Painesville Works Site
BIOSCREEN Summary for Vinyl Chloride

Table 12

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_{oc}, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-4	180	1000	1.60E-04	--	0.0168	--	0.006	--	1.88E+01	450	--	0	--	930	28
6B1	CL6-8	170	1000	1.60E-04	--	0.2130	--	0.006	--	1.88E+01	10	--	170	--	930	28
1C5	MWB-2	2500	1000	1.60E-04	6.63E-04	0.0304	0.0294	0.006	0.0063	1.88E+01	1350	1470	79	2500	930	28
1C5	MWB-4	40	1000	1.60E-04	6.63E-04	0.0354	0.0275	0.006	0.0063	1.88E+01	1240	1680	10	40	930	28
1C5	SW1-6	1200	1000	1.60E-04	6.63E-04	0.0303	0.0236	0.006	0.0063	1.88E+01	1200	1640	4	1200	930	28

Paine. Works Site
BIOSCREEN Summary for Arsenic

Table 13

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/l		Outside Mixing Zone Average (ug/l)	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-3	2000	1000	1.60E-04	--	0.0076	--	0.006	--	19.4	170	--	0	--	150	580
6B1	CL6-4	948	1000	1.60E-04	--	0.0168	--	0.006	--	19.4	450	--	0	--	150	580
6B1	CL6-8	158	1000	1.60E-04	--	0.2130	--	0.006	--	19.4	10	--	158	--	150	580
4A3	SW4-4	166	1000	1.50E-04	--	0.0245	--	0.006	--	19.4	890	--	0	--	150	580

Painesv... Works Site
BIOSCREEN Summary for Barium

Table 14

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/l		Outside Mixing Zone Average (ug/l)	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1C4/6B1	CL1-1	417	1000	1.60E-04	6.63E-04	0.0257	0.0244	0.0060	0.0076	2.80E+03	1510	1680	0	0	220	160000
5B1	CL5-2	461	1000	1.00E-03	--	0.0423	--	0.0034	--	2.80E+03	30	--	0	--	220	160000
6B1	CL6-1	625	1000	1.60E-04	--	0.1515	--	0.0060	--	2.80E+03	40	--	0	--	220	160000
6B1	CL6-7	361	1000	1.60E-04	--	0.1810	--	0.0060	--	2.80E+03	10	--	0	--	220	160000
6B1	CL6-8	372	1000	1.60E-04	--	0.2130	--	0.0060	--	2.80E+03	10	--	0	--	220	160000
1B3	SW1-10	240	1000	5.00E-05	6.63E-04	0.0266	0.0339	0.0060	0.0080	2.80E+03	1720	1420	0	0	220	160000
4B1	SW4-6	259	1000	5.00E-05	--	0.0092	--	0.0060	--	2.80E+03	790	--	0	--	220	160000
4A3	SW4-8	232	1000	1.50E-04	--	0.0014	--	0.0060	--	2.80E+03	350	--	0	--	220	160000
4B1	SW4-9	3660	1000	1.50E-04	--	0.0151	--	0.0060	--	2.80E+03	90	--	0	--	220	160000
4B1	SW4-10	443	1000	1.50E-04	--	0.2315	--	0.0060	--	2.80E+03	60	--	0	--	220	160000
7C2	SW7-4	1360	1000	3.62E-03	--	0.0489	--	0.0060	--	2.80E+03	680	--	0	--	220	160000
7B2	SW7-5	307	1000	3.62E-03	--	0.0466	--	0.0060	--	2.80E+03	140	--	0	--	220	160000
7B2	SW7-6	665	1000	3.62E-03	--	0.0169	--	0.0060	--	2.80E+03	140	--	0	--	220	160000
7B2	SW7-7	567	1000	3.62E-03	--	0.0777	--	0.0060	--	2.80E+03	30	--	0.004	--	220	160000
7B2	SW7-8	2360	1000	3.62E-03	--	0.0097	--	0.0060	--	2.80E+03	60	--	0	--	220	160000
7C1/7B1	SW7-12	450	1000	3.62E-03	--	0.2790	--	0.0060	--	2.80E+03	10	--	450	--	220	160000
1B2	LC1-1	44700	1000	--	6.63E-04	--	0.0220	--	0.0080	2.80E+03	--	50	--	0	220	160000
1B2	LC1-2	30900	1000	--	6.63E-04	--	0.0051	--	0.0080	2.80E+03	--	90	--	0	220	160000
1B2	LC1-3	26000	1000	--	6.63E-04	--	0.0270	--	0.0080	2.80E+03	--	80	--	0	220	160000

Painesv.... Works Site
BIOSCREEN Summary for Chromium (VI)

Table 15

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average (ug/l)	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
3B1	CL3-2	15	1000	--	6.63E-04	--	0.0918	--	0.0046	5.65E+01	--	450	--	0	11	14000
5B1	CL5-1	43	1000	1.00E-03	--	0.0083	--	0.0034	--	5.65E+01	1020	--	0	--	11	14000
6B1	CL6-1	8600	1000	1.60E-04	--	0.1515	--	0.0060	--	5.65E+01	40	--	1237	--	11	14000
6B1	CL6-1A	2880000	1000	1.60E-04	--	0.1685	--	0.0060	--	5.65E+01	40	--	615000	--	11	14000
6B1	CL6-3	1330000	1000	1.60E-04	--	0.0076	--	0.0060	--	5.65E+01	170	--	0	--	11	14000
6B1	CL6-4	12600000	1000	1.60E-04	--	0.0168	--	0.0060	--	5.65E+01	450	--	0	--	11	14000
6B1	CL6-6	12	1000	1.60E-04	--	0.1220	--	0.0060	--	5.65E+01	10	--	11.9	--	11	14000
6B1	CL6-7	8900	1000	1.60E-04	--	0.1810	--	0.0060	--	5.65E+01	10	--	8899	--	11	14000
6B1	CL6-8	435000	1000	1.60E-04	--	0.2130	--	0.0060	--	5.65E+01	10	--	435000	--	11	14000
1B2	SW1-14	2370	1000	--	6.63E-04	--	0.0128	--	0.0063	5.65E+01	--	180	--	0	11	14000
4B2	SW4-11	41	1000	1.50E-04	--	0.0348	--	0.0060	--	5.65E+01	358	--	0	--	11	14000
1B2	LC1-1	405	1000	--	6.63E-04	--	0.0220	--	0.0080	5.65E+01	--	50	--	0	11	14000
1B2	LC1-3	30	1000	--	6.63E-04	--	0.0270	--	0.0080	5.65E+01	--	80	--	0.001	11	14000

Painesv.. Works Site
BIOSCREEN Summary for Mercury
Table 16

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average (ug/l)		
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water	Wildlife
1C4	ASRMW-1	0.034	1000	1.60E-04	6.63E-04	0.0216	0.0353	0.0060	0.0076	580	1800	1170	0	0	0.91	0.0031	0.0013
1C4	ASRMW-3	0.029	1000	1.60E-04	6.63E-04	0.0247	0.0294	0.0060	0.0076	580	1750	1550	0	0	0.91	0.0031	0.0013
1C4	ASRMW-4	0.058	1000	1.60E-04	6.63E-04	0.0256	0.0361	0.0060	0.0076	580	1730	1290	0	0	0.91	0.0031	0.0013
1C4	ASRMW-5	0.28	1000	1.60E-04	6.63E-04	0.0181	0.0497	0.0060	0.0076	580	2340	900	0	0	0.91	0.0031	0.0013
1C4	ASRMW-8	0.071	1000	1.60E-04	6.63E-04	0.0152	0.0453	0.0060	0.0076	580	2620	930	0	0	0.91	0.0031	0.0013
3B1	CL3-1	0.02	1000	--	6.63E-04	--	0.0914	--	0.0046	580	--	490	--	0	0.91	0.0031	0.0013
3B1	CL3-2	0.11	1000	--	6.63E-04	--	0.0918	--	0.0046	580	--	450	--	0	0.91	0.0031	0.0013
3B1	CL3-3	0.06	1000	--	6.63E-04	--	0.1741	--	0.0046	580	--	140	--	0	0.91	0.0031	0.0013
3B1	CL3-4	0.03	1000	--	6.63E-04	--	0.2088	--	0.0046	580	--	150	--	0	0.91	0.0031	0.0013
3B1	CL3-5	0.03	1000	--	6.63E-04	--	0.2361	--	0.0046	580	--	120	--	0	0.91	0.0031	0.0013
3B1	CL3-6	0.04	1000	--	6.63E-04	--	0.1553	--	0.0046	580	--	270	--	0	0.91	0.0031	0.0013
5B1	CL5-1	0.044	1000	1.00E-03	--	0.0083	--	0.0034	--	580	1020	--	0	--	0.91	0.0031	0.0013
5B1	CL5-2	0.028	1000	1.00E-03	--	0.0423	--	0.0034	--	580	30	--	0	--	0.91	0.0031	0.0013
6B1	CL6-1A	0.08	1000	1.60E-04	--	0.1685	--	0.0060		580	40	--	0	--	0.91	0.0031	0.0013
6B1	CL6-3	0.06	1000	1.60E-04	--	0.0076	--	0.0060	--	580	170	--	0	--	0.91	0.0031	0.0013
6B1	CL6-4	0.45	1000	1.60E-04	--	0.0168	--	0.0060	--	580	450	--	0	--	0.91	0.0031	0.0013
6B1	CL6--5	0.08	1000	1.60E-04	--	0.0143	--	0.0060	--	580	1930	--	0	--	0.91	0.0031	0.0013
6B1	CL6-6	0.03	1000	1.60E-04	--	0.1220	--	0.0060	--	580	10	--	0	--	0.91	0.0031	0.0013
6B1	CL6--8	0.082	1000	1.60E-04	--	0.2130	--	0.0060	--	580	10	--	0	--	0.91	0.0031	0.0013
6B1	CL6-9	0.027	1000	1.60E-04	--	0.1210	--	0.0060	--	580	10	--	0	--	0.91	0.0031	0.0013
1B1	MW-1B1-02	0.075	1000	1.50E-04	6.63E-04	0.0137	0.0420	0.0060	0.0076	580	2750	950	0	0	0.91	0.0031	0.0013
1B1	MW-1B1-03	0.043	1000	1.50E-04	6.63E-04	0.0133	0.0466	0.0060	0.0080	580	2740	830	0	0	0.91	0.0031	0.0013
1B1	MW-1B1-04	0.057	1000	1.00E-03	6.63E-04	0.0143	0.0471	0.0034	0.0080	580	2680	840	0	0	0.91	0.0031	0.0013
1C5	MWB-1	0.1	1000	1.60E-04	6.63E-04	0.0361	0.0299	0.0060	0.0063	580	1220	1550	0	0	0.91	0.0031	0.0013
1C5	MWB-2	0.29	1000	1.60E-04	6.63E-04	0.0304	0.0294	0.0060	0.0063	580	1350	1470	0	0	0.91	0.0031	0.0013
1C5	MWB-4	0.15	1000	1.60E-04	6.63E-04	0.0354	0.0275	0.0060	0.0063	580	1240	1680	0	0	0.91	0.0031	0.0013
1C5	MWB-5	0.088	1000	1.60E-04	6.63E-04	0.0305	0.0302	0.0060	0.0063	580	1380	1470	0	0	0.91	0.0031	0.0013
1C5	MWB-6	0.23	1000	1.60E-04	6.63E-04	0.0344	0.0277	0.0060	0.0063	580	1320	1720	0	0	0.91	0.0031	0.0013
1C5	MW-40	0.11	1000	1.60E-04	6.63E-04	0.0262	0.0419	0.0060	0.0063	580	1720	1130	0	0	0.91	0.0031	0.0013
1C5	MW-47	0.09	1000	1.60E-04	6.63E-04	0.0246	0.0312	0.0060	0.0063	580	1670	1390	0	0	0.91	0.0031	0.0013
1C5	MW-49	0.25	1000	1.60E-04	6.63E-04	0.0328	0.0282	0.0060	0.0063	580	1230	1510	0	0	0.91	0.0031	0.0013
1C1	SW1-1	0.04	1000	5.00E-05	6.63E-04	0.0123	0.0314	0.0060	0.0080	580	3258	1320	0	0	0.91	0.0031	0.0013
1C4	SW1-5	0.04	1000	1.60E-04	6.63E-04	0.0196	0.0488	0.0060	0.0046	580	2070	880	0	0	0.91	0.0031	0.0013
1C5	SW1-10	0.09	1000	5.00E-05	6.63E-04	0.0266	0.0339	0.0060	0.0080	580	1720	1420	0	0	0.91	0.0031	0.0013
1C5	SW1-12	0.047	1000	1.60E-04	6.63E-04	0.0267	0.0187	0.0060	0.0063	580	1200	1840	0	0	0.91	0.0031	0.0013
1B1	SW1-16	0.024	1000	--	6.63E-04	--	0.1302	--	0.0080	580	--	160	--	0	0.91	0.0031	0.0013
4B1	SW4-1	0.1	1000	1.50E-04	--	0.0031	--	0.0060	--	580	650	--	0	--	0.91	0.0031	0.0013
4B1	SW4-11	0.04	1000	1.50E-04	--	0.0348	--	0.0060	--	580	358	--	0	--	0.91	0.0031	0.0013
7B1	SW7-2	0.068	1000	3.62E-03	--	0.2555	--	0.0060	--	580	20	--	0.068	--	0.91	0.0031	0.0013
7C1	SW7-9	0.033	1000	3.62E-03	--	0.0536	--	0.0060	--	580	150	--	0	--	0.91	0.0031	0.0013
7C1	SW7-12	0.029	1000	3.62E-03	--	0.2790	--	0.0060	--	580	10	--	0.029	--	0.91	0.0031	0.0013

