061 U	0.006 U		0.0064 U		0.02 J	0.0057 U		0.0061 U	0.0057 U	0.0098 J	0.0054 U	0.0066 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.017 J	0.0061 U	0.006 U		0.0064 U		0.17	0.0057 U		0.0061 U	0.0057 U	0.016 J	0.0054 U	0.0066 U
Naphthalene	41000	270	4100	1.8	18		0.019 J	0.17 J	0.006 U		0.0064 U		0.053 J	0.0057 U		0.0061 U	0.0057 U	0.0059 U	0.0054 U	0.0066 U
Phenanthrene**	61000	--	61000	--	1100		0.047 J	0.0073 J	0.006 U		0.0098 J		1.1	0.0057 U		0.014 J	0.013 J	0.018 J	0.0054 U	0.0066 U
Pyrene	61000	--	61000	--	21000		0.062 J	0.0077 J	0.006 U		0.0064 U		0.67	0.0057 U		0.0077 J	0.0083 J	0.066 J	0.0054 U	0.0066 U
Percent moisture							19	18	17		22		21	13		18	12	15	8	24

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-21. Former Ethyl Chloride Unit
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																	
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Location	EC05	EC10	EC10		EC10	EC12	EC12	EC13	EC13	EC14	EC14	EC15
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Date	7/30/03	7/30/03	7/30/03		7/30/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/14/03
						Sample Depth (ft)	6-8	2-4	8-10		10-12	2-4	10-12	2-4	8-10	4-6	10-12	2-4
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs																		
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00088 U	0.00099 U	0.00082 U		0.00076 U	0.001 U	0.0008 U	0.001 U	0.00087 U	0.0011 U		
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.0007 U	0.0008 U	0.00066 U		0.00061 U	0.00081 U	0.00065 U	0.00081 U	0.0007 U	0.00089 U	0.00076 U	0.00097 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00086 U	0.00098 U	0.00081 U		0.00075 U	0.00099 U	0.00079 U	0.001 U	0.00085 U	0.0011 U	0.00061 U	0.00078 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.00072 U	0.00082 U	0.0062		0.017	0.00083 U	0.00066 U	0.00083 U	0.00071 U	0.00091 U	0.00075 U	0.00096 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00083 U	0.00094 U	0.00077 U		0.00072 U	0.00095 U	0.00076 U	0.00096 U	0.00082 U	0.001 U	0.0009 J	0.0008 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.001 U	0.0012 U	0.0018 J		0.0054	0.0012 U	0.00094 U	0.0012 U	0.001 U	0.0013 U	0.00072 U	0.00092 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00065 U	0.00074 U	0.00061 U		0.00056 U	0.00075 U	0.00059 U	0.00075 U	0.00064 U	0.00082 U	0.00089 U	0.0011 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0093 U	0.011 U	0.0087 U		0.008 U	0.011 U	0.0085 U	0.011 U	0.0092 U	0.012 U	0.00056 U	0.00072 U
Acetone	200000	100000	200000	100000	16		0.032	0.041	0.058		0.027	0.015 J	0.01 J	0.19	0.012 J	0.027	0.0081 U	0.01 U
Benzene	100	1.6	2300	2.2	0.17		0.0055	0.035	0.038		0.054	0.0012 J	0.0005 U	0.0032 J	0.0054	0.0018 J	0.01 J	0.033
Bromodichloromethane	92	3000	2000	3000	0.6		0.00074 U	0.00084 U	0.00069 U		0.00064 U	0.00085 U	0.00068 U	0.00086 U	0.00073 U	0.00094 U	0.0059	0.00061 U
Bromoform	720	100	16000	140	0.8		0.00059 U	0.00067 U	0.00055 U		0.00051 U	0.00068 U	0.00054 U	0.00068 U	0.00058 U	0.00075 U	0.00065 U	0.00082 U
Carbon disulfide	200000	720	20000	9	160		0.0016 J	0.0038 J	0.0012 U		0.0011 U	0.0015 U	0.0012 U	0.002 J	0.0013 U	0.0016 U	0.00051 U	0.00066 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00091 U	0.001 U	0.00085 U		0.00079 U	0.0011 U	0.00084 U	0.0011 U	0.0009 U	0.0012 U	0.0011 U	0.0014 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00061 U	0.0007 U	0.00057 U		0.00053 U	0.00071 U	0.00056 U	0.00071 U	0.00061 U	0.00078 U	0.0008 U	0.001 U
Chloroethane**	820000	1500	82000	94	70		0.0023 J	0.0022 J	0.00084 U		0.00078 U	0.001 U	0.00083 U	0.001 U	0.00089 U	0.0011 U	0.00053 U	0.00068 U
Chloroform	940	0.54	2000	0.76	2.9		0.00062 U	0.00071 U	0.00058 U		0.00054 U	0.00072 U	0.00057 U	0.00072 U	0.00062 U	0.00079 U	0.00079 U	0.001 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00069 U	0.0012 J	0.025		0.19	0.0008 U	0.00063 U	0.0008 U	0.087	0.015	0.48	0.00054 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00055 U	0.00063 U	0.00052 U		0.00048 U	0.00064 U	0.00051 U	0.00064 U	0.00055 U	0.0007 U	0.00048 U	0.00062 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00039 U	0.00044 U	0.00036 U		0.00034 U	0.00045 U	0.00036 U	0.00045 U	0.00038 U	0.00049 U	0.00034 U	0.00043 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00093 U	0.0011 U	0.001 J		0.0029 J	0.0011 U	0.00086 U	0.0011 U	0.0018 J	0.0012 U	0.0078	0.001 U
Ethylbenzene	200000	400	20000	58	19		0.00071 U	0.0011 J	0.027		0.018	0.00082 U	0.00065 U	0.00082 U	0.0031 J	0.0009 U	0.0027 J	0.00079 U
m-Dichlorobenzene**	1800	570	180	570	1		0.0011 U	0.0012 U	0.00098 U		0.00091 U	0.0012 U	0.00097 U	0.0012 U	0.001 U	0.0013 U	0.00092 U	0.0012 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0014 U	0.0016 U	0.0013 U		0.0012 U	0.0016 U	0.0013 U	0.0016 U	0.0014 U	0.0018 U	0.0012 U	0.0016 U
Methyl chloride	--	--	--	--	--		0.0015 U	0.0017 U	0.0014 U		0.0013 U	0.0017 U	0.0014 U	0.0018 U	0.0015 U	0.0019 U	0.0013 U	0.0017 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0073 U	0.0091 J	0.014		0.0063 U	0.0084 U	0.0067 U	0.045	0.0072 U	0.0092 U	0.0064 U	0.0081 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.012 U	0.014 U	0.011 U		0.011 U	0.014 U	0.011 U	0.014 U	0.012 U	0.016 U	0.011 U	0.014 U
Methylene chloride	760	24	1200	34	0.2		0.0027 U	0.003 U	0.0025 U		0.0023 U	0.0031 U	0.0024 U	0.0031 U	0.0026 U	0.0034 U	0.0023 U	0.003 U
o-Dichlorobenzene	180000	560	18000	310	43		0.00068 U	0.00077 U	0.00064 U		0.00059 U	0.00079 U	0.00063 U	0.00079 U	0.00067 U	0.00086 U	0.00059 U	0.00076 U
p-Dichlorobenzene	--	17000	--	340	11		0.00096 U	0.0011 U	0.00089 U		0.00083 U	0.0011 U	0.00088 U	0.0011 U	0.00095 U	0.0012 U	0.00083 U	0.0011 U
Styrene	410000	1500	41000	430	18		0.00056 U	0.00063 U	0.00052 U		0.00048 U	0.00064 U	0.00051 U	0.00065 U	0.00055 U	0.00071 U	0.00049 U	0.00062 U
Tetrachloroethylene	110	20	240	28	0.3		0.001 U	0.0012 U	0.00097 U		0.0009 U	0.0072	0.0044	0.0012 U	0.001 U	0.0013 U	0.0059	0.0012 U
Toluene	410000	650	410000	42	29		0.0045 J	0.0044 U	0.01		0.013	0.0044 U	0.0035 U	0.0045 U	0.0093	0.0049 U	0.0082	0.0043 U
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00049 U	0.00056 U	0.00046 U		0.00043 U	0.00057 U	0.00045 U	0.00057 U	0.00049 U	0.00062 U	0.00043 U	0.00055 U
Trichloroethylene	520	8.9	1200	12	0.3		0.00059 U	0.00067 U	0.0019 J		0.01	0.00068 U	0.00054 U	0.00068 U	0.00058 U	0.00075 U	0.041	0.00066 U
Vinyl Acetate	1000000	1600	200000	10	170		0.0021 U	0.0024 U	0.002 U		0.0018 U	0.0024 U	0.0019 U	0.0024 U	0.0021 U	0.0027 U	0.0018 U	0.0023 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.0009 U	0.001 U	0.058	5	0.14	0.001 U	0.00083 U	0.001 U	0.0057 J	0.0023 J	0.017	0.001 U
Xylene (total)	1000000	320	410000	320	150		0.002	0.003 J	0.011		0.011	0.0024 U	0.0019 U	0.0024 U	0.0056	0.0026 U	0.005	0.0023 U
PAHs																		
2-Methylnaphthalene**	8200	--	820	--	39		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.0061 U	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Acenaphthene	120000	--	120000	--	2900		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.016 J	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Acenaphthylene	61000	--	61000	--	120		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.0061 U	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Anthracene	610000	--	610000	--	59000		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.03 J	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Benzo(a)anthracene	8	--	170	--	8		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.13	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Benzo(a)pyrene	0.8	--	17	--	82		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.11	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Benzo(b)fluoranthene	8	--	170	--	25		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.13	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.074 J	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Benzo(k)fluoranthene	78	--	1700	--	250		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.093	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Chrysene	780	--	17000	-	800		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.15	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.029	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Fluoranthene	82000	--	82000	--	21000		0.0062 U	0.01 J	0.0061 U		0.0059 U	0.27 J	0.0057 U	0.0063 U	0.01 J	0.0063 U	0.0057 U	0.0062 U
Fluorene	82000	--	82000	--	2800		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.021 J	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.071	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Naphthalene	41000	270	4100	1.8	18		0.0062 U	0.0065 U	0.0061 U		0.0059 U	0.021 J	0.0057 U	0.0063 U	0.0063 U	0.0063 U	0.0057 U	0.0062 U
Phenanthrene**	61000	--	61000	--	1100		0.0062 U	0.02 J	0.0061 U		0.0059 U	0.17 J	0.0057 U	0.0063 U	0.0088 J	0.0075 J	0.0057 U	0.016 J
Pyrene	61000	--	61000	--	21000		0.0062 U	0.01 J	0.0061 U		0.0059 U	0.19 J	0.0057 U	0.0063 U	0.016 J	0.0083 J	0.0057 U	0.0062 U
Percent moisture							19	23	18		15	18	12	21	20	20	12	19

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO

Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-21. Former Ethyl Chloride Unit
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives					Sample Location	EC15	EC16	EC16	EC16	EC17	EC17	EC18	EC18	EC18	EC19	EC19
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Date	8/14/03	8/14/03	8/14/03	8/14/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/14/03	8/14/03
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Depth (ft)	12-14	2-4	2-4	8-10	2-4	14-16	2-4	8-10	8-10	6-8	10-12
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg DUP	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg DUP	mg/kg	mg/kg
Analyte																	
VOCs																	
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00073 U	0.00091 U	0.00092 U	0.00099 U	0.00085 U	0.00075 U	0.001 U	0.0012 U	0.001 U	0.0011 U	0.00073 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00059 U	0.00073 U	0.00074 U	0.00079 U	0.00069 U	0.0006 U	0.00082 U	0.00096 U	0.00081 U	0.00086 U	0.00058 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00072 U	0.0009 U	0.00091 U	0.00097 U	0.00084 U	0.00074 U	0.001 U	0.0012 U	0.00099 U	0.001 U	0.00072 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.0006 U	0.00075 U	0.00076 U	0.00081 U	0.0007 U	0.0011 J	0.00084 U	0.00098 U	0.00082 U	0.00088 U	0.0045
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00069 U	0.00086 U	0.00087 U	0.00093 U	0.00081 U	0.00071 U	0.00097 U	0.0011 U	0.00095 U	0.001 U	0.00069 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.00086 U	0.0011 U	0.0011 U	0.0012 U	0.001 U	0.00088 U	0.0012 U	0.0014 U	0.0012 U	0.0012 U	0.00085 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00054 U	0.00067 U	0.00068 U	0.00073 U	0.00063 U	0.00056 U	0.00076 U	0.00088 U	0.00074 U	0.00079 U	0.00054 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0078 U	0.0096 U	0.0098 U	0.01 U	0.009 U	0.008 U	0.011 U	0.013 U	0.011 U	0.011 U	0.0077 U
Acetone	200000	100000	200000	100000	16		0.11	0.2	0.14	0.019 J	0.065	0.11	0.11	0.015 U	0.018 J	0.052	0.016
Benzene	100	1.6	2300	2.2	0.17		0.0031 J	0.0034 J	0.002 J	0.0011 J	0.14	0.0028 J	0.029	0.0034 J	0.004 J	0.0063	0.014
Bromodichloromethane	92	3000	2000	3000	0.6		0.00062 U	0.00077 U	0.00078 U	0.00084 U	0.00072 U	0.00064 U	0.00087 U	0.001 U	0.00085 U	0.0009 U	0.00062 U
Bromoform	720	100	16000	140	0.8		0.00049 U	0.00061 U	0.00062 U	0.00067 U	0.00058 U	0.00051 U	0.00069 U	0.0008 U	0.00068 U	0.00072 U	0.00049 U
Carbon disulfide	200000	720	20000	9	160		0.0014 J	0.0093	0.021	0.0014 U	0.0023 J	0.0011 U	0.0021 J	0.0017 U	0.0015 U	0.0048 J	0.0011 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00076 U	0.00095 U	0.00096 U	0.001 U	0.00089 U	0.00078 U	0.0011 U	0.0012 U	0.001 U	0.0011 U	0.00076 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00051 U	0.00064 U	0.00064 U	0.00069 U	0.0006 U	0.00053 U	0.00072 U	0.00083 U	0.0007 U	0.00075 U	0.00051 U
Chloroethane**	820000	1500	82000	94	70		0.00076 U	0.00094 U	0.00095 U	0.001 U	0.00088 U	0.00077 U	0.0011 U	0.0012 U	0.001 U	0.0011 U	0.00075 U
Chloroform	940	0.54	2000	0.76	2.9		0.00052 U	0.00065 U	0.00066 U	0.0007 U	0.00061 U	0.00054 U	0.00073 U	0.00085 U	0.00071 U	0.00076 U	0.00052 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00058 U	0.0057	0.004 J	0.0094	0.00067 U	0.028	0.0049 J	0.088	0.077	0.00084 U	0.078
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00046 U	0.00058 U	0.00058 U	0.00063 U	0.00054 U	0.00048 U	0.00065 U	0.00075 U	0.00063 U	0.00067 U	0.00046 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00032 U	0.0004 U	0.00041 U	0.00044 U	0.00038 U	0.00033 U	0.00045 U	0.00053 U	0.00044 U	0.00047 U	0.00032 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00078 U	0.00097 U	0.00098 U	0.0011 U	0.00091 U	0.003 J	0.0011 U	0.0013 U	0.0011 U	0.0011 U	0.011
Ethylbenzene	200000	400	20000	58	19		0.0011 J	0.00074 U	0.00075 U	0.0008 U	0.0039 J	0.00099 J	0.00083 U	0.00097 U	0.00082 U	0.00087 U	0.00083 J
m-Dichlorobenzene**	1800	570	180	570	1		0.00088 U	0.0011 U	0.0011 U	0.0012 U	0.001 U	0.0009 U	0.0012 U	0.0014 U	0.0012 U	0.0013 U	0.00087 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0012 U	0.0015 U	0.0015 U	0.0016 U	0.0014 U	0.0012 U	0.0017 U	0.0019 U	0.0016 U	0.0017 U	0.0012 U
Methyl chloride	--	--	--	--	--		0.0013 U	0.0016 U	0.0016 U	0.0017 U	0.0015 U	0.0013 U	0.0018 U	0.0021 U	0.0017 U	0.0018 U	0.0013 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.022	0.045	0.033	0.0082 U	0.018	0.0063 U	0.023	0.0099 U	0.0083 U	0.0098 J	0.0061 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.01 U	0.013 U	0.013 U	0.014 U	0.012 U	0.011 U	0.014 U	0.017 U	0.014 U	0.015 U	0.01 U
Methylene chloride	760	24	1200	34	0.2		0.0022 U	0.0028 U	0.0028 U	0.003 U	0.0026 U	0.0023 U	0.0031 U	0.0036 U	0.003 U	0.0032 U	0.0022 U
o-Dichlorobenzene	180000	560	18000	310	43		0.00057 U	0.00071 U	0.00072 U	0.00077 U	0.00066 U	0.00058 U	0.0008 U	0.00093 U	0.00078 U	0.00083 U	0.00057 U
p-Dichlorobenzene	--	17000	--	340	11		0.0008 U	0.00099 U	0.001 U	0.0011 U	0.00093 U	0.00082 U	0.0011 U	0.0013 U	0.0011 U	0.0012 U	0.00079 U
Styrene	410000	1500	41000	430	18		0.00047 U	0.00058 U	0.00059 U	0.00063 U	0.00054 U	0.00048 U	0.00065 U	0.00076 U	0.00064 U	0.00068 U	0.00046 U
Tetrachloroethylene	110	20	240	28	0.3		0.00087 U	0.0011 U	0.0011 U	0.0012 U	0.001 U	0.00089 U	0.0012 U	0.0016 J	0.0013 J	0.0013 U	0.00087 U
Toluene	410000	650	410000	42	29		0.004	0.004 U	0.0041 U	0.0044 U	0.0044 J	0.0042	0.0045 U	0.0053 U	0.0044 U	0.0047 U	0.004
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00041 U	0.00051 U	0.00052 U	0.00055 U	0.00048 U	0.00042 U	0.00058 U	0.00067 U	0.00056 U	0.0006 U	0.00041 U
Trichloroethylene	520	8.9	1200	12	0.3		0.00049 U	0.0013 J	0.0017 J	0.00067 U	0.00057 U	0.00051 U	0.00069 U	0.0068	0.0063	0.00072 U	0.011
Vinyl Acetate	1000000	1600	200000	10	170		0.0018 U	0.0022 U	0.0022 U	0.0024 U	0.002 U	0.0018 U	0.0025 U	0.0029 U	0.0024 U	0.0026 U	0.0017 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.00075 U	0.00094 U	0.00095 U	0.0031 J	0.00088 U	0.015	0.0012 J	0.01 J	0.0095 J	0.0011 U	0.063
Xylene (total)	1000000	320	410000	320	150		0.0021 J	0.0021 U	0.0022 U	0.0023 U	0.02	0.002 J	0.0024 U	0.0028 U	0.0023 U	0.0025 U	0.0017 U
PAHs																	
2-Methylnaphthalene**	8200	--	820	--	39		0.0057 U	0.006 U	0.0062 U	0.0065 U	0.017 J	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Acenaphthene	120000	--	120000	--	2900		0.0057 U	0.006 U	0.0082 J	0.0065 U	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Acenaphthylene	61000	--	61000	--	120		0.0057 U	0.006 U	0.0062 U	0.0065 U	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Anthracene	610000	--	610000	--	59000		0.0057 U	0.006 U	0.023 J	0.014 J	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Benzo(a)anthracene	8	--	170	--	8		0.0057 U	0.014	0.094	0.056	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Benzo(a)pyrene	0.8	--	17	--	82		0.0057 U	0.012 J	0.081	0.046	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.039	0.0056 U
Benzo(b)fluoranthene	8	--	170	--	25		0.0057 U	0.011 J	0.072	0.042	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0076 J	0.0084 J	0.057 J	0.031 J	0.0061 U	0.0095 J	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.011 J
Benzo(k)fluoranthene	78	--	1700	--	250		0.0057 U	0.011 J	0.067	0.04	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Chrysene	780	--	17000	-	800		0.0064 J	0.016 J	0.098 J	0.057 J	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0057 U	0.006 U	0.018 J	0.0095 J	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Fluoranthene	82000	--	82000	--	21000		0.0057 U	0.024 J	0.18 J	0.11 J	0.0081 J	0.0057 U	0.0064 U	0.01 J	0.0063 U	0.0066 U	0.0056 U
Fluorene	82000	--	82000	--	2800		0.0057 U	0.006 U	0.0082 J	0.0065 U	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0057 U	0.0072 J	0.054	0.03 J	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Naphthalene	41000	270	4100	1.8	18		0.022 J	0.015 J	0.024 J	0.012 J	0.024 J	0.0057 U	0.0064 U	0.0075 J	0.0063 U	0.028 J	0.014 J
Phenanthrene**	61000	--	61000	--	1100		0.011 J	0.019 J	0.092 J	0.058 J	0.0098 J	0.0061 J	0.0064 U	0.015 J	0.0096 J	0.007 J	0.0067 J
Pyrene	61000	--	61000	--	21000		0.0076 J	0.027	0.17	0.1 J	0.0061 U	0.0057 U	0.0064 U	0.0063 U	0.0063 U	0.0066 U	0.0056 U
Percent moisture							12	17	19	23	18	12	22	20	20	24	10

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO

Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-21. Former Ethyl Chloride Unit
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives					Sample Location	EC20	EC20	EC21	EC21
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Date	8/14/03	8/14/03	8/14/03	8/14/03
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Depth (ft)	2-4	6-8	2-4	6-8
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg
Analyte										
VOCs										
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00092 U	0.0011 U	0.00098 U	0.00078 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00074 U	0.00085 U	0.00079 U	0.00063 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00091 U	0.001 U	0.00097 U	0.00077 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.00076 U	0.00087 U	0.00081 U	0.00064 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00087 U	0.001 U	0.00093 U	0.00074 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.0011 U	0.0012 U	0.0011 U	0.00092 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00068 U	0.00079 U	0.00073 U	0.00058 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0098 U	0.011 U	0.01 U	0.0083 U
Acetone	200000	100000	200000	100000	16		0.027	0.026	0.083	0.016 J
Benzene	100	1.6	2300	2.2	0.17		0.0018 J	0.0022 J	0.0016 J	0.0052
Bromodichloromethane	92	3000	2000	3000	0.6		0.00078 U	0.0009 U	0.00083 U	0.00066 U
Bromoform	720	100	16000	140	0.8		0.00062 U	0.00072 U	0.00066 U	0.00053 U
Carbon disulfide	200000	720	20000	9	160		0.0013 U	0.0015 U	0.0075	0.0011 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00096 U	0.0011 U	0.001 U	0.00081 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00065 U	0.00074 U	0.00069 U	0.00055 U
Chloroethane**	820000	1500	82000	94	70		0.00095 U	0.0011 U	0.001 U	0.00081 U
Chloroform	940	0.54	2000	0.76	2.9		0.00066 U	0.00076 U	0.0007 U	0.00056 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.0026 J	0.0052 J	0.00077 U	0.00062 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00058 U	0.00067 U	0.00062 U	0.00049 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00041 U	0.00047 U	0.00044 U	0.00035 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00099 U	0.0011 U	0.001 U	0.00083 U
Ethylbenzene	200000	400	20000	58	19		0.00075 U	0.00086 U	0.0008 U	0.0036 J
m-Dichlorobenzene**	1800	570	180	570	1		0.0011 U	0.0013 U	0.0012 U	0.00094 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0015 U	0.0017 U	0.0016 U	0.0013 U
Methyl chloride	--	--	--	--	--		0.0016 U	0.0018 U	0.0017 U	0.0014 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0077 U	0.0088 U	0.014	0.0065 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.013 U	0.015 U	0.014 U	0.011 U
Methylene chloride	760	24	1200	34	0.2		0.0028 U	0.0032 U	0.003 U	0.0024 U
o-Dichlorobenzene	180000	560	18000	310	43		0.00072 U	0.00083 U	0.00076 U	0.00061 U
p-Dichlorobenzene	--	17000	--	340	11		0.001 U	0.0012 U	0.0011 U	0.00085 U
Styrene	410000	1500	41000	430	18		0.00059 U	0.00068 U	0.00063 U	0.0005 U
Tetrachloroethylene	110	20	240	28	0.3		0.0011 U	0.0013 U	0.0012 U	0.00093 U
Toluene	410000	650	410000	42	29		0.0041 U	0.0047 U	0.0043 U	0.0094
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00052 U	0.0006 U	0.00055 U	0.00044 U
Trichloroethylene	520	8.9	1200	12	0.3		0.00062 U	0.00072 U	0.00066 U	0.00053 U
Vinyl Acetate	1000000	1600	200000	10	170		0.0022 U	0.0025 U	0.0024 U	0.0019 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.00095 U	0.0023 J	0.001 U	0.00081 U
Xylene (total)	1000000	320	410000	320	150		0.0022 U	0.0025 U	0.0023 U	0.0069
PAHs										
2-Methylnaphthalene**	8200	--	820	--	39		0.0063 U	0.0063 U	0.0063 U	0.0058 U
Acenaphthene	120000	--	120000	--	2900		0.0063 U	0.0063 U	0.0063 U	0.0058 U
Acenaphthylene	61000	--	61000	--	120		0.0063 U	0.0063 U	0.0063 U	0.0058 U
Anthracene	610000	--	610000	--	59000		0.0063 U	0.0063 U	0.0063 U	0.0058 U
Benzo(a)anthracene	8	--	170	--	8		0.0063 U	0.015	0.0063 U	0.0058 U
Benzo(a)pyrene	0.8	--	17	--	82		0.0063 U	0.011 J	0.0063 U	0.0058 U
Benzo(b)fluoranthene	8	--	170	--	25		0.0063 U	0.01 J	0.0063 U	0.0058 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0063 U	0.0075 J	0.0063 U	0.0058 U
Benzo(k)fluoranthene	78	--	1700	--	250		0.0063 U	0.011 J	0.0063 U	0.0058 U
Chrysene	780	--	17000	-	800		0.0063 U	0.015 J	0.0063 U	0.0058 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0063 U	0.0063 U	0.0063 U	0.0058 U
Fluoranthene	82000	--	82000	--	21000		0.0063 U	0.035 J	0.0063 U	0.0058 U
Fluorene	82000	--	82000	--	2800		0.0063 U	0.0063 U	0.0063 U	0.0058 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0063 U	0.0067 J	0.0063 U	0.0058 U
Naphthalene	41000	270	4100	1.8	18		0.02 J	0.016 J	0.014 J	0.0081 J
Phenanthrene**	61000	--	61000	--	1100		0.0063 U	0.026 J	0.0063 U	0.0058 U
Pyrene	61000	--	61000	--	21000		0.0063 U	0.032 J	0.0063 U	0.0058 U
Percent moisture							20	20	21	14

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO

Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-22. Former Tubular Water Reactor Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																	
	Industrial / Commercial		Construction Worker		Migration to Groundwater													
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	TWR1	TWR1	TWR2	TWR2	TWR3	TWR4	TWR4	TWR5	TWR6	TWR6	TWR7	TWR7
						Sample Date	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03
						Sample Depth (ft)	2-4	8-10	0-2	10-12	2-4	4-6	12-14	6-8	2-4	6-8	0-2	6-8
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs																		
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.001 U	0.00074 U	0.00097 U	0.0008 U	0.00084 U	0.0008 U	0.00085 U	0.00095 U	0.00093 U	0.00078 U	0.0012 U	0.0015 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00084 U	0.0006 U	0.00077 U	0.00064 U	0.00067 U	0.00065 U	0.00068 U	0.00076 U	0.00074 U	0.00063 U	0.00099 U	0.0012 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.001 U	0.00073 U	0.00095 U	0.00078 U	0.00082 U	0.00079 U	0.00083 U	0.00093 U	0.00091 U	0.00077 U	0.0012 U	0.0015 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.00086 U	0.00061 U	0.00079 U	0.00065 U	0.00069 U	0.00066 U	0.0007 U	0.00078 U	0.00076 U	0.00064 U	0.001 U	0.0012 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00098 U	0.0007 U	0.00091 U	0.00075 U	0.00079 U	0.00076 U	0.0008 U	0.00089 U	0.00087 U	0.00074 U	0.0012 U	0.0014 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.0012 U	0.00087 U	0.0011 U	0.00093 U	0.00098 U	0.00094 U	0.00099 U	0.0011 U	0.0011 U	0.00092 U	0.0014 U	0.0017 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00077 U	0.00055 U	0.00071 U	0.00059 U	0.00062 U	0.00059 U	0.00063 U	0.0007 U	0.00069 U	0.00058 U	0.00091 U	0.0011 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.011 U	0.0079 U	0.01 U	0.0084 U	0.0089 U	0.0085 U	0.009 U	0.01 U	0.0098 U	0.0083 U	0.013 U	0.016 U
Acetone	200000	100000	200000	100000	16		0.094	0.013 J	0.2	0.018	0.014 J	0.056	0.11	0.044	0.18	0.014 J	0.053	0.11
Benzene	100	1.6	2300	2.2	0.17		0.00065 U	0.0029 J	0.0006 U	0.0029 J	0.0027 J	0.0028 J	0.002 J	0.0034 J	0.00058 U	0.0034 J	0.15	0.004 J
Bromodichloromethane	92	3000	2000	3000	0.6		0.00088 U	0.00063 U	0.00082 U	0.00067 U	0.00071 U	0.00068 U	0.00072 U	0.0008 U	0.00078 U	0.00066 U	0.001 U	0.0012 U
Bromoform	720	100	16000	140	0.8		0.0007 U	0.0005 U	0.00065 U	0.00054 U	0.00056 U	0.00054 U	0.00057 U	0.00064 U	0.00062 U	0.00053 U	0.00083 U	0.001 U
Carbon disulfide	200000	720	20000	9	160		0.0015 U	0.0011 U	0.0014 U	0.0012 U	0.0012 U	0.0012 U	0.0016 J	0.0014 U	0.0013 U	0.0011 U	0.0018 U	0.0021 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.0011 U	0.00077 U	0.001 U	0.00083 U	0.00087 U	0.00084 U	0.00088 U	0.00099 U	0.00097 U	0.00081 U	0.0013 U	0.0015 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00073 U	0.00052 U	0.00068 U	0.00056 U	0.00059 U	0.00056 U	0.00059 U	0.00066 U	0.00065 U	0.00055 U	0.00086 U	0.001 U
Chloroethane**	820000	1500	82000	94	70		0.0011 U	0.00077 U	0.00099 U	0.00082 U	0.00086 U	0.00083 U	0.00087 U	0.00098 U	0.00095 U	0.00081 U	0.0013 U	0.0015 U
Chloroform	940	0.54	2000	0.76	2.9		0.00074 U	0.00053 U	0.00069 U	0.00057 U	0.0006 U	0.00057 U	0.0006 U	0.00068 U	0.00066 U	0.00056 U	0.00087 U	0.0011 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00082 U	0.00059 U	0.00076 U	0.00063 U	0.00066 U	0.00063 U	0.00067 U	0.00075 U	0.00073 U	0.00062 U	0.00097 U	0.025
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00066 U	0.00047 U	0.00061 U	0.0005 U	0.00053 U	0.00051 U	0.00054 U	0.0006 U	0.00059 U	0.00049 U	0.00078 U	0.00093 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00046 U	0.00033 U	0.00043 U	0.00035 U	0.00037 U	0.00036 U	0.00038 U	0.00042 U	0.00041 U	0.00035 U	0.00054 U	0.00066 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.0011 U	0.00079 U	0.001 U	0.00085 U	0.00089 U	0.00086 U	0.0009 U	0.001 U	0.00099 U	0.00083 U	0.0013 U	0.0016 U
Ethylbenzene	200000	400	20000	58	19		0.00085 U	0.0024 J	0.00078 U	0.0013 J	0.0025 J	0.0024 J	0.00069 U	0.0028 J	0.00075 U	0.003 J	0.001 U	0.0042 J
m-Dichlorobenzene**	1800	570	180	570	1		0.0013 U	0.00089 U	0.0012 U	0.00095 U	0.001 U	0.00097 U	0.001 U	0.0011 U	0.0011 U	0.00094 U	0.0015 U	0.0018 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0017 U	0.0012 U	0.0016 U	0.0013 U	0.0014 U	0.0013 U	0.0014 U	0.0015 U	0.0015 U	0.0013 U	0.002 U	0.0024 U
Methyl chloride	--	--	--	--	--		0.0018 U	0.0013 U	0.0017 U	0.0014 U	0.0014 U	0.0014 U	0.0015 U	0.0016 U	0.0016 U	0.0014 U	0.0021 U	0.0026 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0087 U	0.0062 U	0.013	0.0066 U	0.007 U	0.0067 U	0.019	0.0079 U	0.027	0.0065 U	0.01 U	0.012 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.015 U	0.01 U	0.014 U	0.011 U	0.012 U	0.011 U	0.012 U	0.013 U	0.013 U	0.011 U	0.017 U	0.021 U
Methylene chloride	760	24	1200	34	0.2		0.0032 U	0.0023 U	0.0029 U	0.0024 U	0.0025 U	0.0024 U	0.0026 U	0.0029 U	0.0028 U	0.0024 U	0.0037 U	0.0045 U
o-Dichlorobenzene	180000	560	18000	310	43		0.00081 U	0.00058 U	0.00075 U	0.00062 U	0.00065 U	0.00063 U	0.00066 U	0.00074 U	0.00072 U	0.00061 U	0.00095 U	0.0011 U
p-Dichlorobenzene	--	17000	--	340	11		0.0011 U	0.00081 U	0.0011 U	0.00087 U	0.00091 U	0.00088 U	0.00092 U	0.001 U	0.001 U	0.00085 U	0.0013 U	0.0016 U
Styrene	410000	1500	41000	430	18		0.00067 U	0.00047 U	0.00062 U	0.00051 U	0.00053 U	0.00051 U	0.00054 U	0.00061 U	0.00059 U	0.0005 U	0.00078 U	0.00094 U
Tetrachloroethylene	110	20	240	28	0.3		0.0012 U	0.00088 U	0.0011 U	0.00095 U	0.00099 U	0.00096 U	0.001 U	0.0011 U	0.0011 U	0.00093 U	0.0015 U	0.0018 U
Toluene	410000	650	410000	42	29		0.0046 U	0.0074	0.0042 U	0.0052	0.007	0.0066	0.0037 U	0.0082	0.0041 U	0.0081	0.0054 U	0.011
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00059 U	0.00042 U	0.00054 U	0.00045 U	0.00047 U	0.00045 U	0.00048 U	0.00053 U	0.00052 U	0.00044 U	0.00069 U	0.00083 U
Trichloroethylene	520	8.9	1200	12	0.3		0.0007 U	0.0005 U	0.00065 U	0.00054 U	0.00056 U	0.00054 U	0.00057 U	0.00064 U	0.00062 U	0.00053 U	0.00083 U	0.001 U
Vinyl Acetate	1000000	1600	200000	10	170		0.0025 U	0.0018 U	0.0023 U	0.0019 U	0.002 U	0.0019 U	0.002 U	0.0023 U	0.0022 U	0.0019 U	0.0029 U	0.0035 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.0011 U	0.00077 U	0.00099 U	0.00082 U	0.00086 U	0.00083 U	0.00087 U	0.00098 U	0.00095 U	0.00081 U	0.0013 U	0.0015 U
Xylene (total)	1000000	320	410000	320	150		0.0024 U	0.0051	0.0023 U	0.0029 J	0.005	0.0048	0.00057	0.0057	0.0022 U	0.0059	0.0029 U	0.0081
PAHs																		
2-Methylnaphthalene**	8200	--	820	--	39		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.006 U	0.006 U	0.0059 U	0.0057 U	0.0059 U
Acenaphthene	120000	--	120000	--	2900		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.016 J	0.006 U	0.0059 U	0.0057 U	0.0059 U
Acenaphthylene	61000	--	61000	--	120		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.02 J	0.006 U	0.0059 U	0.0057 U	0.0059 U
Anthracene	610000	--	610000	--	59000		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.02 J	0.006 U	0.0059 U	0.0057 U	0.0059 U
Benzo(a)anthracene	8	--	170	--	8		0.0064 U	0.0058 U	0.011	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.033	0.006 U	0.0059 U	0.0077 J	0.0059 U
Benzo(a)pyrene	0.8	--	17	--	82		0.0064 U	0.0058 U	0.0075 J	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.023	0.006 U	0.0059 U	0.0057 J	0.0059 U
Benzo(b)fluoranthene	8	--	170	--	25		0.0064 U	0.0058 U	0.0091 J	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.027	0.006 U	0.0059 U	0.0057 J	0.0059 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.016 J	0.006 U	0.0059 U	0.0057 U	0.0059 U
Benzo(k)fluoranthene	78	--	1700	--	250		0.0064 U	0.0058 U	0.0071 J	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.022	0.006 U	0.0059 U	0.0057 J	0.0059 U
Chrysene	780	--	17000	-	800		0.0064 U	0.0058 U	0.013 J	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.044 J	0.006 U	0.0059 U	0.01 J	0.0059 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.006 U	0.006 U	0.0059 U	0.0057 U	0.0059 U
Fluoranthene	82000	--	82000	--	21000		0.0064 U	0.0058 U	0.023 J	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.11 J	0.006 U	0.018 J	0.018 J	0.0059 U
Fluorene	82000	--	82000	--	2800		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.0068 J	0.006 U	0.0059 U	0.0057 U	0.0059 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0064 U	0.0058 U	0.006 U	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.014 J	0.006 U	0.0059 U	0.0057 U	0.0059 U
Naphthalene	41000	270	4100	1.8	18		0.015 J	0.0074 J	0.0067 J	0.0068 J	0.01 J	0.017 J	0.0067 J	0.017 J	0.006 U	0.012 J	0.025 J	0.0059 U
Phenanthrene**	61000	--	61000	--	1100		0.0068 J	0.0058 J	0.013 J	0.0057 U	0.007 J	0.0058 U	0.006 U	0.039 J	0.006 U	0.012 J	0.022 J	0.0059 U
Pyrene	61000	--	61000	--	21000		0.0064 U	0.0058 U	0.023 J	0.0057 U	0.0058 U	0.0058 U	0.006 U	0.094 J	0.006 U	0.014 J	0.016 J	0.0059 U
Percent moisture							22	14	16	12	14	14	16	17	17	15	13	15

