Predicting Groundwater Concentrations Using Equation R14

Site Name: Morey Corp
LPC #: 430305029
Description of Area: Storage Room, Drain area
Reviewer: Steve McCaslin
Date: 11-Dec-00

-- Shaded Cells Require Data Input --

Soil Bulk Density	ρs	1.54	g/cm^3	
Volumetric Water Content	θws	0.3	cm^3_{air}/cm^3_{soil}	
Volumetric Air Content	θas	0.13	cm^3_{water}/cm^3_{soil}	
Organic Carbon Content of Soil	foc	0.0108	g/g	
Groundwater Gradient	i	0.01	ft/ft	
Hydraulic Conductivity	K	315.4	cm/yr	1.00E-05 cm/sec
Groundwater Darcy Velocity	Ugw	3.154	cm/yr	
Groundwater Mixing Zone Thickness	δgw	200	cm	6.56 Feet
Infiltration Rate	I	30	cm/yr	
Width of Source Area Parallel to Groundwater Flow	W	1828	cm	59.97 Feet

ID #	Chemical Name	Soil Concentration (mg/kg)	Organic Carbon Partition Coefficient (koc)	Soil Water Sorption Coefficient (ks)	Henry's Law Constant (H')	Leaching Factor (LF sw)	Predicted Groundwater Conc. at Source (mg/L)
105	* TETRACHLOROETHYLENE (e)	110	155	1.674	0.754	0.509773868	56.075125
113	* TRICHLOROETHYLENE (e)	8	166	1.7928	0.422	0.487159378	3.897275
55	*CIS-1,2-DICHLOROETHYLENE	3.3	35.5	0.3834	0.167	1.653574756	5.456797
118	*VINYL CHLORIDE (e)	0.046	18.6	0.20088	1.11	1.988871512	0.091488
89	*METHYLENE CHLORIDE (e)	0.04	11.7	0.12636	0.0898	2.958701028	0.118348
	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A

Predicted Groundwater Concentration = Soil Concentration X Leaching Factor

INPUT SOIL TYPE HERE	USEPA DEFAULT = 0 GRAVEL = 1 SAND = 2 SILT = 3 CLAY = 4
0	

CLASS OF GROUNDWATER 1 OR 2	
CLASS	1

DATE =	11-Dec-2000
PROJECT NAME =	Morey Corp
PROJECT NUMBER =	4303005029
CITY =	Downers Grove
COUNTY =	Cook
PROJECT MANAGER =	McCaslin

SOIL PARAMETERS	(INH. & IN SURFACE SS SOIL VALUES (0-3.2 FT.)	SURFACE DEFAULT VALUES (0-3.2 FT.)	SOIL PARAMETERS	(MIG. TO GW) SUBSURFACE SS SOIL VALUES (3.2 FT. - GW)	SUBSURFACE DEFAULT VALUES (3.2 FT. - GW)
foc = (g/g) (ORGANIC CARBON)	0.006	0.006	foc = (g/g)	0.0108	0.002
n = (Lp/Ls) (POROSITY)	0.43	0.43	n = (Lp/Ls)	0.43	0.43
Ps = (kg/L) (DENSITY)	2.65	2.65	Ps = (kg/L)	2.65	2.65
w = (gw/gs) (% MOISTURE)	0.1	0.1	w = (gw/gs)	0.20	0.20
Ow = (Lw/Ls)	0.150	0.150	Ow = (Lw/Ls)	0.30	0.30
Pb = (kg/L)	1.500	1.500	Pb = (kg/L)	1.50	1.50
Oa = (La/Ls)	0.284	0.284	Oa = (La/Ls)	0.13	0.13
(0a^3.33/n^2)	8.03E-02	8.03E-02	(0a^3.33/n^2)	6.58E-03	6.58E-03

SOIL pH RANGE (4.5 TO 8.0)

7.2

SEE "PH CUO" PAGE FOR RESULTS

TARGET RISK FACTOR (TRF)

DEFAULT =	1E-06
WITH INSTITUTIONAL CONTROLS =	1E-05 OR 1E-04
INPUT TRF HERE =	1E-06

RESIDENTIAL = 1
INDUSTRIAL/COMMERCIAL = 2
CONSTRUCTION WORKER = 3

TYPE OF ENVIRONMENT (1 , 2 OR 3) = 3

DILUTION FACTOR

DEFAULT VALUE FOR THE DILUTION FACT 20

SEE "ADDITIONAL TIER TWO PARAMETERS" FOR THE CALCULATED DILUTION FACTOR IF APPLICABLE.

INSERT DILUTION FACTOR HERE = 20

!!OPTIONAL!!

CALC. OF SITE SPECIFIC DILUTION FACTOR

			DEFAULT VALUES
DILUTION F.	ERR	(UNITLESS)	10
d = (M)	ERR	(MIXING ZONE DEPTH CALCULATED)	2
I = (M/YR)	0.3	(INFILTRATION)	0.3
i = (M/M)		(HYDRAULIC GRADIENT)	SS
L = (M)		(SOURCE LENGTH)	SS
K = (M/YR)		(HYDRAULIC CONDUCTIVITY)	SS
da = (M)		(ACTUAL THICKNESS OF AQUIFER)	SS
n = (UNITLESS)		(EFFECTIVE POROSITY)	(0.3-0.2)

CHEMICAL NUMBER	#
	ERR

SSL EQUATIONS USED

TARGET RISK FACTOR = 1E-06

CONSTRUCTION WORKE

SOIL PAR	Surface	Subsurface
ρb = (g/g)	0.006	0.0009
θ = (Lp/Ls)	0.43	0.43
ρs = (kg/L)	2.65	2.65
w = (gw/gs)	0.1	0.2
θw = (Lw/Ls)	0.15	0.3
ρb = (kg/L)	1.5	1.5
θa = (La/Ls)	0.28	0.13

DATE 11 Dec 2000
PROJECT NAME = Ahrey Corp
PROJECT NUMBER = 4303005029
CITY Downers Grove
COUNTY Cook
PROJECT MANAGER = McCaslin

INCREMENTS
FEET

(c) = CARCINOGENIC
(*) = MELTING POINT < 30 C
(**) = SOLID AT 30 DEGREES C

USE Csat IF "<" INHAL. or MIGRATION TO GROUNDWATER FOR THOSE CHEMICALS DESIGNATED WITH A (*)
(*) = Melting point "<" 30 degrees C

#	CHEMICAL NAME	MIGRATION TO GROUNDWATER (GW) SSL CLASS I GW (mg/kg)	SSL CLASS II GW (mg/kg)	INHALATION CARC. (mg/kg)	INHALATION NONCARC. (mg/kg)	C sat (mg/kg)	INGESTION NONCARC. (mg/kg)	INGESTION CARC. (mg/kg)	GROUNDWATER OBJECTIVES AND STANDARDS CLASS I GW STD./OBJ. (mg/L)	CLASS II GW STD./OBJ. (mg/L)	VF (M^3/kg)	Di (CM^2/S)	Da (CM^2/S)	Dw (CM^2/S)	Koc (L/kg)	H' UNIT-LESS	Kd SURFACE (L/kg)	Kd SUB (L/kg)	ORGANS AFFECTED	INPUT C source (mg/L)	EQUATION FOR EQU R-26	R-26 Cs (mg/L)
	* TETRACHLOROETHYLENE (c)	1.94E-01	9.71E-01	2.84E+01	2.35E+02	2.35E+02	2.040E+04	2.39E+03	0.005	0.025	1.94E+01	7.20E-02	2.47E-03	8.20E-06	1.55E+02	7.54E-01	9.30E-01	1.67E+00	0			ERR
	* TRICHLOROETHYLENE (c)	2.03E-01	1.02E+00	1.24E+01	1.29E+03	1.29E+03	1.224E+03	1.13E+04	0.005	0.025	2.47E+01	7.90E-02	1.51E-03	9.10E-06	1.66E+02	4.22E-01	9.96E-01	1.79E+00	0			ERR
	*CIS 1,2 DICHLOROETHYLENE	8.38E-01	2.39E+00	ERR	1.21E+03	1.21E+03	2.040E+04	ERR	0.07	0.2	2.21E+01	7.36E-02	1.90E-03	1.13E-05	3.55E+01	1.67E-01	2.13E-01	3.83E-01	CIRCULATORY SYST			ERR
	*VINYL CHLORIDE (c)	2.00E-02	1.00E-01	8.00E-02	1.16E+03	1.16E+03	0.000E+00	6.54E+01	0.002	0.01	7.89E+00	1.06E-01	1.49E-02	1.23E-06	1.86E+01	1.11E+00	1.12E-01	2.01E-01	0			ERR
	*METHYLENE CHLORIDE (c)	3.34E-02	3.34E-01	3.43E+01	7.94E+01	2.43E+03	1.224E+04	1.66E+04	0.005	0.05	1.89E+01	1.01E-01	2.58E-03	1.17E-05	1.17E+01	8.98E-02	7.02E-02	1.26E-01	0			ERR
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Screening Procedure Summary