Painesv Works Site
BIOSCREEN Summary for Vanadium

Table 17

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average (ug/l)	
Parcel	Source Location Well ID	Source Concentration, mg/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-1A	102	1000	1.60E-04	--	0.1685	--	0.0060	--	50	40	--	31.6	--	44	--
6B1	CL6-3	3880	1000	1.60E-04	--	0.0076	--	0.0060	--	50	170	--	0	--	44	--
6B1	CL6-4	11400	1000	1.60E-04	--	0.0168	--	0.0060	--	50	450	--	0	--	44	--
6B1	CL6-8	152	1000	3.00E-03		0.2130	--			50	10	--	152	--	44	--
4A3	SW4-4	169	1000	1.50E-04	--	0.0245	--	0.0060	--	50	890	--	0	--	44	--
4B1	SW4-9	56	1000	1.50E-04	--	0.0151	--	0.0060	--	50	90	--	0	--	44	--

Paines[illegible] Works Site
BIOSCREEN Summary for Cyanide

Table 18

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average (ug/l)	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
5B1	CL5-1	99.3	1000	1.00E-03	--	0.0083	--	0.0034	--	0.7	1020	--	0.265	--	5.2	48000
5B1	CL5-2	101	1000	1.00E-03	--	0.0423	--	0.0034	--	0.7	30	--	101	--	5.2	48000
6B1	CL6-1	145	1000	1.60E-04	--	0.1515	--	0.0060	--	0.7	40	--	145	--	5.2	48000
6B1	CL6-1A	260	1000	1.60E-04	--	0.1685	--	0.0060	--	0.7	40	--	260	--	5.2	48000
6B1	CL6-3	78.6	1000	1.60E-04	--	0.0076	--	0.0060	--	0.7	170	--	1.138	--	5.2	48000
6B1	CL6-4	275	1000	1.60E-04	--	0.0168	--	0.0060	--	0.7	450	--	0.082	--	5.2	48000
6B1	CL6-8	157	1000	1.60E-04	--	--	0.2130	0.0060	--	0.7	10	--	157	--	5.2	48000
6B1	CL6-9	58.5	1000	1.60E-04	--	0.1210	--	0.0060	--	0.7	10	--	58.5	--	5.2	48000
2C1	MW1-2C1-03	32.1	1000	--	6.63E-04	--	0.1480	--	0.0072	0.7	--	160	--	32.1	5.2	48000
2C1	MW1-2C1-04	60.5	1000	--	6.63E-04	--	0.1370	--	0.0072	0.7	--	160	--	60.5	5.2	48000
2C1	MW1-2C1-06	29.9	1000	--	0.000663	--	0.1614	--	0.0072	0.7	--	150	--	29.9	5.2	48000
2C1	SW2-1	9.6	1000	--	6.63E-04	--	0.1480	--	0.0072	0.7	--	180	--	9.6	5.2	48000
4A3	SW4-4	34.2	1000	1.60E-04	6.63E-04	0.0196	0.0488	0.0060	0.0046	0.7	890	--	0	--	5.2	48000
4B2	SW4-11	13.3	1000	1.50E-04	--	0.0348	--	0.0060	--	0.7	358	--	6.28	--	5.2	48000

Paines Works Site
BIOSCREEN Summary for Methylene Chloride

Table 19

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_{oc}, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1B3	SW1-8	11,000	1000	1.60E-04	6.63E-04	0.0273	0.0383	0.0060	0.0046	1.00E+01	1670	1250	34.79	11000	1,900	2,600

Painesville Works Site
BIOSCREEN Summary for 1,2-Dichloroethane

Table 20

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_{oc}, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1C5	MWB-1	890	1000	1.60E-04	6.63E-04	0.0361	0.0299	0.0060	0.0063	3.80E+01	1220	1550	21.52	888.4	2,000	230

Painesv... Works Site
BIOSCREEN Summary for 1,1 - Dichloroethane

Table 21

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_{oc}, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1C5	MWB-2	770	1000	1.60E-04	6.63E-04	0.0304	0.0294	0.0060	0.0063	5.34E+01	1350	1470	0.003	753.556	410	62,000

Painesville Works Site
BIOSCREEN Summary for Antimony

Table 22

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-4	4850	1000	1.60E-04	--	0.0168	--	0.0060	--	6	450	--	0	--	190	780
6B1	CL6-3	1990	1000	1.60E-04	--	0.0076	--	0.0060	--	6	170	--	0	--	190	780
6B1	CL6-8	1000	1000	1.60E-04	--	0.2130	--	0.0060	--	6	10	--	1000	--	190	780
6B1	CL6-1	204	1000	1.60E-04	--	0.1515	--	0.0060	--	6	40	--	204	--	190	780
1B2	LC1-1	2500	1000	--	6.63E-04	--	0.0220	--	0.0080	6	--	50	--	2491.9	190	780

Paines, Works Site
BIOSCREEN Summary for Cadmium

Table 23

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-3	14.6	1000	1.60E-04	--	0.0076	--	0.0060	--	423	170	--	0	--	2.5	730
4B1	SW4-9	5.8	1000	1.50E-04	--	0.0151	--	0.0060	--	423	90	--	0	--	2.5	730
3B1	CL3-4	4.9	1000	--	6.63E-04	--	0.2088	--	0.0046	423	--	150	--	0	2.5	730
3B1	CL3-1	3.4	1000	--	6.63E-04	--	0.0914	--	0.0046	423	--	490	--	0	2.5	730
3B1	SW3-3	3.4	1000	--	6.63E-04	--	0.0637	--	0.0046	423	--	660	--	0	2.5	730
3B1	CL3-2	2.9	1000	--	6.63E-04	--	0.0918	--	0.0046	423	--	450	--	0	2.5	730

Painesville Works Site
BIOSCREEN Summary for Copper

Table 24

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1B1	LC1-1	1200	1000	--	6.63E-04	--	0.0220	--	0.0080	92.2	--	50	--	0.003	9.3	64,000
1B1	LC1-2	710	1000	--	6.63E-04	--	0.0051	--	0.0080	92.2	--	90	--	0	9.3	64,000
1B1	LC1-3	1700	1000	--	6.63E-04	--	0.0270	--	0.0080	92.2	--	80	--	0	9.3	64,000
3B1	CL3-1	11.2	1000	--	6.63E-04	--	0.0914	--	0.0046	92.2	--	490	--	0	9.3	64,000
3B1	CL3-2	11.5	1000	--	6.63E-04	--	0.0918	--	0.0046	92.2	--	450	--	0	9.3	64,000
3B1	CL3-3	16.3	1000	--	6.63E-04	--	0.1741	--	0.0046	92.2	--	140	--	0.663	9.3	64,000
6B1	CL6-3	94	1000	1.60E-04	--	0.0076	--	0.0060	--	92.2	170	--	0	--	9.3	64,000
6B1	CL6-4	347	1000	1.60E-04	--	0.0168	--	0.0060	--	92.2	450	--	0	--	9.3	64,000
6B1	CL6-8	11.8	1000	1.60E-04	--	0.2130	--	0.0060	--	92.2	10	--	11.76	--	9.3	64,000

Painesville Works Site
BIOSCREEN Summary for Cobalt

Table 25

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1B1	LC1-1	1200	1000	--	6.63E-04	--	0.0220	--	0.0080	8.81	--	50	--	1147.5	24	--
1B1	LC1-2	1300	1000	--	6.63E-04	--	0.0051	--	0.0080	8.81	--	90	--	0.066	24	--

Painesville Works Site
BIOSCREEN Summary for Lead

Table 26

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
3B1	CL3-1	22.6	1000	--	6.63E-04	--	0.0914	--	0.0046	592	--	490	--	0	6.4	190
3B1	CL3-6	433	1000	--	6.63E-04	--	0.1553	--	0.0046	592	--	270	--	0	6.4	190
6B1	CL6-8	28.5	1000	1.60E-04	--	0.2130	--	0.0060	--	592	10	--	0.005	--	6.4	190
4B1	SW4-9	7.6	1000	1.50E-04	--	0.0151	--	0.0060	--	592	90	--	0	--	6.4	190
1B1	MW-1B1-04	9.4	1000	1.00E-03	6.63E-04	0.0143	0.0471	0.0034	0.0080	592	2680	840	0	0	6.4	190

Painesville Works Site
BIOSCREEN Summary for Nickel

Table 27

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-3	72.3	1000	1.60E-04	--	0.0076	--	0.0060	--	6	170	--	0	--	52	43,000
6B1	CL6-4	419	1000	1.60E-04	--	0.0168	--	0.0060	--	6	450	--	0	--	52	43000

Painesville Works Site
BIOSCREEN Summary for Selenium

Table 28

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1C4/6B1	CL1-1	4.9	1000	1.60E-04	6.63E-04	0.0257	0.0244	0.0060	0.0076	4.3	1510	1680	0	0	5	3,100
6B1	CL6-1	8.9	1000	1.60E-04	--	0.1515	--	0.0060	--	4.3	40	--	8.9	--	5	3100
6B1	CL6-3	89.4	1000	1.60E-04	--	0.0076	--	0.0060	--	4.3	170	--	0	--	5	3100
6B1	CL6-4	23	1000	1.60E-04	--	0.0168	--	0.0060	--	4.3	450	--	0	--	5	3100
6B1	CL6-8	51.9	1000	1.60E-04	--	0.2130	--	0.0060	--	4.3	10	--	51.9	--	5	3100
1C5	MW-49	5.3	1000	1.60E-04	6.63E-04	0.0328	0.0282	0.0060	0.0063	4.3	1230	1510	0	0	5	3100
1C5	MWB-5	4.9	1000	1.60E-04	6.63E-04	0.0305	0.0302	0.0060	0.0063	4.3	1380	1470	0	0	5	3100
1C2	SW1-3	4.9	1000	5.00E-05	6.63E-04	0.0122	0.0236	0.006	0.008	4.3	2690	1450	0	0	5	3100
1C4	SW1-5	4.9	1000	1.60E-04	6.63E-04	0.0196	0.0488	0.0060	0.0046	4.3	2070	880	0	0.005	5	3100
1A1	SW1-7	4.9	1000	5.00E-05	6.63E-04	0.0117	0.0481	0.006	0.008	4.3	3350	840	0	0.008	5	3100
1B2	SW1-14	8.1	1000	--	6.63E-04	--	0.0128	--	0.0063	4.3	--	180	--	0.728	5	3100
1B2	SW1-16	8.7	1000	--	6.63E-04	--	0.1302	--	0.0080	4.3	--	160	--	8.7	5	3100
4B1	SW4-1	4.9	1000	1.50E-04	--	0.0031	--	0.0060	--	4.3	650	--	0	--	5	3100
4A3	SW4-4	213	1000	1.60E-04	6.63E-04	0.0196	0.0488	0.0060	0.0046	4.3	890	--	0	--	5	3100
4B1	SW4-6	4.9	1000	5.00E-05	--	0.0092	--	0.0060	--	4.3	790	--	0	--	5	3100
4A3	SW4-8	4.9	1000	1.50E-04	--	0.0014	--	0.0060	--	4.3	350	--	0	--	5	3100
4B1	SW4-9	24.5	1000	1.50E-04	--	0.0151	--	0.0060	--	4.3	90	--	0.037	--	5	3100
5B1	SW5-1	4.9	1000	1.00E-03	--	0.0594	--	0.0034	--	4.3	80	--	4.9	--	5	3100
1C4	ASR-MW1	4.9	1000	1.60E-04	6.63E-04	0.0216	0.0353	0.0060	0.0076	4.3	1800	1170	0	0	5	3100
1C4	ASR-MW4	4.9	1000	1.60E-04	6.63E-04	0.0256	0.0361	0.0060	0.0076	4.3	1730	1290	0	0	5	3100
1C4	ASR-MW5	4.9	1000	1.60E-04	6.63E-04	0.0181	0.0497	0.0060	0.0076	4.3	2340	900	0	0.004	5	3100
1C4	ASR-MW8	4.9	1000	1.60E-04	6.63E-04	0.0152	0.0453	0.0060	0.0076	4.3	2620	930	0	0	5	3100