Legend:
Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present
at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-22. Former Tubular Water Reactor Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																	
	Industrial / Commercial		Construction Worker		Migration to Groundwater													
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	TWR7	TWR7	TWR8	TWR8	TWR8	TWR9	TWR9	TWR10	TWR11	TWR12	TWR12	TWR12
						Sample Date	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/13/03	8/12/03	8/13/03	8/13/03	8/13/03
						Sample Depth (ft)	8-10	14-16	2-4	14-16	14-16	2-4	8-10	6-8	6-8	2-4	2-4	8-10
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
																	DUP	
VOCs																		
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00087 U	0.00077 U	0.0012 U	0.00096 U	0.00077 U	0.00085 U	0.00085 U	0.0014 U	0.0009 U	0.0011 U	0.00093 U	0.00086 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.0007 U	0.00062 U	0.00094 U	0.00077 U	0.00062 U	0.00069 U	0.00068 U	0.0011 U	0.00072 U	0.00091 U	0.00075 U	0.00069 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00085 U	0.00076 U	0.0011 U	0.00095 U	0.00076 U	0.00084 U	0.00083 U	0.0014 U	0.00089 U	0.0011 U	0.00092 U	0.00084 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.001 J	0.0016 J	0.00096 U	0.00079 U	0.00063 U	0.0007 U	0.00069 U	0.0012 U	0.00074 U	0.00093 U	0.00076 U	0.0007 U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00082 U	0.00073 U	0.0011 U	0.00091 U	0.00073 U	0.00081 U	0.0008 U	0.0013 U	0.00085 U	0.0011 U	0.00088 U	0.00081 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.0098	0.0009 U	0.0014 U	0.0011 U	0.0009 U	0.001 U	0.00099 U	0.0017 U	0.0011 U	0.0013 U	0.0011 U	0.001 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00064 U	0.00057 U	0.00086 U	0.00071 U	0.00057 U	0.00063 U	0.00063 U	0.001 U	0.00067 U	0.00084 U	0.00069 U	0.00063 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0092 U	0.0082 U	0.012 U	0.01 U	0.0082 U	0.009 U	0.009 U	0.015 U	0.0095 U	0.012 U	0.0099 U	0.0091 U
Acetone	200000	100000	200000	100000	16		0.084	0.11	0.065	0.079	0.063	0.13	0.012 J	0.11	0.072	0.084	0.084	0.021
Benzene	100	1.6	2300	2.2	0.17		0.0098	0.063	0.00073 U	0.0019 J	0.00095 J	0.0024 J	0.0039 J	0.0035 J	0.0047 J	0.00071 U	0.00058 U	0.0048
Bromodichloromethane	92	3000	2000	3000	0.6		0.00073 U	0.00065 U	0.00099 U	0.00081 U	0.00065 U	0.00072 U	0.00072 U	0.0012 U	0.00076 U	0.00096 U	0.00079 U	0.00072 U
Bromoform	720	100	16000	140	0.8		0.00059 U	0.00052 U	0.00079 U	0.00065 U	0.00052 U	0.00058 U	0.00057 U	0.00096 U	0.00061 U	0.00076 U	0.00063 U	0.00058 U
Carbon disulfide	200000	720	20000	9	160		0.0013 U	0.002 J	0.0024 J	0.0014 U	0.0016 J	0.0037 J	0.0012 U	0.0037 J	0.0013 U	0.0024 J	0.0043 J	0.0012 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.0009 U	0.0008 U	0.0012 U	0.001 U	0.0008 U	0.00089 U	0.00088 U	0.0015 U	0.00094 U	0.0012 U	0.00097 U	0.00089 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00061 U	0.00054 U	0.00082 U	0.00067 U	0.00054 U	0.0006 U	0.00059 U	0.00099 U	0.00063 U	0.00079 U	0.00065 U	0.0006 U
Chloroethane**	820000	1500	82000	94	70		0.00089 U	0.00079 U	0.0012 U	0.00099 U	0.00079 U	0.00088 U	0.00087 U	0.0015 U	0.00093 U	0.0012 U	0.00096 U	0.00088 U
Chloroform	940	0.54	2000	0.76	2.9		0.00062 U	0.00055 U	0.00083 U	0.00069 U	0.00055 U	0.00061 U	0.0006 U	0.001 U	0.00064 U	0.00081 U	0.00066 U	0.00061 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00068 U	0.00061 U	0.00092 U	0.00076 U	0.00061 U	0.00067 U	0.00067 U	0.023	0.18	0.00089 U	0.00073 U	0.00067 U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00055 U	0.00049 U	0.00074 U	0.00061 U	0.00049 U	0.00054 U	0.00053 U	0.0009 U	0.00057 U	0.00072 U	0.00059 U	0.00054 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00038 U	0.00034 U	0.00052 U	0.00043 U	0.00034 U	0.00038 U	0.00037 U	0.00063 U	0.0004 U	0.0005 U	0.00041 U	0.00038 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00093 U	0.00082 U	0.0012 U	0.001 U	0.00082 U	0.00091 U	0.0009 U	0.0015 U	0.0016 J	0.0012 U	0.00099 U	0.00091 U
Ethylbenzene	200000	400	20000	58	19		0.00071 U	0.0065	0.00095 U	0.00078 U	0.00063 U	0.0017 J	0.003 J	0.0034 J	0.0027 J	0.00092 U	0.00076 U	0.0031 J
m-Dichlorobenzene**	1800	570	180	570	1		0.001 U	0.00093 U	0.0014 U	0.0012 U	0.00092 U	0.001 U	0.001 U	0.0017 U	0.0011 U	0.0014 U	0.0011 U	0.001 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0014 U	0.0013 U	0.0019 U	0.0016 U	0.0013 U	0.0014 U	0.0014 U	0.0023 U	0.0015 U	0.0018 U	0.0015 U	0.0014 U
Methyl chloride	--	--	--	--	--		0.0015 U	0.0013 U	0.002 U	0.0017 U	0.0013 U	0.0015 U	0.0015 U	0.0024 U	0.0016 U	0.002 U	0.0016 U	0.0015 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0072 U	0.0064 U	0.0097 U	0.009 J	0.0064 U	0.02	0.007 U	0.012 U	0.0075 U	0.014	0.028	0.0071 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.012 U	0.011 U	0.016 U	0.014 U	0.011 U	0.012 U	0.012 U	0.02 U	0.013 U	0.016 U	0.013 U	0.012 U
Methylene chloride	760	24	1200	34	0.2		0.0026 U	0.0023 U	0.0035 U	0.0029 U	0.0023 U	0.0026 U	0.0026 U	0.0043 U	0.0027 U	0.0034 U	0.0028 U	0.0026 U
o-Dichlorobenzene	180000	560	18000	310	43		0.00067 U	0.0006 U	0.00091 U	0.00075 U	0.0006 U	0.00066 U	0.00066 U	0.0011 U	0.0007 U	0.00088 U	0.00072 U	0.00066 U
p-Dichlorobenzene	--	17000	--	340	11		0.00095 U	0.00084 U	0.0013 U	0.0011 U	0.00084 U	0.00093 U	0.00092 U	0.0015 U	0.00098 U	0.0012 U	0.001 U	0.00093 U
Styrene	410000	1500	41000	430	18		0.00055 U	0.0031 J	0.00074 U	0.00061 U	0.00049 U	0.00054 U	0.00054 U	0.0009 U	0.00057 U	0.00072 U	0.00059 U	0.00055 U
Tetrachloroethylene	110	20	240	28	0.3		0.001 U	0.00092 U	0.0014 U	0.0011 U	0.00092 U	0.001 U	0.001 U	0.0017 U	0.007	0.0013 U	0.0011 U	0.001 U
Toluene	410000	650	410000	42	29		0.0038 U	0.011	0.0051 U	0.0042 U	0.0034 U	0.0038 U	0.0092	0.0086	0.0072	0.005 U	0.0041 U	0.0096
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00049 U	0.00043 U	0.00065 U	0.00054 U	0.00043 U	0.00048 U	0.00047 U	0.0008 U	0.0005 U	0.00064 U	0.00052 U	0.00048 U
Trichloroethylene	520	8.9	1200	12	0.3		0.00058 U	0.00052 U	0.00079 U	0.00065 U	0.00052 U	0.00057 U	0.00057 U	0.00095 U	0.12	0.00076 U	0.00063 U	0.00058 U
Vinyl Acetate	1000000	1600	200000	10	170		0.0021 U	0.0019 U	0.0028 U	0.0023 U	0.0018 U	0.002 U	0.002 U	0.0034 U	0.0022 U	0.0027 U	0.0022 U	0.0021 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.00089 U	0.00079 U	0.0012 U	0.00099 U	0.00079 U	0.00088 U	0.00087 U	0.0015 U	0.026	0.0012 U	0.00096 U	0.00088 U
Xylene (total)	1000000	320	410000	320	150		0.002 U	0.011	0.0027 U	0.0023 U	0.0018 U	0.0031 J	0.006	0.007 J	0.0052	0.0026 U	0.0022 U	0.0064
PAHs																		
2-Methylnaphthalene**	8200	--	820	--	39		0.016 J	0.0054 U	0.0062 U	0.0056 U	0.0056 U	0.019 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Acenaphthene	120000	--	120000	--	2900		0.076 J	0.0054 U	0.0062 U	0.0056 U	0.0056 U	0.057 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Acenaphthylene	61000	--	61000	--	120		0.012 J	0.0068 J	0.0062 U	0.0056 U	0.0056 U	0.11 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Anthracene	610000	--	610000	--	59000		0.0059 U	0.0054 U	0.0062 U	0.0056 U	0.0056 U	0.16 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Benzo(a)anthracene	8	--	170	--	8		0.0059 U	0.016	0.0062 U	0.0067 J	0.0056 U	0.096	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Benzo(a)pyrene	0.8	--	17	--	82		0.0059 U	0.015 J	0.0062 U	0.0067 J	0.0056 U	0.079	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Benzo(b)fluoranthene	8	--	170	--	25		0.0059 U	0.016	0.0062 U	0.006 J	0.0056 U	0.061	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0059 U	0.019 J	0.0062 U	0.018 J	0.015 J	0.059 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Benzo(k)fluoranthene	78	--	1700	--	250		0.0059 U	0.014	0.0062 U	0.0056 U	0.0056 U	0.057	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Chrysene	780	--	17000	-	800		0.0059 U	0.023 J	0.0062 U	0.015 J	0.012	0.12 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0059 U	0.0054 U	0.0062 U	0.0056 U	0.0056 U	0.016 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Fluoranthene	82000	--	82000	--	21000		0.0094 J	0.038 J	0.0062 U	0.012 J	0.0089 J	0.23 J	0.0057 U	0.0058 U	0.006 U	0.0073 J	0.006 U	0.006 U
Fluorene	82000	--	82000	--	2800		0.0059 U	0.0054 U	0.0062 U	0.0056 U	0.0056 U	0.038 J	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0059 U	0.012 J	0.0062 U	0.0056 U	0.0056 U	0.039	0.0057 U	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Naphthalene	41000	270	4100	1.8	18		0.36 J	0.033 J	0.037 J	0.0097 J	0.022 J	0.077 J	0.0057 U	0.0058 U	0.0079 J	0.043 J	0.019 J	0.025 J
Phenanthrene**	61000	--	61000	--	1100		0.014 J	0.027 J	0.013 J	0.019 J	0.019 J	0.13 J	0.012 J	0.0058 U	0.006 U	0.014 J	0.006 U	0.006 J
Pyrene	61000	--	61000	--	21000		0.009 J	0.039 J	0.0062 U	0.017 J	0.012 J	0.35	0.0092 J	0.0058 U	0.006 U	0.0064 U	0.006 U	0.006 U
Percent moisture							15	7	19	11	10	15	13	14	16	22	17	17

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO

Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-22. Former Tubular Water Reactor Area
Analytical Data Compared to Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives														
	Industrial / Commercial		Construction Worker		Migration to Groundwater										
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	TWR13		TWR13	TWR14	TWR14	TWR15	TWR15	TWR16	TWR16
						Sample Date	8/12/03		8/12/03	8/12/03	8/12/03	8/12/03	8/12/03	8/13/03	8/13/03
						Sample Depth (ft)	2-4		10-12	0-2	6-8	0-2	6-8	6-8	12-14
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs															
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00094 U		0.00097 U	0.0011 U	0.00087 U	0.00074 U	0.00085 U	0.00084 U	0.00088 U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.00075 U		0.00078 U	0.00088 U	0.0007 U	0.00059 U	0.00068 U	0.00067 U	0.00071 U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00092 U		0.00096 U	0.0011 U	0.00086 U	0.00073 U	0.00084 U	0.00082 U	0.00087 U
1,1-Dichloroethane	200000	1700	200000	130	110		0.00077 U		0.0008 U	0.0009 U	0.00071 U	0.00061 U	0.0007 U	0.00069 U	0.0011 J
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00088 U		0.0015 J	0.001 U	0.00082 U	0.0007 U	0.0008 U	0.00079 U	0.00083 U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.0011 U		0.0011 U	0.0013 U	0.001 U	0.00087 U	0.001 U	0.00098 U	0.001 U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00069 U		0.00072 U	0.00081 U	0.00064 U	0.00055 U	0.00063 U	0.00062 U	0.00065 U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0099 U		0.01 U	0.012 U	0.0092 U	0.0078 U	0.009 U	0.0089 U	0.0093 U
Acetone	200000	100000	200000	100000	16		0.051		0.017 J	0.041	0.019	0.069	0.037	0.1	0.13
Benzene	100	1.6	2300	2.2	0.17		0.00058 U		0.0045 J	0.0037 J	0.0063	0.0041	0.0038 J	0.0028 J	0.0029 J
Bromodichloromethane	92	3000	2000	3000	0.6		0.00079 U		0.00082 U	0.00093 U	0.003 J	0.00063 U	0.00072 U	0.00071 U	0.00074 U
Bromoform	720	100	16000	140	0.8		0.00063 U		0.00065 U	0.00074 U	0.00059 U	0.0005 U	0.00057 U	0.00056 U	0.00059 U
Carbon disulfide	200000	720	20000	9	160		0.0014 U		0.0014 U	0.0016 U	0.0013 U	0.0063	0.0012 U	0.0014 J	0.0013 U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00098 U		0.001 U	0.0011 U	0.00091 U	0.00077 U	0.00089 U	0.00087 U	0.00092 U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00066 U		0.00068 U	0.00077 U	0.00061 U	0.00052 U	0.0006 U	0.00059 U	0.00062 U
Chloroethane**	820000	1500	82000	94	70		0.00097 U		0.001 U	0.0011 U	0.0009 U	0.00076 U	0.00088 U	0.00086 U	0.0036 J
Chloroform	940	0.54	2000	0.76	2.9		0.00067 U		0.00069 U	0.00078 U	0.00062 U	0.00053 U	0.00061 U	0.0006 U	0.00063 U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.085		1.1	0.022	0.08	0.0085	0.047	0.00066 U	0.0069
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00059 U		0.00061 U	0.00069 U	0.00055 U	0.00047 U	0.00054 U	0.00053 U	0.00056 U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00042 U		0.00043 U	0.00049 U	0.00039 U	0.00033 U	0.00038 U	0.00037 U	0.00039 U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.001 U		0.012	0.0012 U	0.0011 J	0.00079 U	0.00091 U	0.00089 U	0.00094 U
Ethylbenzene	200000	400	20000	58	19		0.00076 U		0.0024 J	0.00089 U	0.0043 J	0.0006 U	0.0031 J	0.0034 J	0.0028 J
m-Dichlorobenzene**	1800	570	180	570	1		0.0011 U		0.0012 U	0.0013 U	0.001 U	0.00089 U	0.001 U	0.001 U	0.0011 U
Methyl bromide	2900	15	1000	3.9	1.2		0.0015 U		0.0016 U	0.0018 U	0.0014 U	0.0012 U	0.0014 U	0.0014 U	0.0014 U
Methyl chloride	--	--	--	--	--		0.0016 U		0.0017 U	0.0019 U	0.0015 U	0.0013 U	0.0015 U	0.0014 U	0.0015 U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0078 U		0.0081 U	0.0091 U	0.0072 U	0.015	0.0075 J	0.021	0.0073 U
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.013 U		0.014 U	0.015 U	0.012 U	0.01 U	0.012 U	0.012 U	0.012 U
Methylene chloride	760	24	1200	34	0.2		0.0028 U		0.0029 U	0.0033 U	0.0026 U	0.0022 U	0.0026 U	0.0025 U	0.0027 U
o-Dichlorobenzene	180000	560	18000	310	43		0.00073 U		0.00075 U	0.00085 U	0.00068 U	0.00057 U	0.00066 U	0.00065 U	0.00068 U
p-Dichlorobenzene	--	17000	--	340	11		0.001 U		0.0011 U	0.0012 U	0.00095 U	0.00081 U	0.00093 U	0.00091 U	0.00096 U
Styrene	410000	1500	41000	430	18		0.0006 U		0.00062 U	0.0007 U	0.00056 U	0.00047 U	0.00054 U	0.00053 U	0.00056 U
Tetrachloroethylene	110	20	240	28	0.3		0.093	5	11	0.0014 J	0.001 U	0.0029 J	0.17	0.001 U	0.001 U
Toluene	410000	650	410000	42	29		0.0041 U		0.0085	0.0048 U	0.012	0.0033 U	0.0081	0.0089	0.008
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00053 U		0.00054 U	0.00062 U	0.00049 U	0.00042 U	0.00048 U	0.00047 U	0.00049 U
Trichloroethylene	520	8.9	1200	12	0.3		0.033	5	1.1	0.00074 U	0.00059 U	0.00097 J	0.053	0.00056 U	0.00059 U
Vinyl Acetate	1000000	1600	200000	10	170		0.0022 U		0.0023 U	0.0026 U	0.0021 U	0.0018 U	0.002 U	0.002 U	0.0021 U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.00097 U		0.015	0.0011 U	0.015	0.0049 J	0.0014 J	0.00086 U	0.0009 U
Xylene (total)	1000000	320	410000	320	150		0.0022 U		0.0048 J	0.0026 U	0.0089	0.0017 U	0.0058	0.0049	0.0041 J
PAHs															
2-Methylnaphthalene**	8200	--	820	--	39		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Acenaphthene	120000	--	120000	--	2900		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Acenaphthylene	61000	--	61000	--	120		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Anthracene	610000	--	610000	--	59000		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Benzo(a)anthracene	8	--	170	--	8		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Benzo(a)pyrene	0.8	--	17	--	82		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Benzo(b)fluoranthene	8	--	170	--	25		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Benzo(k)fluoranthene	78	--	1700	--	250		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Chrysene	780	--	17000	-	800		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Fluoranthene	82000	--	82000	--	21000		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.007 J	0.0059 U
Fluorene	82000	--	82000	--	2800		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U
Naphthalene	41000	270	4100	1.8	18		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0069 J	0.0058 U	0.0058 U	0.035 J
Phenanthrene**	61000	--	61000	--	1100		0.0089 J		0.0073 J	0.0067 U	0.0069 J	0.0061 U	0.0058 U	0.0093 J	0.0059 U
Pyrene	61000	--	61000	--	21000		0.0063 U		0.0057 U	0.0067 U	0.0061 U	0.0061 U	0.0058 U	0.0058 J	0.0059 U
Percent moisture							21		13	25	18	18	14	14	15

Legend:
Concentration exceeds TACO Tier 1 RO for the following exposure route:
1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II
Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present
at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-23a. North Uploading Spot
Analytes Above Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																											
	Industrial / Commercial		Construction Worker		Migration to Groundwater	Sample Location	NU1		NU1		NU1		NU2		NU2		NU3		NU3		NU4		NU4	
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Date	8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03	
						Sample Depth (ft)	2-4		14-16		14-16		6-8		10-12		6-8		14-16		6-8		14-16	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Analyte											DUP													
VOCs																								
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00088	U	0.00071	U	0.00066	U	0.00074	U	0.00084	U	0.001	U	0.00073	U	0.0015	U	0.00084	U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.0007	U	0.00057	U	0.00053	U	0.00059	U	0.00067	U	0.00084	U	0.00058	U	0.0012	U	0.00068	U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00086	U	0.0007	U	0.00065	U	0.00073	U	0.00082	U	0.001	U	0.00072	U	0.0015	U	0.00083	U
1,1-Dichloroethane	200000	1700	200000	130	110		0.00072	U	0.00058	U	0.00054	U	0.00061	U	0.00069	U	0.00086	U	0.0006	U	0.0012	U	0.00069	U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00083	U	0.00067	U	0.00062	U	0.0007	U	0.00079	U	0.00098	U	0.00069	U	0.0014	U	0.00079	U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.001	U	0.00083	U	0.00077	U	0.00086	U	0.00098	U	0.0012	U	0.00085	U	0.0017	U	0.00099	U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00065	U	0.00052	U	0.00049	U	0.00055	U	0.00062	U	0.00077	U	0.00054	U	0.0011	U	0.00062	U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0093	U	0.0075	U	0.007	U	0.0078	U	0.0089	U	0.011	U	0.0077	U	0.016	U	0.0089	U
Acetone	200000	100000	200000	100000	16		0.16		0.02		0.017		0.18		0.1		0.44		0.082		0.056		0.03	
Benzene	100	1.6	2300	2.2	0.17		0.0023	J	0.0021	J	0.0025	J	0.0013	J	0.0036	J	0.0028	J	0.0026	J	0.00093	U	0.0038	J
Bromodichloromethane	92	3000	2000	3000	0.6		0.00074	U	0.0006	U	0.00056	U	0.00062	U	0.00071	U	0.00088	U	0.00061	U	0.0013	U	0.00071	U
Bromoform	720	100	16000	140	0.8		0.00059	U	0.00048	U	0.00044	U	0.0005	U	0.00056	U	0.0007	U	0.00049	U	0.001	U	0.00057	U
Carbon disulfide	200000	720	20000	9	160		0.0062		0.001	U	0.00095	U	0.044		0.0012	U	0.049		0.0011	J	0.0056	J	0.0012	U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00091	U	0.00074	U	0.00069	U	0.00077	U	0.00087	U	0.0011	U	0.00076	U	0.0016	U	0.00088	U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00061	U	0.0005	U	0.00046	U	0.00052	U	0.00059	U	0.00073	U	0.00051	U	0.001	U	0.00059	U
Chloroethane**	820000	1500	82000	94	70		0.0009	U	0.00073	U	0.00068	U	0.00076	U	0.00086	U	0.0011	U	0.00075	U	0.0015	U	0.00087	U
Chloroform	940	0.54	2000	0.76	2.9		0.00062	U	0.0005	U	0.00047	U	0.00053	U	0.0006	U	0.00074	U	0.00052	U	0.0011	U	0.0006	U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00069	U	0.00056	U	0.00052	U	0.00058	U	0.00066	U	0.00082	U	0.00057	U	0.0012	U	0.00066	U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00055	U	0.00045	U	0.00042	U	0.00047	U	0.00053	U	0.00066	U	0.00046	U	0.00094	U	0.00053	U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00039	U	0.00031	U	0.00029	U	0.00033	U	0.00037	U	0.00046	U	0.00032	U	0.00066	U	0.00037	U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00093	U	0.00076	U	0.0007	U	0.00079	U	0.00089	U	0.0011	U	0.00078	U	0.0016	U	0.0009	U
Ethylbenzene	200000	400	20000	58	19		0.00071	U	0.001	J	0.0013	J	0.0006	U	0.003	J	0.00085	U	0.0016	J	0.0012	U	0.0019	J
m-Dichlorobenzene**	1800	570	180	570	1		0.0011	U	0.00085	U	0.00079	U	0.00089	U	0.001	U	0.0013	U	0.00087	U	0.0018	U	0.001	U
Methyl bromide	2900	15	1000	3.9	1.2		0.0014	U	0.0012	U	0.0011	U	0.0012	U	0.0014	U	0.0017	U	0.0012	U	0.0024	U	0.0014	U
Methyl chloride	--	--	--	--	--		0.0015	U	0.0012	U	0.0011	U	0.0013	U	0.0014	U	0.0018	U	0.0013	U	0.0026	U	0.0015	U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0073	U	0.0059	U	0.0055	U	0.0062	U	0.007	U	0.0087	U	0.0061	U	0.012	U	0.0073	J
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.012	U	0.0099	U	0.0092	U	0.01	U	0.012	U	0.015	U	0.01	U	0.021	U	0.012	U
Methylene chloride	760	24	1200	34	0.2		0.0027	U	0.0021	U	0.002	U	0.0022	U	0.0025	U	0.0043	J	0.0022	U	0.0045	U	0.0026	U
o-Dichlorobenzene	180000	560	18000	310	43		0.00068	U	0.00055	U	0.00051	U	0.00057	U	0.00065	U	0.00081	U	0.00057	U	0.0012	U	0.00066	U
p-Dichlorobenzene	--	17000	--	340	11		0.00095	U	0.00077	U	0.00072	U	0.00081	U	0.00091	U	0.0011	U	0.00079	U	0.0016	U	0.00092	U
Styrene	410000	1500	41000	430	18		0.00056	U	0.00045	U	0.00042	U	0.00047	U	0.00053	U	0.00067	U	0.00046	U	0.00095	U	0.0013	J
Tetrachloroethylene	110	20	240	28	0.3		0.001	U	0.00084	U	0.00078	U	0.00088	U	0.00099	U	0.0012	U	0.00087	U	0.0018	U	0.001	U
Toluene	410000	650	410000	42	29		0.0041	J	0.0037	J	0.0046		0.0033	U	0.008		0.0046	U	0.0055		0.0066	U	0.0072	
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00049	U	0.0004	U	0.00037	U	0.00041	U	0.00047	U	0.00059	U	0.00041	U	0.00084	U	0.00047	U
Trichloroethylene	520	8.9	1200	12	0.3		0.00059	U	0.00048	U	0.00044	U	0.0005	U	0.00056	U	0.0007	U	0.00049	U	0.001	U	0.00057	U
Vinyl Acetate	1000000	1600	200000	10	170		0.0021	U	0.0017	U	0.0016	U	0.0018	U	0.002	U	0.0025	U	0.0017	U	0.0036	U	0.002	U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.0009	U	0.00073	U	0.00068	U	0.00076	U	0.00086	U	0.0011	U	0.00075	U	0.0015	U	0.00087	U
Xylene (total)	1000000	320	410000	320	150		0.002	U	0.0012		0.0024	J	0.0026	J	0.0055		0.0041	J	0.0029	J	0.0035	U	0.0035	J
PAHs																								
2-Methylnaphthalene**	8200	--	820	--	39		0.014	J	0.0057	U	0.0056	U	0.0063	U	0.0058	U	0.02	J	0.006	U	0.0064	U	0.0057	U
Acenaphthene	120000	--	120000	--	2900		0.0057	U	0.0057	U	0.0056	U	0.022	J	0.0058	U	0.096	J	0.006	U	0.02	J	0.0057	U
Acenaphthylene	61000	--	61000	--	120		0.0057	U	0.0057	U	0.0056	U	0.0063	U	0.0058	U	0.0063	U	0.006	U	0.0064	U	0.0057	U
Anthracene	610000	--	610000	--	59000		0.013	J	0.0057	U	0.0056	U	0.044	J	0.0058	U	0.17	J	0.006	U	0.0077	J	0.0057	U
Benzo(a)anthracene	8	--	170	--	8		0.0077	J	0.0057	U	0.0056	U	0.068		0.0058	U	0.28		0.0068	J	0.0085	J	0.0057	U
Benzo(a)pyrene	0.8	--	17	--	82		0.0057	J	0.0057	U	0.0056	U	0.034		0.0058	U	0.22		0.006	J	0.0073	J	0.0057	U
Benzo(b)fluoranthene	8	--	170	--	25		0.021		0.0068	J	0.0082	J	0.034		0.0058	U	0.21		0.008	J	0.0094	J	0.0065	J
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0069	J	0.02	J	0.018	J	0.011	J	0.0058	U	0.17	J	0.02	J	0.0064	U	0.017	J
Benzo(k)fluoranthene	78	--	1700	--	250		0.013	J	0.0057	U	0.0056	U	0.032		0.0058	U	0.16		0.006	U	0.0077	J	0.0057	U
Chrysene	780	--	17000	-	800		0.033	J	0.014	J	0.013	J	0.053	J	0.0058	U	0.3		0.012	J	0.015	J	0.0077	J
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0057	U	0.0057	U	0.0056	U	0.0063	U	0.0058	U	0.057		0.006	U	0.0064	U	0.0057	U
Fluoranthene	82000	--	82000	--	21000		0.036	J	0.0064	J	0.0075	J	0.19	J	0.0058	U	0.65		0.016	J	0.023	J	0.0057	U
Fluorene	82000	--	82000	--	2800		0.0057	U	0.0057	U	0.0056	U	0.028	J	0.0058	U	0.1	J	0.006	U	0.012	J	0.0057	U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.008	J	0.0057	U	0.0056	U	0.013	J	0.0058	U	0.17		0.006	U	0.0064	U	0.0057	U
Naphthalene	41000	270	4100	1.8	18		0.028	J	0.0091	J	0.009	J	0.015	J	0.0058	U	0.039	J	0.006	U	0.009	J	0.0069	J
Phenanthrene**	61000	--	61000	--	1100		0.021	J	0.01	J	0.012	J	0.14	J	0.0058	U	0.6		0.014	J	0.03	J	0.0069	J
Pyrene	61000	--	61000	--	21000		0.015	J	0.011	J	0.012	J	0.12	J	0.0058	U	0.52		0.016	J	0.018	J	0.0057	U
Percent Moisture							13		12		11		21		14		21		17		22		13	

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO

Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Table H-23a. North Uploading Spot
Analytes Above Tier 1 Soil ROs
2005 Comprehensive Site Investigation
Equistar Chemicals, LP, Tuscola, Illinois