TARGET RISK FACTOR =	1E-06
CONSTRUCTION WORKE	
CLASS OF GROUNDWATE	1
SSL EQUATIONS USED	

DATE =	11-Dec-2000
PROJECT NAME =	Morey Corp
PROJECT NUMBER =	4303005029
CITY =	Downers Grove
COUNTY =	Cook
PROJECT MANAGER	McCaslin
TIER =	2

CHEMICAL	MAX CONC. DETECTED SOIL MG/KG	MAX CONC. DETECTED GRD. WATER MG/L	MIGRATION TO GROUNDWATER MG/KG	INHALATION MG/KG	INGESTION MG/KG	GROUNDWATER OBJECTIVE MG/L	ENDOCRINE RECEPTOR (P,S,K,NA)	C sat MG/KG
* TETRACHLOROETHYLENE (c)			0.1941	28.43	2,388.49	0.005	NA	234.55
* TRICHLOROETHYLENE (c)			0.2030	12.40	11,291.04	0.005	NA	1,293.48
*CIS-1,2-DICHLOROETHYLENE			0.8376	1,206.15	20,404.51	0.07	NA	1,206.15
*VINYL CHLORIDE (c)			0.0200	0.08	65.37	0.002	NA	1,163.98
*METHYLENE CHLORIDE (c)			0.0334	34.30	16,560.19	0.005	NA	2,433.60

INPUT SOIL TYPE HERE	USEPA DEFAULT = 0 GRAVEL = 1 SAND = 2 SILT = 3 CLAY = 4
0	

CLASS OF GROUNDWATER 1 OR 2
CLASS 1

DATE=	11-Dec-2000
PROJECT NAME=	Morey Corp
PROJECT NUMBER=	4303005029
CITY=	Downers Grove
COUNTY=	Cook
PROJECT MANAGER=	McCaslin

SOIL PARAMETERS	(INIT. & IN SURFACE SS SOIL VALUES (0-3.2 FT.)	SURFACE DEFAULT VALUES (0-3.2 FT.)	SOIL PARAMETERS	(MIG. TO GW) SUBSURFACE SS SOIL VALUES (3.2 FT. - GW)	SUBSURFACE DEFAULT VALUES (3.2 FT. - GW)
foc= (g/g) (ORGANIC CARBON)	0.006	0.006	foc= (g/g)	0.0108	0.002
n= (Lp/Ls) (POROSITY)	0.43	0.43	n= (Lp/Ls)	0.43	0.43
Ps= (kg/L) (DENSITY)	2.65	2.65	Ps= (kg/L)	2.65	2.65
w= (gw/gs) (% MOISTURE)	0.1	0.1	w= (gw/gs)	0.20	0.20
Ow= (Lw/Ls)	0.150	0.150	Ow= (Lw/Ls)	0.30	0.30
Pb= (kg/L)	1.500	1.500	Pb= (kg/L)	1.50	1.50
Oa= (La/Ls)	0.284	0.284	Oa= (La/Ls)	0.13	0.13
(0a^3.33/n^2)	8.03E-02	8.03E-02	(0a^3.33/n^2)	6.58E-03	6.58E-03

SOIL pH RANGE (4.5 TO 8.0)

7.2

SEE "PH CUO" PAGE FOR RESULTS

TARGET RISK FACTOR (TRF)

DEFAULT=	1E-06
WITH INSTITUTIONAL CONTROLS=	1E-05 OR 1E-04
INPUT TRF HERE=	1E-06

RESIDENTIAL = 1
INDUSTRIAL/COMMERCIAL = 2
CONSTRUCTION WORKER = 3

TYPE OF ENVIRONMENT (1 , 2 OR 3)= 2

DILUTION FACTOR

DEFAULT VALUE FOR THE DILUTION FACT 20

SEE "ADDITIONAL TIER TWO PARAMETERS" FOR THE CALCULATED DILUTION FACTOR IF APPLICABLE.

INSERT DILUTION FACTOR HERE = 20

!!OPTIONAL!!

CALC. OF SITE SPECIFIC DILUTION FACTOR

			DEFAULT VALUES
DILUTION F.	ERR	(UNITLESS)	10
d=(M)	ERR	(MIXING ZONE DEPTH CALCULATED)	2
I=(M/YR)	0.3	(INFILTRATION)	0.3
i=(M/M)		(HYDRAULIC GRADIENT)	SS
L= (M)		(SOURCE LENGTH)	SS
K= (M/YR)		(HYDRAULIC CONDUCTIVITY)	SS
da= (M)		(ACTUAL THICKNESS OF AQUIFER)	SS
n = (UNITLESS)		(EFFECTIVE POROSITY)	(0.3-0.2)

Screening Procedure Summary

TARGET RISK FACTOR =	1E-06
INDUSTRIAL	
CLASS OF GROUNDWATE	1
SSL EQUATIONS USED	

DATE =	11-Dec-2000
PROJECT NAME =	Morey Corp
PROJECT NUMBER =	4303005029
CITY =	Downers Grove
COUNTY =	Cook
PROJECT MANAGER	McCaslin
TIER =	2

CHEMICAL	MAX CONC. DETECTED SOIL	MAX CONC. DETECTED GRD. WATER	MIGRATION TO GROUNDWATER	INHALATION	INGESTION	GROUNDWATER OBJECTIVE	ENDOCRINE RECEPTOR	C sat
	MG/KG	MG/L	MG/KG	MG/KG	MG/KG	MG/L	(P,S,K,NA)	MG/KG
* TETRACHLOROETHYLENE (e)			0.1941	20.22	110.06	0.005	NA	234.55
* TRICHLOROETHYLENE (e)			0.2030	8.81	520.29	0.005	NA	1,293.48
*CIS-1,2-DICHLOROETHYLENE			0.8376	1,206.15	20,440.00	0.07	NA	1,206.15
*VINYL CHLORIDE (e)			0.0200	0.06	3.01	0.002	NA	1,163.98
*METHYLENE CHLORIDE (e)			0.0334	24.39	763.09	0.005	NA	2,433.60

CHEMICAL NUMBER	#
[illegible]	ERR

SSL EQUATIONS USED

TARGET RISK FACTOR = 1E-06

INDUSTRIAL

SOIL PAR.	Surface	Subsurface
foc = (g/g)	0.006	0.0108
n = (Lp/Ls)	0.43	0.43
Ps = (kg/L)	2.65	2.65
w = (gw/gs)	0.1	0.2
Ow = (Lw/Ls)	0.15	0.3
Pb = (kg/L)	1.5	1.5
Oa = (La/Ls)	0.28	0.13

DAT 11 Dec 2000
PROJECT NAME = Morey Corp
PROJECT NUMBER = 4303005029
CIT Downers Grove
COUNT Cook
PROJECT MANAGER = McCaslin