Painesville Works Site
BIOSCREEN Summary for Silver

Table 29

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-3	2.1	1000	1.60E-04	--	0.0076	--	0.0060	--	4	170	--	0	--	1.3	11,000
6B1	CL6-4	22.1	1000	1.60E-04	--	0.0168	--	0.0060	--	4	450	--	0	--	1.3	11000
3B1	SW3-2	1.8	1000	--	0.000663	--	0.179	--	0.0046	4	--	180	--	1.8	1.3	11000
3B1	SW3-3	2.6	1000	--	0.000663	--	0.06374242	--	0.0046	4	--	660	--	0.966	1.3	11000

Painesville Works Site
BIOSCREEN Summary for Thallium

Table 30

				Hydraulic Conductivity, cm/s		Hydraulic Gradient, ft/ft		f_{oc}			Distance to Receptor, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to River	Source to Lake	Source to River	Source to Lake	Source to River	Source to Lake	K_d, L/kg	Grand River	Lake Erie	Grand River	Lake Erie	Aquatic Life	Human Health Nondrinking Water
6B1	CL6-3	25.3	1000	1.60E-04	--	0.0076	--	0.0060	--	74.5	170	--	0	--	17	3.7
6B1	CL6-4	567	1000	1.60E-04	--	0.0168	--	0.0060	--	74.5	450	--	0	--	17	3.7
1B3	SW1-8	24.2	1000	1.60E-04	6.63E-04	0.0273	0.0383	0.0060	0.0046	74.5	1670	1250	0	0	17	3.7
4B1	SW4-9	59.7	1000	1.50E-04	--	0.0151	--	0.0060	--	74.5	90	--	0	--	17	3.7

PAINESVILLE WORKS SITE
Summary of Hydraulic Gradient to Lake Erie for the 2-Step BIOSCREEN Model

Table 31

Parcel	Monitoring Well	Groundwater Elevations[2], ft - 1st Quarter 2003	Distance from source to the Transition line[1], ft Flat gradient segment	Distance from the Transition line[1] to Lake, ft Steep gradient segment	Estimated Groundwater Elevation at the Transition line[1], ft	Estimated Lake Elevation, ft	Hydraulic Gradient to the Transition Line[1], ft/ft Flat gradient segment	Hydraulic Gradient to the Lake , ft/ft Steep gradient segment
1B3	SW1-6	611.39	925	800	615	572.7	*0.001*[3]	0.0529
1B3	SW1-8	620.60	325	800	615	572.7	0.0172	0.0529
1C5	MWB-1*	619.00	950	800	615	572.7	0.0042	0.0529
1C5	MWB-2	615.99	1150	800	615	572.7	0.0009	0.0529
1C5	MWB-4	618.87	925	800	615	572.7	0.0042	0.0529

Note:
1. The Transition Line represents the cut-off line where the hydraulic gradient transit from flat to steep along the flowpath to the Lake (See map)
2. Groundwater elevations represent water levels measured during the 1st quarter of 2003, unless otherwise noted.
   (*) denotes groundwater elevations that were obtained based on interpolation from potentiometric surface map.
3. The calculated hydraulic gradient from monitoring well SW1-6 to the Transition Line is negative indicating groundwater will not flow north toward the Lake. However, to model groundwater to the Lake, a hypothetical hydraulic gradient of 0.001 is assumed.

Painesville Works Site
2-Step BIOSCREEN Summary for 1,1 - Dichloroethane

Table 32

				Hydraulic Conductivity, cm/s	Hydraulic Gradient, ft/ft		f_{oc}		Distance, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to Lake	Source to Transition Line	Transition Line to Lake	Source to Lake	K_{oc}, L/kg	Source to Transition Line	Transition Line to Lake	Transition Line	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1C5	MWB-2	770	1000	6.63E-04	0.0009	0.0529	0.0063	5.34E+01	1150	800	0	--	410	62,000

Painesville Works Site
2-Step BIOSCREEN Summary for 1,2-Dichloroethane

Table 33

				Hydraulic Conductivity, cm/s	Hydraulic Gradient, ft/ft		f_{oc}		Distance, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to Lake	Source to Transition Line	Transition Line to Lake	Source to Lake	K_{oc}, L/kg	Source to Transition Line	Transition Line to Lake	Transition Line	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1C5	MWB-1	890	1000	6.63E-04	0.0042	0.0529	0.0063	3.80E+01	950	800	0.011	--	2,000	230

Painesville Works Site
2-Step BIOSCREEN Summary for Carbon Tetrachloride

Table 34

				Hydraulic Conductivity, cm/s	Hydraulic Gradient, ft/ft		f_{oc}		Distance, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average (ug/l)	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to Lake	Source to Transition Line	Transition Line to Lake	Source to Lake	K_{oc}, L/kg	Source to Transition Line	Transition Line to Lake	Transition Line	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1B3	SW1-8	34000	1000	6.63E-04	0.0172	0.0529	0.0046	1.52E+02	325	800	33949.2	33848.9	240	19

Painesville Works Site
Two-step BIOSCREEN Summary for Chloroform

Table 35

				Hydraulic Conductivity, cm/s	Hydraulic Gradient, ft/ft		f_{oc}		Distance, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average (ug/l)	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to Lake	Source to Transition Line	Transition Line to Lake	Source to Lake	K_{oc}, L/kg	Source to Transition Line	Transition Line to Lake	Transition Line	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1B3	SW1-8	33000	1000	6.63E-04	0.0172	0.0529	0.0046	5.25E+01	325	800	33000	33000	140	1700

Painesville Works Site
Two-step BIOSCREEN Summary for Methylene Chloride

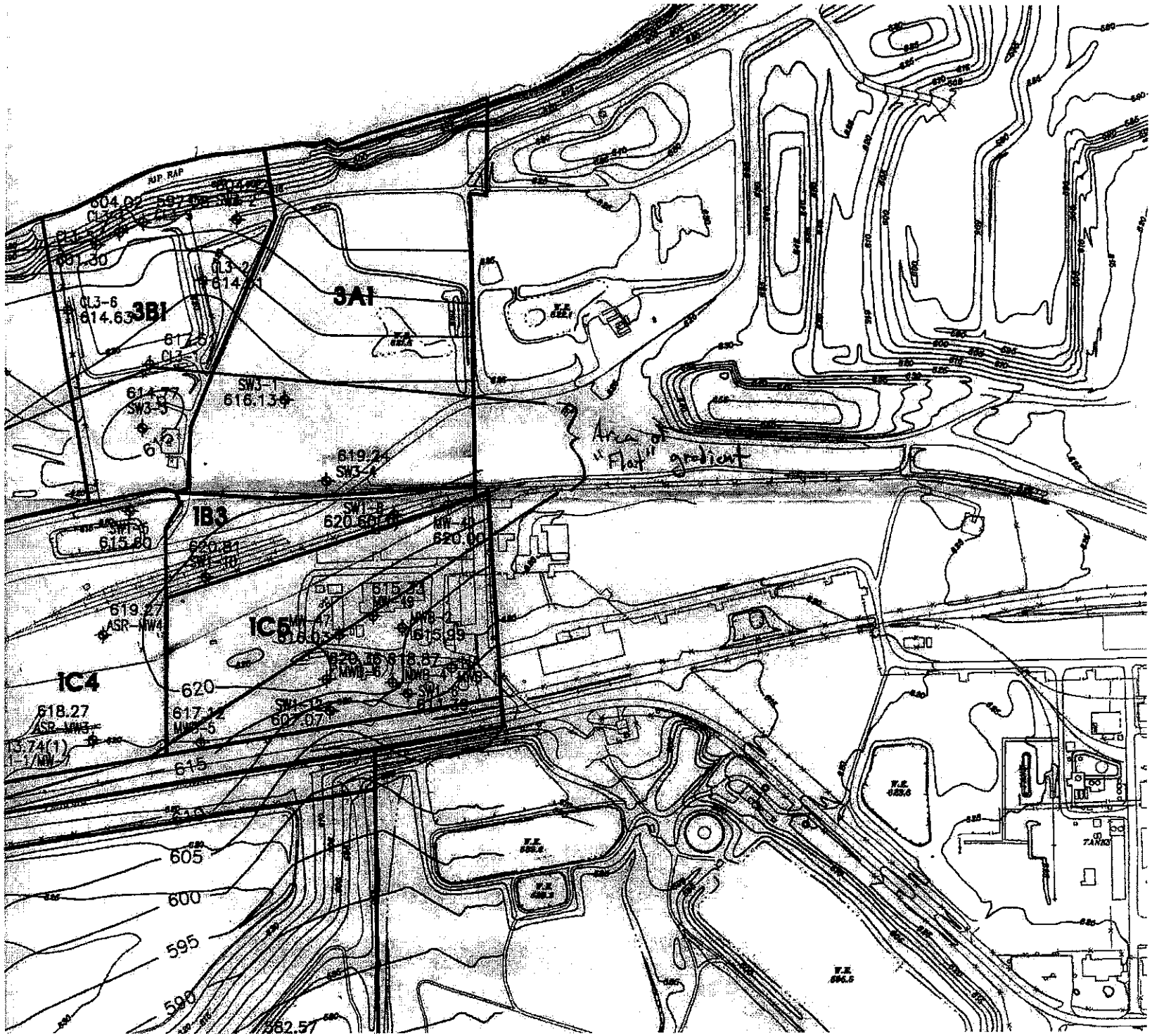
Table 36

				Hydraulic Conductivity, cm/s	Hydraulic Gradient, ft/ft		f_{oc}		Distance, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to Lake	Source to Transition Line	Transition Line to Lake	Source to Lake	K_{oc}, L/kg	Source to Transition Line	Transition Line to Lake	Transition Line	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1B3	SW1-8	11,000	1000	6.63E-04	0.0172	0.0529	0.0046	1.00E+01	325	800	11000	11000	1,900	2,600

Painesville Works Site
Two-step BIOSCREEN Summary for Vinyl Chloride

Table 37

				Hydraulic Conductivity, cm/s	Hydraulic Gradient, ft/ft		f_{oc}		Distance, ft		BIOSCREEN Centerline Concentration, ug/L		Outside Mixing Zone Average	
Parcel	Source Location Well ID	Source Concentration, ug/L	Source Width, ft	Source to Lake	Source to Transition Line	Transition Line to Lake	Source to Lake	K_{oc}, L/kg	Source to Transition Line	Transition Line to Lake	Transition Line	Lake Erie	Aquatic Life	Human Health Nondrinking Water
1C5	MWB-2	2500	1000	6.63E-04	0.0009	0.0529	0.0063	1.88E+01	1150	800	0	--	930	28
1C5	MWB-4	40	1000	6.63E-04	0.0042	0.0529	0.0063	1.88E+01	925	800	0.211	--	930	28
1C5	SW1-6	1200	1000	6.63E-04	0.0010	0.0529	0.0063	1.88E+01	925	800	0	--	930	28


3A1
3B1
1B3
1C5
1C4
Area of "Flat" gradient
RIP RAP
620
615
610
605
600
595
590
582.57

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
PCBs - MW-1B1-03
Run Name

Data Input Instructions:

115 ↑ or 0.02

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* ▸ Data used directly in model.