	TACO Tier 1 Soil Remediation Objectives																											
	Industrial / Commercial		Construction Worker		Migration to Groundwater																							
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	Sample Location	NU1		NU1		NU1		NU2		NU2		NU3		NU3		NU4		NU4	
						Sample Date	8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03		8/12/03	
						Sample Depth (ft)	2-4		14-16		14-16		6-8		10-12		6-8		14-16		6-8		14-16	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Analyte											DUP													
VOCs																								
1,1,1-Trichloroethane	--	1200	--	1200	9.6		0.00088	U	0.00071	U	0.00066	U	0.00074	U	0.00084	U	0.001	U	0.00073	U	0.0015	U	0.00084	U
1,1,2,2-Tetrachloroethane**	120000	2000	12000	2000	3.3		0.0007	U	0.00057	U	0.00053	U	0.00059	U	0.00067	U	0.00084	U	0.00058	U	0.0012	U	0.00068	U
1,1,2-Trichloroethane	8200	1800	8200	1800	0.3		0.00086	U	0.0007	U	0.00065	U	0.00073	U	0.00082	U	0.001	U	0.00072	U	0.0015	U	0.00083	U
1,1-Dichloroethane	200000	1700	200000	130	110		0.00072	U	0.00058	U	0.00054	U	0.00061	U	0.00069	U	0.00086	U	0.0006	U	0.0012	U	0.00069	U
1,1-Dichloroethylene	18000	1500	1800	300	0.3		0.00083	U	0.00067	U	0.00062	U	0.0007	U	0.00079	U	0.00098	U	0.00069	U	0.0014	U	0.00079	U
1,2-Dichloroethane	63	0.7	1400	0.99	0.1		0.001	U	0.00083	U	0.00077	U	0.00086	U	0.00098	U	0.0012	U	0.00085	U	0.0017	U	0.00099	U
1,2-Dichloropropane	84	23	1800	5	0.15		0.00065	U	0.00052	U	0.00049	U	0.00055	U	0.00062	U	0.00077	U	0.00054	U	0.0011	U	0.00062	U
2-Hexanone**	82000	110	8200	0.72	1.3		0.0093	U	0.0075	U	0.007	U	0.0078	U	0.0089	U	0.011	U	0.0077	U	0.016	U	0.0089	U
Acetone	200000	100000	200000	100000	16		0.16		0.02		0.017		0.18		0.1		0.44		0.082		0.056		0.03	
Benzene	100	1.6	2300	2.2	0.17		0.0023	J	0.0021	J	0.0025	J	0.0013	J	0.0036	J	0.0028	J	0.0026	J	0.00093	U	0.0038	J
Bromodichloromethane	92	3000	2000	3000	0.6		0.00074	U	0.0006	U	0.00056	U	0.00062	U	0.00071	U	0.00088	U	0.00061	U	0.0013	U	0.00071	U
Bromoform	720	100	16000	140	0.8		0.00059	U	0.00048	U	0.00044	U	0.0005	U	0.00056	U	0.0007	U	0.00049	U	0.001	U	0.00057	U
Carbon disulfide	200000	720	20000	9	160		0.0062		0.001	U	0.00095	U	0.044		0.0012	U	0.049		0.0011	J	0.0056	J	0.0012	U
Carbon tetrachloride	44	0.64	410	0.9	0.33		0.00091	U	0.00074	U	0.00069	U	0.00077	U	0.00087	U	0.0011	U	0.00076	U	0.0016	U	0.00088	U
Chlorobenzene	41000	210	4100	1.3	6.5		0.00061	U	0.0005	U	0.00046	U	0.00052	U	0.00059	U	0.00073	U	0.00051	U	0.001	U	0.00059	U
Chloroethane**	820000	1500	82000	94	70		0.0009	U	0.00073	U	0.00068	U	0.00076	U	0.00086	U	0.0011	U	0.00075	U	0.0015	U	0.00087	U
Chloroform	940	0.54	2000	0.76	2.9		0.00062	U	0.0005	U	0.00047	U	0.00053	U	0.0006	U	0.00074	U	0.00052	U	0.0011	U	0.0006	U
cis-1,2-Dichloroethylene	20000	1200	20000	1200	1.1		0.00069	U	0.00056	U	0.00052	U	0.00058	U	0.00066	U	0.00082	U	0.00057	U	0.0012	U	0.00066	U
cis-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00055	U	0.00045	U	0.00042	U	0.00047	U	0.00053	U	0.00066	U	0.00046	U	0.00094	U	0.00053	U
Dibromochloromethane	41000	1300	41000	1300	0.4		0.00039	U	0.00031	U	0.00029	U	0.00033	U	0.00037	U	0.00046	U	0.00032	U	0.00066	U	0.00037	U
Ethene, 1,2-dichloro-, (E)-	--	--	--	--	--		0.00093	U	0.00076	U	0.0007	U	0.00079	U	0.00089	U	0.0011	U	0.00078	U	0.0016	U	0.0009	U
Ethylbenzene	200000	400	20000	58	19		0.00071	U	0.001	J	0.0013	J	0.0006	U	0.003	J	0.00085	U	0.0016	J	0.0012	U	0.0019	J
m-Dichlorobenzene**	1800	570	180	570	1		0.0011	U	0.00085	U	0.00079	U	0.00089	U	0.001	U	0.0013	U	0.00087	U	0.0018	U	0.001	U
Methyl bromide	2900	15	1000	3.9	1.2		0.0014	U	0.0012	U	0.0011	U	0.0012	U	0.0014	U	0.0017	U	0.0012	U	0.0024	U	0.0014	U
Methyl chloride	--	--	--	--	--		0.0015	U	0.0012	U	0.0011	U	0.0013	U	0.0014	U	0.0018	U	0.0013	U	0.0026	U	0.0015	U
Methyl ethyl ketone** (MEK)	1000000	25000	120000	710	17		0.0073	U	0.0059	U	0.0055	U	0.0062	U	0.007	U	0.0087	U	0.0061	U	0.012	U	0.0073	J
Methyl isobutyl ketone (MIBK)*	--	3100	--	340	--		0.012	U	0.0099	U	0.0092	U	0.01	U	0.012	U	0.015	U	0.01	U	0.021	U	0.012	U
Methylene chloride	760	24	1200	34	0.2		0.0027	U	0.0021	U	0.002	U	0.0022	U	0.0025	U	0.0043	J	0.0022	U	0.0045	U	0.0026	U
o-Dichlorobenzene	180000	560	18000	310	43		0.00068	U	0.00055	U	0.00051	U	0.00057	U	0.00065	U	0.00081	U	0.00057	U	0.0012	U	0.00066	U
p-Dichlorobenzene	--	17000	--	340	11		0.00095	U	0.00077	U	0.00072	U	0.00081	U	0.00091	U	0.0011	U	0.00079	U	0.0016	U	0.00092	U
Styrene	410000	1500	41000	430	18		0.00056	U	0.00045	U	0.00042	U	0.00047	U	0.00053	U	0.00067	U	0.00046	U	0.00095	U	0.0013	J
Tetrachloroethylene	110	20	240	28	0.3		0.001	U	0.00084	U	0.00078	U	0.00088	U	0.00099	U	0.0012	U	0.00087	U	0.0018	U	0.001	U
Toluene	410000	650	410000	42	29		0.0041	J	0.0037	J	0.0046		0.0033	U	0.008		0.0046	U	0.0055		0.0066	U	0.0072	
trans-1,3-Dichloropropene	57	2.1	1200	0.39	0.02		0.00049	U	0.0004	U	0.00037	U	0.00041	U	0.00047	U	0.00059	U	0.00041	U	0.00084	U	0.00047	U
Trichloroethylene	520	8.9	1200	12	0.3		0.00059	U	0.00048	U	0.00044	U	0.0005	U	0.00056	U	0.0007	U	0.00049	U	0.001	U	0.00057	U
Vinyl Acetate	1000000	1600	200000	10	170		0.0021	U	0.0017	U	0.0016	U	0.0018	U	0.002	U	0.0025	U	0.0017	U	0.0036	U	0.002	U
Vinyl chloride	7.9	1.1	170	1.1	0.07		0.0009	U	0.00073	U	0.00068	U	0.00076	U	0.00086	U	0.0011	U	0.00075	U	0.0015	U	0.00087	U
Xylene (total)	1000000	320	410000	320	150		0.002	U	0.0012		0.0024	J	0.0026	J	0.0055		0.0041	J	0.0029	J	0.0035	U	0.0035	J
PAHs																								
2-Methylnaphthalene**	8200	--	820	--	39		0.014	J	0.0057	U	0.0056	U	0.0063	U	0.0058	U	0.02	J	0.006	U	0.0064	U	0.0057	U
Acenaphthene	120000	--	120000	--	2900		0.0057	U	0.0057	U	0.0056	U	0.022	J	0.0058	U	0.096	J	0.006	U	0.02	J	0.0057	U
Acenaphthylene	61000	--	61000	--	120		0.0057	U	0.0057	U	0.0056	U	0.0063	U	0.0058	U	0.0063	U	0.006	U	0.0064	U	0.0057	U
Anthracene	610000	--	610000	--	59000		0.013	J	0.0057	U	0.0056	U	0.044	J	0.0058	U	0.17	J	0.006	U	0.0077	J	0.0057	U
Benzo(a)anthracene	8	--	170	--	8		0.0077	J	0.0057	U	0.0056	U	0.068		0.0058	U	0.28		0.0068	J	0.0085	J	0.0057	U
Benzo(a)pyrene	0.8	--	17	--	82		0.0057	J	0.0057	U	0.0056	U	0.034		0.0058	U	0.22		0.006	J	0.0073	J	0.0057	U
Benzo(b)fluoranthene	8	--	170	--	25		0.021		0.0068	J	0.0082	J	0.034		0.0058	U	0.21		0.008	J	0.0094	J	0.0065	J
Benzo(ghi)perylene**	61000	--	61000	--	160000		0.0069	J	0.02	J	0.018	J	0.011	J	0.0058	U	0.17	J	0.02	J	0.0064	U	0.017	J
Benzo(k)fluoranthene	78	--	1700	--	250		0.013	J	0.0057	U	0.0056	U	0.032		0.0058	U	0.16		0.006	U	0.0077	J	0.0057	U
Chrysene	780	--	17000	-	800		0.033	J	0.014	J	0.013	J	0.053	J	0.0058	U	0.3		0.012	J	0.015	J	0.0077	J
Dibenzo(a,h)anthracene	0.8	--	17	--	7.6		0.0057	U	0.0057	U	0.0056	U	0.0063	U	0.0058	U	0.057		0.006	U	0.0064	U	0.0057	U
Fluoranthene	82000	--	82000	--	21000		0.036	J	0.0064	J	0.0075	J	0.19	J	0.0058	U	0.65		0.016	J	0.023	J	0.0057	U
Fluorene	82000	--	82000	--	2800		0.0057	U	0.0057	U	0.0056	U	0.028	J	0.0058	U	0.1	J	0.006	U	0.012	J	0.0057	U
Indeno(1,2,3-cd)pyrene	8	--	170	--	69		0.008	J	0.0057	U	0.0056	U	0.013	J	0.0058	U	0.17		0.006	U	0.0064	U	0.0057	U
Naphthalene	41000	270	4100	1.8	18		0.028	J	0.0091	J	0.009	J	0.015	J	0.0058	U	0.039	J	0.006	U	0.009	J	0.0069	J
Phenanthrene**	61000	--	61000	--	1100		0.021	J	0.01	J	0.012	J	0.14	J	0.0058	U	0.6		0.014	J	0.03	J	0.0069	J
Pyrene	61000	--	61000	--	21000		0.015	J	0.011	J	0.012	J	0.12	J	0.0058	U	0.52		0.016	J	0.018	J	0.0057	U
Percent Moisture							13		12		11		21		14		21		17		22		13	

Legend:

Concentration exceeds TACO Tier 1 RO for the following exposure route:

1 - Industrial/Commercial Ingestion
2 - Industrial/Commercial Inhalation
3 - Construction Worker Ingestion
4 - Construction Worker Inhalation
5 - Migration to Groundwater Class II

Analyte not detected - reporting limit exceeds TACO Tier 1 RO
Soil sample collected from saturated zone

J - The concentration is estimated. The analyte was present at a concentration that is less than the reporting limit.
U - Analyte was analyzed for but not detected above the reporting limit shown
na - not analyzed
-- RO not available for this exposure route.
** ROs for Non-TACO Chemicals provided by IEPA Toxicity Assessment Unit (10-1-2004)

Appendix I

Appendix I

Tier 2 RBCA Evaluations

Former Fractionation Process Area (FP Area)
Soil Migration to Groundwater
(Section 6.2)

Appendix I

Tier 2 RBCA Evaluations

Former Fractionation Process Area (FP Area)
Soil Migration to Groundwater
(Section 6.2)

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this datasheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	76,200.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	7,620
GW_{comp} (mg/L)**	See below	α_y (cm)	2,540
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	381
U (cm/d)	0.1830	S_w (cm)	3,050
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0110	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

* LF_{sw} reported on Datasheet RBCA-XIII
** GW_{comp} reported on Datasheet RBCA-VI
*** $C(x)/C_{source}$ reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

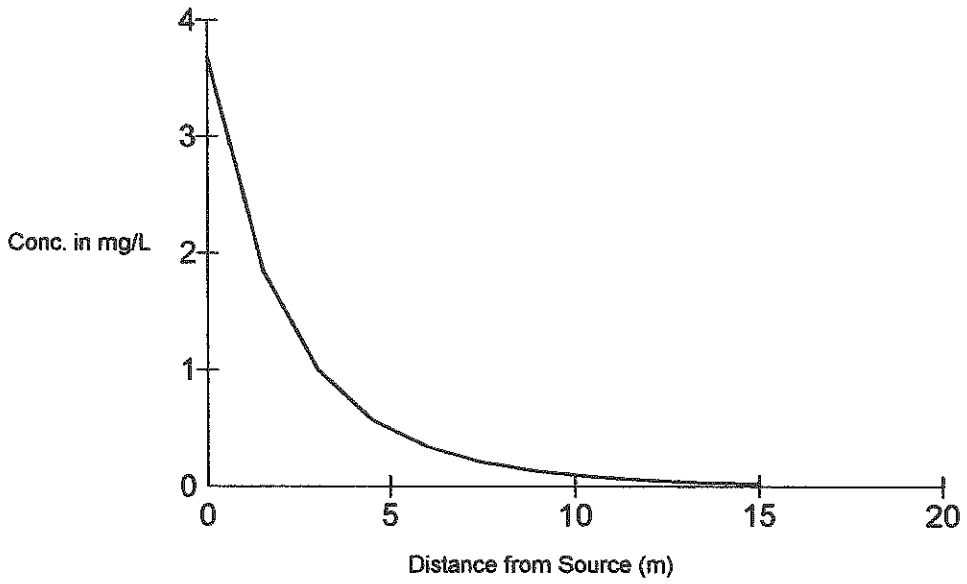
Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C(x)/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Benzene	1750.000	1.36E+00	0.025	7.81E-28	0.000900	1219.422
Benzo(a)anthracene	0.009	2.46E-04	0.00065	2.73E-21	0.000510	36.291
Benzo(a)pyrene	0.002	9.60E-05	0.002	7.40E-24	0.000650	16.028

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Benzo(b)fluoranthene	0.002	7.96E-05	0.0009	1.99E-22	0.000570	17.897
Dibenzo(a,h)anthracene	0.002	2.58E-05	0.005	2.42E-18	0.000370	91.782
Indeno(1,2,3-c,d)pyrene	0.000	2.82E-05	0.0021	1.71E-20	0.000470	0.741
Naphthalene	31.000	4.87E-02	0.039	2.93E-47	0.002700	604.569

Datasheet AOC FP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Benzene



Distance to Meet Ground Water Objectives

Class I	Class II
20.43 m.	14.48 m.

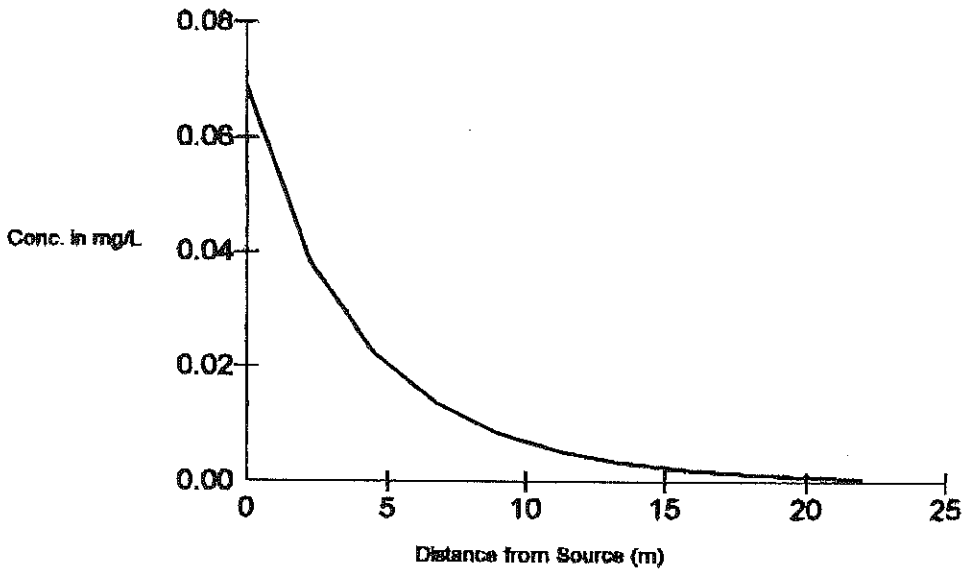
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	3.68E+00
1.5	1.85E+00
3	9.98E-01
4.5	5.70E-01
6	3.39E-01
7.5	2.08E-01
9	1.29E-01
10.5	8.13E-02
12	5.17E-02
13.5	3.32E-02
15	2.16E-02

Datasheet AOC FP Dist. to Achieve T-1 ROs Soil

Calculated Ground Water Information

Benzo(a)anthracene



Distance to Meet Ground Water Objectives

Class I	Class II
30.58 m.	21.54 m.

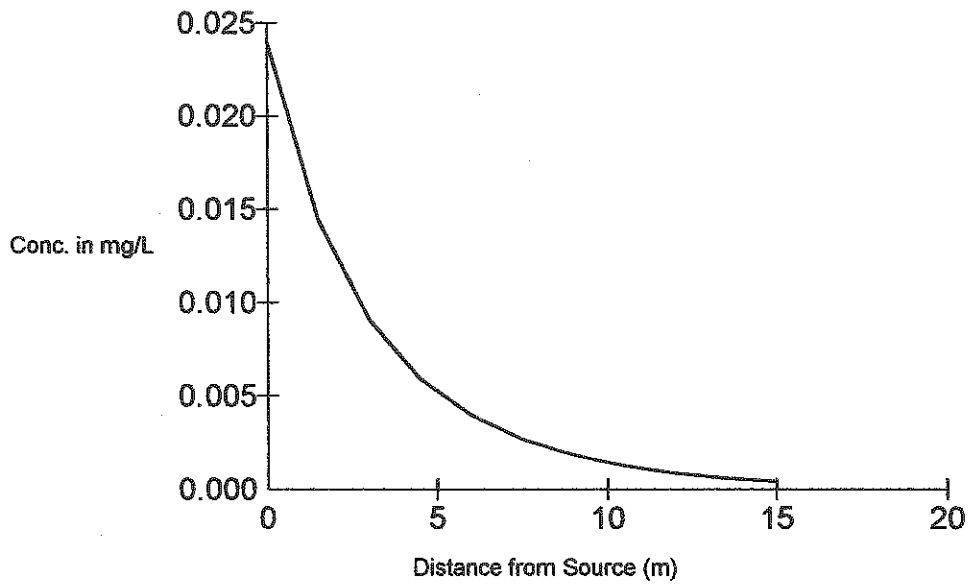
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.89E-02
2.25	3.81E-02
4.5	2.23E-02
6.75	1.36E-02
9	8.41E-03
11.25	5.19E-03
13.5	3.22E-03
15.75	2.02E-03
18	1.29E-03
20.25	8.31E-04
22	5.97E-04

Datasheet AOC FP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Benzo(a)pyrene



Distance to Meet Ground Water Objectives

Class I	Class II
18.21 m.	8.65 m.

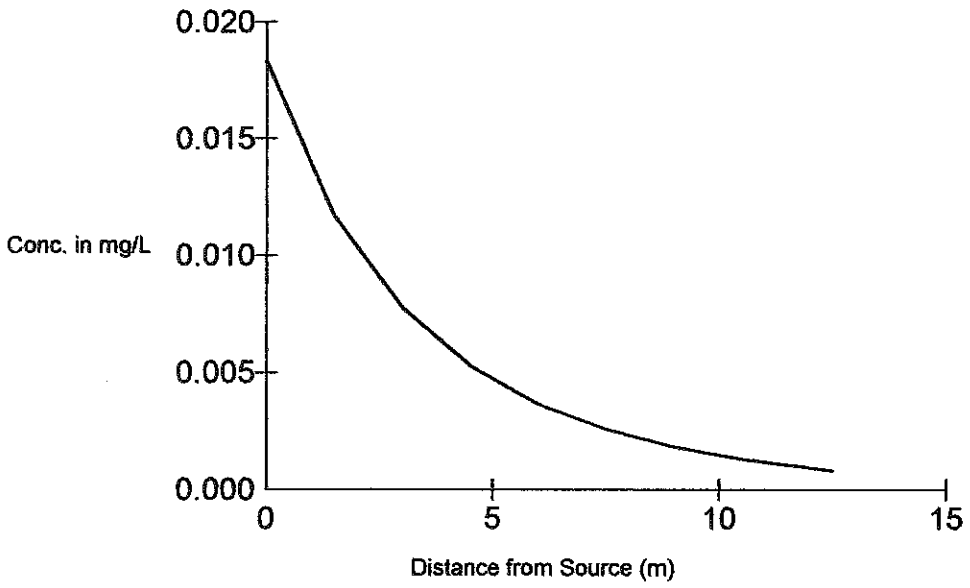
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.40E-02
1.5	1.45E-02
3	9.09E-03
4.5	5.91E-03
6	3.94E-03
7.5	2.68E-03
9	1.83E-03
10.5	1.25E-03
12	8.65E-04
13.5	5.99E-04
15	4.19E-04

Datasheet AOC FP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Benzo(b)fluoranthene



Distance to Meet Ground Water Objectives

Class I	Class II
19.48 m.	12.06 m.

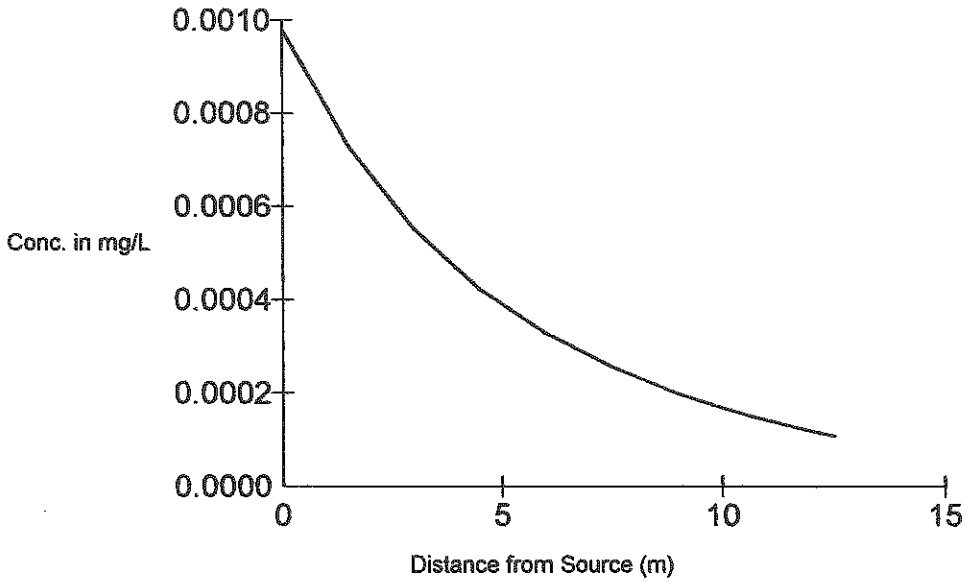
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.83E-02
1.5	1.17E-02
3	7.75E-03
4.5	5.27E-03
6	3.66E-03
7.5	2.58E-03
9	1.82E-03
10.5	1.29E-03
12	9.13E-04
12.5	8.15E-04

Datasheet AOC FP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Dibenzo(a,h)anthracene



Distance to Meet Ground Water Objectives

Class I	Class II
6.53 m.	Met

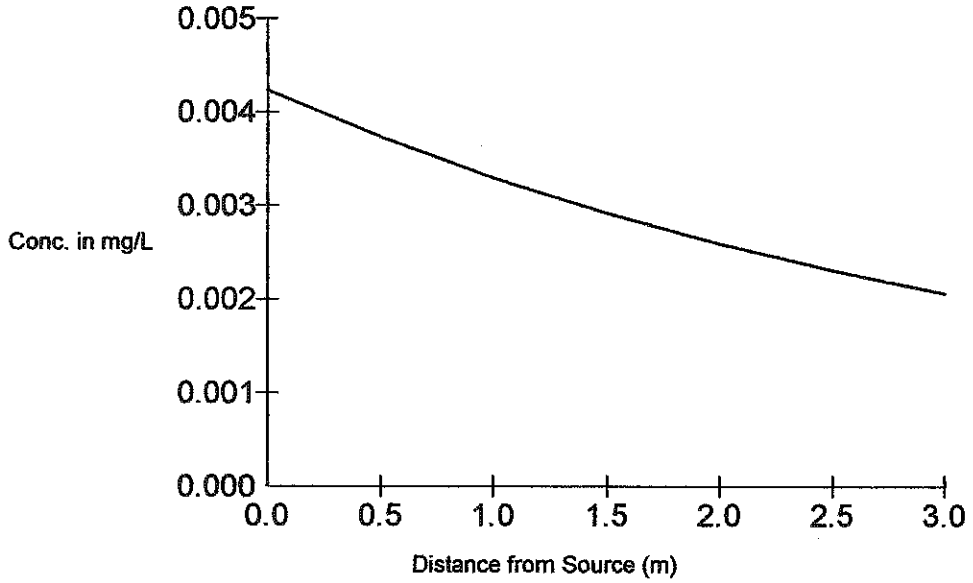
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	9.79E-04
1.5	7.30E-04
3	5.52E-04
4.5	4.23E-04
6	3.28E-04
7.5	2.55E-04
9	1.98E-04
10.5	1.53E-04
12	1.18E-04
12.5	1.08E-04

Datasheet AOC FP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Indeno(1,2,3-c,d)pyrene



Distance to Meet Ground Water Objectives

Class I	Class II
10.60 m.	2.92 m.

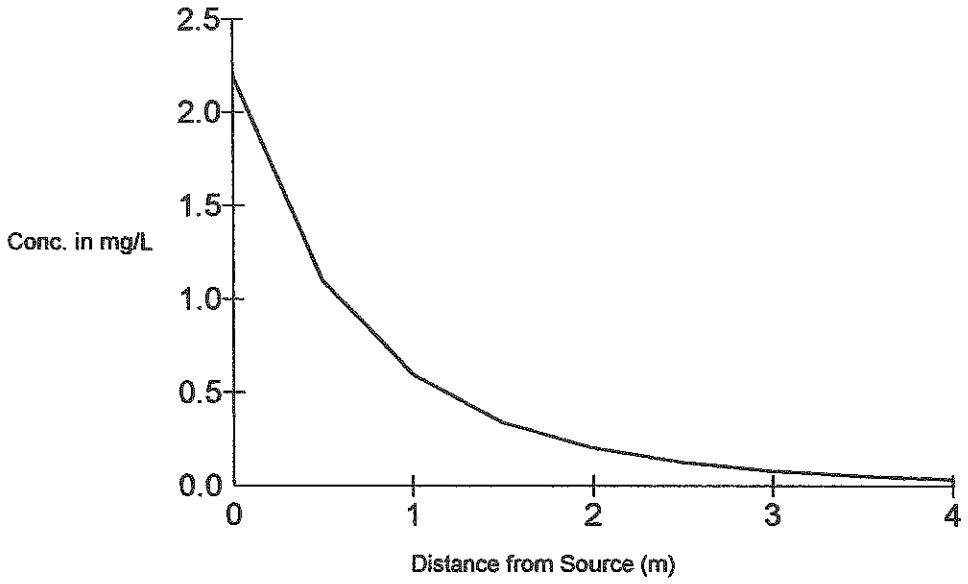
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	4.23E-03
0.5	3.73E-03
1	3.30E-03
1.5	2.92E-03
2	2.59E-03
2.5	2.31E-03
3	2.06E-03

Datasheet AOC FP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Naphthalene



Distance to Meet Ground Water Objectives

Class I	Class II
4.39 m.	3.83 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.19E+00
0.5	1.10E+00
1	5.94E-01
1.5	3.40E-01
2	2.02E-01
2.5	1.25E-01
3	7.91E-02
3.5	5.13E-02
4	3.40E-02

Datasheet RBCA-XIII. LFsw

Datasheet RBCA-XIII is to be used to propose the leaching factor calculated by the equation in Appendix C, Table C of TACO: Equation R14 (residential, industrial/commercial and constructin worker scenarios). The use of Equations R20 and R24 in TACO are necessary to generate some of the input values for Equation R14. Since the values in Datasheet RBCA-XI are used in this evaluation, this Datasheet must also be submitted.

k_s (g_{water}/g_{soil})*	See below	ρ_s (g/cm³)**	1.70
H' (unitless)***	See below	θ_{ws} (unitless)**	0.17
Ugw (cm/yr)****	24.04	θ_{as} (unitless)**	0.19
K (cm/yr)	2,185.00		
i (unitless)	0.011		
δ_{gw} (cm)	200		
I (cm/yr)	30		
W (cm)	3.050		

* k_s value reported on Datasheet RBCA-XI ** Physical Soil Properties (see Datasheet B)
Chemical Properties (see Datasheet C) * U_{gw} value as calculated using Equation R24

Chemical Name	ks (g_{water}/g_{soil})	H' (unitless)	LFsw (mg/L_{water})/(mg/kg_{soil})
Benzene	0.5713	2.28E-001	1.36E+00
Benzo(a)pyrene	9,894.0000	4.63E-005	9.60E-05
Benzo(b)fluoranthene	11,931.0000	4.55E-003	7.96E-05
Dibenzo(a,h)anthracene	36,860.0000	6.03E-007	2.58E-05
Indeno(1,2,3-c,d)pyrene	33,659.0000	6.56E-005	2.82E-05
Naphthalene	19.4000	1.98E-002	4.87E-02

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.)

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedu obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.70
	Silt	1.6		Subsurface	1.70
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.021
	Subsurface Soils	0.002		Subsurface	0.010
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.36
	Silt	0.40		Subsurface	0.36
	Clay	0.36			
θ_{as} (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.19
	Silt	0.24		Subsurface	0.19
	Clay	0.19			
θ_{ws} (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³		

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)		
Gravel	0.20		Surface	0.17
Sand	0.18		Subsurface	0.17
Silt	0.16			
Clay	0.17			

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Benzene	1.75E+003	8.80E-002	9.80E-006	2.28E-001	5.89E+001	0.000900
Benzo(a)pyrene	1.62E-003	4.30E-002	9.00E-006	4.63E-005	1.02E+006	0.000650
Benzo(b)fluoranthene	1.50E-003	2.26E-002	5.56E-006	4.55E-003	1.23E+006	0.000570
Dibenzo(a,h)anthracene	2.49E-003	2.02E-002	5.18E-006	6.03E-007	3.80E+006	0.000370
Indeno(1,2,3-c,d)pyrene	2.20E-005	1.90E-002	5.66E-006	6.56E-005	3.47E+006	0.000470
Naphthalene	3.10E+001	5.90E-002	7.50E-006	1.98E-002	2.00E+003	0.002700

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Benzene	1.75E+003	1.237	0.571	2.28E-001	5.89E+001	2,384.17	1,219.42
Benzo(a)anthracene	9.40E-003	8,358.000	3,860.600	1.37E-004	3.98E+005	78.57	36.29
Benzo(a)pyrene	1.62E-003	21,420.000	9,894.000	4.63E-005	1.02E+006	34.70	16.03
Benzo(b)fluoranthene	1.50E-003	25,830.000	11,931.000	4.55E-003	1.23E+006	38.75	17.90
Dibenzo(a,h)anthracene	2.49E-003	79,800.000	36,860.000	6.03E-007	3.80E+006	198.70	91.78
Indeno(1,2,3-c,d)pyrene	2.20E-005	72,870.000	33,659.000	6.56E-005	3.47E+006	1.60	0.74
Naphthalene	3.10E+001	42.000	19.400	1.98E-002	2.00E+003	1,305.17	604.57

HARRY WALTON

Former Ethylene Production Area (ET Area)
Soil Migration to Groundwater
(Section 6.3)

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this datasheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	83,800.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	8,380
GW_{comp} (mg/L)**	See below	α_y (cm)	2,793
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	419
U (cm/d)	0.1830	S_w (cm)	18,750
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0110	S_d (cm)	3,000
θ_T (cm^3/cm^3-soil)*****	0.36		

* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

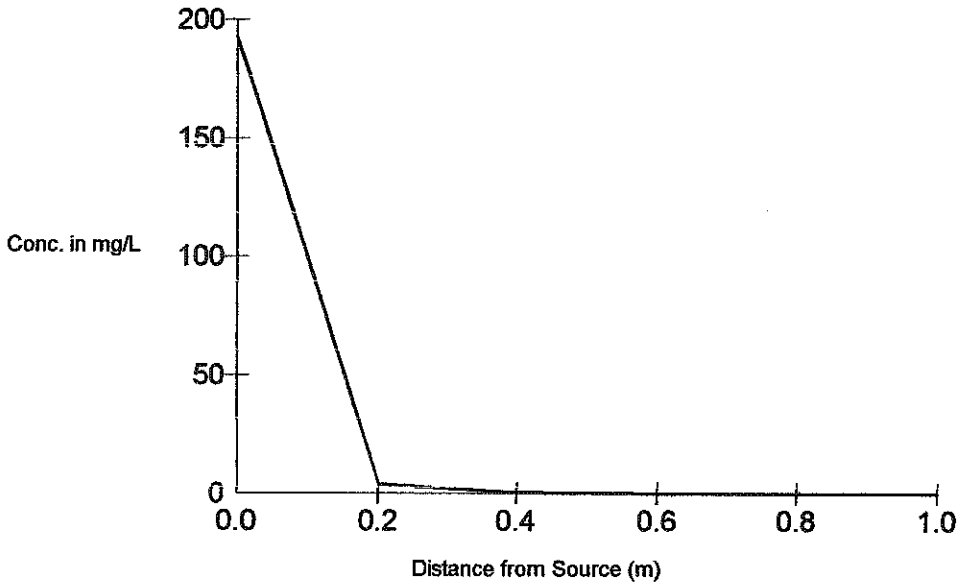
Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C(x)/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Acetone	1000000.000	8.38E+00	0.7	8.27E-206	0.049500	105755.200
Benzene	1750.000	1.27E+00	0.025	5.39E-27	0.000900	1219.422
Dichloroethane, 1,2-	8520.000	3.24E+00	0.025	1.35E-39	0.001900	2328.190

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Dichloroethylene, 1,1-	2250.000	1.12E+00	0.035	1.01E-66	0.005300	1779.566
Dichloropropane, 1,2-	2800.000	1.65E+00	0.025	1.87E-14	0.000270	1502.880
Dichloropropene, 1,3-	2800.000	1.42E+00	0.005	1.42E-228	0.061000	1748.407
Ethylbenzene	169.000	2.42E-01	1	5.59E-50	0.003000	618.067
Methylene chloride	13000.000	3.97E+00	0.05	7.38E-101	0.012000	2905.844
Naphthalene	31.000	4.55E-02	0.039	2.28E-47	0.002700	604.569
Toluene	526.000	4.68E-01	2.5	1.59E-96	0.011000	997.191
Trichloroethane, 1,1,2-	4420.000	1.50E+00	0.05	9.33E-28	0.000950	2608.463
Trichloroethylene	1100.000	5.04E-01	0.025	3.37E-18	0.000420	1933.101
Vinyl chloride	2760.000	2.19E+00	0.01	1.37E-13	0.000240	1116.362

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Acetone



Distance to Meet Ground Water Objectives

Class I	Class II
0.32 m.	0.32 m.

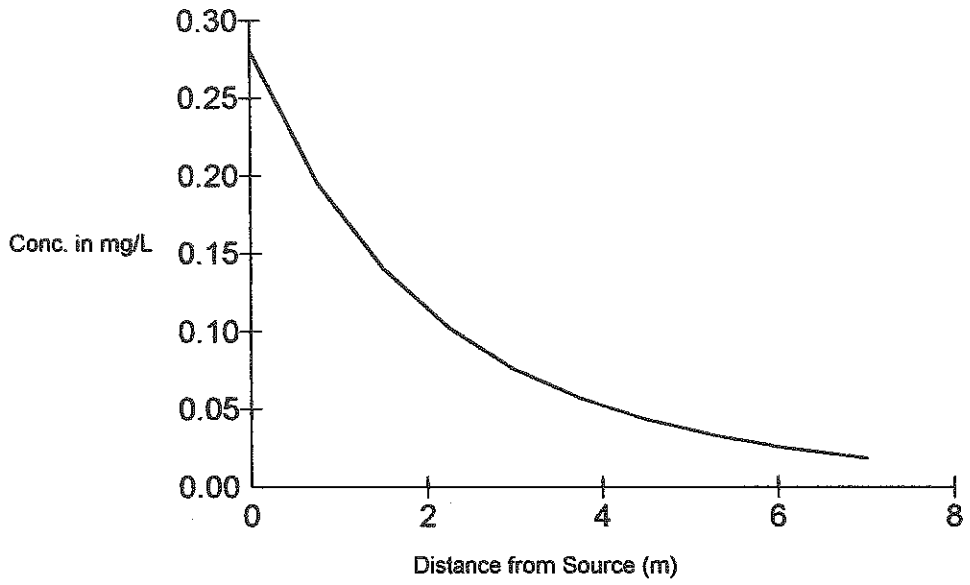
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.93E+02
0.2	3.93E+00
0.4	2.78E-01
0.6	3.26E-02
0.8	5.12E-03
1	9.80E-04

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Benzene



Distance to Meet Ground Water Objectives

Class I	Class II
11.20 m.	6.10 m.