INCREMENTS
FEET

#	CHEMICAL NAME	SSL CLASS I GW (mg/kg)	SSL CLASS II GW (mg/kg)	INHALATION CARC. (mg/kg)	INHALATION NONCARC. (mg/kg)	C sat (mg/kg)	INGESTION NONCARC. (mg/kg)	INGESTION CARC. (mg/kg)	CLASS I GW STD./ OBJ. (mg/L)	CLASS II GW STD. /OBJ. (mg/L)	VF (M^3/kg)	Di (CM^2/S)	Da CM^2/S	Dw (CM^2/S)	Koc (L/kg)	H' UNIT-LESS	Kd SURFACE (L/kg)	Kd SUB (L/kg)	ORGANS AFFECTED	INPUT C source FOR EQU R-26 (mg/L)	EQUATION R-26 Cs (mg/L)
				USE Csat IF " < " INHAL. or MIGRATION TO GROUNDWATER FOR THOSE CHEMICALS DESIGNATED WITH A (*)																	
	(e)= CARCINOGENIC (*)= MELTING POINT < 30 C (**)=SOLID AT 30 DEGREES C	MIGRATION TO GROUNDWATER (GW)		(*)=Melting point " < " 30 degrees C					GROUNDWATER OBJECTIVES AND STANDARDS											INPUT	EQUATION
	* TETRACHLOROETHYLENE (e)	1.94E-01	9.71E-01	2.02E+01	2.35E+02	2.35E+02	2.044E+04	1.10E+02	0.005	0.025	2.87E+03	7.20E-02	2.47E-03	8.20E-06	1.55E+02	7.54E-01	9.30E-01	1.67E+00	0		ERR
	* TRICHLOROETHYLENE (e)	2.03E-01	1.02E+00	8.81E+00	1.29E+03	1.29E+03	1.226E+04	5.20E+02	0.005	0.025	3.67E+03	7.90E-02	1.51E-03	9.10E-06	1.66E+02	4.22E-01	9.96E-01	1.79E+00	0		ERR
	*CIS-1,2-DICHLOROETHYLENE	8.38E-01	2.39E+00	ERR	1.21E+03	1.21E+03	2.044E+04	ERR	0.07	0.2	3.27E+03	7.36E-02	1.90E-03	1.13E-05	3.55E+01	1.67E-01	2.13E-01	3.83E-01	CIRCULATORY SYST		ERR
	*VINYL CHLORIDE (e)	2.00E-02	1.00E-01	5.69E-02	1.16E+03	1.16E+03	0.000E+00	3.01E+00	0.002	0.01	1.17E+03	1.06E-01	1.49E-02	1.23E-06	1.86E+01	1.11E+00	1.12E-01	2.01E-01	0		ERR
	*METHYLENE CHLORIDE (e)	3.34E-02	3.34E-01	2.44E+01	1.23E+04	2.43E+03	1.226E+05	7.63E+02	0.005	0.05	2.80E+03	1.01E-01	2.58E-03	1.17E-05	1.17E+01	8.98E-02	7.02E-02	1.26E-01	0		ERR
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Screening Procedure Summary

TARGET RISK FACTOR =	1E-06
INDUSTRIAL	
CLASS OF GROUNDWATE	2
SSL EQUATIONS USED	

DATE =	11-Dec-2000
PROJECT NAME =	Morey Corp
PROJECT NUMBER =	4303005029
CITY =	Downers Grove
COUNTY =	Cook
PROJECT MANAGER	McCaslin
TIER =	2

CHEMICAL	MAX CONC. DETECTED SOIL MG/KG	MAX CONC. DETECTED GRD. WATER MG/L	MIGRATION TO GROUNDWATER MG/KG	INHALATION MG/KG	INGESTION MG/KG	GROUNDWATER OBJECTIVE MG/L	ENDOCRINE RECEPTOR (P,S,K,NA)	C sat MG/KG
* TETRACHLOROETHYLENE (e)			0.9707	20.22	110.06	0.025	NA	234.55
* TRICHLOROETHYLENE (e)			1.0152	8.81	520.29	0.025	NA	1,293.48
*CIS-1,2-DICHLOROETHYLENE			2.3933	1,206.15	20,440.00	0.2	NA	1,206.15
*VINYL CHLORIDE (e)			0.1000	0.06	3.01	0.01	NA	1,163.98
*METHYLENE CHLORIDE (e)			0.3344	24.39	763.09	0.05	NA	2,433.60

INPUT SOIL TYPE HERE	USEPA DEFAULT = 0 GRAVEL = 1 SAND = 2 SILT = 3 CLAY = 4
0	

CLASS OF GROUNDWATER 1 OR 2	
CLASS	2

DATE =	11-Dec-2000
PROJECT NAME =	Morey Corp
PROJECT NUMBER =	4303005029
CITY =	Downers Grove
COUNTY =	Cook
PROJECT MANAGER =	McCaslin

SOIL PARAMETERS	(INH. & IN SURFACE SS SOIL VALUES (0-3.2 FT.)	SURFACE DEFAULT VALUES (0-3.2 FT.)	SOIL PARAMETERS	(MIG. TO GW) SUBSURFACE SS SOIL VALUES (3.2 FT. - GW)	SUBSURFACE DEFAULT VALUES (3.2 FT. - GW)
foc = (g/g) (ORGANIC CARBON)	0.006	0.006	foc = (g/g)	0.0108	0.002
n = (Lp/Ls) (POROSITY)	0.43	0.43	n = (Lp/Ls)	0.43	0.43
Ps = (kg/L) (DENSITY)	2.65	2.65	Ps = (kg/L)	2.65	2.65
w = (gw/gs) (% MOISTURE)	0.1	0.1	w = (gw/gs)	0.20	0.20
Ow = (Lw/Ls)	0.150	0.150	Ow = (Lw/Ls)	0.30	0.30
Pb = (kg/L)	1.500	1.500	Pb = (kg/L)	1.50	1.50
Oa = (La/Ls)	0.284	0.284	Oa = (La/Ls)	0.13	0.13
(0a^3.33/n^2)	8.03E-02	8.03E-02	(0a^3.33/n^2)	6.58E-03	6.58E-03

SOIL pH RANGE (4.5 TO 8.0)

7.2

SEE "PH CUO" PAGE FOR RESULTS

TARGET RISK FACTOR (TRF)

DEFAULT =	1E-06
WITH INSTITUTIONAL CONTROLS =	1E-05 OR 1E-04
INPUT TRF HERE =	1E-06

RESIDENTIAL = 1
INDUSTRIAL/COMMERCIAL = 2
CONSTRUCTION WORKER = 3

TYPE OF ENVIRONMENT (1 , 2 OR 3) = 2

DILUTION FACTOR

DEFAULT VALUE FOR THE DILUTION FACT 20

SEE "ADDITIONAL TIER TWO PARAMETERS" FOR THE CALCULATED DILUTION FACTOR IF APPLICABLE.

INSERT DILUTION FACTOR HERE = 20

!!OPTIONAL!!