20 ▸ Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	20.7	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0466	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	36.2	(ft)
Transverse Dispersivity*	alpha y	3.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	2740	(ft)

3. ADSORPTION

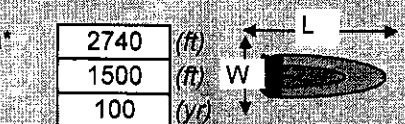
Retardation Factor*	R	9006.1	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		↑ or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	2740	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



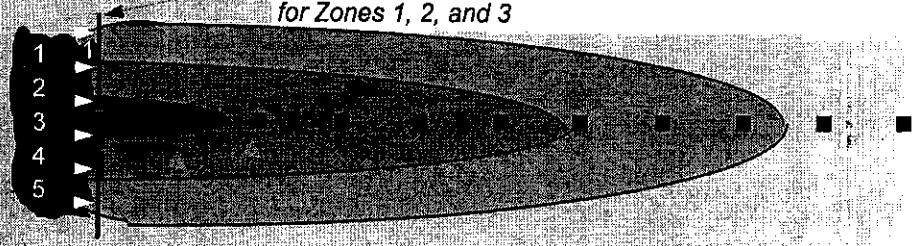
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.26

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React. ↑	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	274	548	822	1096	1370	1644	1918	2192	2466	2740

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

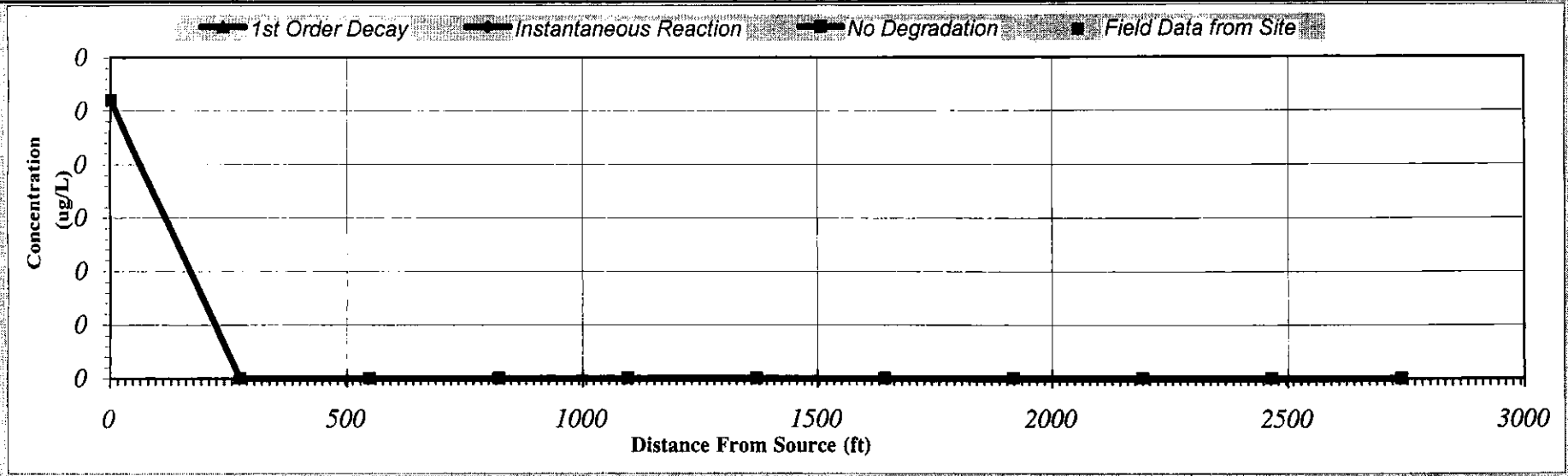
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	274	548	822	1096	1370	1644	1918	2192	2466	2740
No Degradation	0.260	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Run Name: Painesville - L / Hg - SW1-16

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

115 — Data Input directly
or
0.02 — Value calculated by model. (Don't enter any data).

Variable* — 20

1. HYDROGEOLOGY

Seepage Velocity*	Vs	255.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.1302	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	9.6	(ft)
Transverse Dispersivity*	alpha y	1.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	160	(ft)

3. ADSORPTION

Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	160	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L

W

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones

Width* (ft)	Conc. (ug/L)*
1000	0.024

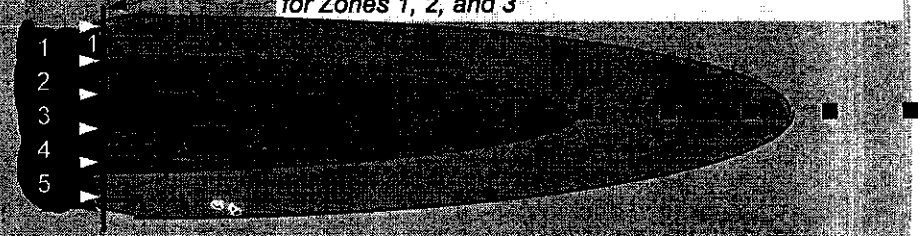
Source Halflife (see Help)

Inst. React. | 1st Order

Infinite | *Infinite (yr)

Soluble Mass in Source NAPL Soil: infinite (Kg)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

Distance from Source (ft)	Concentration (mg/L)
0	
16	
32	
48	
64	
80	
96	
112	
128	
144	
160	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

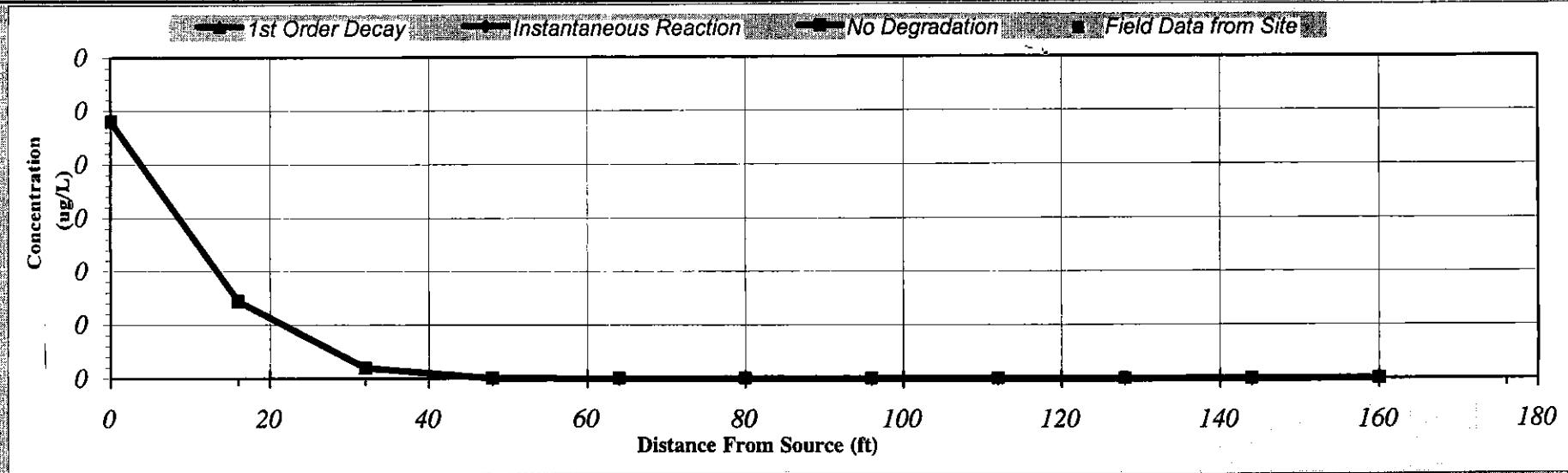
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	16	32	48	64	80	96	112	128	144	160
No Degradation	0.024	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
PCBs - MW-1B1-04
Run Name

Data Input Instructions:

115 — 1. Enter value directly, or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	42.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0143	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	35.9	(ft)
Transverse Dispersivity*	alpha y	3.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	2680	(ft)

3. ADSORPTION

Retardation Factor*	R	5103.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	3.4E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	2680	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L
W

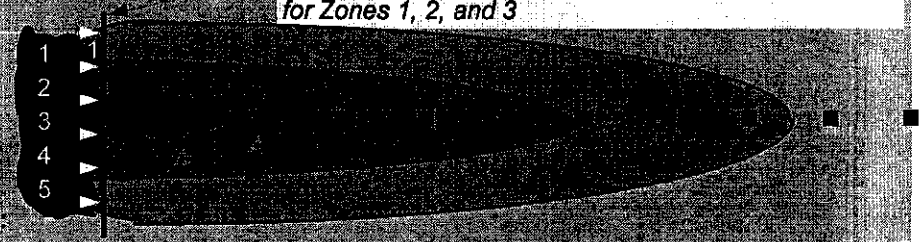
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	1.4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter '0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	268	536	804	1072	1340	1608	1876	2144	2412	2680

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

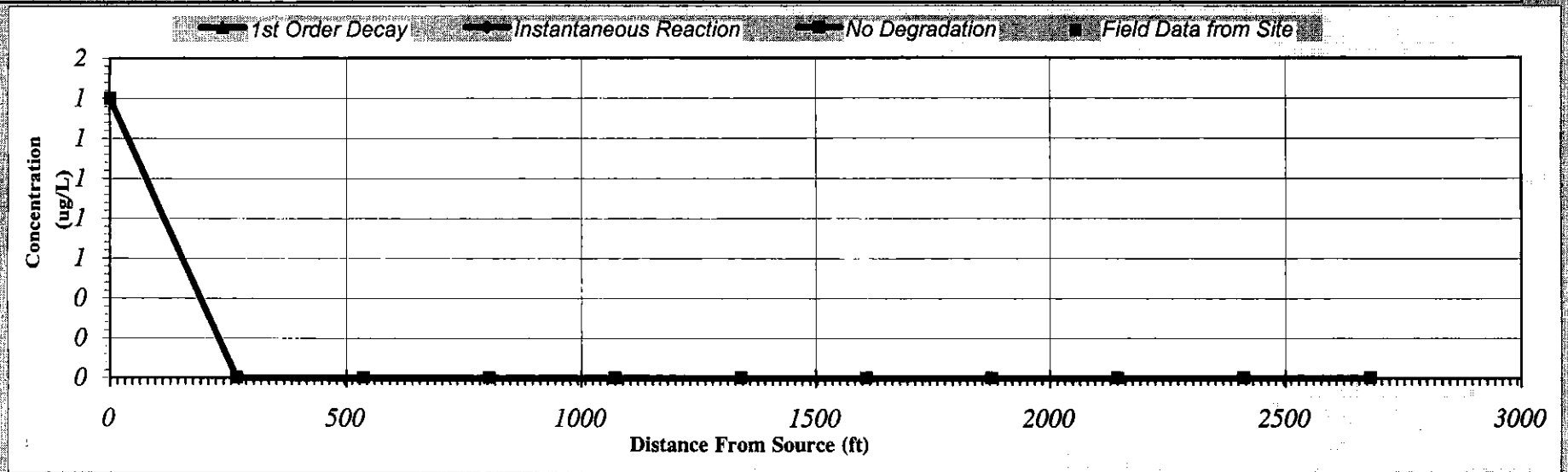
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z = 0)

TYPE OF MODEL	Distance from Source (ft) 0	268	536	804	1072	1340	1608	1876	2144	2412	2680
No Degradation	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
PCBs - MWB-4
Run Name

Data Input Instructions:

115 → 1. Enter value directly ... or
or
0.02 → 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	16.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	I	0.0354	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	26.8	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1240	(ft)

3. ADSORPTION

Retardation Factor*	R	9006.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1240	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