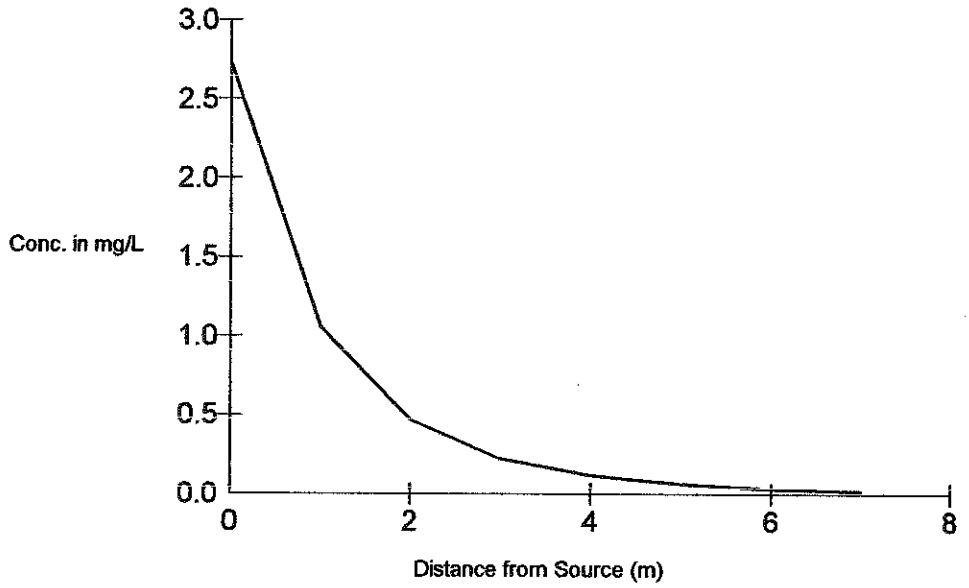
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.80E-01
0.75	1.96E-01
1.5	1.40E-01
2.25	1.02E-01
3	7.59E-02
3.75	5.70E-02
4.5	4.34E-02
5.25	3.33E-02
6	2.58E-02
6.75	2.01E-02
7	1.86E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Dichloroethane, 1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
9.89 m.	6.64 m.

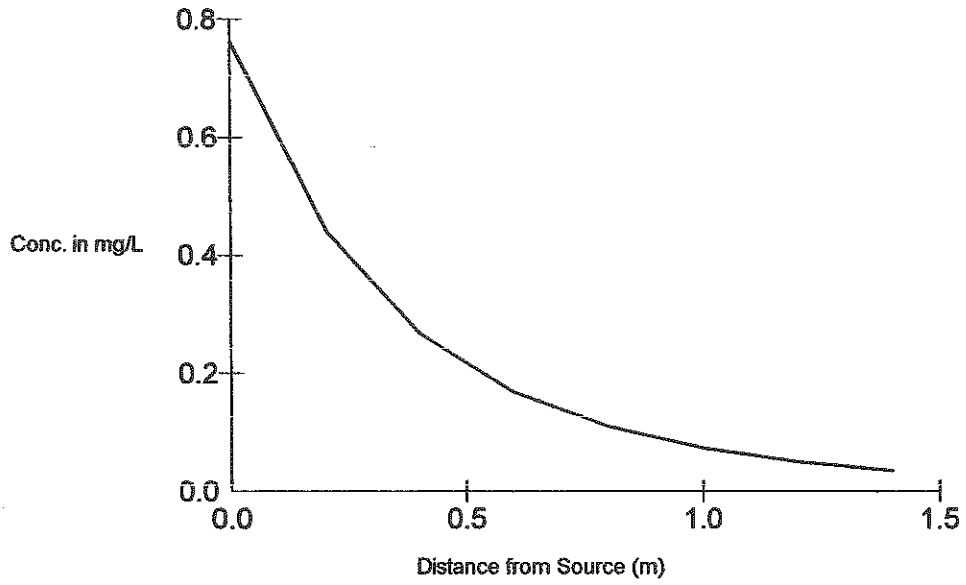
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.72E+00
1	1.06E+00
2	4.66E-01
3	2.25E-01
4	1.16E-01
5	6.28E-02
6	3.54E-02
7	2.06E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Dichloroethylene, 1,1-



Distance to Meet Ground Water Objectives

Class I	Class II
2.38 m.	1.39 m.

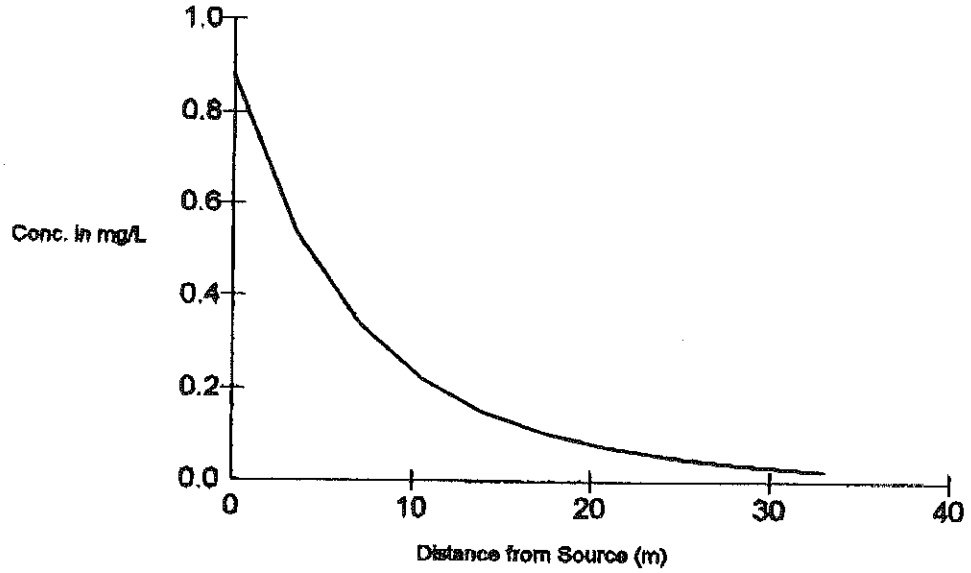
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	7.62E-01
0.2	4.40E-01
0.4	2.67E-01
0.6	1.68E-01
0.8	1.09E-01
1	7.30E-02
1.2	4.97E-02
1.4	3.45E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Dichloropropane, 1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
53.09 m.	32.67 m.

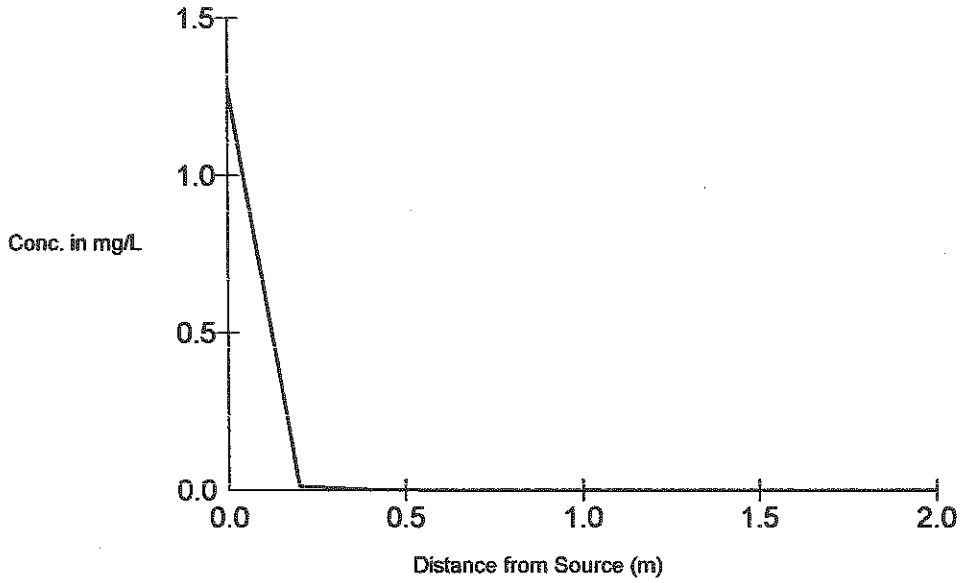
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	8.75E-01
3.5	5.35E-01
7	3.41E-01
10.5	2.24E-01
14	1.51E-01
17.5	1.04E-01
21	7.31E-02
24.5	5.22E-02
28	3.78E-02
31.5	2.77E-02
33	2.43E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Dichloropropene, 1,3-



Distance to Meet Ground Water Objectives

Class I	Class II
0.37 m.	0.26 m.

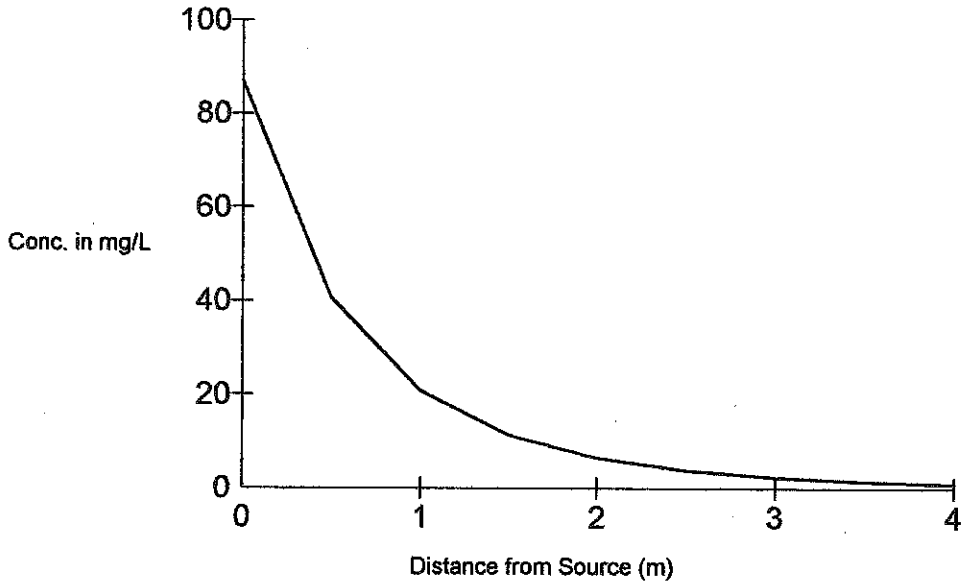
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.28E+00
0.2	1.32E-02
0.4	6.50E-04
0.6	5.80E-05
0.8	7.26E-06
1	1.14E-06
1.2	2.11E-07
1.4	4.45E-08
1.6	1.04E-08
1.8	2.63E-09
2	7.18E-10

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Ethylbenzene



Distance to Meet Ground Water Objectives

Class I	Class II
4.36 m.	3.94 m.

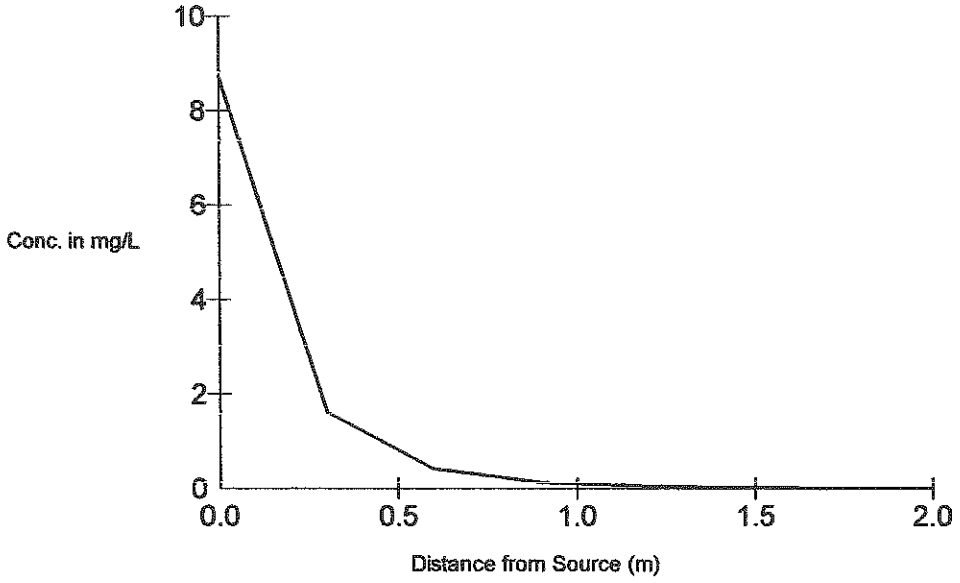
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	8.70E+01
0.5	4.06E+01
1	2.07E+01
1.5	1.13E+01
2	6.45E+00
2.5	3.83E+00
3	2.35E+00
3.5	1.48E+00
4	9.50E-01

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Methylene chloride



Distance to Meet Ground Water Objectives

Class I	Class II
1.99 m.	1.19 m.

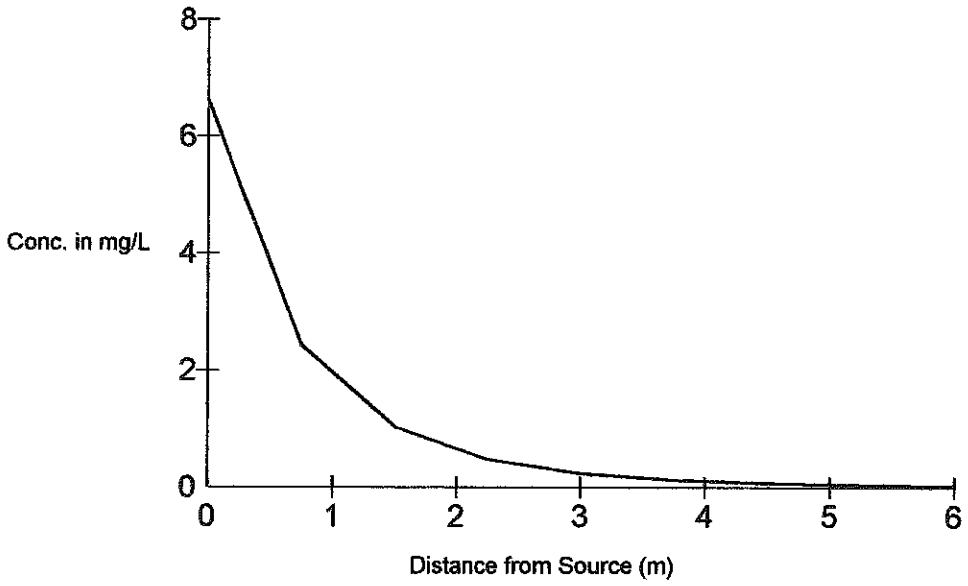
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	8.72E+00
0.3	1.62E+00
0.6	4.25E-01
0.9	1.35E-01
1.2	4.90E-02
1.5	1.94E-02
1.8	8.28E-03
2	4.84E-03

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Naphthalene



Distance to Meet Ground Water Objectives

Class I	Class II
5.89 m.	5.27 m.

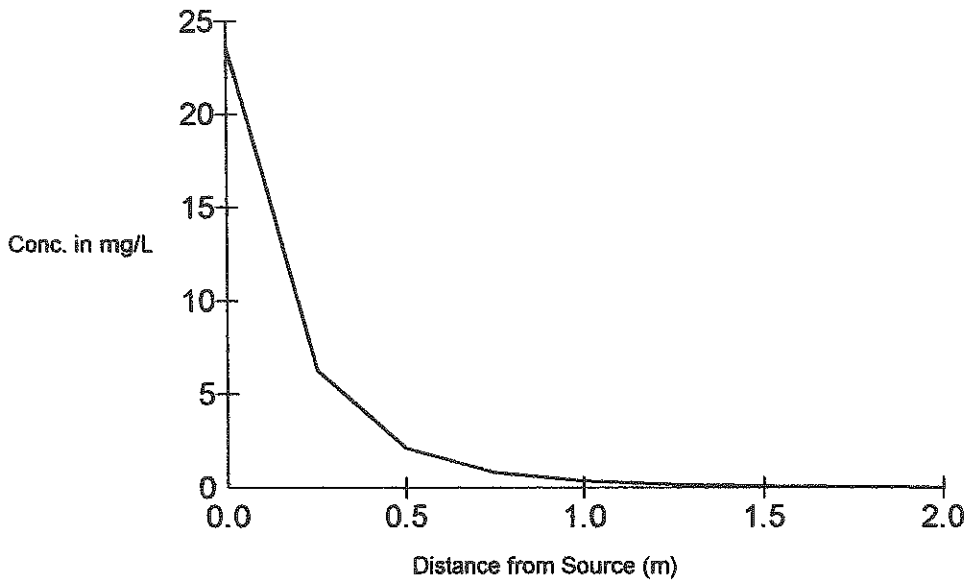
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.63E+00
0.75	2.42E+00
1.5	1.03E+00
2.25	4.78E-01
3	2.39E-01
3.75	1.26E-01
4.5	6.93E-02
5.25	3.95E-02
6	2.32E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Toluene



Distance to Meet Ground Water Objectives

Class I	Class II
0.69 m.	0.46 m.

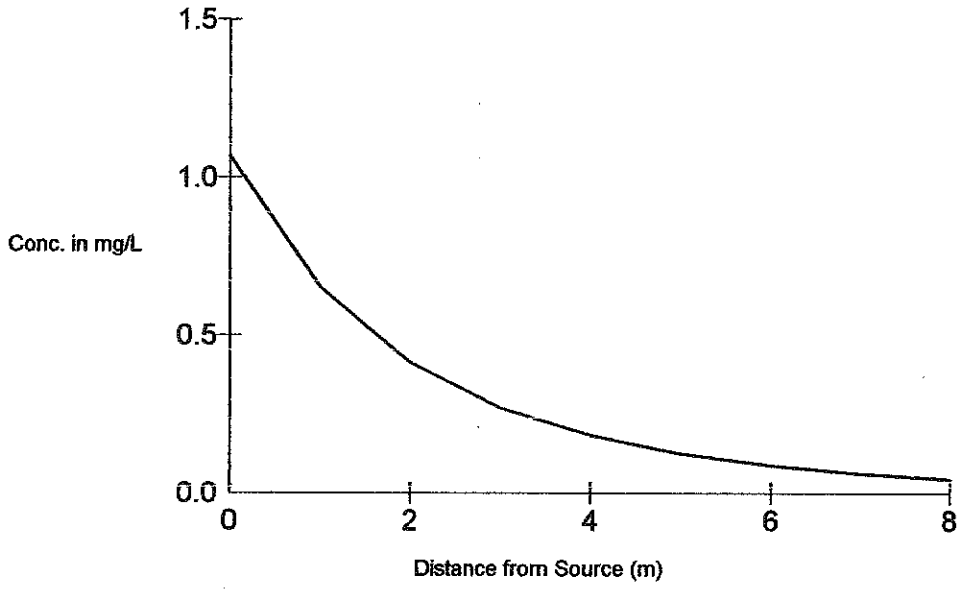
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.36E+01
0.25	6.26E+00
0.5	2.10E+00
0.75	8.10E-01
1	3.45E-01
1.25	1.58E-01
1.5	7.65E-02
1.75	3.88E-02
2	2.05E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Trichloroethane, 1,1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
15.87 m.	7.70 m.

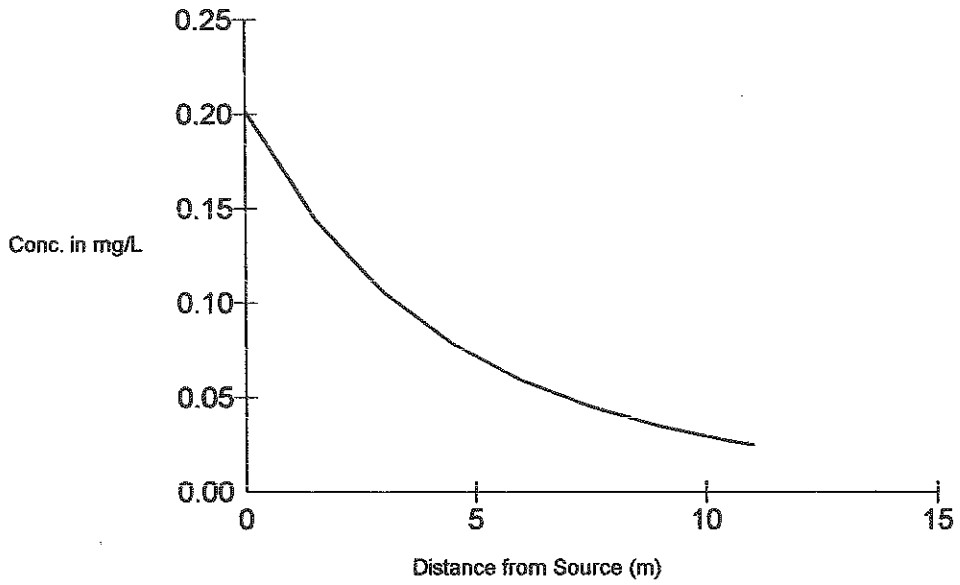
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.07E+00
1	6.50E-01
2	4.13E-01
3	2.71E-01
4	1.83E-01
5	1.26E-01
6	8.81E-02
7	6.28E-02
8	4.54E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Trichloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
22.07 m.	11.00 m.

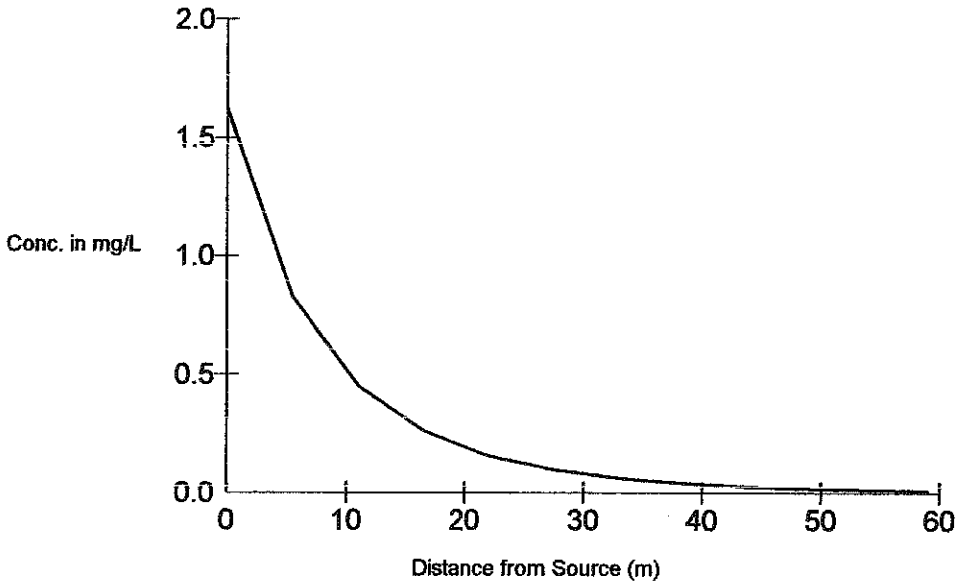
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.02E-01
1.5	1.45E-01
3	1.06E-01
4.5	7.85E-02
6	5.92E-02
7.5	4.51E-02
9	3.48E-02
10.5	2.71E-02
11	2.50E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Vinyl chloride



Distance to Meet Ground Water Objectives

Class I	Class II
85.28 m.	58.54 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.62E+00
5.5	8.25E-01
11	4.51E-01
16.5	2.60E-01
22	1.56E-01
27.5	9.72E-02
33	6.21E-02
38.5	4.06E-02
44	2.70E-02
49.5	1.83E-02
55	1.26E-02

Datasheet RBCA-VI(a). Alternate Groundwater Cleanup Objectives for Carcinogenic Contaminants

Datasheet RBCA-VI is to be used to develop groundwater cleanup objectives for carcinogens calculated by the equation in Appendix C, Table C of TACO: Equation R25 (residential, industrial/commercial and construction worker scenarios). RBCA-VII and RBCA-XIV datasheets must also be provided to demonstrate that the criteria identified in Subpart G of TACO has been met.

For industrial/commercial, groundwater cleanup objectives for both the industrial/commercial scenartio and the construction worker scenario must be calculated. Therefore, two RBCA-VI datasheets must be submitted: one for the industrial/commercial scenario and one for the construction worker scenario.

Land Use Scenario: **ALL**

Engineered Barrier	YES	NO
Institutional Control	YES	NO

TR (unitless)	0.000001	IRw (L/d)	2.0
BW (kg)	70.0	EF (d/yr)	350
ATc (yr)	70.0	ED (yr)	30
SFo [1/(mg/kg-d)]*	See below		

* Toxicological Properties (see Datasheet D)

Chemical Name	SFo [1/(mg/kg-d)]	Ground Water Cleanup Objective
Benzene	0.02900	0.005
Dichloroethane, 1,2-	0.09100	0.005
Dichloropropene, 1,3-	0.18000	0.001
Methylene chloride	0.00750	0.005
Trichloroethylene	0.01100	0.005
Vinyl chloride	1.90000	0.002

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)		
Gravel	0.20		Surface	0.17
Sand	0.18		Subsurface	0.17
Silt	0.16			
Clay	0.17			

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Acetone	1.00E+006	1.24E-001	1.01E-002	1.59E-003	5.75E-001	0.049500
Benzene	1.75E+003	8.80E-002	9.80E-006	2.28E-001	5.89E+001	0.000900
Dichloroethane, 1,2-	8.52E+003	1.04E-001	9.90E-006	4.01E-002	1.74E+001	0.001900
Dichloroethylene, 1,1-	2.25E+003	9.00E-002	1.04E-005	1.07E+000	5.89E+001	0.005300
Dichloropropene, 1,3-	2.80E+003	6.26E-002	1.00E-005	7.26E-001	4.57E+001	0.061000
Ethylbenzene	1.69E+002	7.50E-002	7.80E-006	3.23E-001	3.63E+002	0.003000
Methylene chloride	1.30E+004	1.01E-001	1.17E-005	8.98E-002	1.17E+001	0.012000
Naphthalene	3.10E+001	5.90E-002	7.50E-006	1.98E-002	2.00E+003	0.002700
Toluene	5.26E+002	8.70E-002	8.60E-006	2.72E-001	1.82E+002	0.011000
Trichloroethane, 1,1,2-	4.42E+003	7.80E-002	8.80E-006	3.74E-002	5.01E+001	0.000950
Trichloroethylene	1.10E+003	7.90E-002	9.10E-006	4.22E-001	1.66E+002	0.000420
Vinyl chloride	2.76E+003	1.06E-001	1.23E-006	1.11E+000	1.86E+001	0.000240

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Acetone	1.00E+006	0.003	0.006	1.59E-003	5.75E-001	103,627.70	105,755.20
Benzene	1.75E+003	0.353	0.571	2.28E-001	5.89E+001	838.04	1,219.42
Dichloroethane, 1,2-	8.52E+003	0.104	0.169	4.01E-002	1.74E+001	1,779.67	2,328.19
Dichloroethylene, 1,1-	2.25E+003	0.353	0.571	1.07E+000	5.89E+001	1,289.22	1,779.57
Dichloropropane, 1,2-	2.80E+003	0.262	0.424	1.15E-001	4.37E+001	1,050.15	1,502.88
Dichloropropene, 1,3-	2.80E+003	0.274	0.443	7.26E-001	4.57E+001	1,274.96	1,748.41
Ethylbenzene	1.69E+002	2.178	3.521	3.23E-001	3.63E+002	391.08	618.07
Methylene chloride	1.30E+004	0.070	0.113	8.98E-002	1.17E+001	2,343.07	2,905.84
Naphthalene	3.10E+001	12.000	19.400	1.98E-002	2.00E+003	375.17	604.57
Toluene	5.26E+002	1.092	1.765	2.72E-001	1.82E+002	642.98	997.19
Trichloroethane, 1,1,2-	4.42E+003	0.301	0.486	3.74E-002	5.01E+001	1,789.13	2,608.46
Trichloroethylene	1.10E+003	0.996	1.610	4.22E-001	1.66E+002	1,257.48	1,933.10
Vinyl chloride	2.76E+003	0.112	0.180	1.11E+000	1.86E+001	926.42	1,116.36

Former Ethylene Production Area (ET Area)
Groundwater
(Section 6.3)

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	2,793
X (cm)	83,800.00	Sd (cm)	3,000
α_x (cm)*	8,380	α_z (cm)	419
λ (1/day)***	See below	K (cm/d)	5.99
U (cm/d)*	0.18	i (unitless)	0.01
Sw (cm)	18,750	θ_T (unitless)**	0.36

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)
*** Chemical Properties (see Datasheet C)

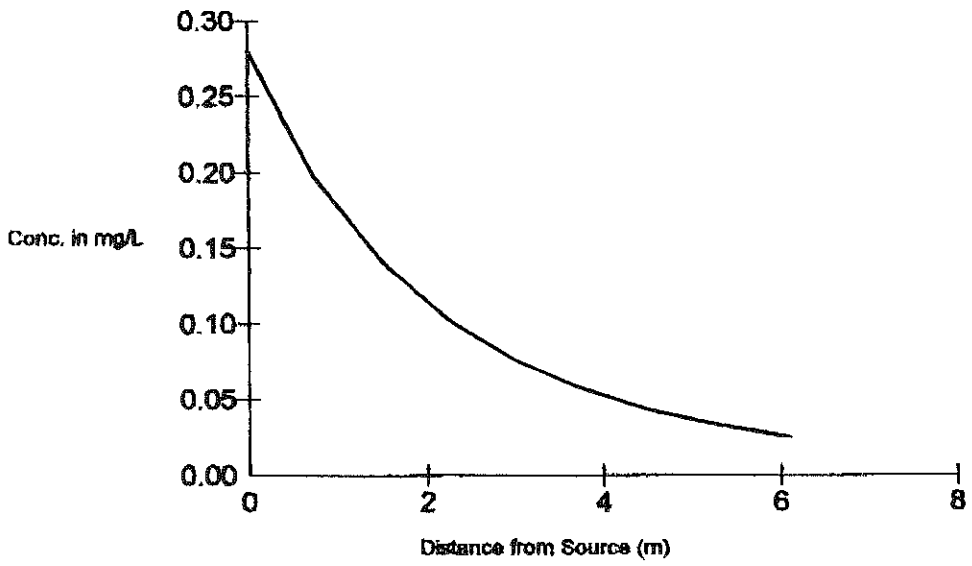
Chemical Name	λ (1/day)	Csource* (mg/L)	$C_{(x)}$ (mg/L)
Benzene	0.0009000	0.28000	1.51E-27
Bromoform	0.0019000	0.00200	2.69E-42
Chloroform	0.0003900	0.00500	8.21E-20

* Note: Csource is the measured concentration at the source for this fc

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Benzene



Distance to Meet Ground Water Objectives

Class I	Class II
11.48 m.	6.10 m.

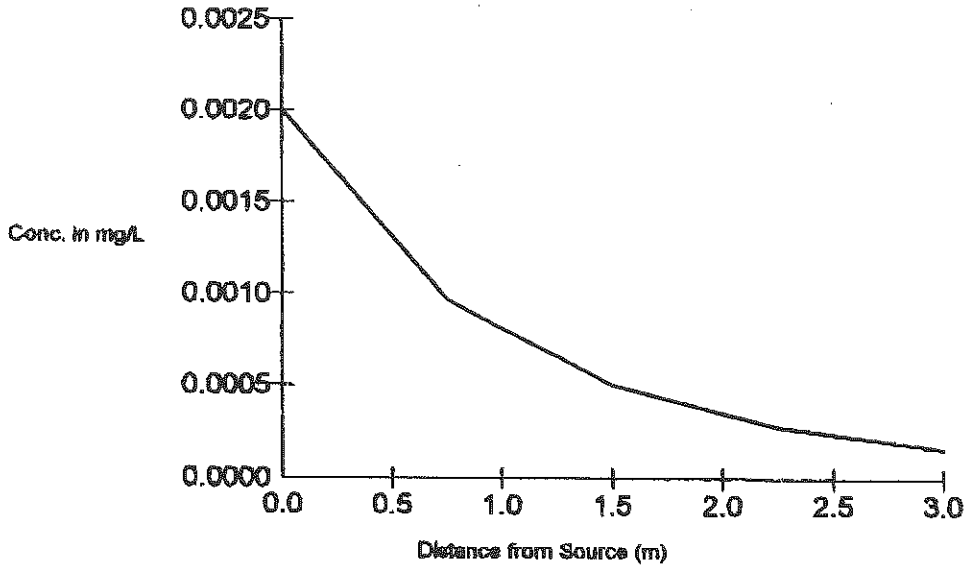
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.80E-01
0.75	1.96E-01
1.5	1.40E-01
2.25	1.02E-01
3	7.59E-02
3.75	5.70E-02
4.5	4.34E-02
5.25	3.33E-02
6	2.58E-02
6.1	2.50E-02

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Bromoform



Distance to Meet Ground Water Objectives

Class I	Class II
2.73 m.	2.73 m.

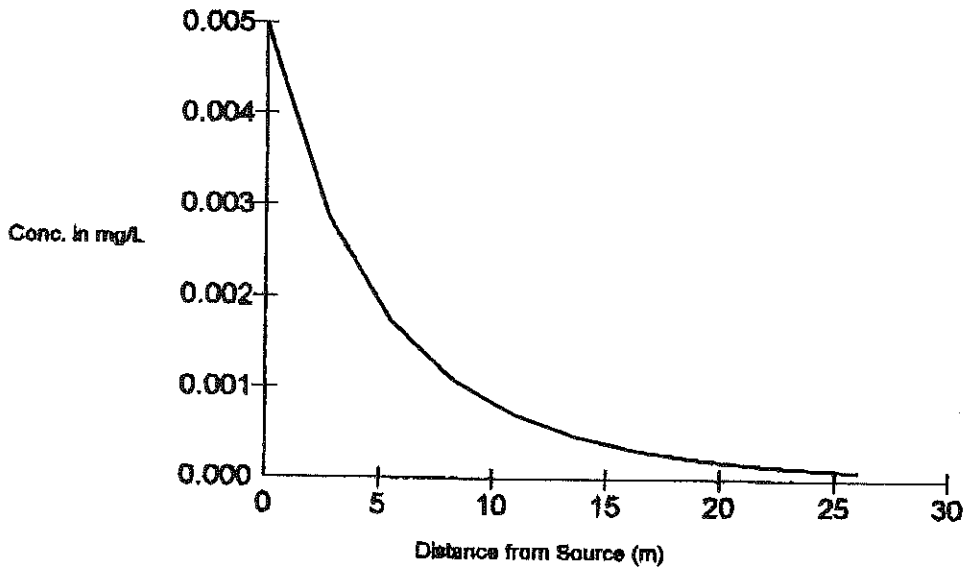
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.00E-03
0.75	9.68E-04
1.5	5.08E-04
2.25	2.83E-04
3	1.65E-04

Datasheet AOC ET Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Chloroform



Distance to Meet Ground Water Objectives

Class I	Class II
40.21 m.	25.54 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	5.00E-03
2.75	2.87E-03
5.5	1.73E-03
8.25	1.09E-03
11	7.04E-04
13.75	4.68E-04
16.5	3.18E-04
19.25	2.20E-04
22	1.54E-04
24.75	1.10E-04
26	9.46E-05

Former Polyethylene Production Area (PE Area)
Soil Migration to Groundwater
(Section 6.4)

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this dataheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	30,500.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	3,050
GW_{comp} (mg/L)**	See below	α_y (cm)	1,017
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	153
U (cm/d)	0.1410	S_w (cm)	3,100
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0085	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

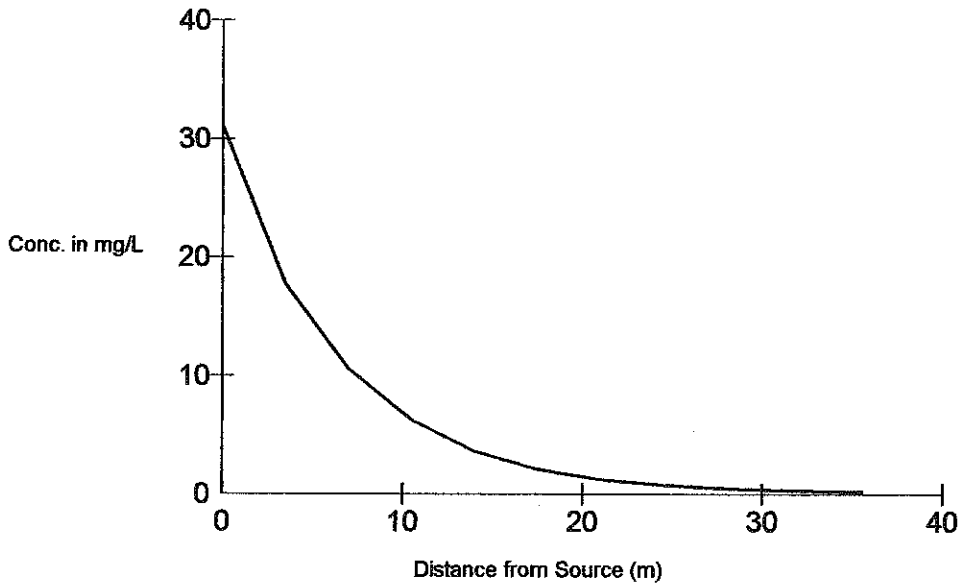
Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C(x)/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Dichloroethylene, cis-1,2-	3500.000	2.08E+00	0.2	2.51E-10	0.000240	1620.552
Tetrachloroethylene	200.000	5.70E-01	0.025	4.17E-20	0.000960	337.554
Trichloroethylene	1100.000	5.47E-01	0.025	1.82E-13	0.000420	1933.101

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Vinyl chloride	2760.000	2.44E+00	0.01	2.51E-10	0.000240	1116.362

Datasheet AOC PE Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Dichloroethylene, cis-1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
44.52 m.	35.11 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	3.12E+01
3.5	1.77E+01
7	1.06E+01
10.5	6.25E+00
14	3.61E+00
17.5	2.11E+00
21	1.26E+00
24.5	7.69E-01
28	4.82E-01
31.5	3.09E-01
35	2.03E-01

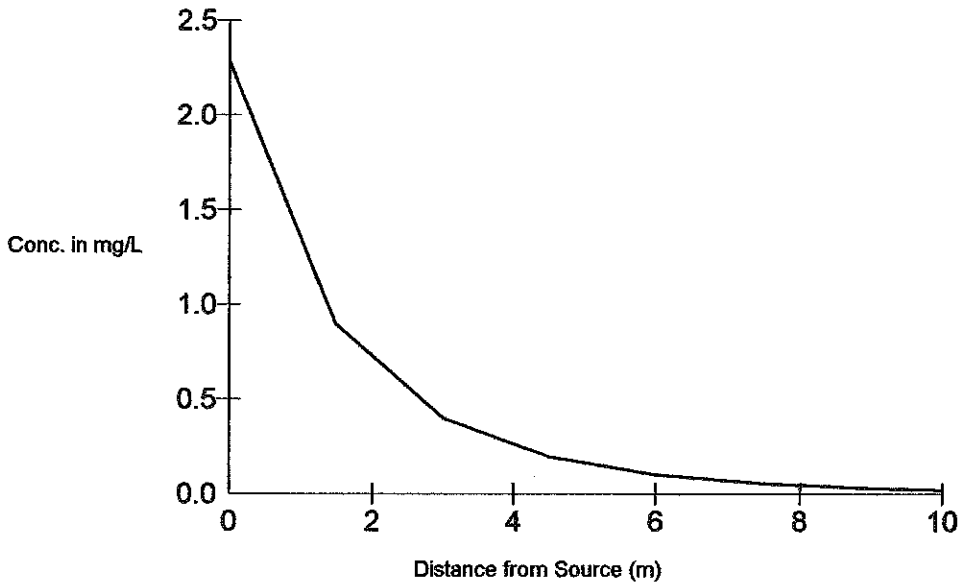
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
35.5	1.91E-01

Datasheet AOC PE Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Tetrachloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
13.96 m.	9.52 m.