CALC. OF SITE SPECIFIC DILUTION FACTOR

			DEFAULT VALUES
DILUTION F.	ERR	(UNITLESS)	10
d = (M)	ERR	(MIXING ZONE DEPTH CALCULATED)	2
I = (M/YR)	0.3	(INFILTRATION)	0.3
i = (M/M)		(HYDRAULIC GRADIENT)	SS
L = (M)		(SOURCE LENGTH)	SS
K = (M/YR)		(HYDRAULIC CONDUCTIVITY)	SS
da = (M)		(ACTUAL THICKNESS OF AQUIFER)	SS
n = (UNITLESS)		(EFFECTIVE POROSITY)	(0.3-0.2)

CHEMICAL NUMBER	#
[illegible]	ERR

SSL EQUATIONS USED

TARGET RISK FACTOR = 1E-06

INDUSTRIAL

SOIL PAR	Surface	Subsurface
ρs = (g/g)	0.006	0.0108
n = (L p/L s)	0.43	0.43
Ps = (kg/L)	2.65	2.65
w = (gw/gs)	0.1	0.2
Ow = (Lw/Ls)	0.15	0.3
Pb = (kg/L)	1.5	1.5
Oa = (La/Ls)	0.28	0.13

DAT 11 Dec 2000
PROJECT NAME = Morey Corp
PROJECT NUMBER = 1900095029
CIT Downers Grove
COUNT Cook
PROJECT MANAGER = McCaslin

INCREMENTS
FEET

(c) = CARCINOGENIC
(*) = MELTING POINT < 30 C
(**) = SOLID AT 30 DEGREES C

USE Csat IF "<" INHAL. or MIGRATION TO GROUNDWATER FOR THOSE CHEMICALS DESIGNATED WITH A (*)
(*) = Melting point "<" 30 degrees C

#	CHEMICAL NAME	MIGRATION TO GROUNDWATER (GW) SSL CLASS I GW (mg/kg)	SSL CLASS II GW (mg/kg)	INHALATION CARC. (mg/kg)	INHALATION NONCARC. (mg/kg)	C sat (mg/kg)	INGESTION NONCARC. (mg/kg)	INGESTION CARC. (mg/kg)	GROUNDWATER OBJECTIVES AND STANDARDS CLASS I GW STD./OBJ. (mg/L)	CLASS II GW STD./OBJ. (mg/L)	VF (M^3/kg)	Di (CM^2/S)	Da CM^2/S	Dw (CM^2/S)	Koc (L/kg)	H' UNIT-LESS	Kd SURFACE (L/kg)	Kd SUB (L/kg)	ORGANS AFFECTED	INPUT C source FOR EQU R-26 (mg/L)	EQUATION R-26 Cs (mg/L)
*	TETRACHLOROETHYLENE (c)	1.94E-01	9.71E-01	2.02E+01	2.35E+02	2.35E+02	2.044E+04	1.10E+02	0.005	0.025	2.87E+03	7.20E-02	2.47E-03	8.20E-06	1.55E+02	7.54E-01	9.30E-01	1.67E+00	0		ERR
*	TRICHLOROETHYLENE (c)	2.03E-01	1.02E+00	8.81E+00	1.29E+03	1.29E+03	1.226E+04	5.20E+02	0.005	0.025	3.67E+03	7.90E-02	1.51E-03	9.10E-06	1.66E+02	4.22E-01	9.96E-01	1.79E+00	0		ERR
*	CIS-1,2-DICHLOROETHYLENE	8.38E-01	2.39E+00	ERR	1.21E+03	1.21E+03	2.044E+04	ERR	0.07	0.2	3.27E+03	7.36E-02	1.90E-03	1.13E-05	3.55E+01	1.67E-01	2.13E-01	3.83E-01	CIRCULATORY SYST		ERR
*	VINYL CHLORIDE (c)	2.00E-02	1.00E-01	5.69E-02	1.16E+03	1.16E+03	0.000E+00	3.01E+00	0.002	0.01	1.17E+03	1.06E-01	1.49E-02	1.23E-06	1.86E+01	1.11E+00	1.12E-01	2.01E-01	0		ERR
*	METHYLENE CHLORIDE (c)	3.34E-02	3.34E-01	2.44E+01	1.23E+04	2.43E+03	1.226E+05	7.63E+02	0.005	0.05	2.80E+03	1.01E-01	2.58E-03	1.17E-05	1.17E+01	8.98E-02	7.02E-02	1.26E-01	0		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
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		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
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		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
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		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR		ERR

INPUT SOIL TYPE HERE	USEPA DEFAULT = 0 GRAVEL = 1 SAND = 2 SILT = 3 CLAY = 4
0	

CLASS OF GROUNDWATER 1 OR 2	
CLASS	2

DATE=	11-Dec-2000
PROJECT NAME=	Morey Corp
PROJECT NUMBER=	4303005029
CITY=	Downers Grove
COUNTY=	Cook
PROJECT MANAGER=	McCaslin

SOIL PARAMETERS	(INH. & IN SURFACE SS SOIL VALUES (0-3.2 FT.)	SURFACE DEFAULT VALUES (0-3.2 FT.)	SOIL PARAMETERS	(MIG. TO GW) SUBSURFACE SS SOIL VALUES (3.2 FT. - GW)	SUBSURFACE DEFAULT VALUES (3.2 FT. - GW)
foc= (g/g) (ORGANIC CARBON)	0.006	0.006	foc= (g/g)	0.0108	0.002
n= (Lp/Ls) (POROSITY)	0.43	0.43	n= (Lp/Ls)	0.43	0.43
Ps= (kg/L) (DENSITY)	2.65	2.65	Ps= (kg/L)	2.65	2.65
w= (gw/gs) (% MOISTURE)	0.1	0.1	w= (gw/gs)	0.20	0.20
Ow= (Lw/Ls)	0.150	0.150	Ow= (Lw/Ls)	0.30	0.30
Pb= (kg/L)	1.500	1.500	Pb= (kg/L)	1.50	1.50
Oa= (La/Ls)	0.284	0.284	Oa= (La/Ls)	0.13	0.13
(0a^3.33/n^2)	8.03E-02	8.03E-02	(0a^3.33/n^2)	6.58E-03	6.58E-03

SOIL pH RANGE (4.5 TO 8.0)

7.2

SEE "PH CUO" PAGE FOR RESULTS

TARGET RISK FACTOR (TRF)

DEFAULT=	1E-06
WITH INSTITUTIONAL CONTROLS=	1E-05 OR 1E-04
INPUT TRF HERE=	1E-06

RESIDENTIAL = 1
INDUSTRIAL/COMMERCIAL = 2
CONSTRUCTION WORKER = 3

TYPE OF ENVIRONMENT (1 , 2 OR 3)= 3

DILUTION FACTOR

DEFAULT VALUE FOR THE DILUTION FACT 20

SEE "ADDITIONAL TIER TWO PARAMETERS" FOR THE CALCULATED DILUTION FACTOR IF APPLICABLE.

INSERT DILUTION FACTOR HERE = 20

!!OPTIONAL!!

CALC. OF SITE SPECIFIC DILUTION FACTOR

			DEFAULT VALUES
DILUTION F.	ERR	(UNITLESS)	10
d=(M)	ERR	(MIXING ZONE DEPTH CALCULATED)	2
I=(M/YR)	0.3	(INFILTRATION)	0.3
i=(M/M)		(HYDRAULIC GRADIENT)	SS
L= (M)		(SOURCE LENGTH)	SS
K= (M/YR)		(HYDRAULIC CONDUCTIVITY)	SS
da= (M)		(ACTUAL THICKNESS OF AQUIFER)	SS
n = (UNITLESS)		(EFFECTIVE POROSITY)	(0.3-0.2)

CHEMICAL NUMBER	#
[illegible]	ERR

SSL EQUATIONS USED

TARGET RISK FACTOR = 1E-06

CONSTRUCTION WORKE

SOIL PAR.	Surface	Subsurface
Ds = (g/cf)	0.0000	0.0000
n = (Lp/Ls)	0.43	0.43
Ps = (kg/L)	2.65	2.65
w = (ew/ps)	0.1	0.2
Ow = (Lw/Ls)	0.15	0.3
Pb = (kg/L)	1.5	1.5
Oa = (La/Ls)	0.28	0.13

DAT 11-Dec-2000
PROJECT NAME = Morey Corp
PROJECT NUMBER = 43030050?9
CIT Downers Grove
COUNT Cook
PROJECT MANAGER = McCaslin