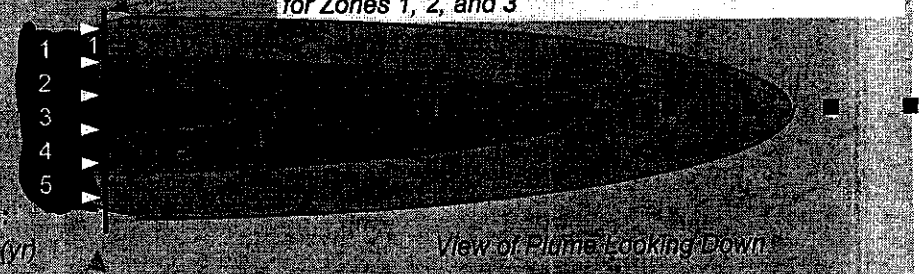
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	1.4



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	124	248	372	496	620	744	868	992	1116	1240

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

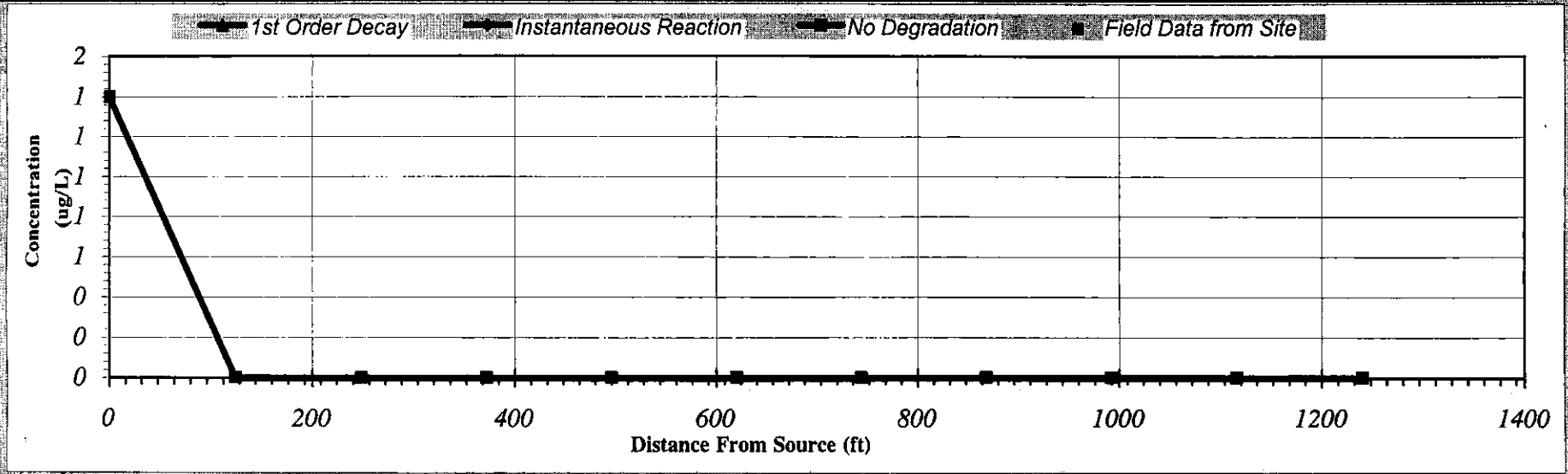
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	124	248	372	496	620	744	868	992	1116	1240
No Degradation	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MW-1B1-03
Run Name

Data Input Instructions:

115	1. Enter value directly... or
or	2. Calculate by filling in grey
0.02	cells below. (To restore formulas, hit button below).
Variable*	Data used directly in model.
20	Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	14.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0076	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	22.6	(ft)
Transverse Dispersivity*	alpha y	2.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	830	(ft)

3. ADSORPTION

Retardation Factor*	R	11407.5	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	7.6E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	830	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

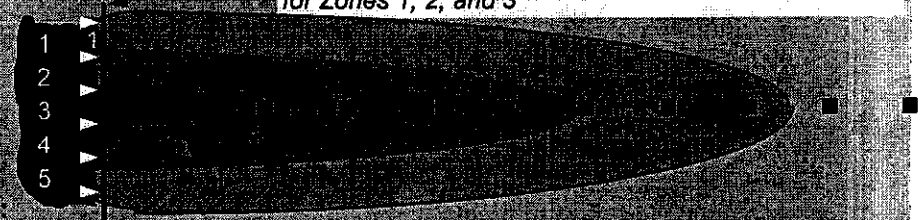
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.26



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	83	166	249	332	415	498	581	664	747	830

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

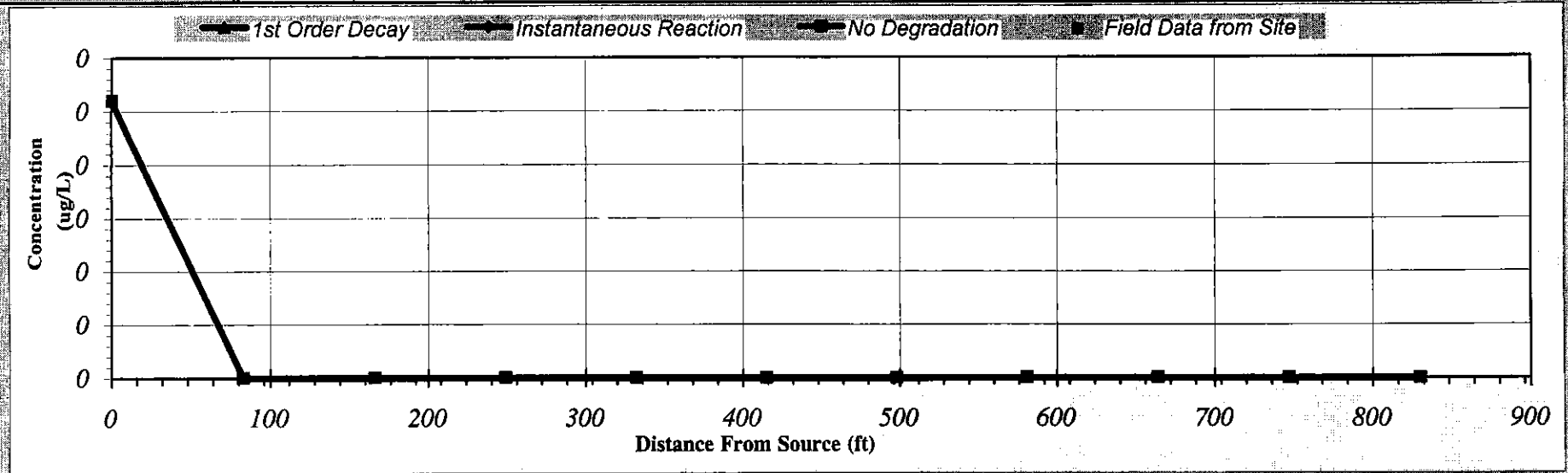
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	83	166	249	332	415	498	581	664	747	830
No Degradation	0.260	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MW-1B1-04
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly ... or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	92.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0471	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	22.7	(ft)
Transverse Dispersivity*	alpha y	2.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	840	(ft)

3. ADSORPTION

Retardation Factor*	R	12007.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	8.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	840	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L
W

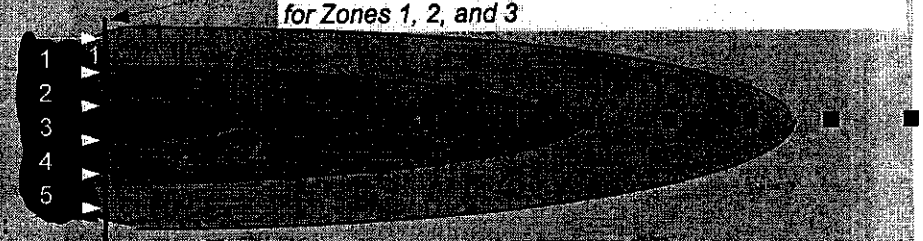
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	1.4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter '0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	84	168	252	336	420	504	588	672	756	840

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

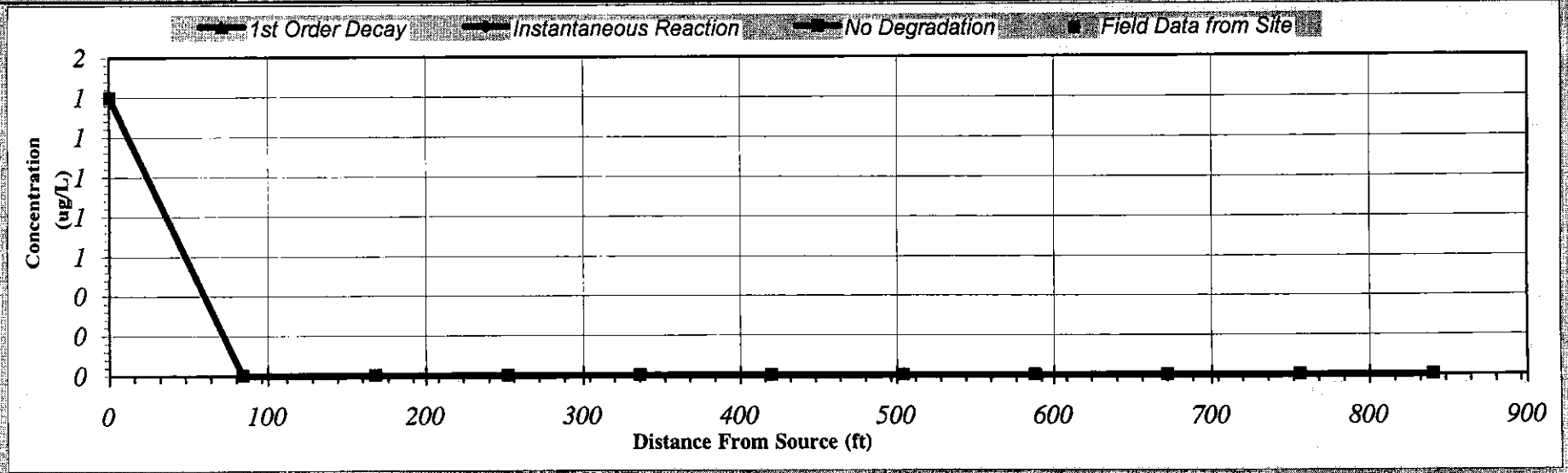
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	84	168	252	336	420	504	588	672	756	840
No Degradation	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MW-1C1-02
Run Name

Data Input Instructions:

115 — 1. Enter value directly ; or
or — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	287.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.1466	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	8.9	(ft)
Transverse Dispersivity*	alpha y	0.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	140	(ft)

3. ADSORPTION

Retardation Factor*	R	10807.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	140	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

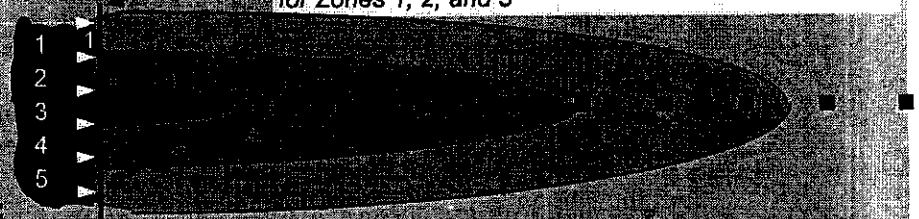
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.34
[redacted]	

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	

Soluble Mass infinite (Kg)
In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	14	28	42	56	70	84	98	112	126	140