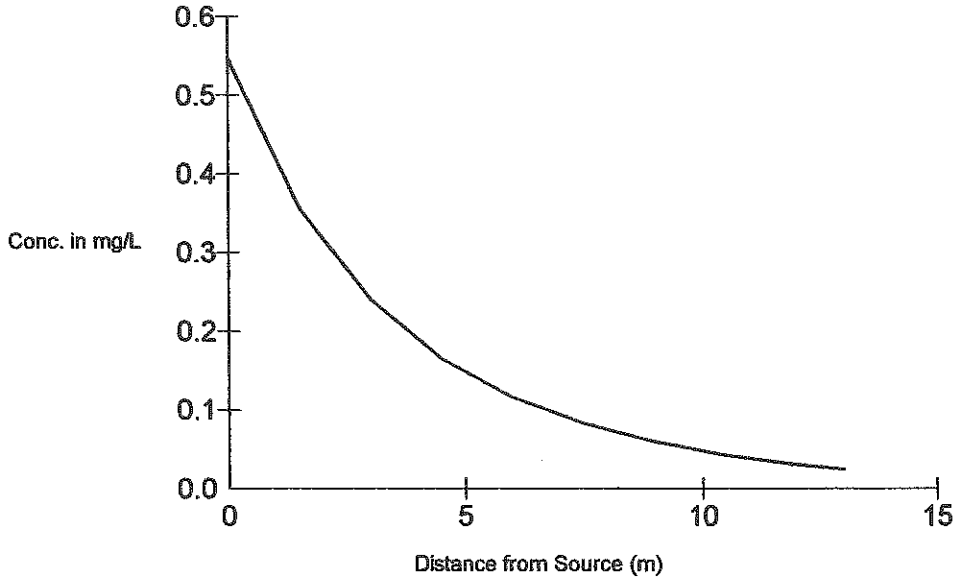
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.28E+00
1.5	8.96E-01
3	4.00E-01
4.5	1.95E-01
6	1.01E-01
7.5	5.47E-02
9	3.05E-02
10	2.08E-02

Datasheet AOC PE Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Trichloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
20.60 m.	12.87 m.

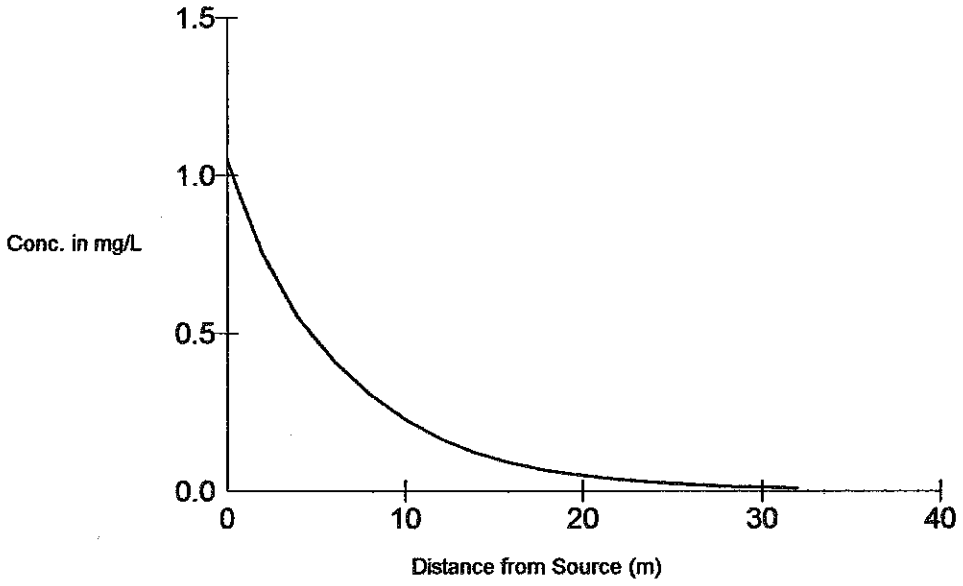
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	5.47E-01
1.5	3.56E-01
3	2.40E-01
4.5	1.65E-01
6	1.16E-01
7.5	8.28E-02
9	5.92E-02
10.5	4.23E-02
12	3.03E-02
13	2.43E-02

Datasheet AOC PE Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Vinyl chloride



Distance to Meet Ground Water Objectives

Class I	Class II
46.08 m.	31.83 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.05E+00
2	7.54E-01
4	5.53E-01
6	4.12E-01
8	3.08E-01
10	2.27E-01
12	1.67E-01
14	1.22E-01
16	8.92E-02
18	6.58E-02
20	4.89E-02

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
22	3.67E-02
24	2.77E-02
26	2.11E-02
28	1.62E-02
30	1.26E-02
32	9.79E-03

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Dichloroethylene, cis-1,2-	3.50E+003	0.745	0.344	1.67E-001	3.55E+001	3,024.58	1,620.55
Tetrachloroethylene	2.00E+002	3.255	1.503	7.54E-001	1.55E+002	687.85	337.55
Trichloroethylene	1.10E+003	3.486	1.610	4.22E-001	1.66E+002	3,996.48	1,933.10
Vinyl chloride	2.76E+003	0.391	0.180	1.11E+000	1.86E+001	1,696.46	1,116.36

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.)

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedu obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.70
	Silt	1.6		Subsurface	1.70
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.021
	Subsurface Soils	0.002		Subsurface	0.010
θT (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.36
	Silt	0.40		Subsurface	0.36
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.19
	Silt	0.24		Subsurface	0.19
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³		

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Dichloroethylene, cis-1,2-	3.50E+003	7.36E-002	1.13E-005	1.67E-001	3.55E+001	0.000240
Tetrachloroethylene	2.00E+002	7.20E-002	8.20E-006	7.54E-001	1.55E+002	0.000960
Trichloroethylene	1.10E+003	7.90E-002	9.10E-006	4.22E-001	1.66E+002	0.000420
Vinyl chloride	2.76E+003	1.06E-001	1.23E-006	1.11E+000	1.86E+001	0.000240

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)		
Gravel	0.20		Surface	0.17
Sand	0.18		Subsurface	0.17
Silt	0.16			
Clay	0.17			

Former Polyethylene Production Area (PE Area)
Groundwater
(Section 6.4)

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	1,017
X (cm)	30,500.00	Sd (cm)	200
α_x (cm)*	3,050	α_z (cm)	153
λ (1/day)***	See below	K (cm/d)	5.99
U (cm/d)*	0.14	i (unitless)	0.01
Sw (cm)	3,100	θ_T (unitless)**	0.36

* α_x, α_y, α_z, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)
*** Chemical Properties (see Datasheet C)

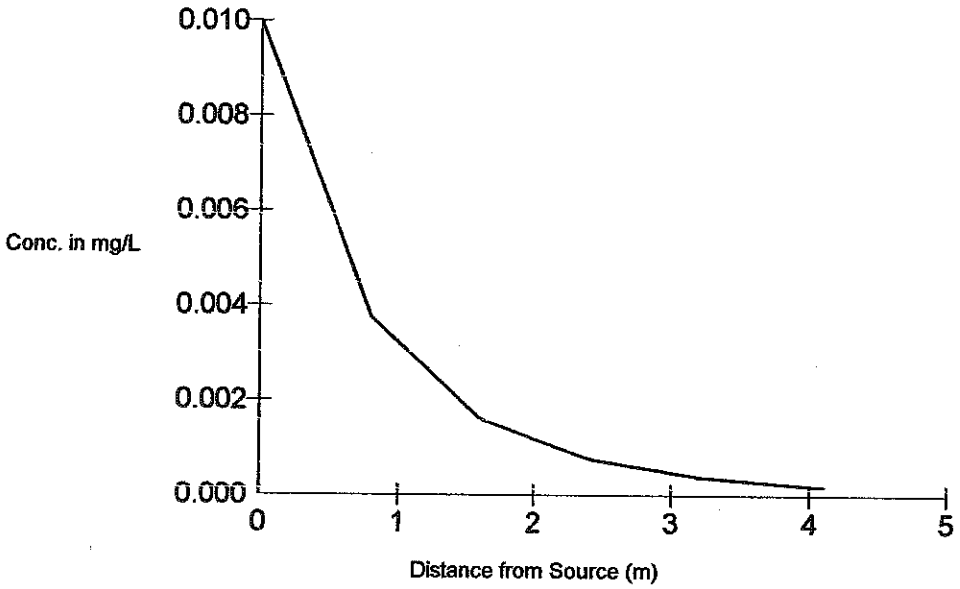
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Bromoform	0.0019000	0.01000	1.43E-30
Chloroform	0.0003900	0.01000	1.92E-15
Dichloroethylene, cis-1,2-	0.0002400	4.90000	4.39E-10
Dichloropropene, 1,3-	0.0610000	0.02000	4.09E-160
Tetrachloroethylene	0.0009600	0.19000	2.83E-21
Trichloroethylene	0.0004200	0.54718	3.56E-14
Vinyl chloride	0.0002400	0.43000	3.85E-11

* Note: C_{source} is the measured concentration at the source for this fc

Datasheet AOC PE Distance to Achieve Tier 1 RO

Calculated Ground Water Information

Bromoform



Distance to Meet Ground Water Objectives

Class I	Class II
4.04 m.	4.04 m.

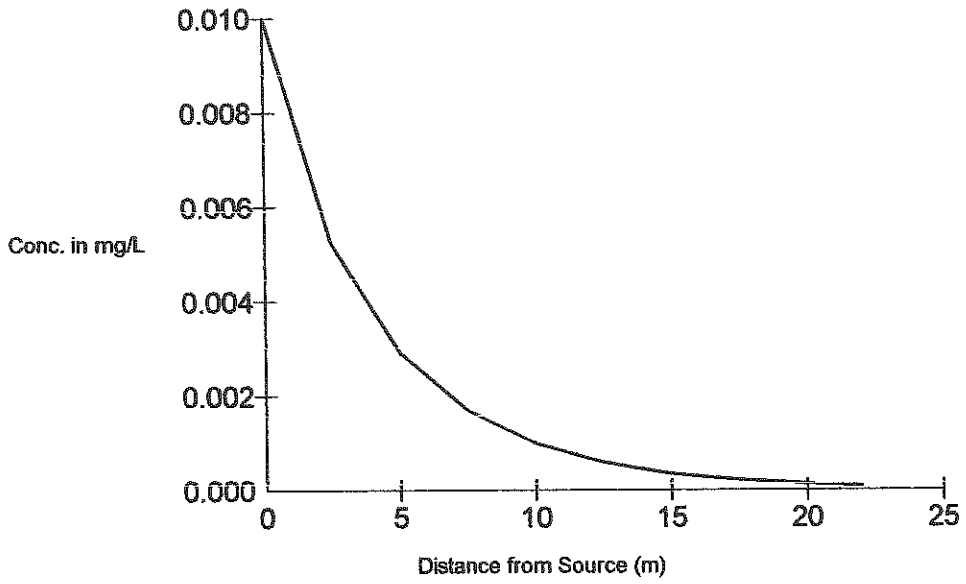
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
0.8	3.75E-03
1.6	1.61E-03
2.4	7.64E-04
3.2	3.86E-04
4	2.06E-04
4.1	1.91E-04

Datasheet AOC PE Distance to Achieve Tier 1 RO

Calculated Ground Water Information

Chloroform



Distance to Meet Ground Water Objectives

Class I	Class II
30.44 m.	21.37 m.

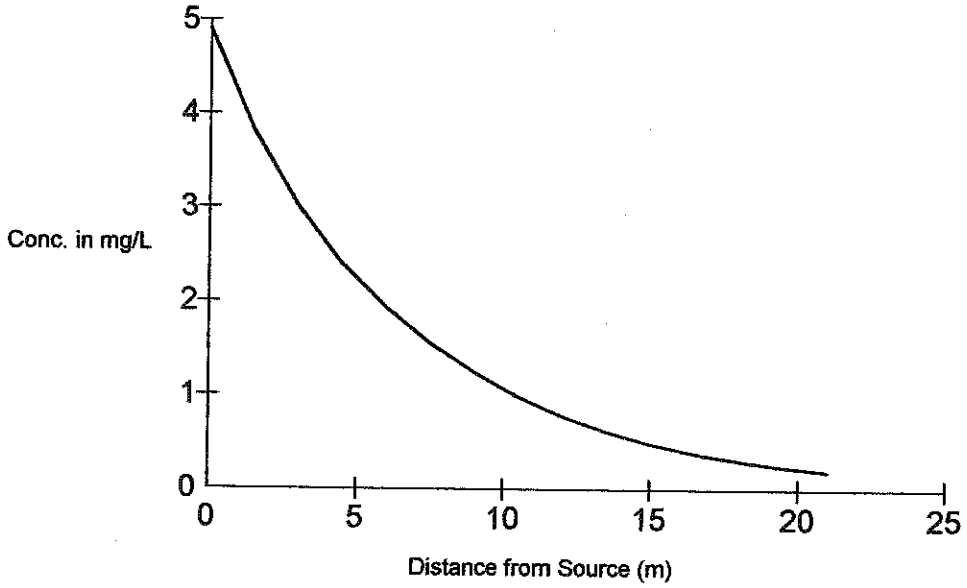
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
2.5	5.22E-03
5	2.92E-03
7.5	1.70E-03
10	9.99E-04
12.5	5.87E-04
15	3.49E-04
17.5	2.11E-04
20	1.30E-04
22	8.88E-05

Datasheet AOC PE Distance to Achieve Tier 1 RO

Calculated Ground Water Information

Dichloroethylene, cis-1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
28.35 m.	20.89 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	4.90E+00
1.5	3.82E+00
3	3.01E+00
4.5	2.40E+00
6	1.92E+00
7.5	1.55E+00
9	1.24E+00
10.5	9.83E-01
12	7.78E-01
13.5	6.15E-01
15	4.86E-01

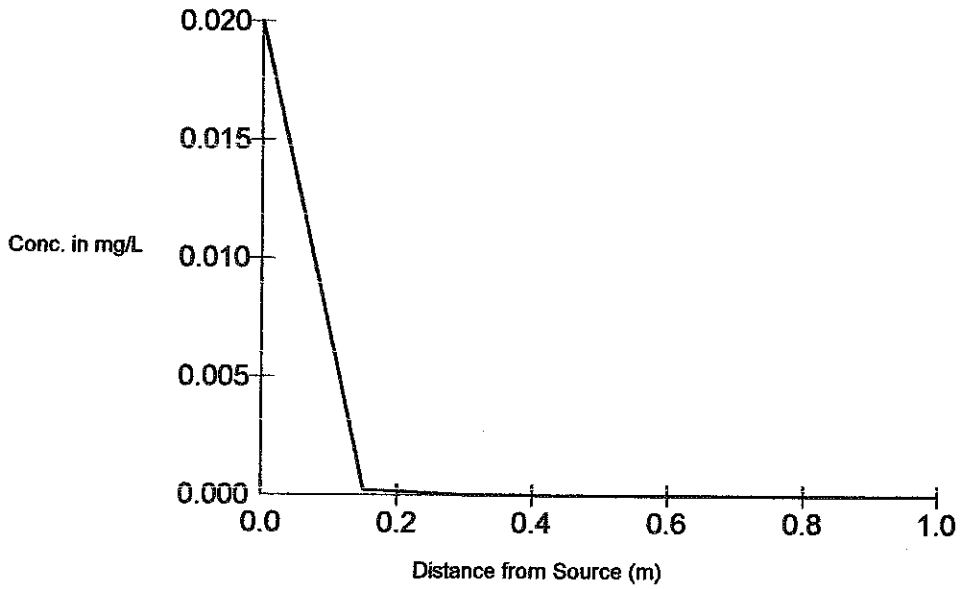
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
16.5	3.86E-01
18	3.07E-01
19.5	2.45E-01
21	1.97E-01

Datasheet AOC PE Distance to Achieve Tier 1 RO

Calculated Ground Water Information

Dichloropropene, 1,3-



Distance to Meet Ground Water Objectives

Class I	Class II
0.09 m.	0.04 m.

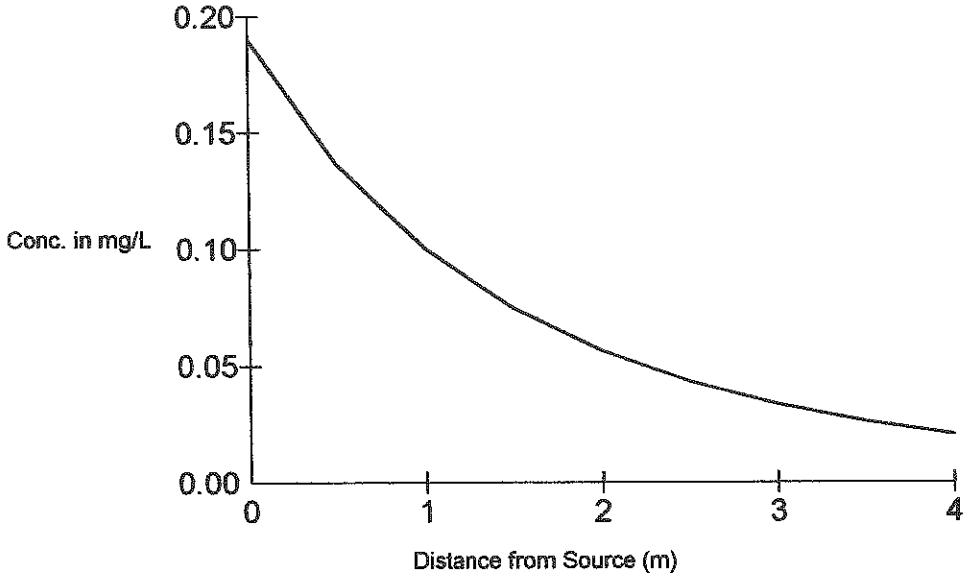
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.00E-02
0.15	2.26E-04
0.3	1.17E-05
0.45	1.09E-06
0.6	1.40E-07
0.75	2.26E-08
0.9	4.29E-09
1	1.52E-09

Datasheet AOC PE Distance to Achieve Tier 1 RO

Calculated Ground Water Information

Tetrachloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
7.27 m.	3.58 m.

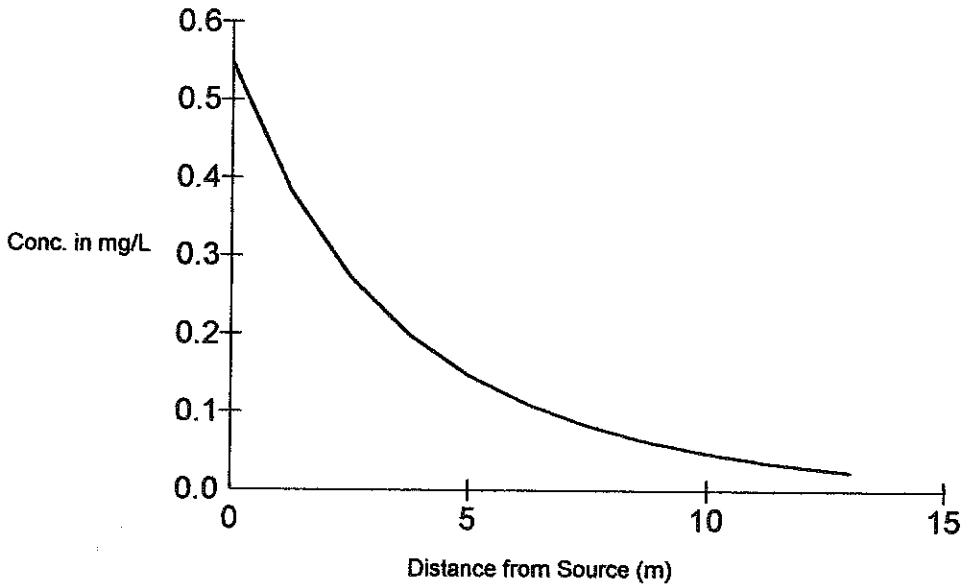
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.90E-01
0.5	1.37E-01
1	1.00E-01
1.5	7.47E-02
2	5.64E-02
2.5	4.31E-02
3	3.34E-02
3.5	2.60E-02
4	2.05E-02

Datasheet AOC PE Distance to Achieve Tier 1 RO

Calculated Ground Water Information

Trichloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
20.58 m.	12.87 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	5.47E-01
1.25	3.82E-01
2.5	2.73E-01
3.75	1.98E-01
5	1.47E-01
6.25	1.10E-01
7.5	8.28E-02
8.75	6.26E-02
10	4.73E-02
11.25	3.58E-02
12.5	2.71E-02

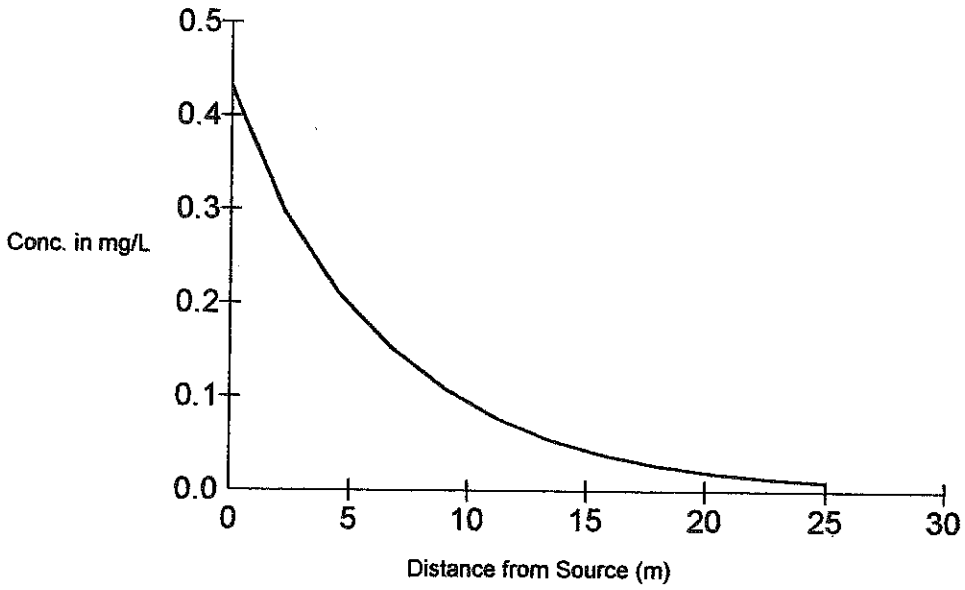
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
13	2.43E-02

Datasheet AOC PE Distance to Achieve Tier 1 RO

Calculated Ground Water Information

Vinyl chloride



Distance to Meet Ground Water Objectives

Class I	Class II
36.93 m.	24.82 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	4.30E-01
2.25	2.97E-01
4.5	2.10E-01
6.75	1.51E-01
9	1.09E-01
11.25	7.68E-02
13.5	5.39E-02
15.75	3.80E-02
18	2.69E-02
20.25	1.93E-02
22.5	1.39E-02

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
24.75	1.01E-02
25	9.75E-03

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this dataheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	30,500.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	3,050
GW_{comp} (mg/L)**	See below	α_y (cm)	1,017
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	153
U (cm/d)	0.1410	S_w (cm)	3,100
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0085	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C(x)/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Bromoform			0.0002	1.43E-28	0.001900	
Chloroform			0.0001	1.92E-13	0.000390	
Dichloroethylene, cis-1,2-	3500.000	2.08E+00	0.2	8.96E-11	0.000240	1620.552

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Dichloropropene, 1,3-			0.005	2.05E-158	0.061000	
Tetrachloroethylene	200.000	5.70E-01	0.025	1.49E-20	0.000960	337.554
Trichloroethylene	1100.000	5.47E-01	0.025	6.51E-14	0.000420	1933.101
Vinyl chloride	2760.000	2.38E+00	0.01	8.96E-11	0.000240	1116.362

Former Agricultural Chemical Production Area (AG Area)
Soil Migration to Groundwater
(Section 6.5)

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Bis(2-chloroethyl)ether	1.72E+004	6.92E-002	7.53E-006	7.38E-004	1.55E+001	0.001900
Dinitrophenol, 2,4-	2.79E+003	2.73E-002	9.06E-006	1.82E-005	1.00E-002	0.001320
Nitrobenzene	2.09E+003	7.60E-002	8.60E-006	9.84E-004	6.44E+001	0.001760
N-Nitroso-di-n-propylamine	9.89E+003	5.45E-002	8.17E-006	9.23E-005	2.40E+001	0.001900
Pentachlorophenol	1.95E+003	5.60E-002	6.10E-006	1.00E-006	5.92E+002	0.000450

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Bis(2-chloroethyl)ether	1.72E+004	0.033	0.150	7.38E-004	1.55E+001	2,281.28	4,307.44
Dinitrophenol, 2,4-	2.79E+003	0.000	0.000	1.82E-005	1.00E-002	279.06	279.28
Nitrobenzene	2.09E+003	0.135	0.625	9.84E-004	6.44E+001	491.88	1,514.81
N-Nitroso-di-n-propylamine	9.89E+003	0.050	0.233	9.23E-005	2.40E+001	1,487.56	3,291.49
Pentachlorophenol	1.95E+003	1.243	5.742	1.00E-006	5.92E+002	2,619.24	11,392.68

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	167
X (cm)	5,000.00	Sd (cm)	3,000
α_x (cm)*	500	α_z (cm)	25
λ (1/day)***	See below	K (cm/d)	5.99
U (cm/d)*	0.08	i (unitless)	0.00
Sw (cm)	10,000	θ_T (unitless)**	0.36

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)
*** Chemical Properties (see Datasheet C)

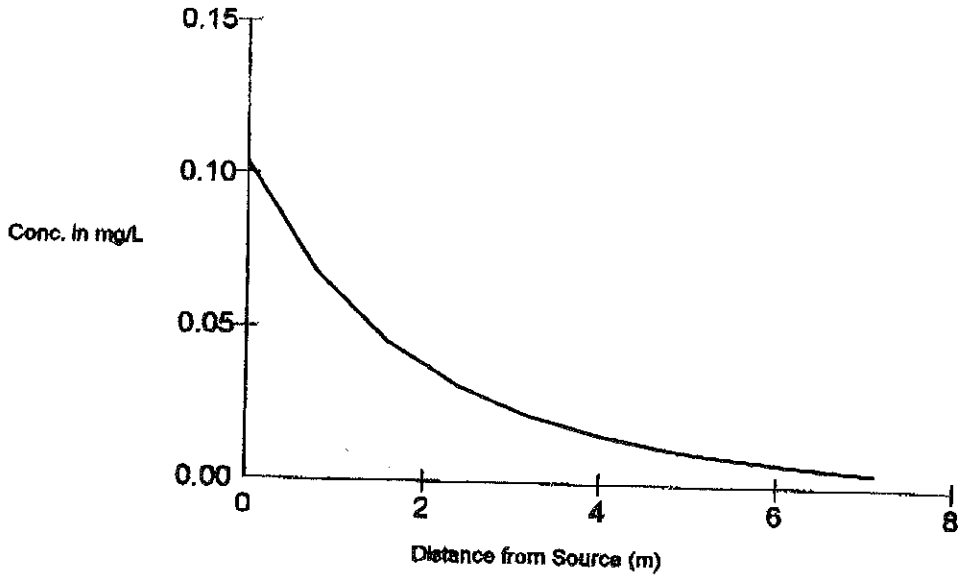
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Bis(2-chloroethyl)ether	0.0019000	0.46983	5.04E-14
Dinitrophenol, 2,4-	0.0013200	6.05801	1.89E-10
Nitrobenzene	0.0017600	0.16234	6.27E-14
N-Nitroso-di-n-propylamine	0.0019000	0.35353	3.79E-14
Pentachlorophenol	0.0004500	0.10379	3.79E-07

* Note: Csource is the measured concentration at the source for this fc

Datasheet AOC AG Dist. to Achieve Tier 1 ROs

Calculated Ground Water Information

Pentachlorophenol



Distance to Meet Ground Water Objectives

Class I	Class II
12.05 m.	7.01 m.

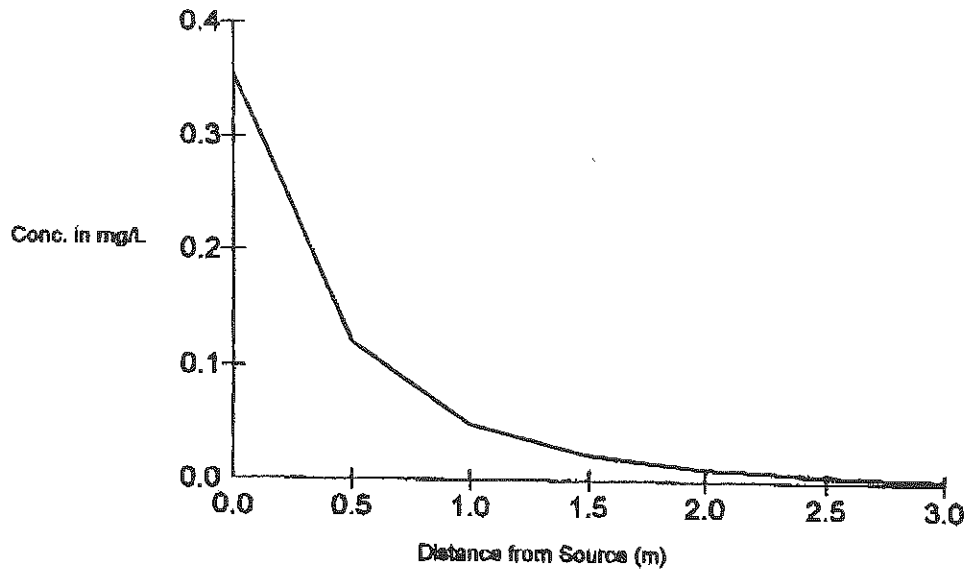
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.04E-01
0.8	6.74E-02
1.6	4.51E-02
2.4	3.10E-02
3.2	2.18E-02
4	1.56E-02
4.8	1.13E-02
5.6	8.34E-03
6.4	6.21E-03
7.1	4.84E-03

Datasheet AOC AG Dist. to Achieve Tier 1 ROs

Calculated Ground Water Information

N-Nitroso-di-n-propylamine



Distance to Meet Ground Water Objectives

Class I	Class II
2.03 m.	2.03 m.

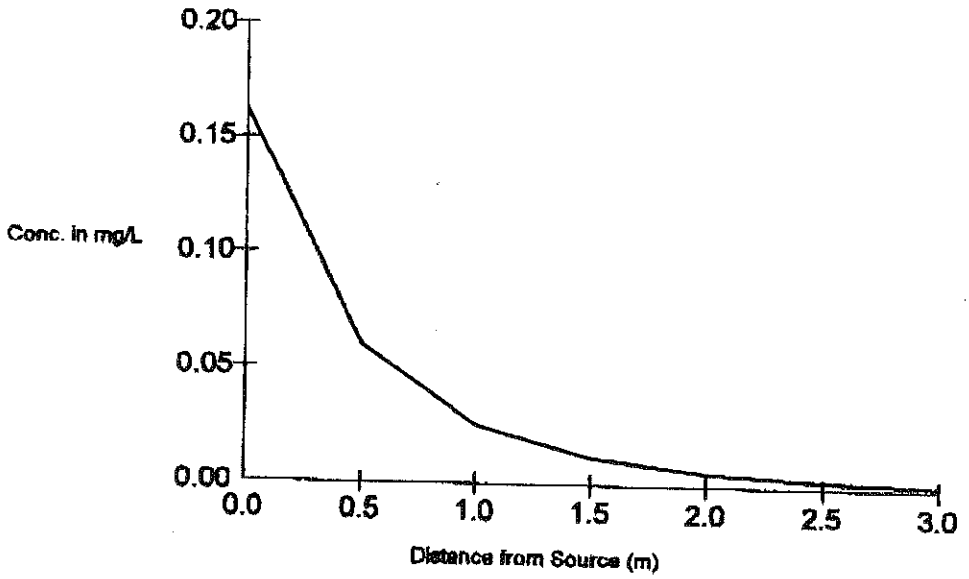
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	3.54E-01
0.5	1.21E-01
1	4.85E-02
1.5	2.17E-02
2	1.04E-02
2.5	5.34E-03
3	2.85E-03

Datasheet AOC AG Dist. to Achieve Tier 1 ROs

Calculated Ground Water Information

Nitrobenzene



Distance to Meet Ground Water Objectives

Class I	Class II
2.41 m.	2.41 m.