INCREMENTS
FEET

#	CHEMICAL NAME	SSL CLASS I GW (mg/kg)	SSL CLASS II GW (mg/kg)	INHALATION CARC. (mg/kg)	INHALATION NONCARC (mg/kg)	C sat (mg/kg)	INGESTION NONCARC. (mg/kg)	INGESTION CARC. (mg/kg)	CLASS I GW STD./ OBJ. (mg/L)	CLASS II GW STD. /OBJ. (mg/L)	VF (M^3/kg)	Di (CM^2/S)	Da CM^2/S	Dw (CM^2/S)	Koc (L/kg)	H' UNIT-LESS	Kd SURFACE (L/kg)	Kd SUB (L/kg)	ORGANS AFFECTED	INPUT C source FOR EQU R-26 (mg/L)	EQUATION R-26, C Ca (mg/L)
	(c) = CARCINOGENIC (*) = MELTING POINT < 30 C (**) = SOLID AT 30 DEGREES C	MIGRATION TO GROUNDWATER (GW)		USE Csat IF "<" INHAL. or MIGRATION TO GROUNDWATER FOR THOSE CHEMICALS DESIGNATED WITH A (*) (*) = Melting point "<" 30 degrees C					GROUNDWATER OBJECTIVES AND STANDARDS												
	* TETRACHLOROETHYLENE (c)	1.94E-01	9.71E-01	2.84E+01	2.35E+02	2.35E+02	2.040E+04	2.39E+03	0.005	0.025	1.94E+01	7.20E-02	2.47E-03	8.20E-06	1.55E+02	7.54E-01	9.30E-01	1.67E+00	0	[illegible]	ERR
	* TRICHLOROETHYLENE (c)	2.03E-01	1.02E+00	1.24E+01	1.29E+03	1.29E+03	1.224E+03	1.13E+04	0.005	0.025	2.47E+01	7.90E-02	1.51E-03	9.10E-06	1.66E+02	4.22E-01	9.96E-01	1.79E+00	0	[illegible]	ERR
	*CIS-1,2-DICHLOROETHYLENE	8.38E-01	2.39E+00	ERR	1.21E+03	1.21E+03	2.040E+04	ERR	0.07	0.2	2.21E+01	7.36E-02	1.90E-03	1.13E-05	3.55E+01	1.67E-01	2.13E-01	3.83E-01	CIRCULATORY SYST	[illegible]	ERR
	*VINYL CHLORIDE (c)	2.00E-02	1.00E-01	8.00E-02	1.16E+03	1.16E+03	0.000E+00	6.54E+01	0.002	0.01	7.89E+00	1.06E-01	1.49E-02	1.23E-06	1.86E+01	1.11E+00	1.12E-01	2.01E-01	0	[illegible]	ERR
	*METHYLENE CHLORIDE (c)	3.34E-02	3.34E-01	3.43E+01	7.94E+01	2.43E+03	1.224E+04	1.66E+04	0.005	0.05	1.89E+01	1.01E-01	2.58E-03	1.17E-05	1.17E+01	8.98E-02	7.02E-02	1.26E-01	0	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
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	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR

Screening Procedure Summary

TARGET RISK FACTOR =	1E-06	DATE =	11-Dec-2000
CONSTRUCTION WORKE		PROJECT NAME =	Morey Corp
CLASS OF GROUNDWATE	2	PROJECT NUMBER =	4303005029
SSL EQUATIONS USED		CITY =	Downers Grove
		COUNTY =	Cook
		PROJECT MANAGER	McCaslin
		TIER =	2

CHEMICAL	MAX CONC. DETECTED SOIL	MAX CONC. DETECTED GRD. WATER	MIGRATION TO GROUNDWATER	INHALATION	INGESTION	GROUNDWATER OBJECTIVE	ENDOCRINE RECEPTOR	C sat
	MG/KG	MG/L	MG/KG	MG/KG	MG/KG	MG/L	(P,S,K,NA)	MG/KG
* TETRACHLOROETHYLENE (e)			0.9707	28.43	2,388.49	0.025	NA	234.55
* TRICHLOROETHYLENE (e)			1.0152	12.40	11,291.04	0.025	NA	1,293.48
*CIS-1,2-DICHLOROETHYLENE			2.3933	1,206.15	20,404.51	0.2	NA	1,206.15
*VINYL CHLORIDE (e)			0.1000	0.08	65.37	0.01	NA	1,163.98
*METHYLENE CHLORIDE (e)			0.3344	34.30	16,560.19	0.05	NA	2,433.60

Input For Mass Limit Equations And R-26

[redacted]

SITE SPECIFIC
PARTICULATE EMMISSION FACTOR (PEF)

			DEFAULT VALUES	UNITS
Acres of contamination (Acres) =		[redacted]	30	acre
		ERR	NA	(g/m^2-s/kg/m^3)
Equivalent Wind Speed	Ut =	[redacted]	11.32	(m/s)
Mean Annual Wind Speed	Um =	[redacted]	4.69	(m/s)
Fraction Vegitative Cover	V =	[redacted]	0.5	unitless
f(X) =		[redacted]	0.194	unitless

PEF OR PEF' = ERR (m^3/kg)

[redacted]

MIGRATION TO GROUNDWATER MASS LIMIT OPTION!!

			DEFAULT VALUE	UNITS
Infiltration Rate	I m-L	[redacted]	0.18	m/yr
Exposure Duration	ED m-L =	70	70	yr
Depth of Source	ds	[redacted]	SS	m

PRINT BUTTON

[redacted]

[redacted]

SITE SPECIFIC MASS LIMIT
VOLATILIZATION FACTOR (VF & VF')

		DEFAULT VALUES	UNITS
Acres	[redacted]	30	acre
Q/C	97.78	NA	(g/m^2-s/kg/m^3)
ds	[redacted]	SS	m

VF& VF' 2.05E+04 (m^3/kg)

INPUT FOR EQUATION R-26

		DEFAULT	UNITS	
X =	[redacted]	SS	cm	0.00 Feet
Sw =	[redacted]	SS	cm	0.00 Feet
Sd =	[redacted]	SS	cm	0.00 Feet
C source =	SEE CUO's PAGE U21	CS	mg/L	
K =	[redacted]	SS	cm/d	0.0E+00 cm/sec
i =	[redacted]	SS	cm/cm	
0t =	[redacted]	SS	cm^3/cm^3	
ax =	0	SS	cm	
az =	0	SS	cm	
ay =	0.00	SS	cm	
B 1 =	ERR	SS	NA	
B 2 =	ERR	SS	NA	
U =	ERR	SS	cm/day	

[redacted]

CHEMICAL NUMBER	#
[illegible]	ERR

MASS LIMIT EQUATION WA

TARGET RISK FACTOR = 1E-06

INDUSTRIAL

SOIL PAR.	Surface	Subsurface
foc = (g/g)	0.006	0.0108
n = (Lp/Ls)	0.43	0.43
Ps = (kg/L)	2.65	2.65
w = (gw/gs)	0.1	0.2
Ow = (Lw/Ls)	0.15	0.3
Pb = (kg/L)	1.5	1.5
Oa = (La/Ls)	0.28	0.13

DATE	30-Jan-2001
PROJECT NAME =	Morey Corporation
PROJECT NUMBER =	430300502?
CITY	Downers Grove
COUNTY	DuPage
PROJECT MANAGER =	McCardin