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

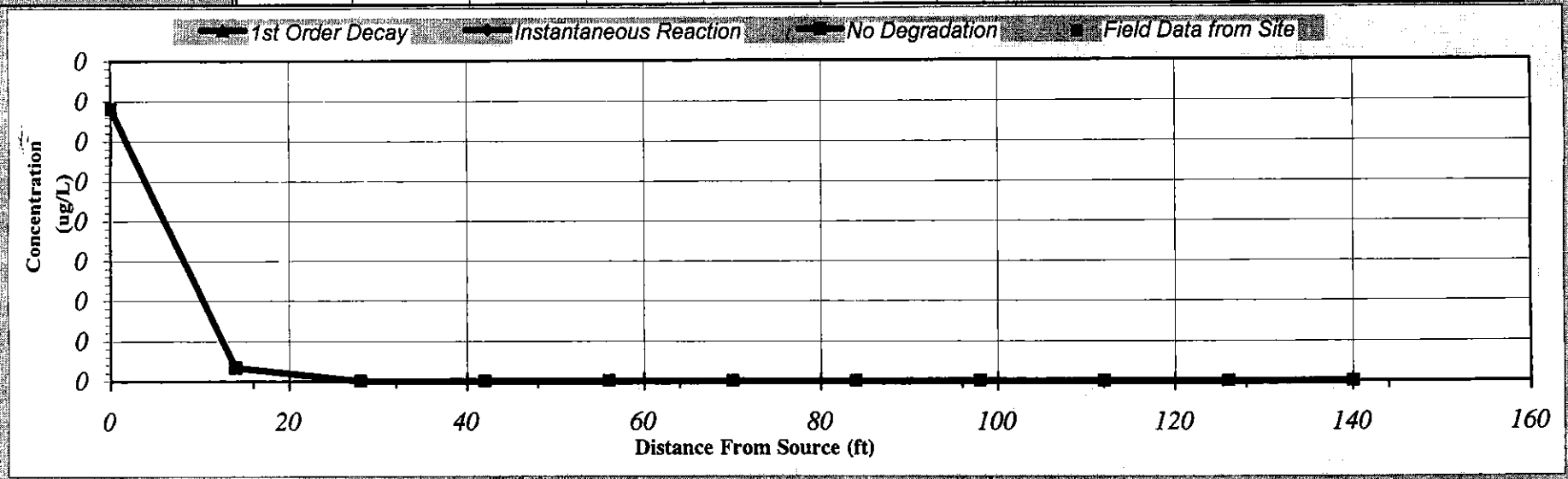
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	14	28	42	56	70	84	98	112	126	140
No Degradation	0.340	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MW-2C1-03
Run Name

Data Input Instructions:

115 — 1. Enter value directly ... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — 1. Data used directly in model.
20 — 2. Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	290.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.148	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	9.6	(ft)
Transverse Dispersivity*	alpha y	1.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	160	(ft)

3. ADSORPTION

Retardation Factor*	R	10807.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	160	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

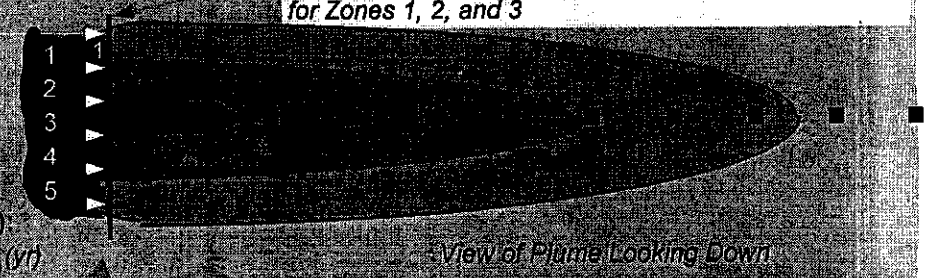
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	3.9

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells. If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	16	32	48	64	80	96	112	128	144	160

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

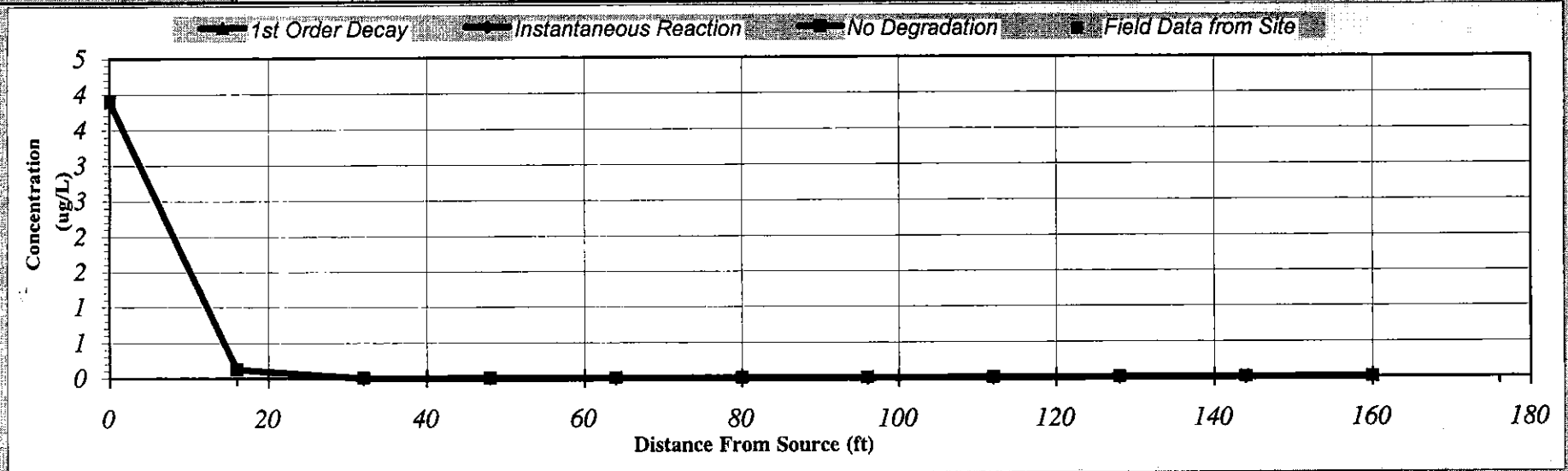
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	16	32	48	64	80	96	112	128	144	160
No Degradation	3.900	0.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MW-2C1-04
Run Name

Data Input Instructions:

115 — 1. Enter value directly ...or
or — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	268.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.137	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	9.6	(ft)
Transverse Dispersivity*	alpha y	1.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	160	(ft)

3. ADSORPTION

Retardation Factor*	R	10807.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	160	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

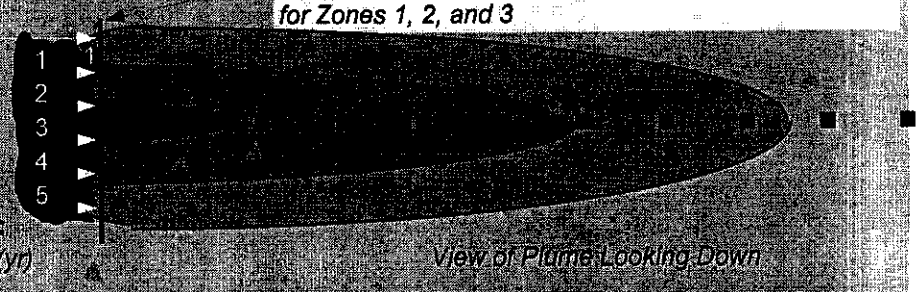
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	1.5

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	16	32	48	64	80	96	112	128	144	160

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

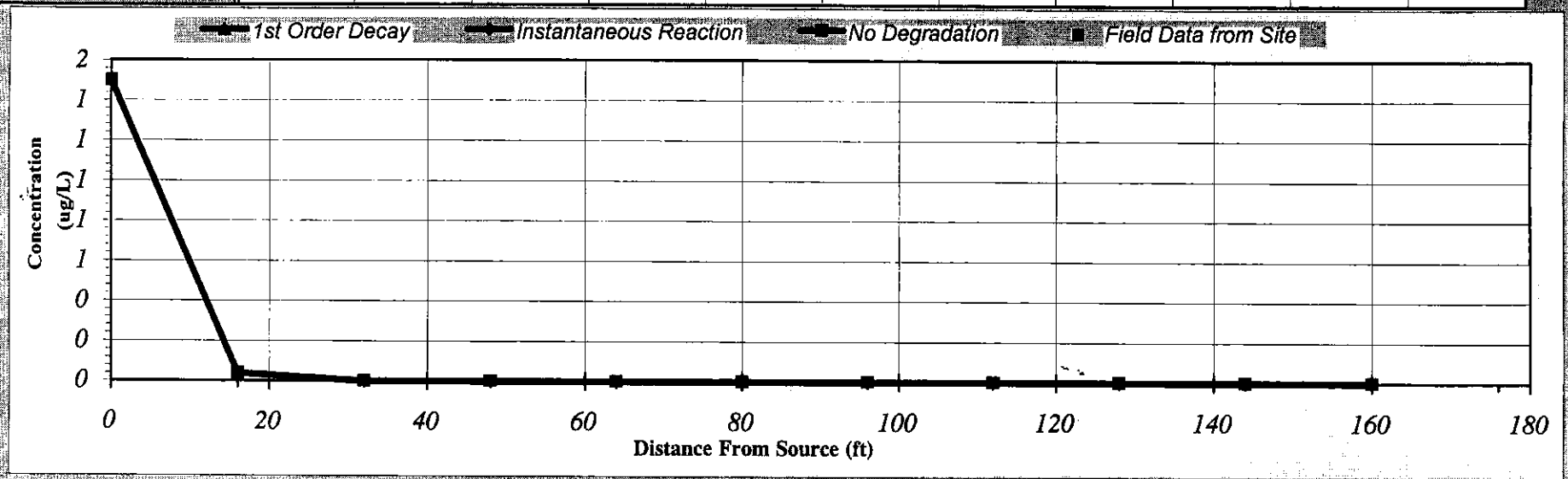
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	16	32	48	64	80	96	112	128	144	160
No Degradation	1.500	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate
Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MW-2C1-05
Run Name

Data Input Instructions:

115 ↑ or 0.02 — 1. Enter value directly...or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	297.9	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.152	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	9.6	(ft)
Transverse Dispersivity*	alpha y	1.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	160	(ft)

3. ADSORPTION

Retardation Factor*	R	10807.2	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		↑ or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	160	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

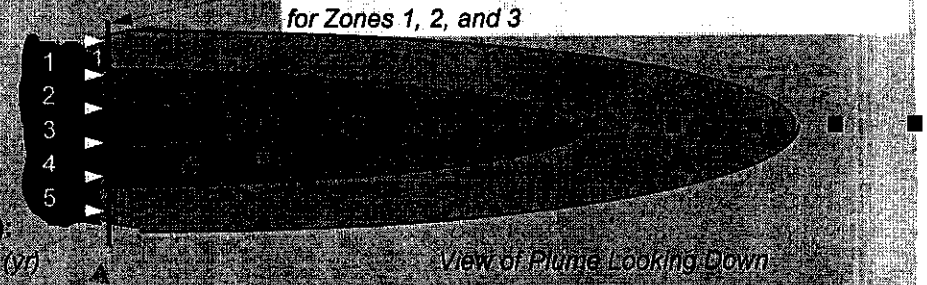
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones

Width* (ft)	Conc. (ug/L)*
1000	1.7

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	↑ 1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	16	32	48	64	80	96	112	128	144	160

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

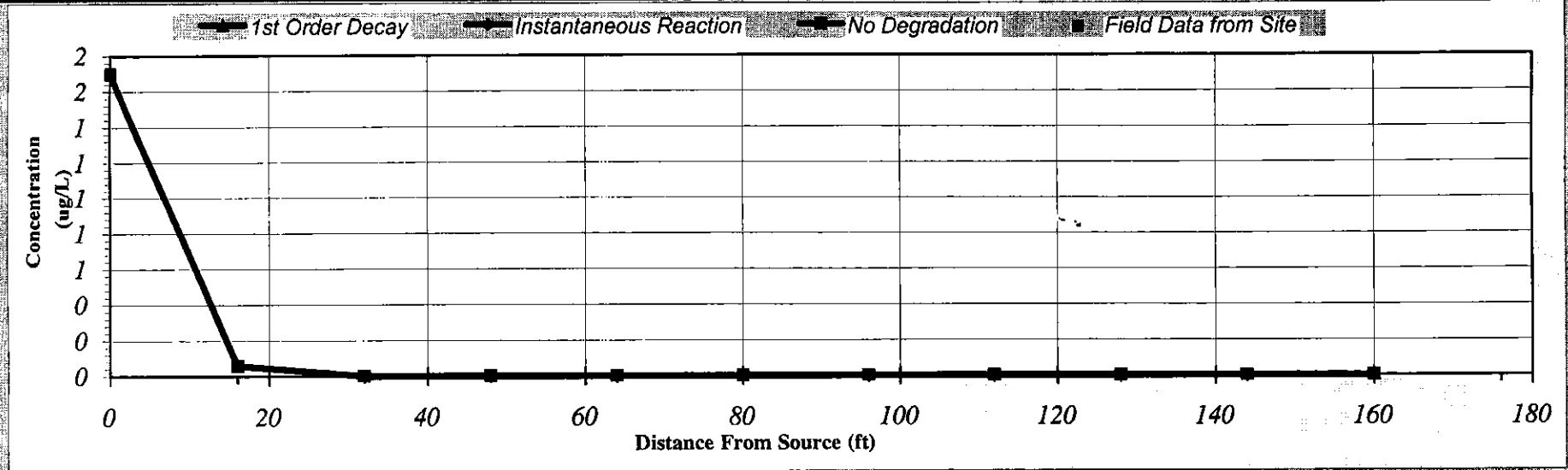
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	16	32	48	64	80	96	112	128	144	160
No Degradation	1.700	0.059	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MW-2C1-06
Run Name