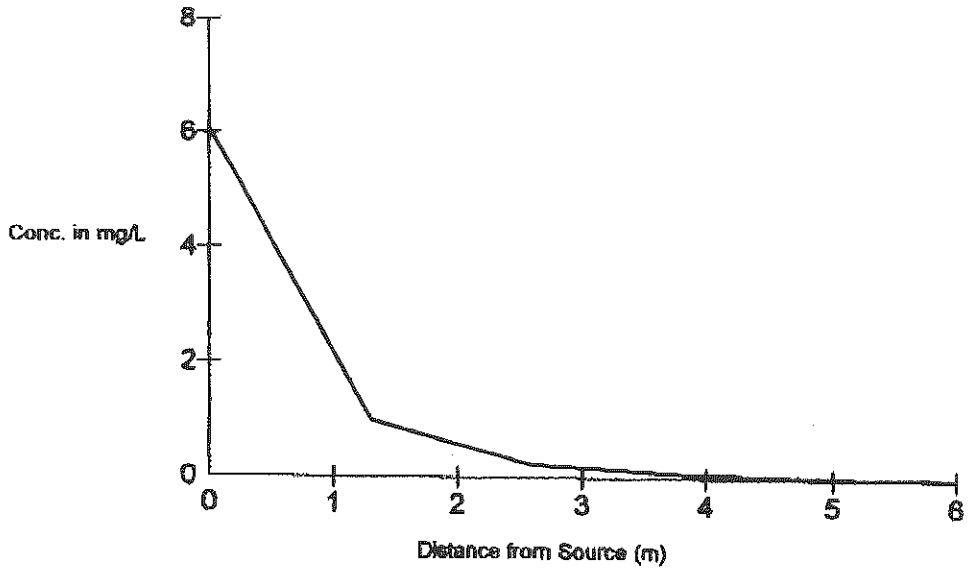
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.62E-01
0.5	5.96E-02
1	2.53E-02
1.5	1.18E-02
2	5.91E-03
2.5	3.12E-03
3	1.72E-03

Datasheet AOC AG Dist. to Achieve Tier 1 ROs

Calculated Ground Water Information

Dinitrophenol, 2,4-



Distance to Meet Ground Water Objectives

Class I	Class II
5.90 m.	5.90 m.

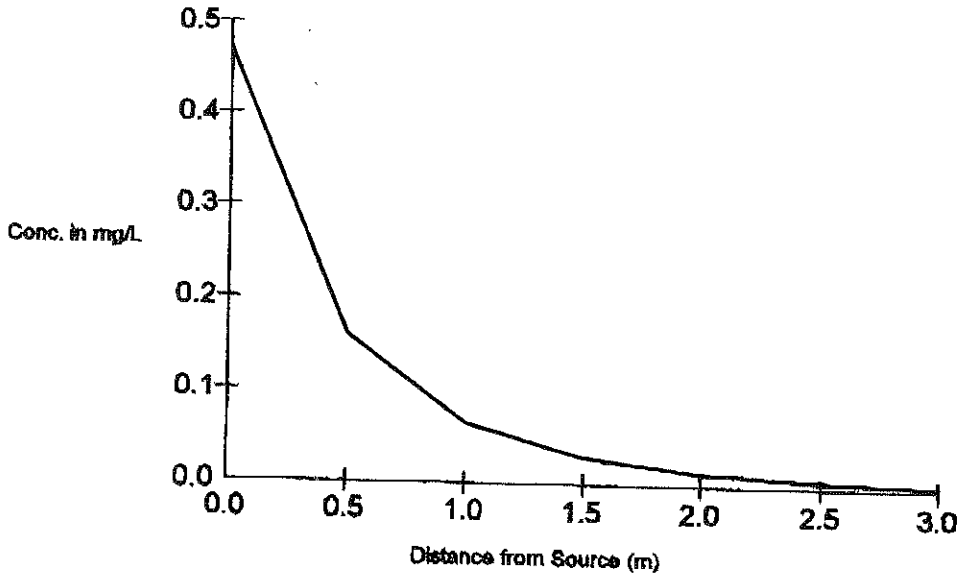
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.06E+00
1.3	9.82E-01
2.6	2.36E-01
3.9	7.00E-02
5.2	2.39E-02
6	1.30E-02

Datasheet AOC AG Dist. to Achieve Tier 1 ROs

Calculated Ground Water Information

Bis(2-chloroethyl)ether



Distance to Meet Ground Water Objectives

Class I	Class II
2.24 m.	2.24 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	4.70E-01
0.5	1.60E-01
1	6.45E-02
1.5	2.88E-02
2	1.39E-02
2.5	7.09E-03
3	3.79E-03

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
N-Nitroso-di-n-propylamin	9890.000	2.72E+00	0.01	1.07E-13	0.001900	3291.494
Pentachlorophenol	1369.1124	1.55E-01	0.005	3.65E-06	0.000450	8837.828

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this datasheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	5,000.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	500
GW_{comp} (mg/L)**	See below	α_y (cm)	167
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	25
U (cm/d)	0.0798	S_w (cm)	10,000
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0048	S_d (cm)	3,000
θ_T (cm^3/cm^3-soil)*****	0.36		

* LF_{sw} reported on Datasheet RBCA-XIII
** GW_{comp} reported on Datasheet RBCA-VI
*** $C(x)/C_{source}$ reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C(x)/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Bis(2-chloroethyl)ether	17200.000	3.61E+00	0.01	1.07E-13	0.001900	4307.439
Dinitrophenol, 2,4-	2790.000	9.04E+00	0.014	3.12E-11	0.001320	279.276
Nitrobenzene	2090.000	1.25E+00	0.0035	3.86E-13	0.001760	1514.811

Former Polymer Pilot Plant Area (PP Area)
Soil Migration to Groundwater
(Section 6.7)

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this dataheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	3,658.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	366
GW_{comp} (mg/L)**	See below	α_y (cm)	122
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	18
U (cm/d)	0.1410	S_w (cm)	4,570
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0085	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Tetrachloroethylene	200.000	5.77E-01	0.025	3.92E-06	0.000960	337.554
Trichloroethylene	43.7887	5.54E-01	0.025	5.71E-04	0.000420	79.038
Vinyl chloride	1.8784	2.41E+00	0.01	5.32E-03	0.000240	0.780

Inventory ID (10 digits):

Datasheet RBCA-VI(a). Alternate Groundwater Cleanup Objectives for Carcinogenic Contaminants

Datasheet RBCA-VI is to be used to develop groundwater cleanup objectives for carcinogens calculated by the equation in Appendix C, Table C of TACO: Equation R25 (residential, industrial/commercial and construction worker scenarios). RBCA-VII and RBCA-XIV datasheets must also be provided to demonstrate that the criteria identified in Subpart G of TACO has been met.

For industrial/commercial, groundwater cleanup objectives for both the industrial/commercial scenartio and the construction worker scenario must be calculated. Therefore, two RBCA-VI datasheets must be submitted: one for the industrial/commercial scenario and one for the construction worker scenario.

Land Use Scenario: **ALL**

Engineered Barrier	YES	NO
Institutional Control	YES	NO

TR (unitless)	0.000001	IRw (L/d)	2.0
BW (kg)	70.0	EF (d/yr)	350
ATc (yr)	70.0	ED (yr)	30
SFo [1/(mg/kg-d)]*	See below		

* Toxicological Properties (see Datasheet D)

Chemical Name	SFo [1/(mg/kg-d)]	Ground Water Cleanup Objective
Tetrachloroethylene	0.05200	0.005
Trichloroethylene	0.01100	0.005
Vinyl chloride	1.90000	0.002

Datasheet RBCA-XIII. LFsw

Datasheet RBCA-XIII is to be used to propose the leaching factor calculated by the equation in Appendix C, Table C of TACO: Equation R14 (residential, industrial/commercial and constructin worker scenarios). The use of Equations R20 and R24 in TACO are necessary to generate some of the input values for Equation R14. Since the values in Datasheet RBCA-XI are used in this evaluation, this Datasheet must also be submitted.

k_s (g_{water}/g_{soil})*	See below	ρ_s (g/cm^3)**	1.70
H' (unitless)***	See below	θ_{ws} (unitless)**	0.17
Ugw (cm/yr)****	18.57	θ_{as} (unitless)**	0.19
K (cm/yr)	2,185.00		
i (unitless)	0.009		
δ_{gw} (cm)	200		
I (cm/yr)	30		
W (cm)	4,570		

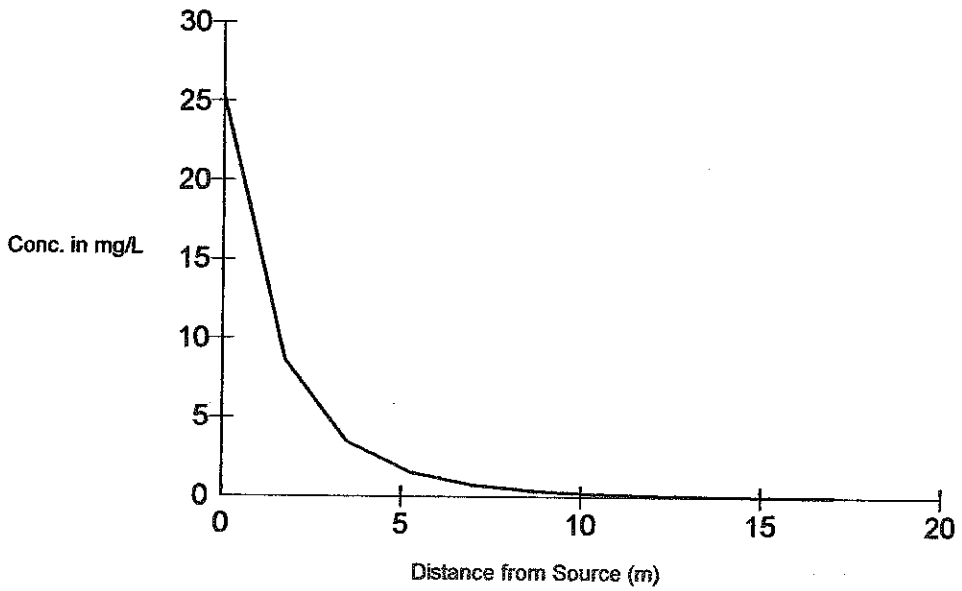
* k_s value reported on Datasheet RBCA-XI ** Physical Soil Properties (see Datasheet B)
Chemical Properties (see Datasheet C) * U_{gw} value as calculated using Equation R24

Chemical Name	ks (g_{water}/g_{soil})	H' (unitless)	LFsw (mg/L_{water})/(mg/kg_{soil})
Tetrachloroethylene	1.5035	7.54E-001	5.77E-01
Trichloroethylene	1.6102	4.22E-001	5.54E-01
Vinyl chloride	0.1804	1.11E+000	2.41E+00

Datasheet AOC PP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Tetrachloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
21.52 m.	16.34 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.54E+01
1.75	8.66E+00
3.5	3.48E+00
5.25	1.55E+00
7	7.45E-01
8.75	3.73E-01
10.5	1.93E-01
12.25	1.02E-01
14	5.50E-02
15.75	3.04E-02
17	2.02E-02

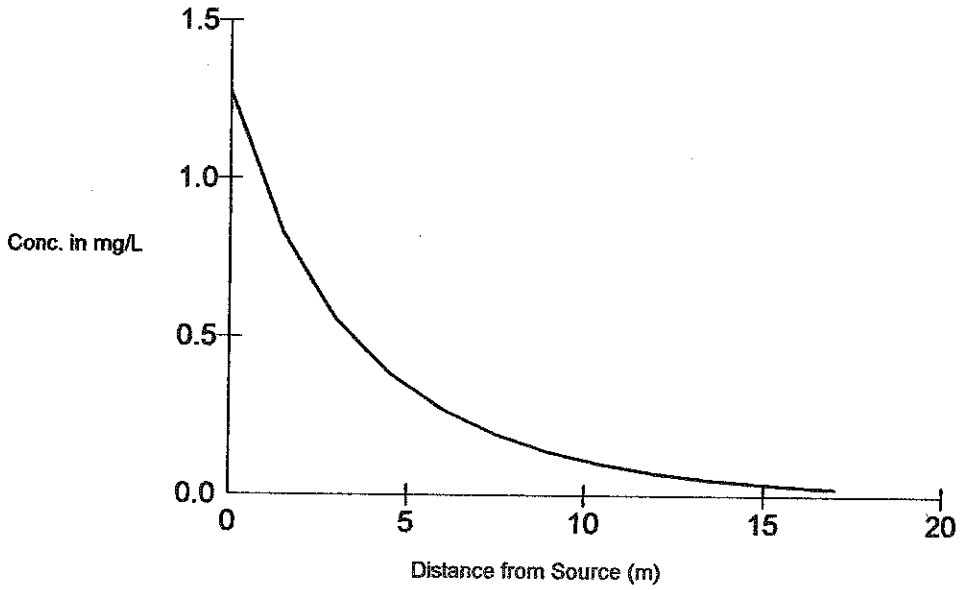
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
16.5	2.67E-02
17	2.40E-02

Datasheet AOC PP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Trichloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
25.09 m.	16.81 m.

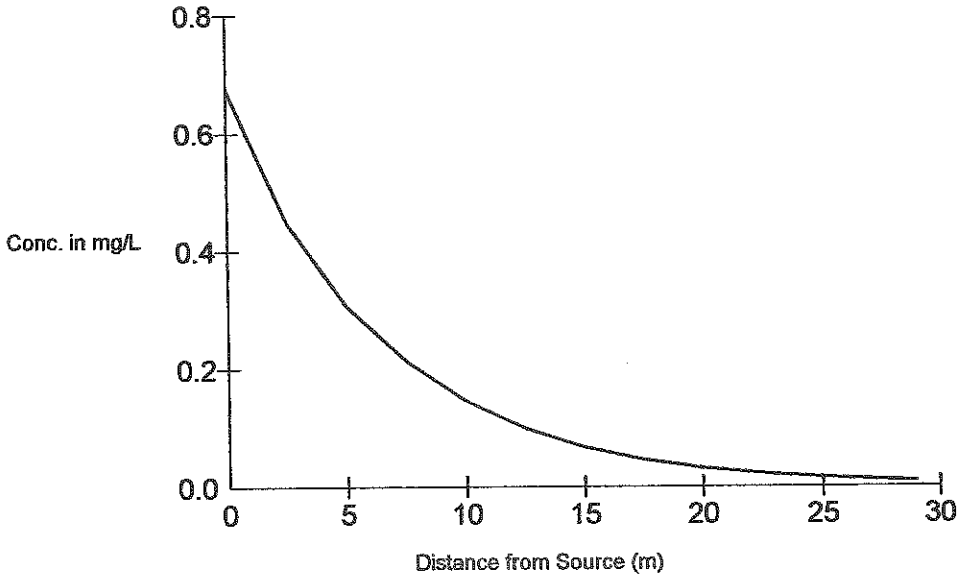
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.27E+00
1.5	8.30E-01
3	5.58E-01
4.5	3.85E-01
6	2.71E-01
7.5	1.93E-01
9	1.38E-01
10.5	9.85E-02
12	7.05E-02
13.5	5.07E-02
15	3.66E-02

Datasheet AOC PP Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Vinyl chloride



Distance to Meet Ground Water Objectives

Class I	Class II
41.62 m.	28.31 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.74E-01
2.5	4.48E-01
5	3.06E-01
7.5	2.13E-01
10	1.46E-01
12.5	9.89E-02
15	6.69E-02
17.5	4.56E-02
20	3.14E-02
22.5	2.19E-02
25	1.55E-02

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
27.5	1.11E-02
29	9.15E-03

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.)

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedu obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θT (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³		

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)
Gravel	0.20	
Sand	0.18	
Silt	0.16	
Clay	0.17	

Surface	0.15
Subsurface	0.30

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Tetrachloroethylene	2.00E+002	7.20E-002	8.20E-006	7.54E-001	1.55E+002	0.000960
Trichloroethylene	1.10E+003	7.90E-002	9.10E-006	4.22E-001	1.66E+002	0.000420
Vinyl chloride	2.76E+003	1.06E-001	1.23E-006	1.11E+000	1.86E+001	0.000240

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Tetrachloroethylene	2.00E+002	0.930	0.310	7.54E-001	1.55E+002	234.15	115.07
Trichloroethylene	1.10E+003	0.996	0.332	4.22E-001	1.66E+002	1,292.25	625.43
Vinyl chloride	2.76E+003	0.112	0.037	1.11E+000	1.86E+001	1,155.89	920.18

Chemical Loading Area (CL Area)
Soil Migration to Groundwater
(Section 6.8)

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this dataheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	60,900.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	6,090
GW_{comp} (mg/L)**	See below	α_y (cm)	2,030
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	305
U (cm/d)	0.0166	S_w (cm)	6,100
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0010	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

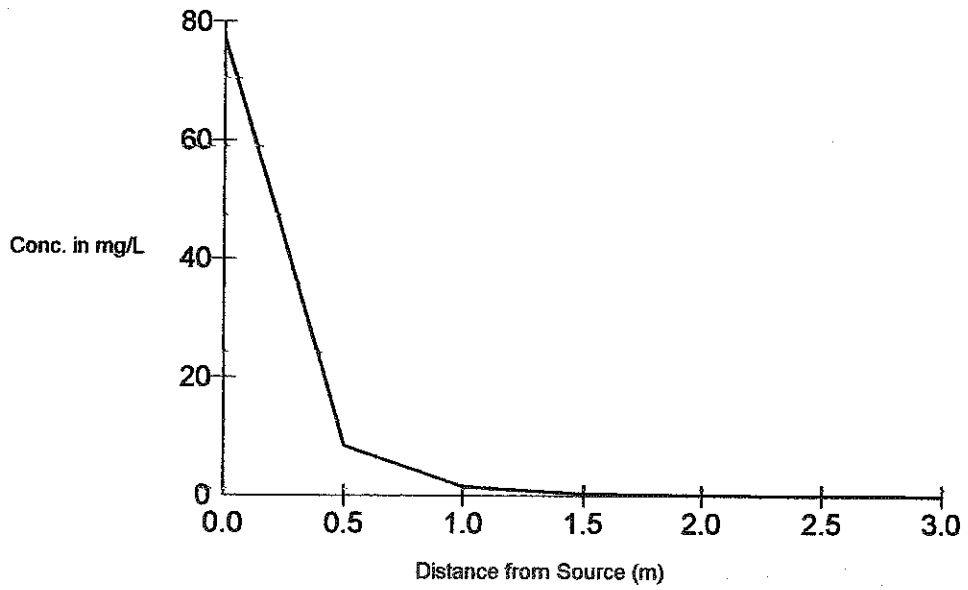
Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Benzene	1750.000	1.43E+00	0.025	1.04E-79	0.000900	1219.422
Bis(2-chloroethyl)ether	17200.000	3.98E+00	0.01	1.91E-115	0.001900	4307.439
Dinitrophenol, 2,4-	2790.000	9.97E+00	0.014	2.33E-96	0.001320	279.276

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Methylene chloride	13000.000	4.46E+00	0.05	6.28E-289	0.012000	2905.844
Nitrobenzene	2090.000	1.38E+00	0.0035	3.86E-111	0.001760	1514.811
N-Nitrosodiphenylamine	35.100	7.91E-02	0.05	8.02E-264	0.010000	442.717
Pentachlorophenol	1950.000	1.71E-01	0.005	1.32E-56	0.000450	11392.680

Datasheet AOC CL Distance to Ach. Tier 1 ROs Soils

Calculated Ground Water Information

Benzene



Distance to Meet Ground Water Objectives

Class I	Class II
3.50 m.	2.67 m.

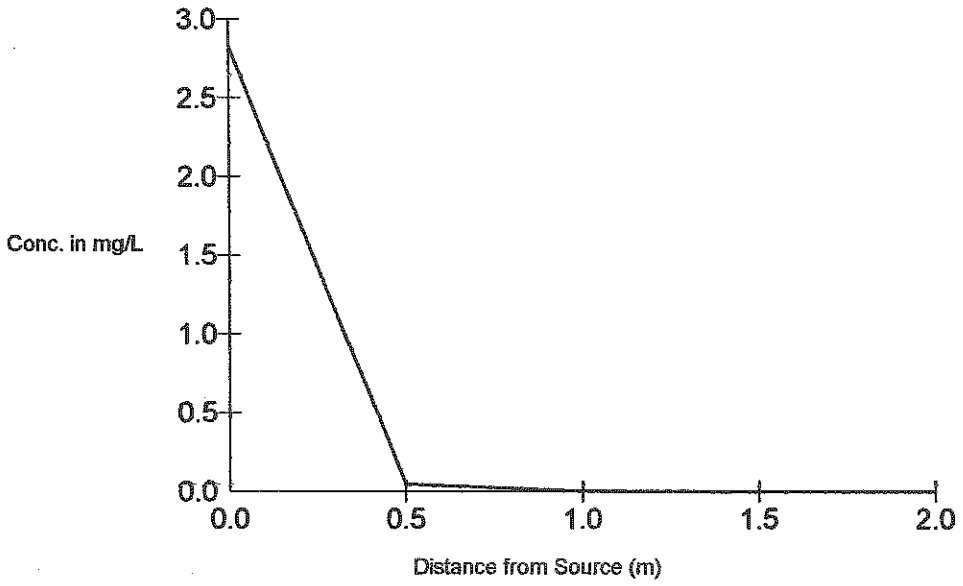
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	7.73E+01
0.5	8.41E+00
1	1.56E+00
1.5	3.82E-01
2	1.10E-01
2.5	3.61E-02
3	1.29E-02

Datasheet AOC CL Distance to Ach. Tier 1 ROs Soils

Calculated Ground Water Information

Bis(2-chloroethyl)ether



Distance to Meet Ground Water Objectives

Class I	Class II
0.77 m.	0.77 m.

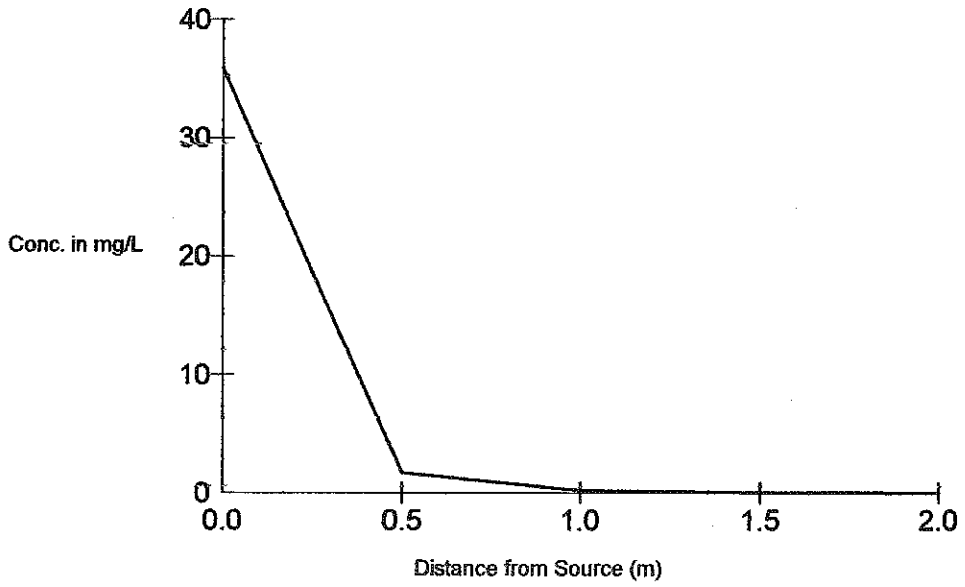
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.83E+00
0.5	4.84E-02
1	3.12E-03
1.5	3.41E-04
2	5.04E-05

Datasheet AOC CL Distance to Ach. Tier 1 ROs Soils

Calculated Ground Water Information

Dinitrophenol, 2,4-



Distance to Meet Ground Water Objectives

Class I	Class II
1.76 m.	1.76 m.

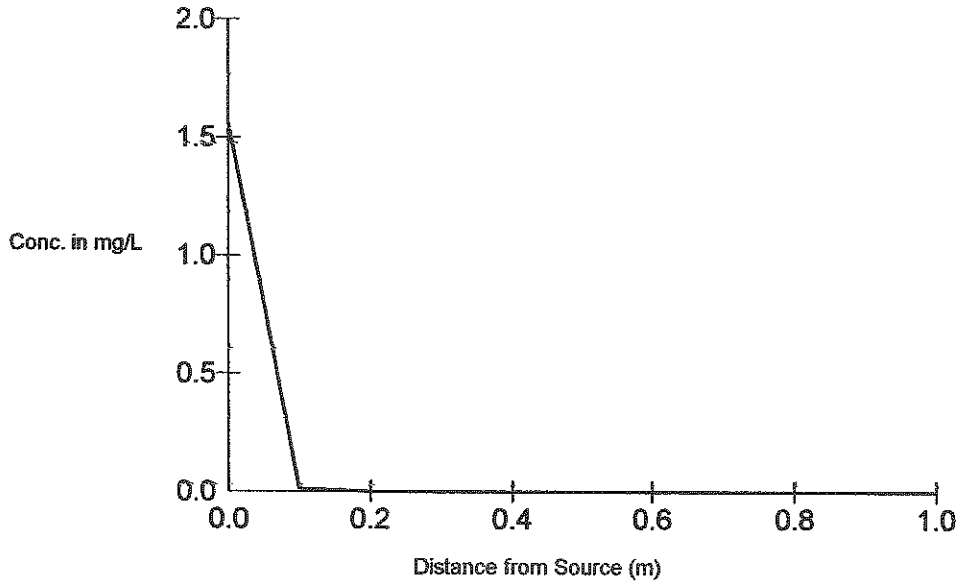
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	3.59E+01
0.5	1.70E+00
1	1.93E-01
1.5	3.23E-02
2	6.83E-03

Datasheet AOC CL Distance to Ach. Tier 1 ROs Soils

Calculated Ground Water Information

Methylene chloride



Distance to Meet Ground Water Objectives

Class I	Class II
0.13 m.	0.06 m.

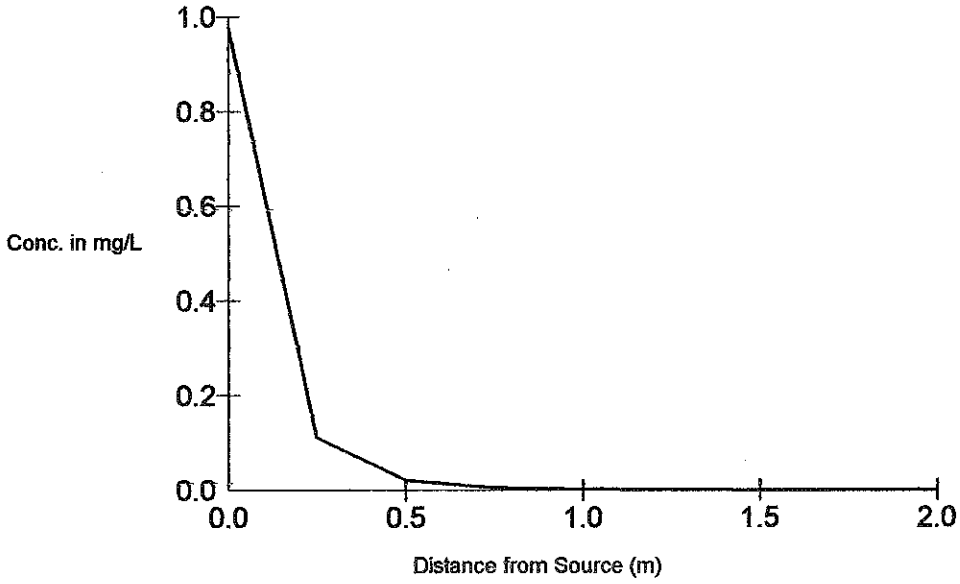
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.56E+00
0.1	1.21E-02
0.2	5.13E-04
0.3	4.08E-05
0.4	4.65E-06
0.5	6.73E-07
0.6	1.16E-07
0.7	2.28E-08
0.8	4.99E-09
0.9	1.19E-09
1	3.08E-10

Datasheet AOC CL Distance to Ach. Tier 1 ROs Soils

Calculated Ground Water Information

Nitrobenzene



Distance to Meet Ground Water Objectives

Class I	Class II
0.83 m.	0.83 m.

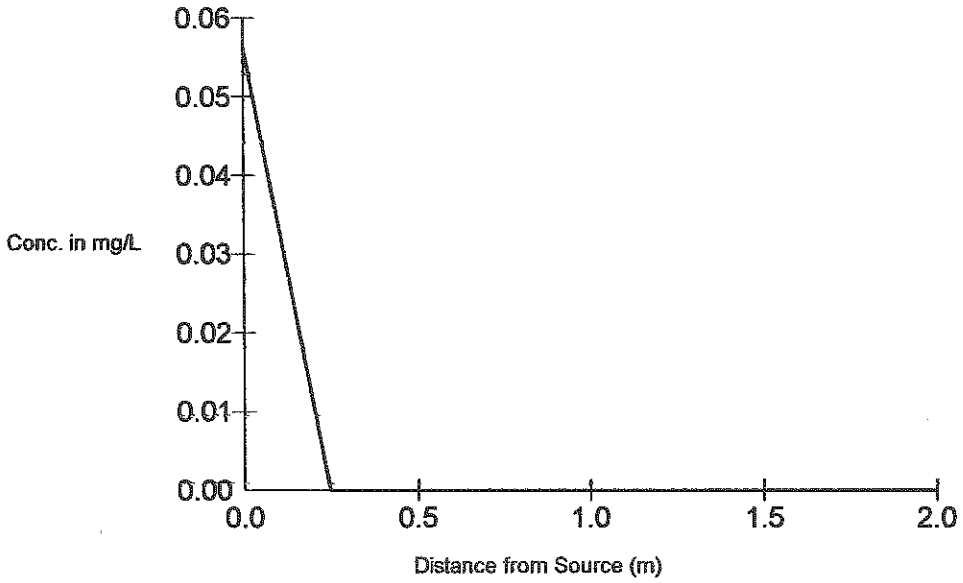
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	9.77E-01
0.25	1.11E-01
0.5	2.12E-02
0.75	5.27E-03
1	1.55E-03
1.25	5.14E-04
1.5	1.86E-04
1.75	7.24E-05
2	2.98E-05

Datasheet AOC CL Distance to Ach. Tier 1 ROs Soils

Calculated Ground Water Information

N-Nitrosodiphenylamine



Distance to Meet Ground Water Objectives

Class I	Class II
0.03 m.	0.00 m.

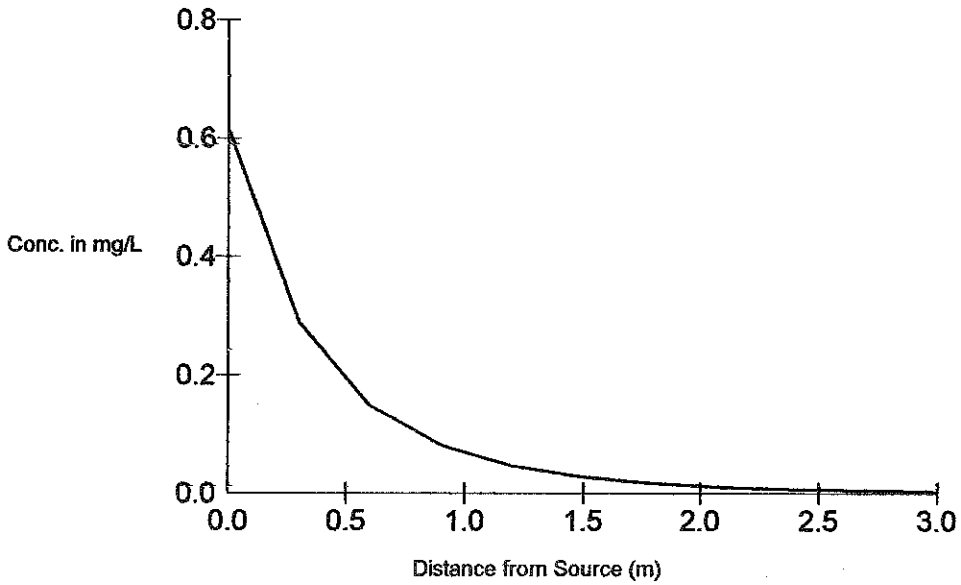
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	5.62E-02
0.25	1.46E-05
0.5	1.19E-07
0.75	2.74E-09
1	1.10E-10
1.25	6.41E-12
1.5	4.86E-13
1.75	4.50E-14
2	4.91E-15

Datasheet AOC CL Distance to Ach. Tier 1 ROs Soils

Calculated Ground Water Information

Pentachlorophenol



Distance to Meet Ground Water Objectives

Class I	Class II
3.89 m.	2.63 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.15E-01
0.3	2.89E-01
0.6	1.48E-01
0.9	8.09E-02
1.2	4.64E-02
1.5	2.76E-02
1.8	1.70E-02
2.1	1.07E-02
2.4	6.90E-03
2.7	4.54E-03
3	3.03E-03

Datasheet RBCA-XIII. LFsw

Datasheet RBCA-XIII is to be used to propose the leaching factor calculated by the equation in Appendix C, Table C of TACO: Equation R14 (residential, industrial/commercial and constructin worker scenarios). The use of Equations R20 and R24 in TACO are necessary to generate some of the input values for Equation R14. Since the values in Datasheet RBCA-XI are used in this evaluation, this Datasheet must also be submitted.

k_s (g_{water}/g_{soil})*	See below	ρ_s (g/cm³)**	1.70
H' (unitless)***	See below	θ_{ws} (unitless)**	0.17
U_{gw} (cm/yr)****	2.19	θ_{as} (unitless)**	0.19
K (cm/yr)	2,185.00		
i (unitless)	0.001		
δ_{gw} (cm)	200		
I (cm/yr)	30		
W (cm)	6.100		

* k_s value reported on Datasheet RBCA-XI ** Physical Soil Properties (see Datasheet B)
Chemical Properties (see Datasheet C) * U_{gw} value as calculated using Equation R24

Chemical Name	ks (g_{water}/g_{soil})	H' (unitless)	LFsw (mg/L_{water})/(mg/kg_{soil})
Benzene	0.5713	2.28E-001	1.43E+00
Bis(2-chloroethyl)ether	0.1504	7.38E-004	3.98E+00
Dinitrophenol, 2,4-	0.0001	1.82E-005	9.97E+00
Methylene chloride	0.1135	8.98E-002	4.46E+00
Nitrobenzene	0.6247	9.84E-004	1.38E+00
N-Nitrosodiphenylamine	12.5130	2.05E-004	7.91E-02
Pentachlorophenol	5.7424	1.00E-006	1.71E-01

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.)