INCREMENTS
FEET

#	CHEMICAL NAME	SSL CLASS I GW (mg/kg)	SSL CLASS II GW (mg/kg)	INHALATION CARC. (mg/kg)	INHALATION NONCARC. (mg/kg)	C sat (mg/kg)	INGESTION NONCARC. (mg/kg)	INGESTION CARC. (mg/kg)	CLASS I GW STD./ OBJ. (mg/L)	CLASS II GW STD. /OBJ. (mg/L)	VF (M^3/kg)	Di (CM^2/S)	Da CM^2/S	Dw (CM^2/S)	Koc (L/kg)	H' UNIT-LESS	Kd SURFACE (L/kg)	Kd SUB (L/kg)	ORGANS AFFECTED	[illegible]	EQUATION
	(e) = CARCINOGENIC (*) = MELTING POINT < 30 C (**) = SOLID AT 30 DEGREES C	MIGRATION TO GROUNDWATER (GW)		USE Csat IF "<" INIAL. or MIGRATION TO GROUNDWATER FOR THOSE CHEMICALS DESIGNATED WITH A (*) (*) = Melting point "<" 30 degrees C					GROUNDWATER OBJECTIVES AND STANDARDS											INPUT	
	* TETRACHLOROETHYLENE (c)	1.94E-01	9.71E-01	1.45E+02	2.35E+02	2.35E+02	2.044E+04	1.10E+02	0.005	0.025	2.05E+04	7.30E-02	2.47E-03	8.20E-06	1.55E+02	7.54E-01	9.30E-01	1.67E+00	0	[illegible]	ERR
	* TRICHLOROETHYLENE (c)	2.03E-01	1.02E+00	4.94E+01	1.29E+03	1.29E+03	1.226E+04	5.20E+02	0.005	0.025	2.05E+04	7.90E-02	1.51E-03	9.10E-06	1.66E+02	4.22E-01	9.96E-01	1.79E+00	0	[illegible]	ERR
	*CIS-1,2-DICHLOROETHYLENE	8.38E-01	2.39E+00	ERR	1.21E+03	1.21E+03	2.044E+04	ERR	0.07	0.2	2.05E+04	7.36E-02	1.90E-03	1.13E-05	3.55E+01	1.67E-01	2.13E-01	3.83E-01	CIRCULATORY SYST	[illegible]	ERR
	*VINYL CHLORIDE (c)	2.00E-02	1.00E-01	9.99E-01	1.16E+03	1.16E+03	0.000E+00	3.01E+00	0.002	0.01	2.05E+04	1.06E-01	1.49E-02	1.23E-06	1.86E+01	1.11E+00	1.12E-01	2.01E-01	0	[illegible]	ERR
	*METHYLENE CHLORIDE (c)	3.34E-02	3.34E-01	1.79E+02	8.99E+04	2.43E+03	1.226E+05	7.63E+02	0.005	0.05	2.05E+04	1.01E-01	2.58E-03	1.17E-05	1.17E+01	8.88E-02	7.02E-02	1.26E-01	0	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
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	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR
	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+04	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	[illegible]	ERR

INPUT SOIL TYPE HERE	USEPA DEFAULT = 0 GRAVEL = 1 SAND = 2 SILT = 3 CLAY = 4
0	

CLASS OF GROUNDWATER 1 OR 2	
CLASS	1

DATE=	30-Jan-2001
PROJECT NAME=	Morey Corporation
PROJECT NUMBER=	4303005029
CITY=	Downers Grove
COUNTY=	DuPage
PROJECT MANAGER=	McCaslin

SOIL PARAMETERS	(INH. & IN SURFACE SS SOIL VALUES (0-3.2 FT.)	SURFACE DEFAULT VALUES (0-3.2 FT.)	SOIL PARAMETERS	(MIG. TO GW) SUBSURFACE SS SOIL VALUES (3.2 FT. - GW)	SUBSURFACE DEFAULT VALUES (3.2 FT. - GW)
foc= (g/g) (ORGANIC CARBON)	0.006	0.006	foc= (g/g)	0.0108	0.002
n= (Lp/Ls) (POROSITY)	0.43	0.43	n= (Lp/Ls)	0.43	0.43
Ps= (kg/L) (DENSITY)	2.65	2.65	Ps= (kg/L)	2.65	2.65
w= (gw/gs) (% MOISTURE)	0.1	0.1	w= (gw/gs)	0.20	0.20
Ow= (Lw/Ls)	0.150	0.150	Ow= (Lw/Ls)	0.30	0.30
Pb= (kg/L)	1.500	1.500	Pb= (kg/L)	1.50	1.50
Oa= (La/Ls)	0.284	0.284	Oa= (La/Ls)	0.13	0.13
(0a^3.33/n^2)	8.03E-02	8.03E-02	(0a^3.33/n^2)	6.58E-03	6.58E-03

SOIL pH RANGE (4.5 TO 8.0)

7.2

SEE "PH CUO" PAGE FOR RESULTS

TARGET RISK FACTOR (TRF)

DEFAULT=	1E-06
WITH INSTITUTIONAL CONTROLS=	1E-05 OR 1E-04
INPUT TRF HERE=	1E-06

RESIDENTIAL = 1
INDUSTRIAL/COMMERCIAL = 2
CONSTRUCTION WORKER = 3

TYPE OF ENVIRONMENT (1 , 2 OR 3)= 3

DILUTION FACTOR

DEFAULT VALUE FOR THE DILUTION FACT 20

SEE "ADDITIONAL TIER TWO PARAMETERS" FOR THE CALCULATED DILUTION FACTOR IF APPLICABLE.

INSERT DILUTION FACTOR HERE = 20

!!OPTIONAL!!

CALC. OF SITE SPECIFIC DILUTION FACTOR

			DEFAULT VALUES
DILUTION F.	ERR	(UNITLESS)	10
d=(M)	ERR	(MIXING ZONE DEPTH CALCULATED)	2
I=(M/YR)	0.3	(INFILTRATION)	0.3
i=(M/M)		(HYDRAULIC GRADIENT)	SS
L= (M)		(SOURCE LENGTH)	SS
K= (M/YR)		(HYDRAULIC CONDUCTIVITY)	SS
da= (M)		(ACTUAL THICKNESS OF AQUIFER)	SS
n = (UNITLESS)		(EFFECTIVE POROSITY)	(0.3-0.2)

Input For Mass Limit Equations And R-26

[redacted]

SITE SPECIFIC
PARTICULATE EMMISSION FACTOR (PEF)

			DEFAULT VALUES	UNITS
Acres of contamination (Acres) =		[redacted]	30	acre
		ERR	NA	(g/m^2-s/kg/m^3)
Equivalent Wind Speed	Ut =	[redacted]	11.32	(m/s)
Mean Annual Wind Speed	Um =	[redacted]	4.69	(m/s)
Fraction Vegitative Cover	V =	[redacted]	0.5	unitless
f(X) =		[redacted]	0.194	unitless

PEF OR PEF' = ERR (m^3/kg)

[redacted]

MIGRATION TO GROUNDWATER MASS LIMIT OPTION!!

			DEFAULT VALUE	UNITS
Infiltration Rate	I m-L	[redacted]	0.18	m/yr
Exposure Duration	ED m-L =	70	70	yr
Depth of Source	ds	[redacted]	SS	m

PRINT BUTTON

[redacted]

[redacted]

SITE SPECIFIC MASS LIMIT
VOLATILIZATION FACTOR (VF & VF')

		DEFAULT VALUES	UNITS
Acres	[redacted]	30	acre
Q/C	97.78	NA	(g/m^2-s/kg/m^3)
ds	[redacted]	SS	m

VF& VF' 2.05E+03 (m^3/kg)

INPUT FOR EQUATION R-26

		DEFAULT	UNITS	
X =	[redacted]	SS	cm	0.00 Feet
Sw =	[redacted]	SS	cm	0.00 Feet
Sd =	[redacted]	SS	cm	0.00 Feet
C source =	SEE CUO's PAGE U21	CS	mg/L	
K =	[redacted]	SS	cm/d	0.0E+00 cm/sec
i =	[redacted]	SS	cm/cm	
0t =	[redacted]	SS	cm^3/cm^3	
ax =	0	SS	cm	
az =	0	SS	cm	
ay =	0.00	SS	cm	
B 1 =	ERR	SS	NA	
B 2 =	ERR	SS	NA	
U =	ERR	SS	cm/day	

[redacted]

ABLR	#
	LRR

MASS LIMIT EQUATION WA

.C RISK FACTOR = 1E-06

ONSTRUCTION WORKE

SOIL PAR.	Surface	Subsurface
foc = (g/g)	0.006	0.0108
n = (Lp/Ls)	0.43	0.43
Ps = (kg/L)	2.65	2.65
w = (gw/gs)	0.1	0.2
Ow = (Lw/Ls)	0.15	0.3
Pb = (kg/L)	1.5	1.5
Oa = (La/Ls)	0.28	0.13