Data Input Instructions:

115 → 1. Enter value directly... or
or 2. Calculate by filling in grey
0.02 cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	316.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.1614	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	9.3	(ft)
Transverse Dispersivity*	alpha y	0.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	150	(ft)

3. ADSORPTION

Retardation Factor*	R	10807.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	150	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

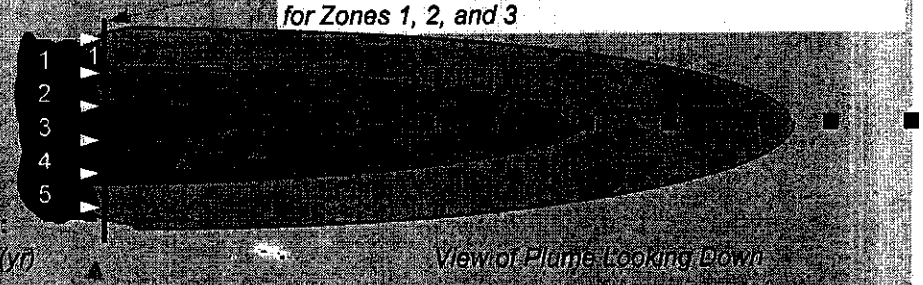
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.54

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	15	30	45	60	75	90	105	120	135	150

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

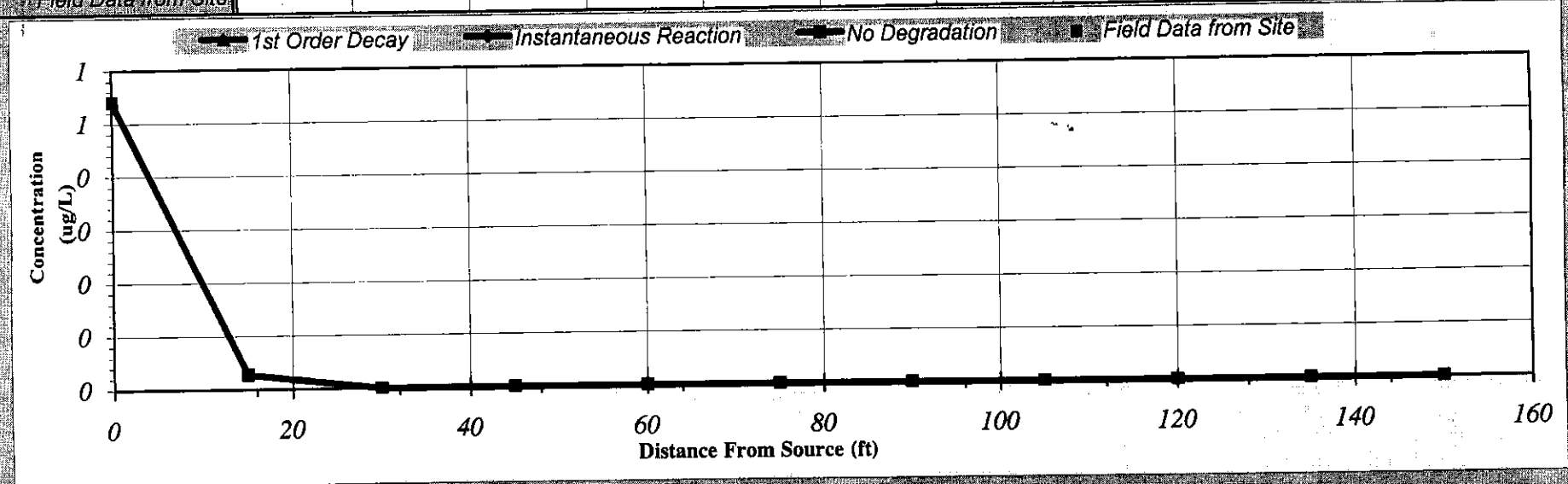
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	15	30	45	60	75	90	105	120	135	150
No Degradation	0.540	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PCBs - MWB-4
Run Name

Data Input Instructions:

115 — 1. Enter value directly — or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	53.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0275	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.2	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1680	(ft)

3. ADSORPTION

Retardation Factor*	R	9456.4	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.1E+5	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1680	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

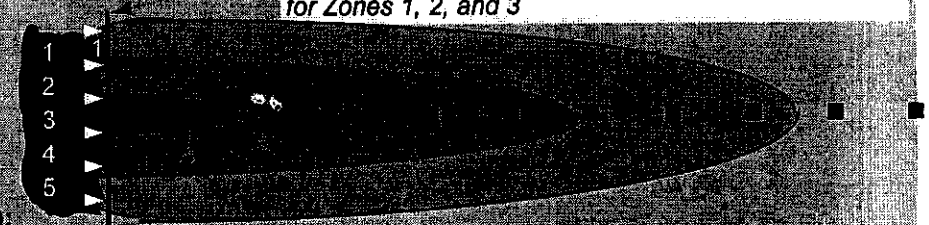
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	1.4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	168	336	504	672	840	1008	1176	1344	1512	1680

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

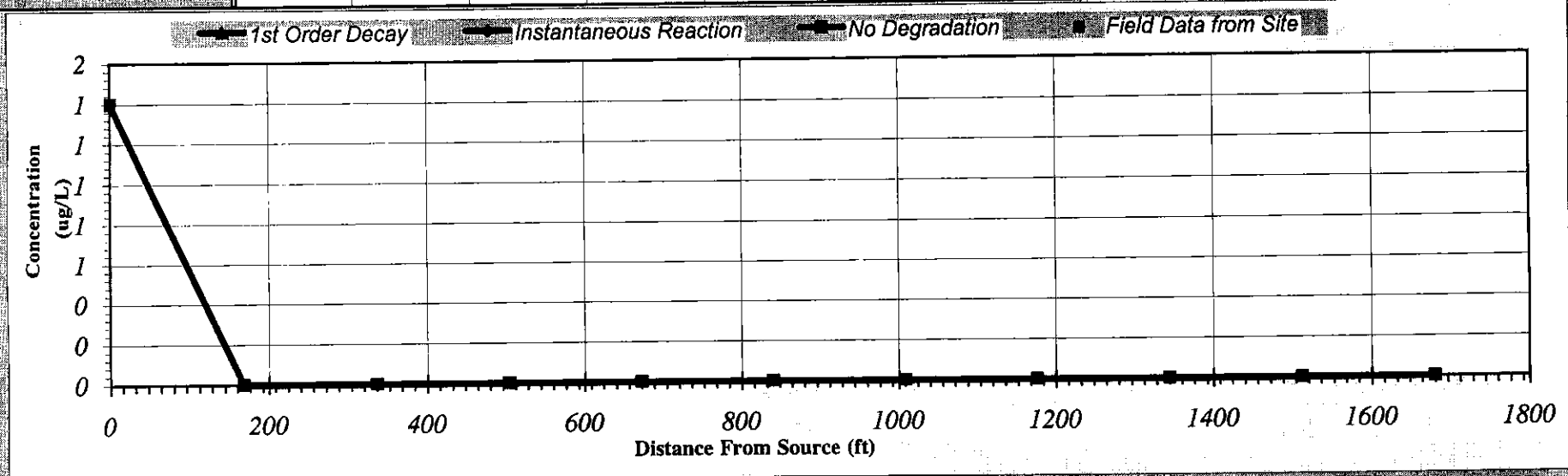
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	168	336	504	672	840	1008	1176	1344	1512	1680
No Degradation	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
PenCP - ASR-MW5
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	8.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0181	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	34.2	(ft)
Transverse Dispersivity*	alpha y	3.4	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	2340	(ft)

3. ADSORPTION

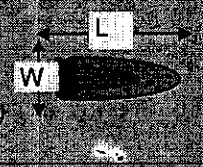
Retardation Factor*	R	18.3	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.9E+2	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	2340	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



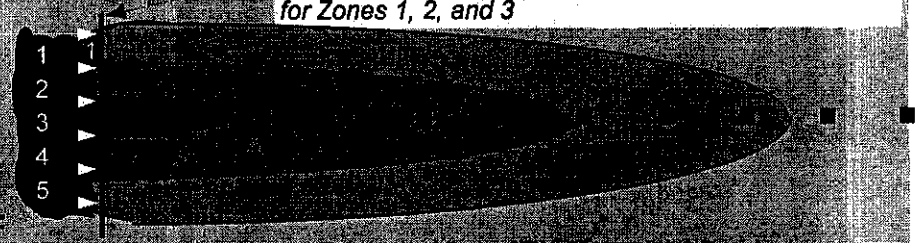
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	73

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	

Soluble Mass infinite (Kg)

In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	234	468	702	936	1170	1404	1638	1872	2106	2340

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

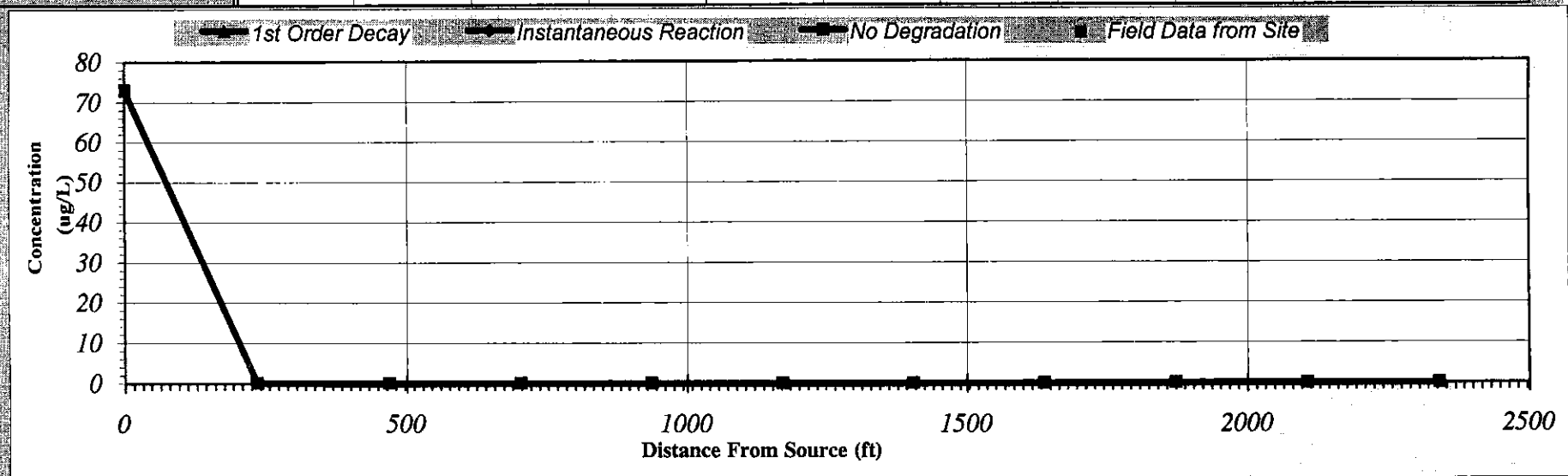
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	234	468	702	936	1170	1404	1638	1872	2106	2340
No Degradation	73.000	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep

Animation Prev Timestep

Time: 100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - I_c
PenCP - ASR-MW5
Run Name

Data Input Instructions:

115 — 1. Enter value directly ... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	97.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0497	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	23.4	(ft)
Transverse Dispersivity*	alpha y	2.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	900	(ft)

3. ADSORPTION

Retardation Factor*	R	22.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.9E+2	(L/kg)
FractionOrganicCarbon	foc	7.6E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	900	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