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedu obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.70
	Silt	1.6		Subsurface	1.70
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.021
	Subsurface Soils	0.002		Subsurface	0.010
θT (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.36
	Silt	0.40		Subsurface	0.36
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.19
	Silt	0.24		Subsurface	0.19
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³		

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)
Gravel	0.20	
Sand	0.18	
Silt	0.16	
Clay	0.17	

Surface	0.17
Subsurface	0.17

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Benzene	1.75E+003	8.80E-002	9.80E-006	2.28E-001	5.89E+001	0.000900
Bis(2-chloroethyl)ether	1.72E+004	6.92E-002	7.53E-006	7.38E-004	1.55E+001	0.001900
Dinitrophenol, 2,4-	2.79E+003	2.73E-002	9.06E-006	1.82E-005	1.00E-002	0.001320
Methylene chloride	1.30E+004	1.01E-001	1.17E-005	8.98E-002	1.17E+001	0.012000
Nitrobenzene	2.09E+003	7.60E-002	8.60E-006	9.84E-004	6.44E+001	0.001760
N-Nitrosodiphenylamine	3.51E+001	3.12E-002	6.35E-006	2.05E-004	1.29E+003	0.010000
Pentachlorophenol	1.95E+003	5.60E-002	6.10E-006	1.00E-006	5.92E+002	0.000450

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Benzene	1.75E+003	1.237	0.571	2.28E-001	5.89E+001	2,384.17	1,219.42
Bis(2-chloroethyl)ether	1.72E+004	0.325	0.150	7.38E-004	1.55E+001	7,320.02	4,307.44
Dinitrophenol, 2,4-	2.79E+003	0.000	0.000	1.82E-005	1.00E-002	279.59	279.28
Methylene chloride	1.30E+004	0.246	0.113	8.98E-002	1.17E+001	4,624.57	2,905.84
Nitrobenzene	2.09E+003	1.352	0.625	9.84E-004	6.44E+001	3,035.75	1,514.81
N-Nitrosodiphenylamine	3.51E+001	27.090	12.513	2.05E-004	1.29E+003	954.37	442.72
Pentachlorophenol	1.95E+003	12.432	5.742	1.00E-006	5.92E+002	24,437.40	11,392.68

Chemical Loading Area (CL Area)
Groundwater
(Section 6.8)

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	167
X (cm)	5,000.00	Sd (cm)	200
α_x (cm)*	500	α_z (cm)	25
λ (1/day)***	See below	K (cm/d)	5.99
U (cm/d)*	0.08	i (unitless)	0.00
Sw (cm)	6,100	θ_T (unitless)**	0.36

* α_x, α_y, α_z, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)
*** Chemical Properties (see Datasheet C)

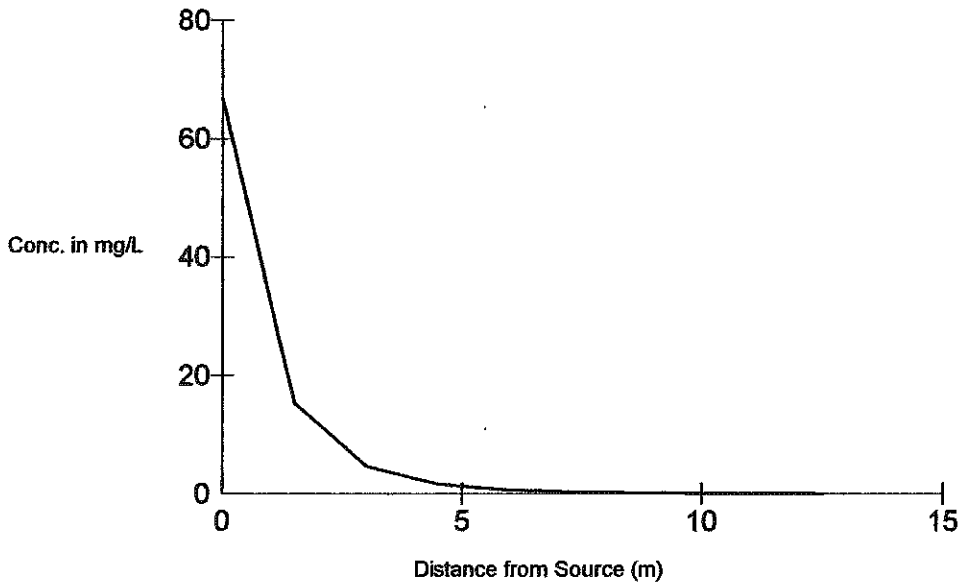
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Benzene	0.0009000	67.00000	8.77E-08
Bromoform	0.0019000	0.10000	3.27E-15
Carbon tetrachloride	0.0019000	0.10000	3.27E-15
Chloroform	0.0003900	0.10000	3.38E-07
Dichloroethane, 1,2-	0.0019000	0.10000	3.27E-15
Dichloroethylene, 1,1-	0.0053000	0.10000	3.43E-25
Dichloropropane, 1,2-	0.0002700	0.10000	4.02E-06
Dichloropropene, 1,3-	0.0610000	0.10000	5.29E-85
Methyl ethyl ketone	0.0495100	0.50000	6.80E-76
Methylene chloride	0.0120000	0.10000	8.62E-38
Styrene	0.0033000	0.54000	3.32E-19
Tetrachloroethylene	0.0009600	0.10000	6.10E-11
Toluene	0.0110000	4.00000	1.37E-34
Trichloroethane, 1,1,2-	0.0009500	0.10000	6.92E-11
Trichloroethylene	0.0004200	0.10000	1.92E-07
Vinyl chloride	0.0002400	0.10000	8.03E-06

* Note: C_{source} is the measured concentration at the source for this fc

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Benzene



Distance to Meet Ground Water Objectives

Class I	Class II
15.84 m.	12.28 m.

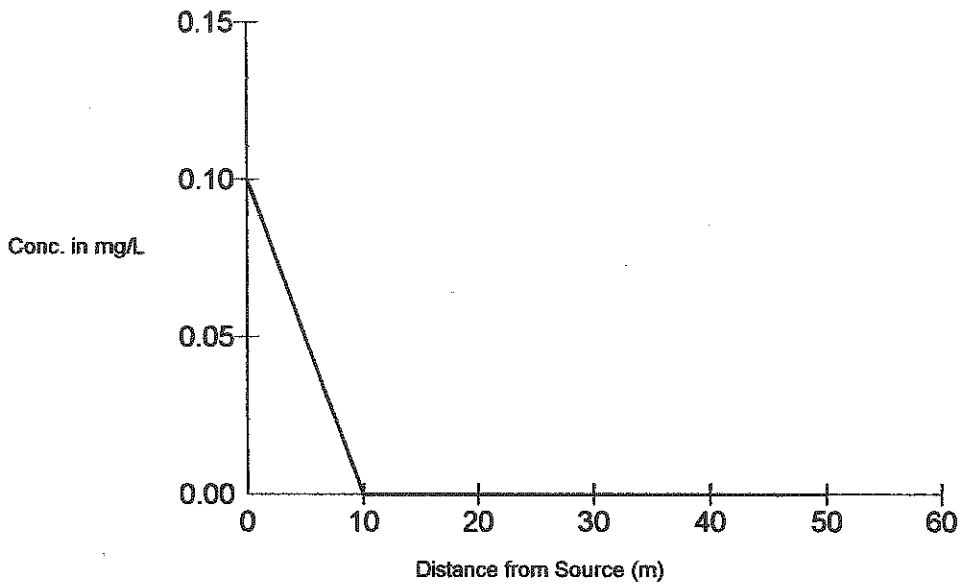
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.70E+01
1.5	1.53E+01
3	4.64E+00
4.5	1.65E+00
6	6.55E-01
7.5	2.80E-01
9	1.26E-01
10.5	5.90E-02
12	2.85E-02
12.5	2.25E-02

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Bromoform



Distance to Meet Ground Water Objectives

Class I	Class II
4.23 m.	4.23 m.

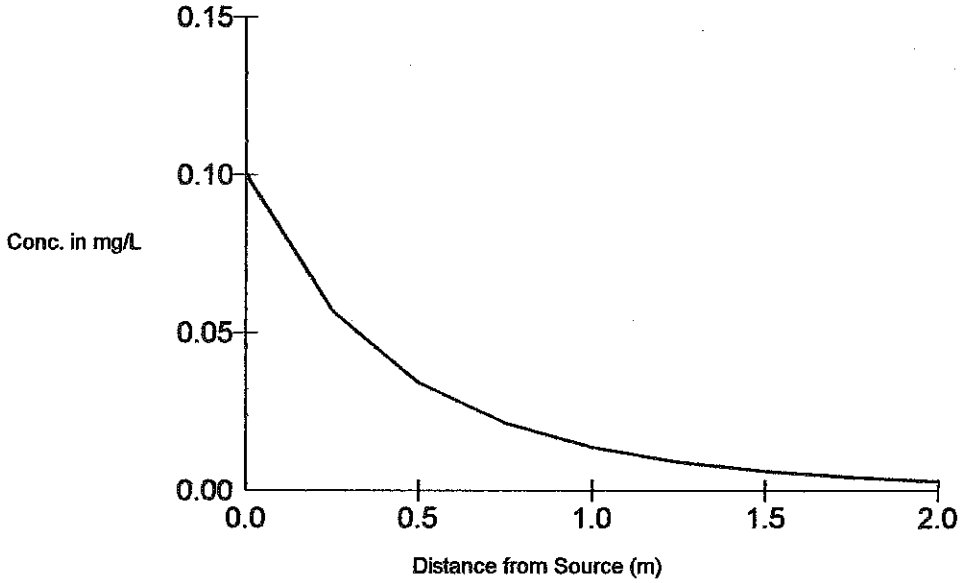
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
10	1.28E-06
20	1.92E-09
30	1.14E-11
40	1.50E-13
50	3.27E-15

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Carbon tetrachloride



Distance to Meet Ground Water Objectives

Class I	Class II
1.64 m.	0.66 m.

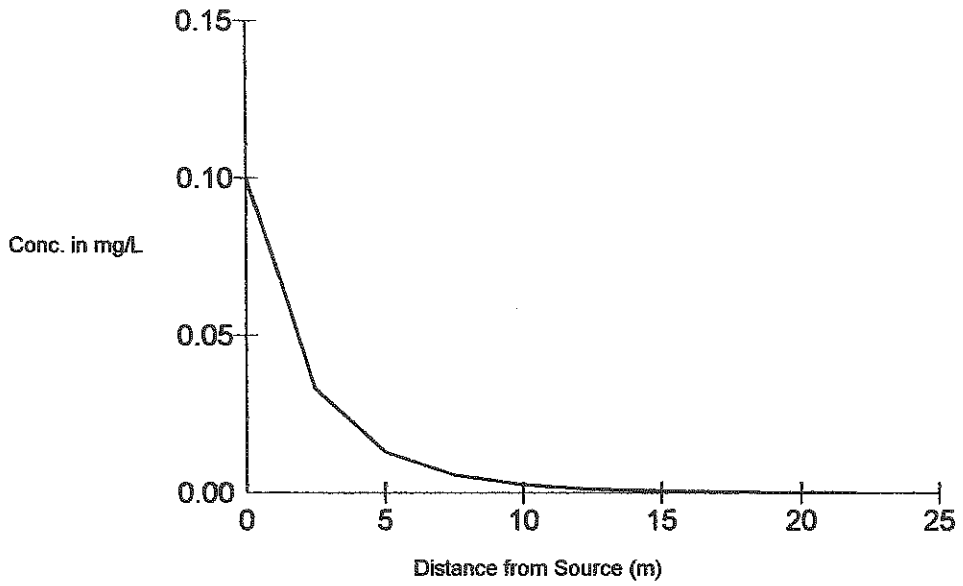
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.25	5.69E-02
0.5	3.41E-02
0.75	2.13E-02
1	1.37E-02
1.25	9.07E-03
1.5	6.13E-03
1.75	4.22E-03
2	2.95E-03

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Chloroform



Distance to Meet Ground Water Objectives

Class I	Class II
28.68 m.	21.78 m.

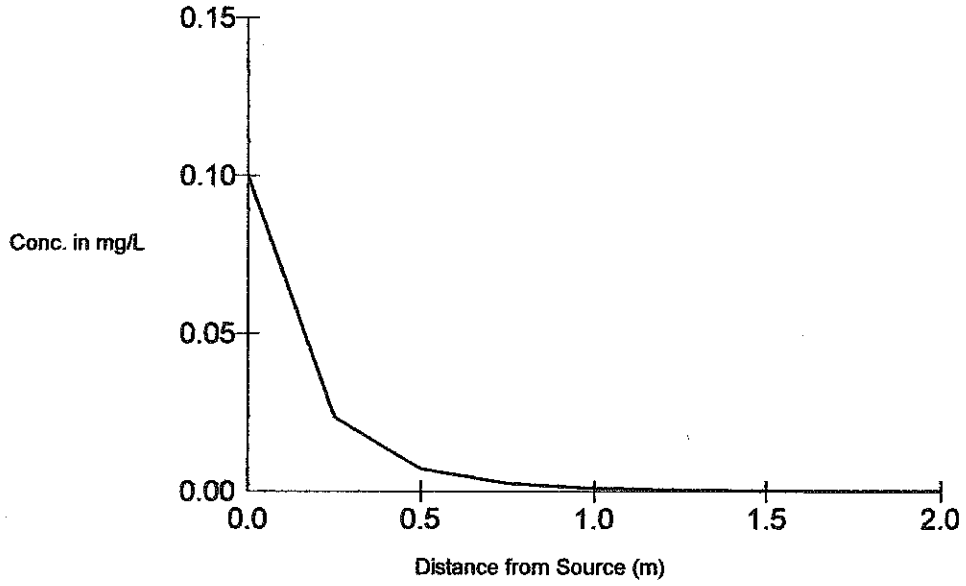
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
2.5	3.33E-02
5	1.31E-02
7.5	5.73E-03
10	2.62E-03
12.5	1.23E-03
15	6.00E-04
17.5	3.01E-04
20	1.56E-04
22	9.46E-05

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Dichloroethylene, 1,1-



Distance to Meet Ground Water Objectives

Class I	Class II
0.51 m.	0.17 m.

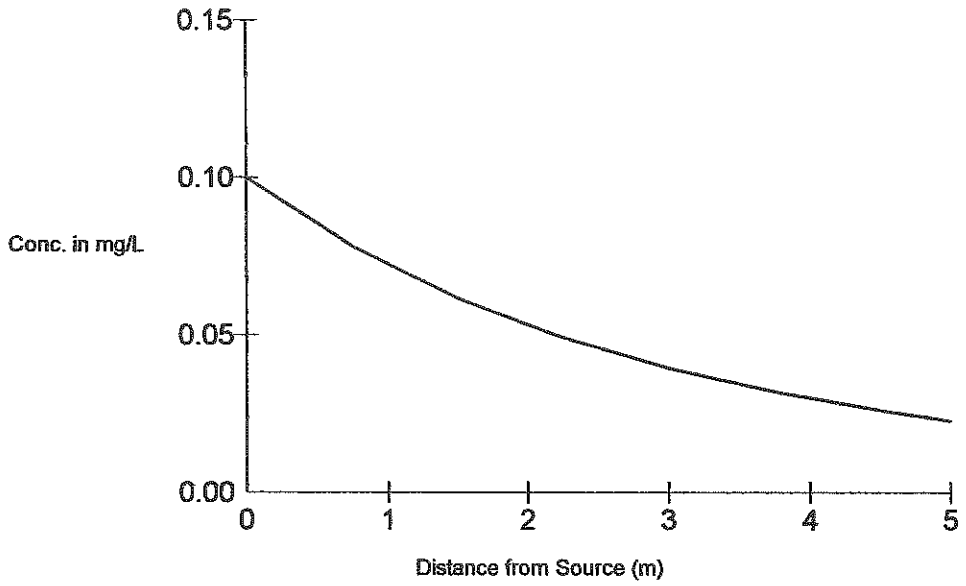
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.25	2.35E-02
0.5	7.21E-03
0.75	2.60E-03
1	1.04E-03
1.25	4.55E-04
1.5	2.10E-04
1.75	1.02E-04
2	5.19E-05

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Dichloropropane, 1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
11.15 m.	4.67 m.

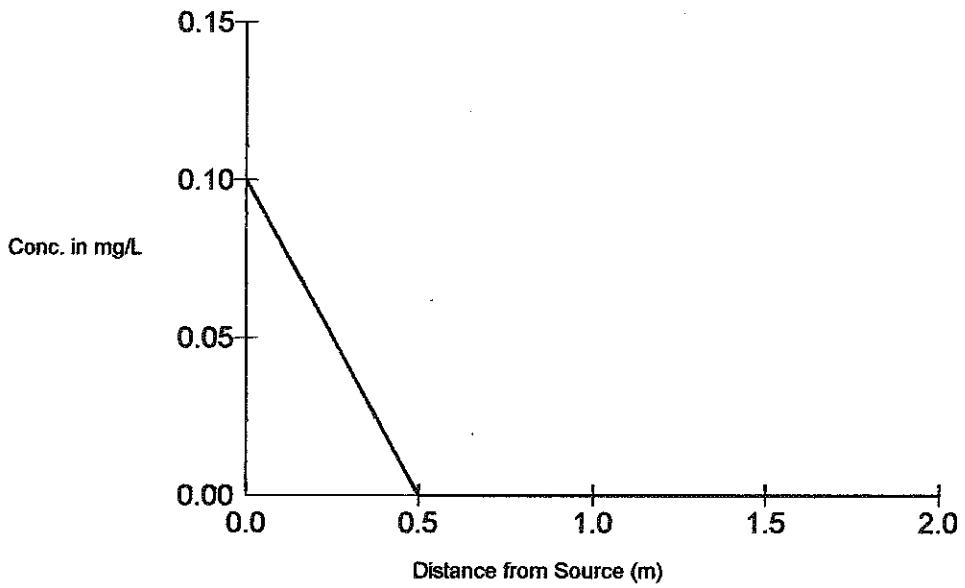
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.75	7.81E-02
1.5	6.16E-02
2.25	4.91E-02
3	3.95E-02
3.75	3.20E-02
4.5	2.61E-02
5	2.29E-02

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Dichloropropene, 1,3-



Distance to Meet Ground Water Objectives

Class I	Class II
0.09 m.	0.05 m.

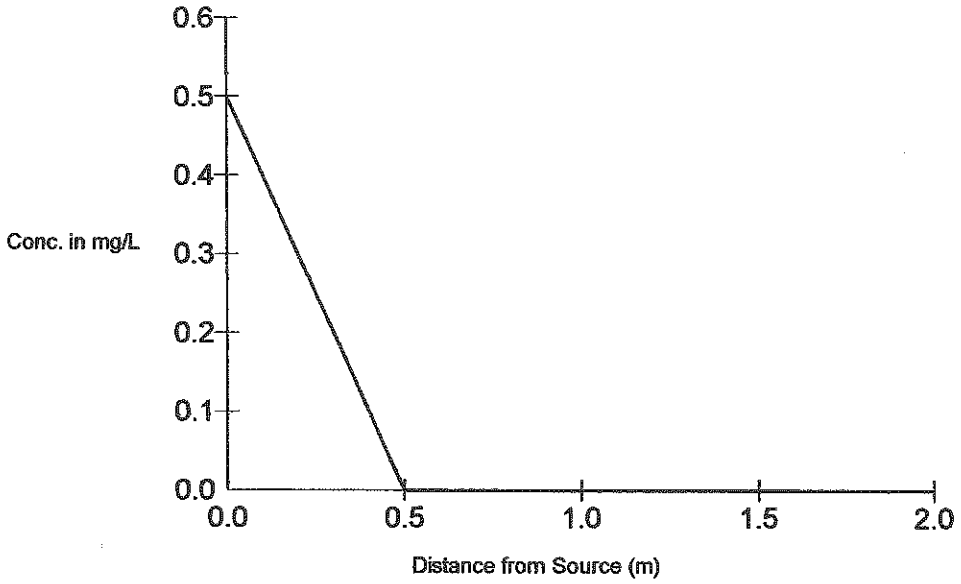
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.5	2.56E-08
1	9.32E-12
1.5	2.02E-14
2	1.13E-16

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Methyl ethyl ketone



Distance to Meet Ground Water Objectives

Class I	Class II
Met	Met

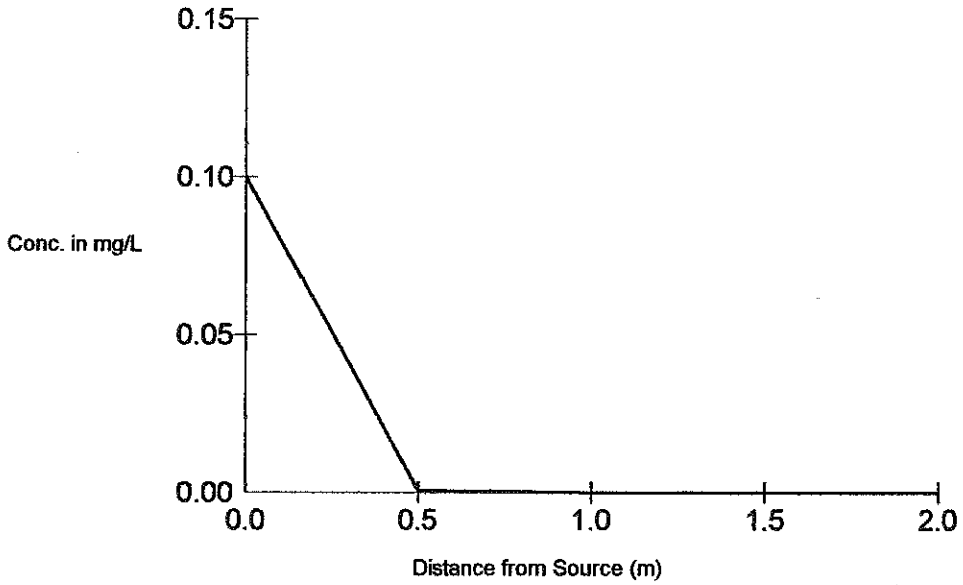
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	5.00E-01
0.5	8.30E-07
1	6.87E-10
1.5	2.79E-12
2	2.62E-14

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Methylene chloride



Distance to Meet Ground Water Objectives

Class I	Class II
0.26 m.	0.05 m.

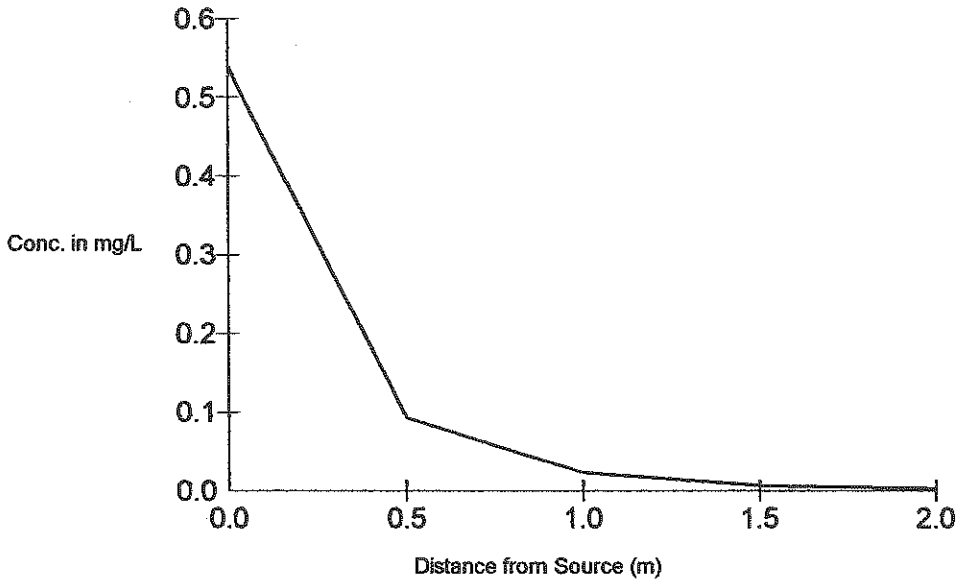
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.5	6.67E-04
1	2.63E-05
1.5	1.98E-06
2	2.15E-07

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Styrene



Distance to Meet Ground Water Objectives

Class I	Class II
0.48 m.	0.02 m.

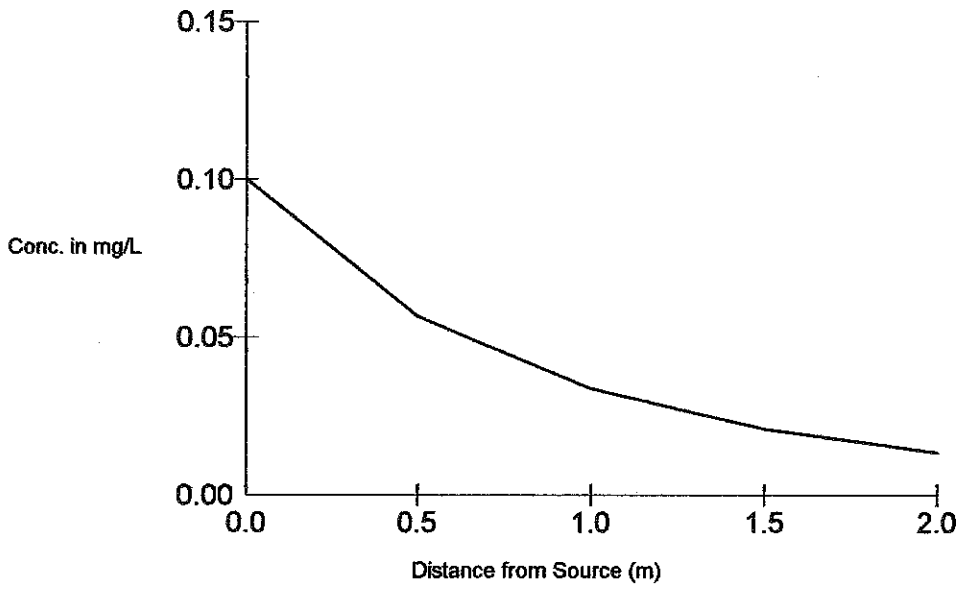
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	5.40E-01
0.5	9.30E-02
1	2.32E-02
1.5	7.12E-03
2	2.49E-03

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Tetrachloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
3.24 m.	1.31 m.

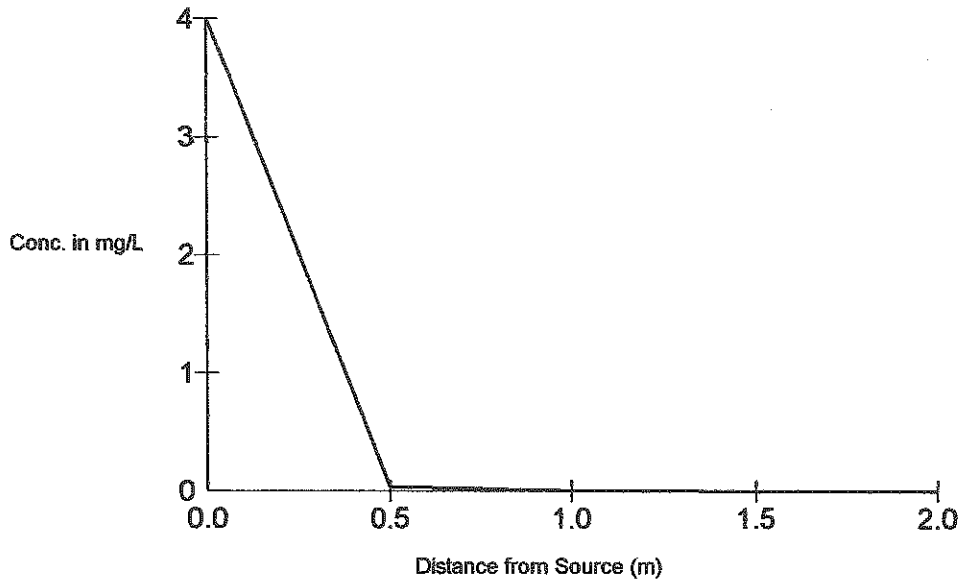
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.5	5.66E-02
1	3.38E-02
1.5	2.10E-02
2	1.35E-02

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Toluene



Distance to Meet Ground Water Objectives

Class I	Class II
0.11 m.	0.04 m.

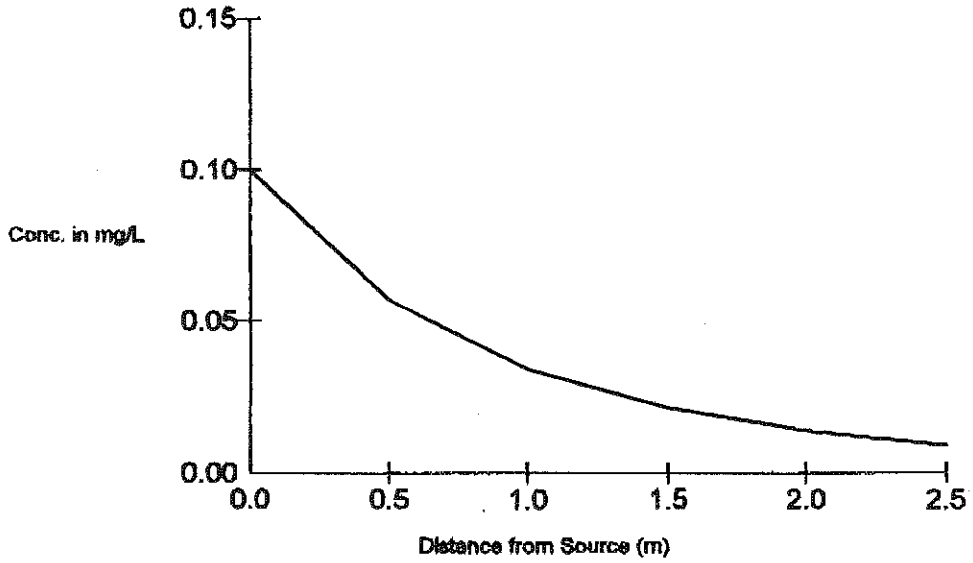
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	4.00E+00
0.5	3.67E-02
1	1.70E-03
1.5	1.45E-04
2	1.75E-05

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Trichloroethane, 1,1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
3.27 m.	0.62 m.

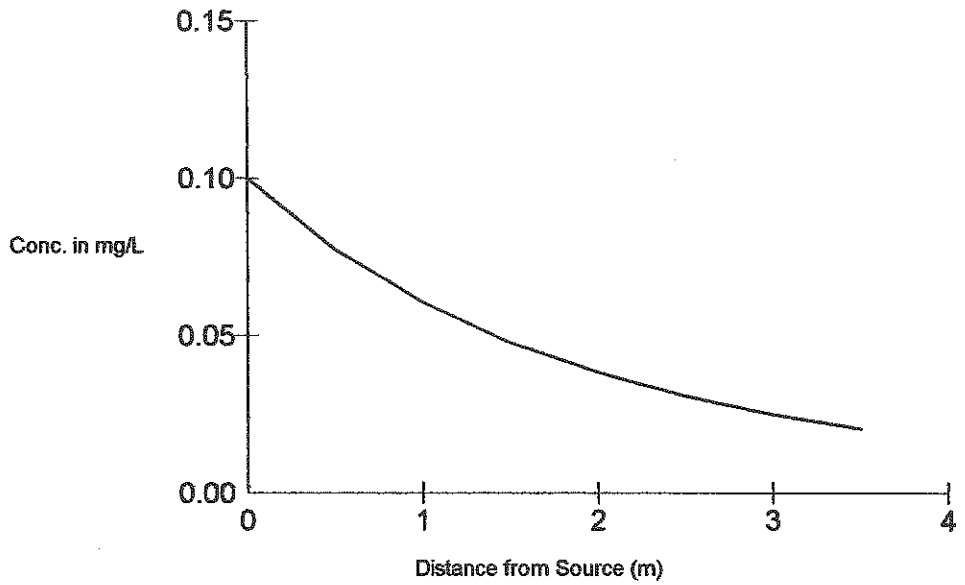
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.5	5.69E-02
1	3.41E-02
1.5	2.13E-02
2	1.37E-02
2.5	9.07E-03

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Trichloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
7.38 m.	3.00 m.

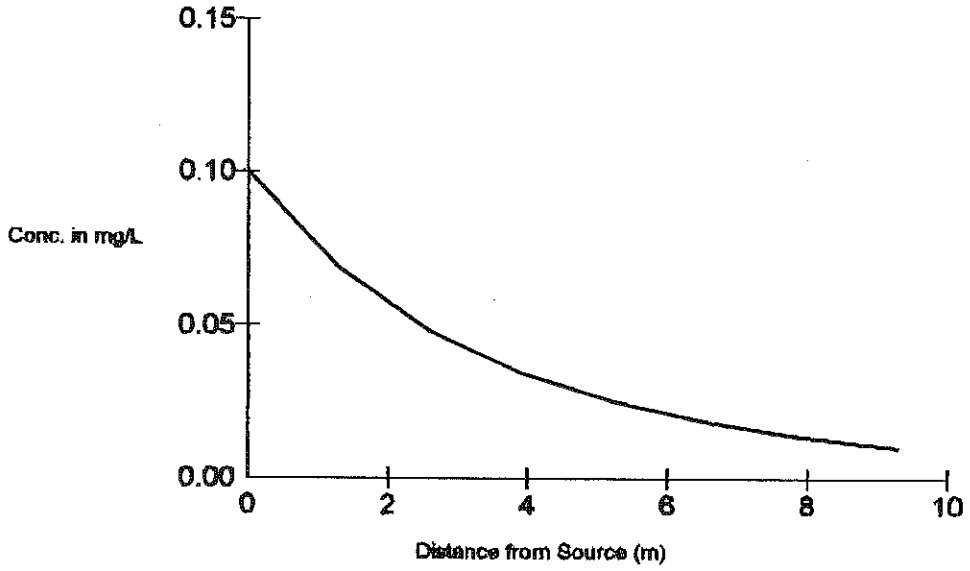
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
0.5	7.74E-02
1	6.06E-02
1.5	4.79E-02
2	3.83E-02
2.5	3.08E-02
3	2.50E-02
3.5	2.04E-02

Datasheet AOC CL Distance to Achieve Tier 1 ROs GW

Calculated Ground Water Information

Vinyl chloride



Distance to Meet Ground Water Objectives

Class I	Class II
16.59 m.	9.27 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-01
1.3	6.86E-02
2.6	4.82E-02
3.9	3.46E-02
5.2	2.53E-02
6.5	1.87E-02
7.8	1.39E-02
9.1	1.04E-02
9.3	9.93E-03

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this dataheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	5,000.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	500
GW_{comp} (mg/L)**	See below	α_y (cm)	167
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	25
U (cm/d)	0.0798	S_w (cm)	6,100
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0048	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Benzene	1750.000	2.93E+00	0.025	1.31E-09	0.000900	1219.422
Bromoform	3100.000	2.63E+00	0.0002	3.27E-14	0.001900	2936.685
Carbon tetrachloride	793.000	1.51E+00	0.025	3.27E-14	0.001900	1528.512

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Chloroform	29.6263	3.38E+00	0.0001	3.38E-06	0.000390	8.768
Dichloroethane, 1,2-	8520.000	4.15E+00	0.025	3.27E-14	0.001900	2328.190
Dichloroethylene, 1,1-	2250.000	2.41E+00	0.035	3.43E-24	0.005300	1779.566
Dichloropropane, 1,2-	621.7254	3.32E+00	0.025	4.02E-05	0.000270	187.000
Dichloropropene, 1,3-	2800.000	2.79E+00	0.005	5.29E-84	0.061000	1748.407
Methyl ethyl ketone	223000.000	4.85E+00	4.2	1.36E-75	0.049510	26626.230
Methylene chloride	13000.000	4.28E+00	0.05	8.62E-37	0.012000	2905.844
Styrene	310.000	5.61E-01	0.5	6.15E-19	0.003300	2368.347
Tetrachloroethylene	200.000	1.72E+00	0.025	6.10E-10	0.000960	337.554
Toluene	526.000	1.68E+00	2.5	3.43E-35	0.011000	997.191
Trichloroethylene	1100.000	1.74E+00	0.025	1.92E-06	0.000420	1933.101

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.)