DATE	30 Jan 2001
PROJECT NAME =	Morey Corporation
PROJECT NUMBER =	4303005029
CITY	Downers Grove
COUNTY	DuPage
PROJECT MANAGER =	McCaslin

INCREMENTS
FEET

(c) = CARCINOGENIC
(*) = MELTING POINT < 30 C
(**) = SOLID AT 30 DEGREES C

MIGRATION TO GROUNDWATER (GW)

USE Csat IF * < * INHAL. or MIGRATION TO GROUNDWATER FOR THOSE CHEMICALS DESIGNATED WITH A (*)
(*) = Melting point * < * 30 degrees C

GROUNDWATER OBJECTIVES AND STANDARDS

#	CHEMICAL NAME	SSL CLASS I GW (mg/kg)	SSL CLASS II GW (mg/kg)	INHALATION CARC. (mg/kg)	INHALATION NONCARC. (mg/kg)	C sat (mg/kg)	INGESTION NONCARC. (mg/kg)	INGESTION CARC. (mg/kg)	CLASS I GW STD./ OBJ. (mg/L)	CLASS II GW STD. /OBJ. (mg/L)	VF (M^3/kg)	DI (CM^2/S)	Da CM^2/S	Dw (CM^2/S)	Koc (L/kg)	H' UNIT-LESS	Kd SURFACE (L/kg)	Kd SUB (L/kg)	ORGANS AFFECTED	[redacted]
	* TETRACHLOROETHYLENE (c)	1.94E-01	9.71E-01	3.02E+03	2.35E+02	2.35E+02	2.040E+04	2.39E+03	0.005	0.025	2.05E+03	7.20E-02	2.47E-03	8.20E-06	1.55E+02	7.54E-01	9.30E-01	1.67E+00	0	ERR
	* TRICHLOROETHYLENE (c)	2.03E-01	1.02E+00	1.03E+03	1.29E+03	1.29E+03	1.224E+03	1.13E+04	0.005	0.025	2.05E+03	7.90E-02	1.51E-03	9.10E-06	1.66E+02	4.22E-01	9.96E-01	1.79E+00	0	ERR
	*CIS-1,2-DICHLOROETHYLENE	8.38E-01	2.39E+00	ERR	1.21E+03	1.21E+03	2.040E+04	ERR	0.07	0.2	2.05E+03	7.36E-02	1.90E-03	1.13E-05	3.55E+01	1.67E-01	2.13E-01	3.83E-01	CIRCULATORY SYST	ERR
	*VINYL CHLORIDE (c)	2.00E-02	1.00E-01	2.08E+01	1.16E+03	1.16E+03	0.000E+00	6.54E+01	0.002	0.01	2.05E+03	1.06E-01	1.49E-02	1.23E-06	1.86E+01	1.11E+00	1.12E-01	2.01E-01	0	ERR
	*METHYLENE CHLORIDE (c)	3.34E-02	3.34E-01	3.72E+03	8.62E+03	2.43E+03	1.224E+04	1.66E+04	0.005	0.05	2.05E+03	1.01E-01	2.58E-03	1.17E-05	1.17E+01	8.98E-02	7.02E-02	1.26E-01	0	ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+03	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
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		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+03	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
		ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	2.05E+03	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR

Site Remediation Program Review Checklist

A. General Information

1. Project/Site Name (County): Morey Corporation (DuPage)
   Illinois Inventory ID Number: 0430305029
   Address: 2659 Wisconsin Street
   City: Downers Grove Zip Code: 60515

2. Remediation Applicant(s):MC Holdings, Inc.
   Contact Person(s): Dana Morey
   Address: 100 Morey Drive
   City:Woodrige State: IL Zip Code: 60517
   Phone: 630-754-2124 Fax:

3. RA's Agent(s):
   Contact Person(s):
   Address:
   City: State: Zip Code:
   Phone: Fax:

4. RA's Consultant(s): Pioneer Environmental, Inc.
   Contact Person(s): Tom Brecheisen
   Address: 1000 N. Halsted #202
   City:Chicago State: IL Zip Code:60622
   Phone: 312-587-1021 Fax:

5. RELPE(s):
   Contact Person(s):
   Address:
   City: State: Zip Code:
   Phone: Fax:

6. Property Owner(s):
   Contact Person(s):
   Address:
   City: State: Zip Code:
   Phone: Fax:

7. Illinois EPA
   Community Relations Coordinator: Phone:
   OCS: Phone: Fax:
   Attorney: Phone: Fax:
   FOS: Phone: Fax:

8. Other Interested Parties:

☞ For multiple listings, attached additional sheets containing all applicable information above.

B. Project Summary

1. Reason for Participation in the SRP (e.g., property transfer pending, Illinois determination on remediation activity conducted at the site, Brownfields, etc.), description of recognized environmental conditions and related contaminants of concern at the site, site history, and assurances sought from the Illinois EPA (e.g., comprehensive NFR letter, focused NFR letter, or 4(y) letter):

   The remedial applicant is seeking a Focused NFR for Volatiles using industrial/commercial remediation objectives for an approximately 1200 square feet area near the east central portion of a 3.9-acre property. The property consists of two parcels. The facility formerly manufactured small electronic parts and was in operation at the site for about 35 years. Solvent was stored in drums in the waste storage room. The recognized environmental conditions are the result of spills of waste cleaning solvent on the floor of the waste storage room. Stains were visible on the floor of the room. A floor drain in the waste storage room discharged on to the ground surface immediately outside the building's eastern wall. VOC impacted soils were identified around the area of the drainpipe and underneath the floor of the waste storage room..

2. Site Description (i.e., description of the regional location and land uses of the surrounding areas adjacent to the remediation site):

   The site is comprised of a one-story industrial building (43,200 square feet) located within Ellsworth Industrial Park. The site is bordered on the north by Wisconsin Street beyond which is Novartis Seeds, Inc. and Amkus Rescue Systems. Katrine Avenue is to the east, beyond which is Lovejoy. The site is bordered to the west by a public storage facility and to the south by vacant land known as Elmore Avenue (dedicated right of way), beyond which is densely vegetated vacant land.

3. Groundwater Class and general geology:

   Shallow groundwater was not found on site to a depth of 24 feet below ground surface. A groundwater classification was not conducted per 35 IAC 620. Therefore, the groundwater (if any) is conservatively assumed to be Class I. A conservative value of 1×10^{-5} cm/sec was used for the hydraulic conductivity. The consultant reviewed references that listed the hydraulic conductivity for the silty clay soils between 1×10^{-9}cm/sec and 1×10^{-6}cm/sec. Because no groundwater was encountered on the site I agreed to the hydraulic conductivity value used in the calculations. The site consists of brown silty clay and clayey silt from near surface to 6 to 9 feet below ground surface (bgs). From 6 to 24 feet bgs (depth of deepest boring), a very stiff gray silty clay unit was found with a trace of fine sand and gravel. Pioneer reviewed the ISGS Circular titled *Potential for Contamination of Shallow Aquifers in Illinois.* The site was near an area of "E" classification. The "E" classification is described as uniform, relatively impermeable silty or clayey till at least 50 feet thick. The actual site geology appears generally consistent with this classification. No evidence of groundwater was found in any of the subsurface borings. A soil sample was obtained from a clean boring (B14) and analyzed for soil organic content (f_{oc}). The organic content was 1.08%.