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.70
	Silt	1.6		Subsurface	1.70
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.002
	Subsurface Soils	0.002		Subsurface	0.010
θT (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.36
	Silt	0.40		Subsurface	0.36
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.19
	Silt	0.24		Subsurface	0.19
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³		

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)		
Gravel	0.20		Surface	0.17
Sand	0.18		Subsurface	0.17
Silt	0.16			
Clay	0.17			

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Benzene	1.75E+003	8.80E-002	9.80E-006	2.28E-001	5.89E+001	0.000900
Bromoform	3.10E+003	1.49E-002	1.03E-005	2.19E-002	8.71E+001	0.001900
Carbon tetrachloride	7.93E+002	7.80E-002	8.80E-006	1.25E+000	1.74E+002	0.001900
Chloroform	7.92E+003	1.04E-001	1.00E-005	1.50E-001	3.98E+001	0.000390
Dichloroethane, 1,2-	8.52E+003	1.04E-001	9.90E-006	4.01E-002	1.74E+001	0.001900
Dichloroethylene, 1,1-	2.25E+003	9.00E-002	1.04E-005	1.07E+000	5.89E+001	0.005300
Dichloropropane, 1,2-	2.80E+003	7.82E-002	8.73E-006	1.15E-001	4.37E+001	0.000270
Dichloropropene, 1,3-	2.80E+003	6.26E-002	1.00E-005	7.26E-001	4.57E+001	0.061000
Methyl ethyl ketone	2.23E+005	8.08E-002	9.80E-006	1.36E-006	2.00E+000	0.049510
Methylene chloride	1.30E+004	1.01E-001	1.17E-005	8.98E-002	1.17E+001	0.012000
Styrene	3.10E+002	7.10E-002	8.00E-006	1.13E-001	7.76E+002	0.003300
Tetrachloroethylene	2.00E+002	7.20E-002	8.20E-006	7.54E-001	1.55E+002	0.000960
Toluene	5.26E+002	8.70E-002	8.60E-006	2.72E-001	1.82E+002	0.011000
Trichloroethylene	1.10E+003	7.90E-002	9.10E-006	4.22E-001	1.66E+002	0.000420

Former Ethyl Chloride Production Area (EC Area)
Soil Migration to Groundwater
(Section 6.9)

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this dataheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	91,400.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	9,140
GW_{comp} (mg/L)**	See below	α_y (cm)	3,047
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	457
U (cm/d)	0.0798	S_w (cm)	6,100
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0048	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

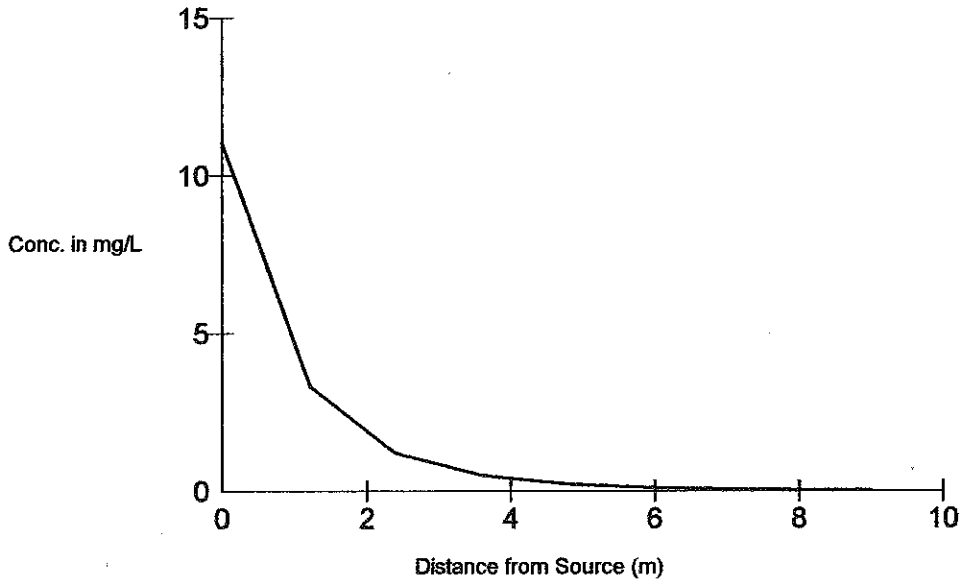
* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C(x)/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Benzene	1750.000	1.42E+00	0.025	4.38E-45	0.000900	1219.422
Vinyl chloride	2760.000	2.44E+00	0.01	8.23E-24	0.000240	1116.362

Datasheet AOC EC Dist. to Achieve Tier 1 ROs Soil

Calculated Ground Water Information

Benzene



Distance to Meet Ground Water Objectives

Class I	Class II
11.87 m.	8.65 m.

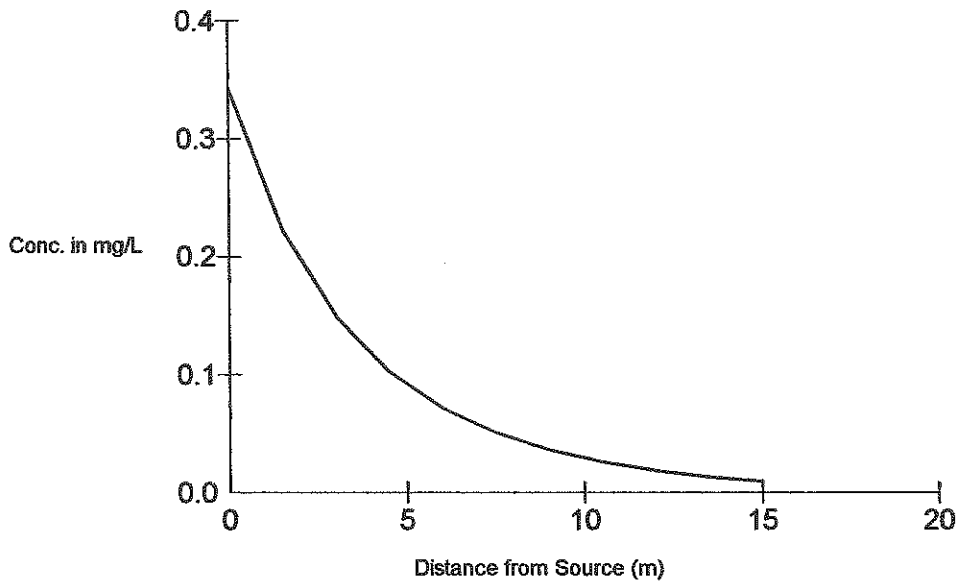
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.11E+01
1.2	3.31E+00
2.4	1.21E+00
3.6	4.99E-01
4.8	2.25E-01
6	1.08E-01
7.2	5.46E-02
8.4	2.86E-02
9	2.09E-02

Datasheet AOC EC Dist. to Achieve Tier 1 ROs Soil

Calculated Ground Water Information

Vinyl chloride



Distance to Meet Ground Water Objectives

Class I	Class II
22.75 m.	14.81 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	3.42E-01
1.5	2.22E-01
3	1.49E-01
4.5	1.02E-01
6	7.18E-02
7.5	5.10E-02
9	3.63E-02
10.5	2.59E-02
12	1.85E-02
13.5	1.33E-02
15	9.59E-03

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.)

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedu obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.70
	Silt	1.6		Subsurface	1.70
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.002
	Subsurface Soils	0.002		Subsurface	0.010
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.36
	Silt	0.40		Subsurface	0.36
	Clay	0.36			
θ_{as} (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.19
	Silt	0.24		Subsurface	0.19
	Clay	0.19			
θ_{ws} (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³		

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)		
Gravel	0.20		Surface	0.17
Sand	0.18		Subsurface	0.17
Silt	0.16			
Clay	0.17			

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Benzene	1.75E+003	8.80E-002	9.80E-006	2.28E-001	5.89E+001	0.000900
Vinyl chloride	2.76E+003	1.06E-001	1.23E-006	1.11E+000	1.86E+001	0.000240

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Benzene	1.75E+003	0.124	0.571	2.28E-001	5.89E+001	436.05	1,219.42
Vinyl chloride	2.76E+003	0.039	0.180	1.11E+000	1.86E+001	726.21	1,116.36

Former Ethyl Chloride Production Area (EC Area)
Groundwater
(Section 6.9)

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	3,047
X (cm)	91,400.00	Sd (cm)	200
α_x (cm)*	9,140	α_z (cm)	457
λ (1/day)***	See below	K (cm/d)	5.99
U (cm/d)*	0.08	i (unitless)	0.00
Sw (cm)	6,100	θ_T (unitless)**	0.36

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)
*** Chemical Properties (see Datasheet C)

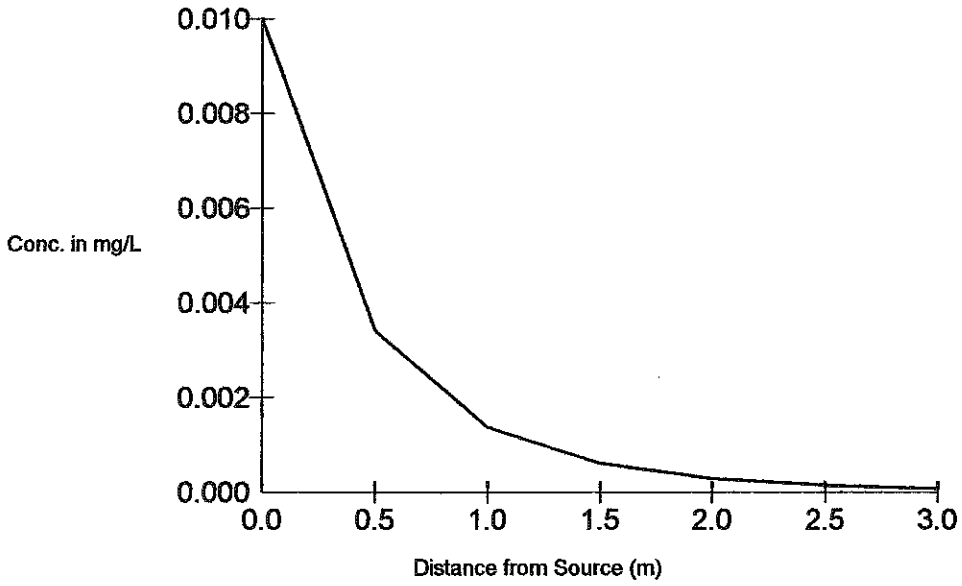
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Bromodichloromethane		0.01000	4.14E-05
Bromoform	0.0019000	0.01000	4.84E-67
Chloroform	0.0003900	0.01000	4.80E-32
Dichloropropene, 1,3-	0.0610000	0.01000	0.00E+00

* Note: Csource is the measured concentration at the source for this fc

Datasheet AOC EC Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Bromoform



Distance to Meet Ground Water Objectives

Class I	Class II
2.29 m.	2.29 m.

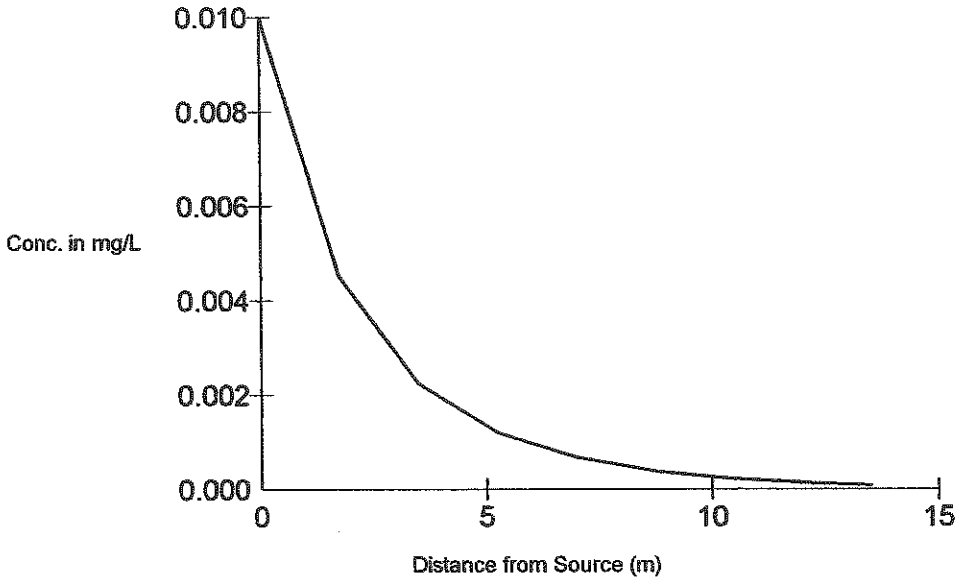
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
0.5	3.41E-03
1	1.37E-03
1.5	6.13E-04
2	2.95E-04
2.5	1.51E-04
3	8.07E-05

Datasheet AOC EC Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Chloroform



Distance to Meet Ground Water Objectives

Class I	Class II
19.05 m.	13.22 m.

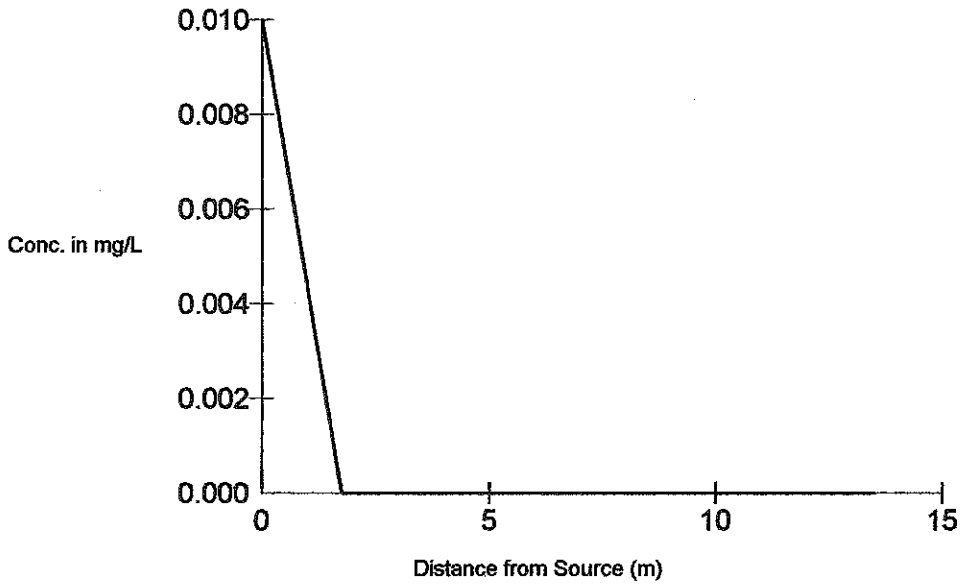
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
1.75	4.53E-03
3.5	2.26E-03
5.25	1.20E-03
7	6.73E-04
8.75	3.86E-04
10.5	2.25E-04
12.25	1.33E-04
13.5	9.21E-05

Datasheet AOC EC Distance to Achieve Tier 1 ROs

Calculated Ground Water Information

Dichloropropene, 1,3-



Distance to Meet Ground Water Objectives

Class I	Class II
0.04 m.	0.01 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
1.75	1.38E-16
3.5	4.01E-23
5.25	3.75E-28
7	2.12E-32
8.75	3.78E-36
10.5	1.50E-39
12.25	1.10E-42
13.5	8.62E-45

Datasheet RBCA-XIII. LFsw

Datasheet RBCA-XIII is to be used to propose the leaching factor calculated by the equation in Appendix C, Table C of TACO: Equation R14 (residential, industrial/commercial and constructin worker scenarios). The use of Equations R20 and R24 in TACO are necessary to generate some of the input values for Equation R14. Since the values in Datasheet RBCA-XI are used in this evaluation, this Datasheet must also be submitted.

k_s (g_{water}/g_{soil})*	See below	ρ_s (g/cm^3)**	1.70
H' (unitless)***	See below	θ_{ws} (unitless)**	0.17
Ugw (cm/yr)****	10.49	θ_{as} (unitless)**	0.19
K (cm/yr)	2,185.00		
i (unitless)	0.005		
δ_{gw} (cm)	200		
I (cm/yr)	30		
W (cm)	6.100		

* k_s value reported on Datasheet RBCA-XI ** Physical Soil Properties (see Datasheet B)
Chemical Properties (see Datasheet C) * U_{gw} value as calculated using Equation R24

Chemical Name	ks (g_{water}/g_{soil})	H' (unitless)	LFsw (mg/L_{water})/(mg/kg_{soil})
Benzene	0.5713	2.28E-001	1.42E+00
Vinyl chloride	0.1804	1.11E+000	2.44E+00

Former Tubular Water Reactor Area (TWR Area)
Soil Migration to Groundwater
(Section 6.10)

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this dataheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control	YES	NO
Engineered Barrier	YES	NO

GW_{source} (mg/L)	See below	X (cm)	91,400.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	9,140
GW_{comp} (mg/L)**	See below	α_y (cm)	3,047
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	457
U (cm/d)	0.0798	S_w (cm)	3,700
K (cm/d)	5.986	λ (1/d)****	See below
i (cm/cm)	0.0048	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.36		

* LFsw reported on Datasheet RBCA-XIII
** GWcomp reported on Datasheet RBCA-VI
*** C(x)/Csource reported on Datsheet RBCA-VI
**** Chemical Parameters (see Datasheet C)
***** Physical Soil Parameters (see Datasheet B)

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C_{(x)}/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Tetrachloroethylene	200.000	5.82E-01	0.025	9.57E-47	0.000960	337.554
Trichloroethylene	1100.000	5.58E-01	0.025	2.36E-31	0.000420	1933.101

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	3,047
X (cm)	91,400.00	Sd (cm)	200
α_x (cm)*	9,140	α_z (cm)	457
λ (1/day)***	See below	K (cm/d)	5.99
U (cm/d)*	0.08	i (unitless)	0.00
Sw (cm)	3,700	θ_T (unitless)**	0.36

* α_x, α_y, α_z, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)
*** Chemical Properties (see Datasheet C)

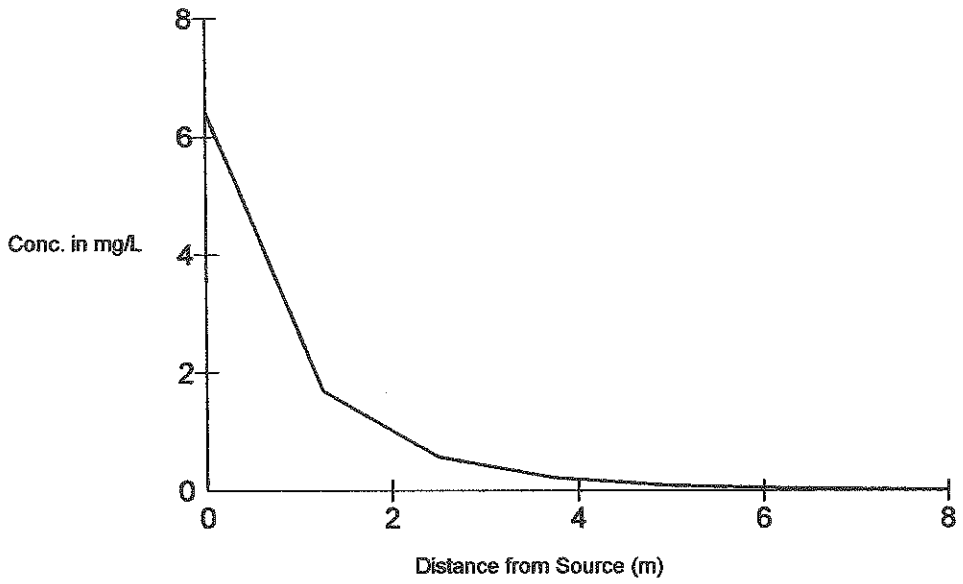
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Tetrachloroethylene	0.0009600	6.39659	6.12E-46
Trichloroethylene	0.0004200	0.61433	1.45E-31

* Note: Csource is the measured concentration at the source for this fc

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Tetrachloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
10.10 m.	7.16 m.

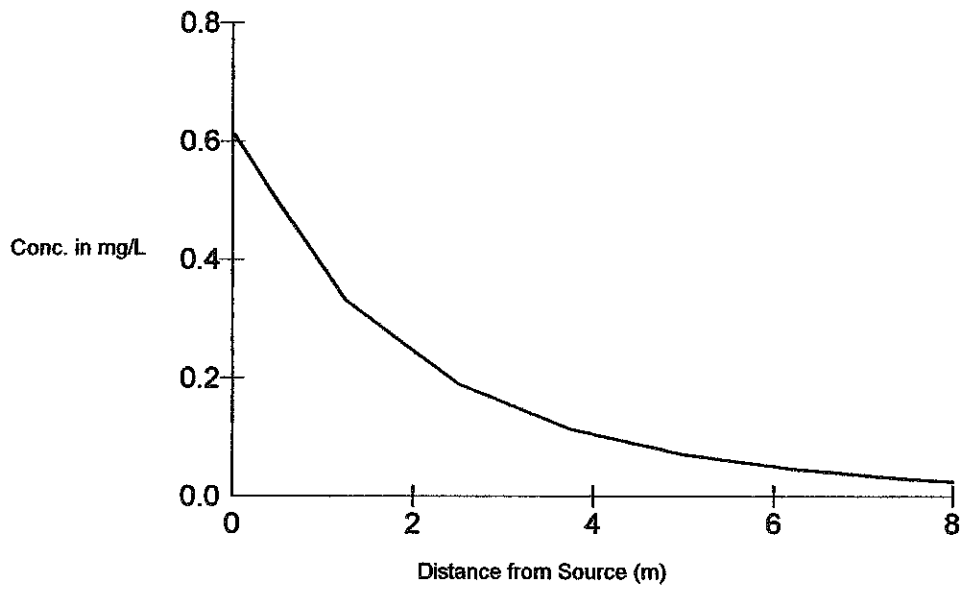
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.40E+00
1.25	1.70E+00
2.5	5.68E-01
3.75	2.19E-01
5	9.33E-02
6.25	4.26E-02
7.5	2.05E-02
8	1.55E-02

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Trichloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
13.04 m.	7.99 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.14E-01
1.25	3.31E-01
2.5	1.89E-01
3.75	1.14E-01
5	7.06E-02
6.25	4.52E-02
7.5	2.95E-02
8	2.49E-02

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.)

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedu obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.70
	Silt	1.6		Subsurface	1.70
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.002
	Subsurface Soils	0.002		Subsurface	0.010
θT (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.36
	Silt	0.40		Subsurface	0.36
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.19
	Silt	0.24		Subsurface	0.19
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³		

Datasheet B: Physical Soil Parameters for the RBCA Equations

Subsurface Soils	0.30	(unitless)
Gravel	0.20	
Sand	0.18	
Silt	0.16	
Clay	0.17	

Surface	0.17
Subsurface	0.17

Datasheet E: Soil Saturation Limits

Chemical	Constituent Properties					Saturation Limits	
	Solubility mg/L	Kd (Surface) cm^3/g	Kd (Subsurface) cm^3/g	Henry's Law Constant (H') (dimensionless)	Organic Carbon Partition Coefficient (Koc)	Csat (Surface Soils) mg/kg	Csat (Subsurface Soi mg/kg
Tetrachloroethylene	2.00E+002	0.325	1.503	7.54E-001	1.55E+002	101.95	337.55
Trichloroethylene	1.10E+003	0.349	1.610	4.22E-001	1.66E+002	545.34	1,933.10

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Tetrachloroethylene	2.00E+002	7.20E-002	8.20E-006	7.54E-001	1.55E+002	0.000960
Trichloroethylene	1.10E+003	7.90E-002	9.10E-006	4.22E-001	1.66E+002	0.000420

Former Tubular Water Reactor Area (TWR Area)
Groundwater
(Section 6.10)

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	3,047
X (cm)	91,400.00	Sd (cm)	200
α_x (cm)*	9,140	α_z (cm)	457
λ (1/day)***	See below	K (cm/d)	5.99
U (cm/d)*	0.08	i (unitless)	0.00
Sw (cm)	3,700	θ_T (unitless)**	0.36

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)
*** Chemical Properties (see Datasheet C)

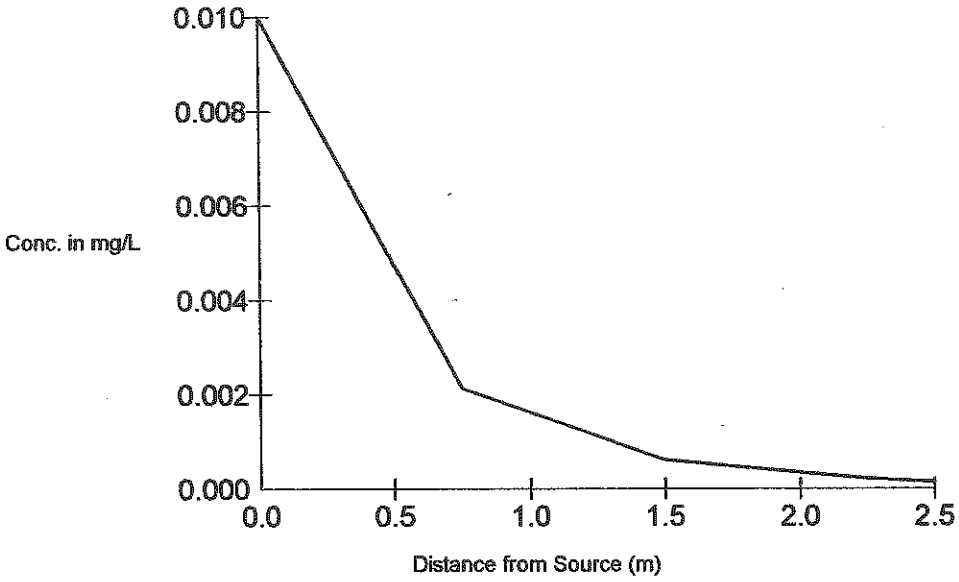
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Bromoform	0.0019000	0.01000	2.94E-67
Chloroform	0.0003900	0.01000	2.92E-32
Dichloroethylene, cis-1,2-	0.0002400	0.71000	3.55E-24
Dichloropropene, 1,3-	0.0610000	0.01000	0.00E+00
Tetrachloroethylene	0.0009600	2.50000	2.39E-46
Trichloroethylene	0.0004200	0.46000	1.08E-31

* Note: C_{source} is the measured concentration at the source for this fc

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Bromoform



Distance to Meet Ground Water Objectives

Class I	Class II
2.29 m.	2.29 m.

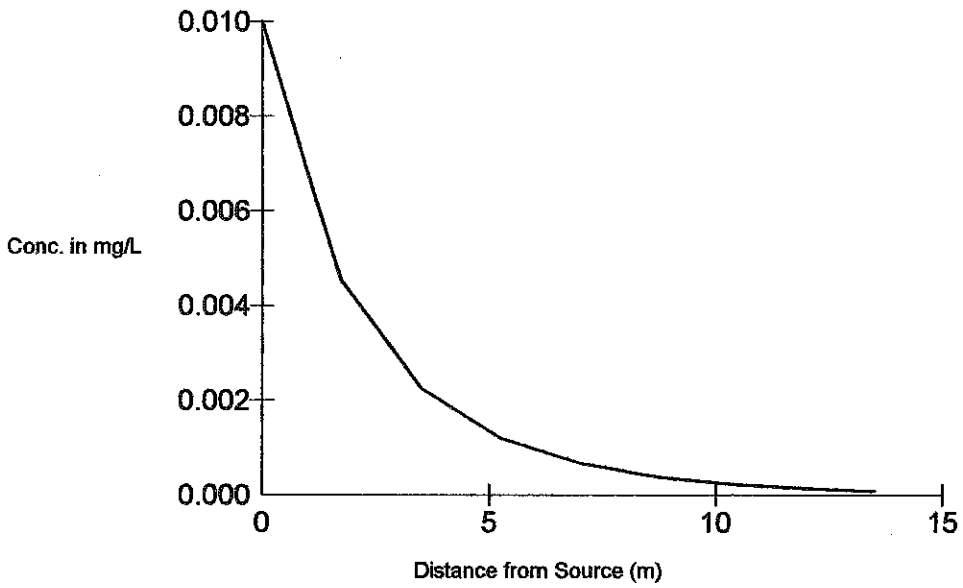
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
0.75	2.13E-03
1.5	6.13E-04
2.25	2.10E-04
2.5	1.51E-04

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Chloroform



Distance to Meet Ground Water Objectives

Class I	Class II
19.05 m.	13.22 m.

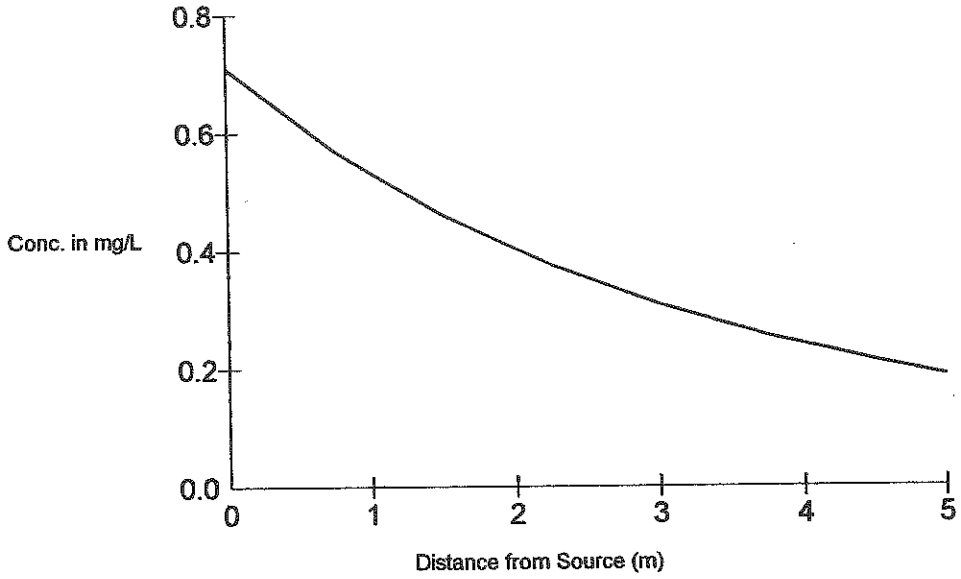
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
1.75	4.53E-03
3.5	2.26E-03
5.25	1.20E-03
7	6.73E-04
8.75	3.86E-04
10.5	2.25E-04
12.25	1.33E-04
13.5	9.21E-05

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Dichloroethylene, cis-1,2-



Distance to Meet Ground Water Objectives

Class I	Class II
9.33 m.	4.75 m.

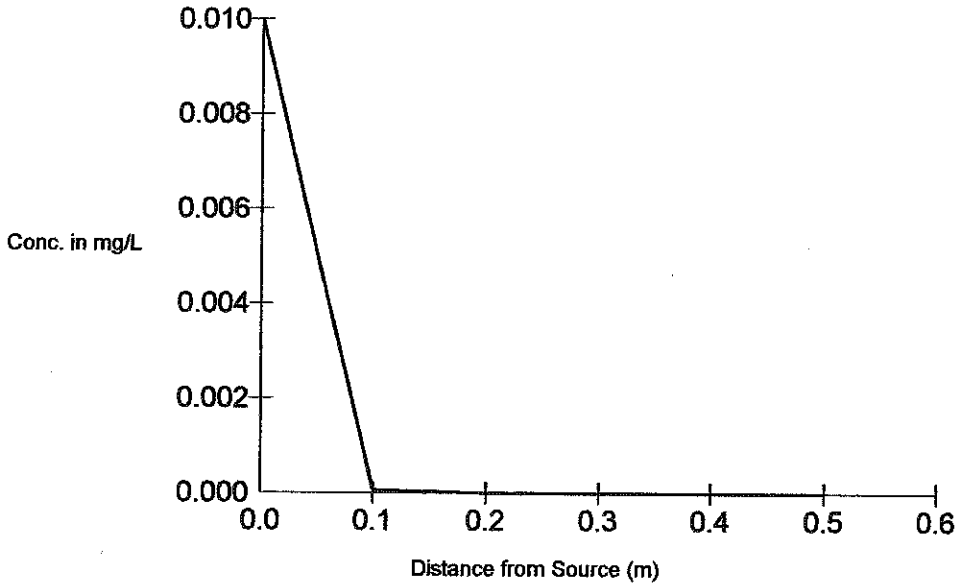
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	7.10E-01
0.75	5.69E-01
1.5	4.61E-01
2.25	3.76E-01
3	3.09E-01
3.75	2.55E-01
4.5	2.12E-01
5	1.88E-01

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Dichloropropene, 1,3-



Distance to Meet Ground Water Objectives

Class I	Class II
0.04 m.	0.01 m.

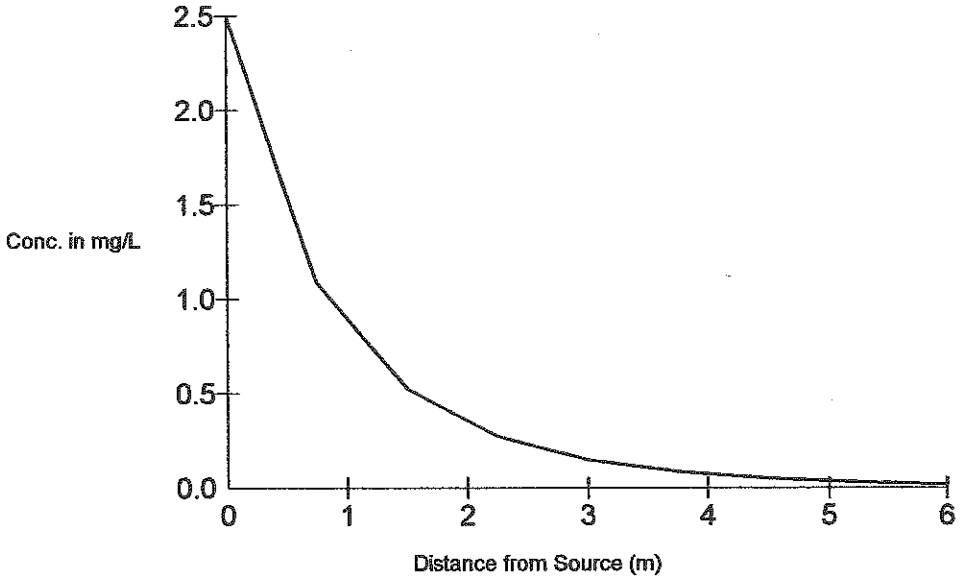
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E-02
0.1	6.27E-05
0.2	2.39E-06
0.3	1.76E-07
0.4	1.87E-08
0.5	2.56E-09

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Tetrachloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
8.35 m.	5.59 m.

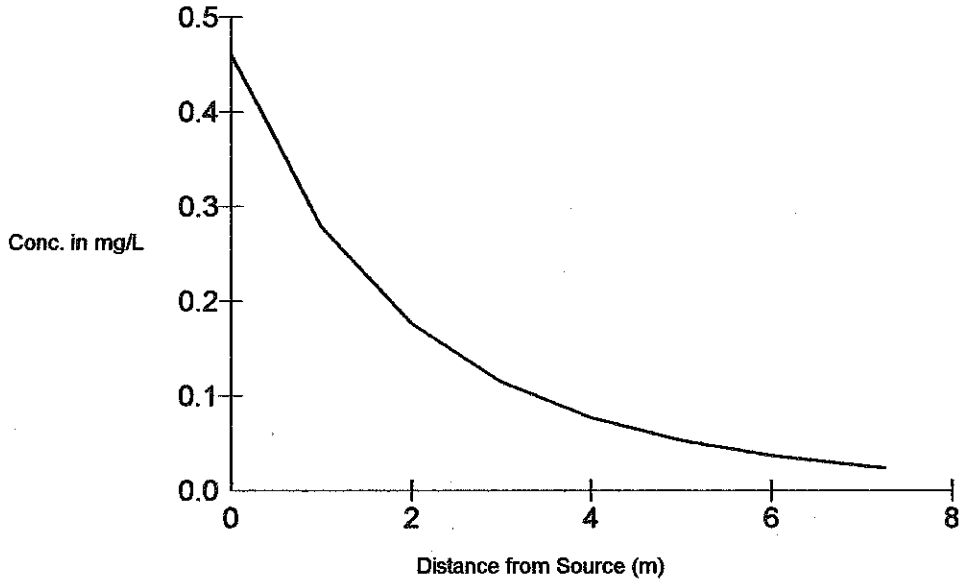
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.50E+00
0.75	1.09E+00
1.5	5.25E-01
2.25	2.73E-01
3	1.50E-01
3.75	8.57E-02
4.5	5.08E-02
5.25	3.10E-02
6	1.94E-02

Datasheet AOC TWR Dist. to Achieve Tier 1 RO Soil

Calculated Ground Water Information

Trichloroethylene



Distance to Meet Ground Water Objectives

Class I	Class II
12.10 m.	7.13 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	4.60E-01
1	2.79E-01
2	1.76E-01
3	1.15E-01
4	7.71E-02
5	5.29E-02
6	3.69E-02
7	2.61E-02
7.25	2.40E-02