4. Description of how the remediation objectives meet the Tiered Approach to Corrective Action Objectives ("TACO") criteria (35 Ill. Adm. Code 742):

   All but five of the targeted VOC compounds were at or below the Tier I soil remediation objectives

(SRO's) for industrial/commercial and construction worker objectives. The remedial applicant developed Tier II SRO's for tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, vinyl chloride, and methyl chloride using SSL equations S1, S3, S4, S5, S6, S7, S26 and S27. The area of contamination was well defined and the remedial applicant (RA) used the mass limit option (S27) when developing the Tier II SRO's. Default values were used for all inputs to the models except for pH and f_{oc}, where site-specific data was used. The soil pH was 7.2 and the subsurface f_{oc} was measured at 1.08%. The remedial applicant originally proposed to use a Tier III remediation objective and exclude the groundwater ingestion pathway. After telephone conversations the consultant for the RA agreed that a Tier II approach would be the best way to approach the site. A Tier II remediation objective was developed for the groundwater ingestion exposure pathway. RBCA equation R14 was used to predict a potential groundwater impact from the remaining soil concentration of the contaminants that exceeded the Tier I migration to groundwater objectives for class I groundwater. The potential groundwater impact onsite was greater than the class I groundwater objectives. Therefore an institutional control preventing the installation and use of potable water wells on site will be required. Using RBCA equation R26, the predicted groundwater concentrations were modeled to demonstrate that the class I groundwater objectives would be met at the property line. Since some of the contaminants on site affected the same target organ the RA also had to implement the mixture rule. Taking into account the affect of the mixtures the Tier II objectives were still achieved.

5. Remedial Action(s) performed:

The remedial applicant hand excavated an approximately 3 feet by 3 feet by 4 feet area around the drainpipe prior to the site investigation work by Pioneer. This soil was put into four 55-gallon containers and later properly disposed of. Hazardous waste manifest for the soil was included in the addendum to the FSI/RACR.

6. Applicable Engineered Barriers and Institutional Controls proposed/implemented:

The remedial applicant proposes to use an institutional control that will prevent the installation and use of potable water supply wells on site.

7. Post-remediation requirements: None

8. Other environmental determinations or actions: None

9. Other services requested by the RA under the SRP: None

10. Services provided by the Review and Evaluation Licensed Professional Engineer ("RELPE"): None

Site Remediation Program Review Checklist

0430305029 -- Cook
Downers Grove/Morey Corporation
Site Remediation/Technical

SRP Applications, Plans, Reports, and other Correspondences

Report Title or Activity	Log No.	Dated	Received by IEPA	Sign	Date of IEPA Response	IEPA Action
Focused Site Investigation and Remedial Action Completion Report	00-4399	11/08/00	11/13/00	Yes	12/13/00 (telephone)	Requested additional soil borings
Fax – Addendum to FSI/RACR	01-0249	01/23/01	01/23/01	No	01/23/01 (telephone)	
Focused Site Investigation & Remedial Action Completion report (Addendum)	01-0286	01/23/01	01/25/01	Yes	See NFR	Approved – Issued NFR

Site Investigation Report Checklist List

Version: Focused

Description of the Required Element(s) in each Chapter	Review Notes	Regulatory Citation
1. Executive Summary	Adequate	35 Ill. Adm. Code 740.425(b)(1) or 740.435(b)(1)
2A. Site Characterization (Comprehensive) 2B. Site Description (Focused)	Adequate	35 Ill. Adm. Code 740.425(b)(2) 35 Ill. Adm. Code 740.435(b)(2)
3. Site-specific Sampling Plan	Adequate	35 Ill. Adm. Code 740.425(b)(3) or 740.435(b)(4)
4. Documentation of Field Activities	Adequate	35 Ill. Adm. Code 740.425(b)(4) or 742.435(b)(5)

Description of the Required Element(s) in each Chapter	Review Notes	Regulatory Citation
5. Endangerment Assessment (Comprehensive and Focused)	Adequate	35 Ill. Adm. Code 740.425(b)(5) or 740.435(b)(6)
6. Conclusion (Comprehensive and Focused)	Adequate	35 Ill. Adm. Code 740.425(b)(6) or 740.435(b)(7)
7. Appendices (Comprehensive and Focused)	Adequate	35 Ill. Adm. Code 740.425(b)(7) or 740.435(b)(8)
8. Other Chapters (Issues or Topics)		

Remediation Objectives Report Check List

The Remediation Objectives Report shall address the recognized environmental condition(s) and related contaminants of concern that were identified in the Site Investigation.

Description of the Required Element in the Chapter	Review Notes	Regulatory Citation
1. Exposure Route Excluded	NA	35 Ill. Adm. Code 742.Subpart C
2. Tier 1 Remediation Objectives	Adequate	35 Ill. Adm. Code 742.Subpart E
3. Tier 2 Remediation Objectives	Adequate	35 Ill. Adm. Code Subparts F - H
4. Tier 3 Remediation Objectives	NA	35 Ill. Adm. Code Subpart I
5. Remediation Objectives using Area Bkgd	NA	35 Ill. Adm. Code Subpart D
6. Other Remediation Measures (e.g., removal of drums threatening a release)	NA	
7. Other Chapters (issues or topics)		

Notes: RA originally proposed to use a Tier III approach and exclude the groundwater ingestion pathway. Later they decided to develop a Tier II remediation objective by modeling the groundwater impacts and demonstrating that the groundwater would meet the Class I standards at the property boundary (point of nearest human exposure) and utilize an on site groundwater use restriction..

Remedial Action Plan Checklist

If the Illinois EPA-approved remediation objectives for any regulated substance of concern are less than the levels at the remediation site prior to any remedial action, the remediation applicant shall prepare a remedial action plan. The plan shall describe the proposed remedy and evaluate its ability and effectiveness to achieve the remediation objectives approved by the Illinois EPA for the remediation site. (Section 58.6(d) of the Act)

Description of the Required Element(s) in the Chapter	Review Notes	Regulatory Citation
1. Executive Summary	Adequate	35 Ill. Adm. Code 740.450(a)
2. Remediation Objectives	Adequate	35 Ill. Adm. Code 740.450(b)
3. Remedial Technologies Selected	NA	35 Ill. Adm. Code 740.450(c)
4. Confirmational Sampling Plan	NA	35 Ill. Adm. Code 740.450(d)
5. Current and Post-Remediation Use of the Property	Adequate	35 Ill. Adm. Code 740.450(e)
6. Applicable Engineer Barriers, Institutional Controls, and Groundwater Monitoring,	Adequate	35 Ill. Adm. Code 740.450(f)
7. Appendices	Adequate	35 Ill. Adm. Code 740.450(g)
8.Other Chapters (issues or topics)		

Notes: Tier II soil RO's were developed for ingestion and inhalation. These were met and no Engineered barriers will be required for the site. There will be an on site groundwater use restriction required as the groundwater was modeled to exceed Class I on site. Modeling did show Class I objectives were met at the nearest property boundary.

Remedial Action Completion Report Checklist

The remedial action completion report shall demonstrate whether the remedial action was completed in accordance with the Illinois EPA-approved remedial action plan and whether the remediation objectives, as well as any other requirements of the plan, have been attained. (Section 58.6(e) of the Act). If the approved remediation objectives for the regulated substances of concern are equal to or above the levels existing at the site prior to any remedial action, notification and documentation of such, including a description of any engineered barriers, institutional controls, and post-remedial monitoring, shall constitute the entire remedial action completion report.

Option 1. ***Remedial Action Completion Report (where remedial action is required)***

Description of the Required Element(s) in the Chapter	Review Notes	Regulatory Citation
1. Executive Summary	Adequate	35 Ill. Adm. Code 740.455(a)(1)?
2. Field Activities	Adequate	35 Ill. Adm. Code 740.455(a)(2)
3. Special Conditions	Adequate	35 Ill. Adm. Code 740.455(a)(3)
4. Results	Adequate	35 Ill. Adm. Code 740.455(a)(4)
5. Conclusion	Adequate	35 Ill. Adm. Code 740.455(a)(5)
6. Appendices	Adequate	35 Ill. Adm. Code 740.455(a)(6)
7. Other Chapters (issues and topics)		Other

Notes:

Option 2. ***Remedial Action Completion Report (where remedial action is not required) – Not Applicable***

Description of the Required Element in the Chapter	Review Notes	Regulatory Citation
1. Notification & Documentation		35 Ill. Adm. Code 740.455(b)
2. Appendices		35 Ill. Adm. Code 740.455(b)
3. Other Chapters (issues and topics)		

Notes:

BOX 1 0F 3

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