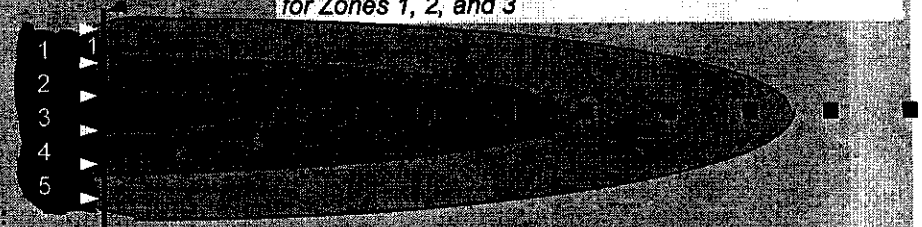
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	73



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	

Soluble Mass: infinite (Kg)

In Source NAPL Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	90	180	270	360	450	540	630	720	810	900

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

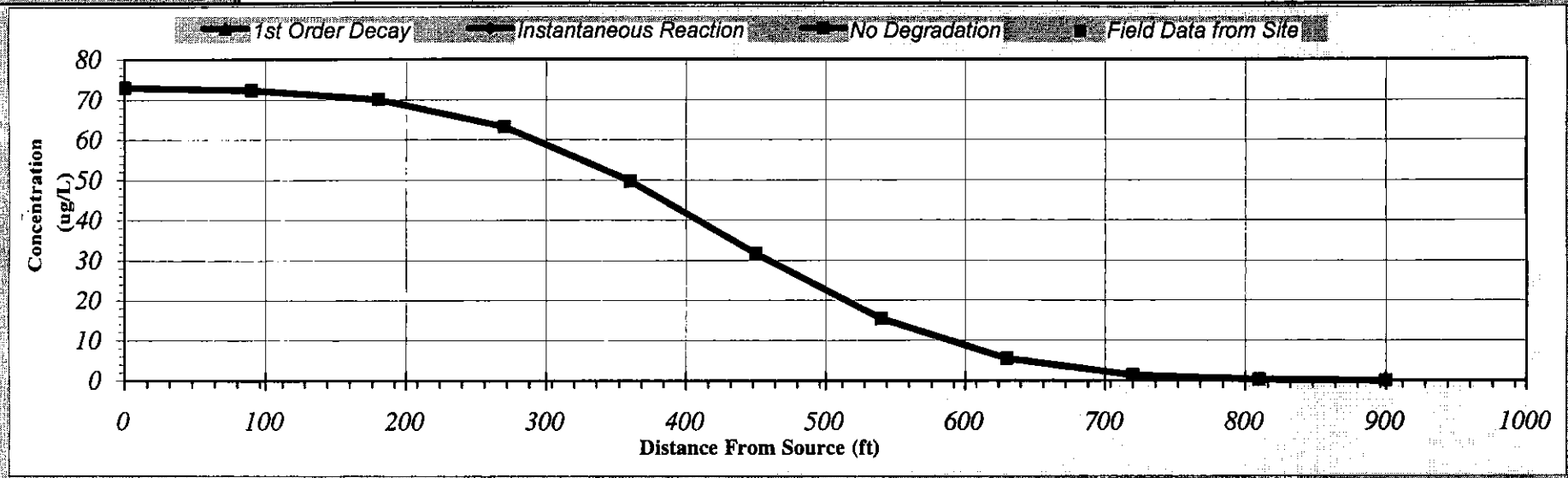
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	90	180	270	360	450	540	630	720	810	900
No Degradation	73.000	72.368	70.031	63.190	49.670	31.623	15.353	5.445	1.371	0.241	0.029
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
PN - MW-1B1-04
Run Name

Data Input Instructions:

115 or 0.02

1. Enter value directly... or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below)

Variable: 20

- Data used directly in model.
- Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	42.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0143	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	35.9	(ft)
Transverse Dispersivity*	alpha y	3.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	2680	(ft)

3. ADSORPTION

Retardation Factor*	R	233.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.4E+4	(L/kg)
FractionOrganicCarbon	foc	3.4E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	2680	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

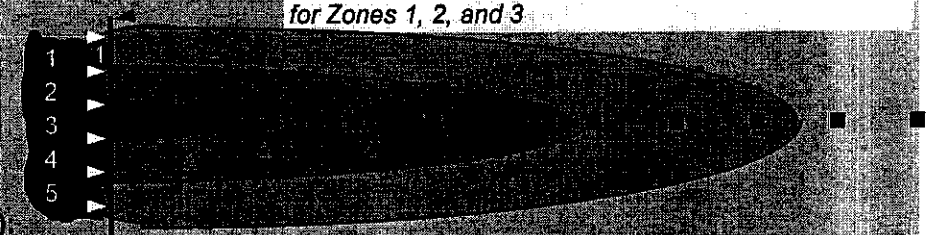
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	61



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	268	536	804	1072	1340	1608	1876	2144	2412	2680

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

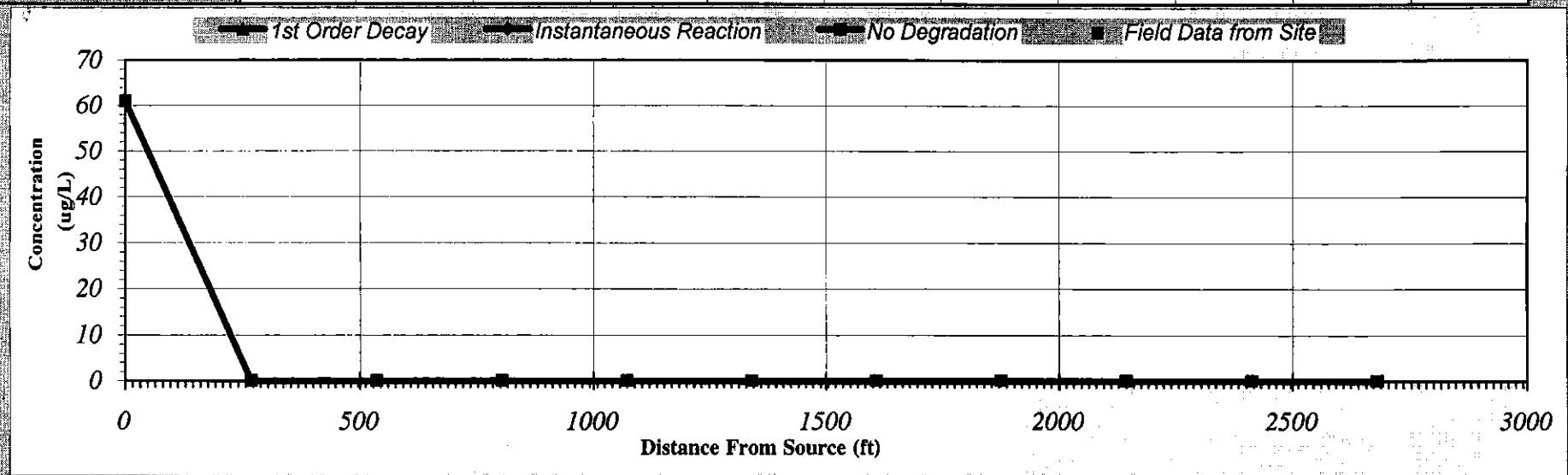
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	268	536	804	1072	1340	1608	1876	2144	2412	2680
No Degradation	61.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
PN - MW-1B1-04
Run Name

Data Input Instructions:

115 — 1. Enter value directly, or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	92.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0471	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	22.7	(ft)
Transverse Dispersivity*	alpha y	2.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	840	(ft)

3. ADSORPTION

Retardation Factor*	R	233.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.4E+4	(L/kg)
FractionOrganicCarbon	foc	3.4E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	840	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

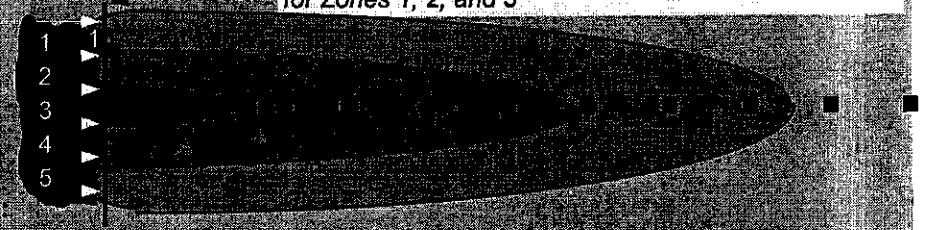
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	61

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	84	168	252	336	420	504	588	672	756	840

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

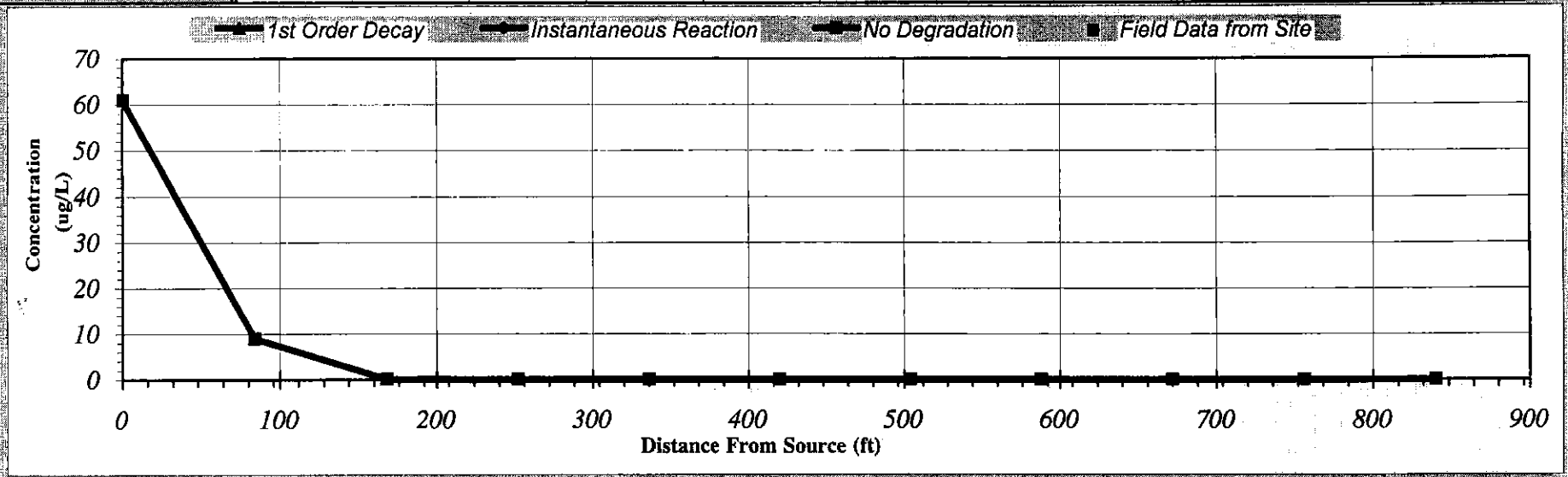
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	84	168	252	336	420	504	588	672	756	840
No Degradation	61.000	8.941	0.073	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
NP - SW4-1
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or — 2. Calculate by filling in grey cells below. (To restore formulas, flit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	1.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0031	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	20.3	(ft)
Transverse Dispersivity*	alpha y	2.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	650	(ft)

3. ADSORPTION

Retardation Factor*	R	35.7	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.2E+3	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	650	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L
W

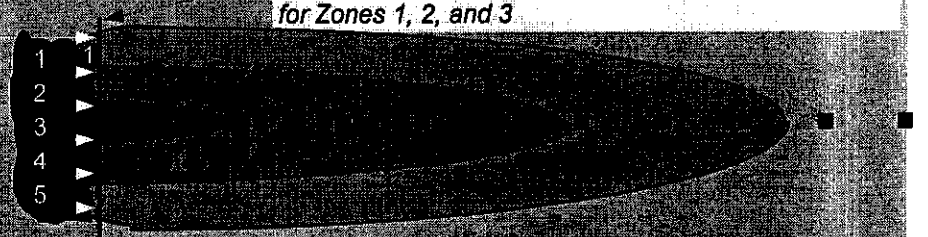
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	25



View of Plume Looking Down

Source Halflife (see Help):

Inst. React.	1st Order
Infinite	Infinite (yr)

Soluble Mass: infinite (Kg)

In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	65	130	195	260	325	390	455	520	585	650

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

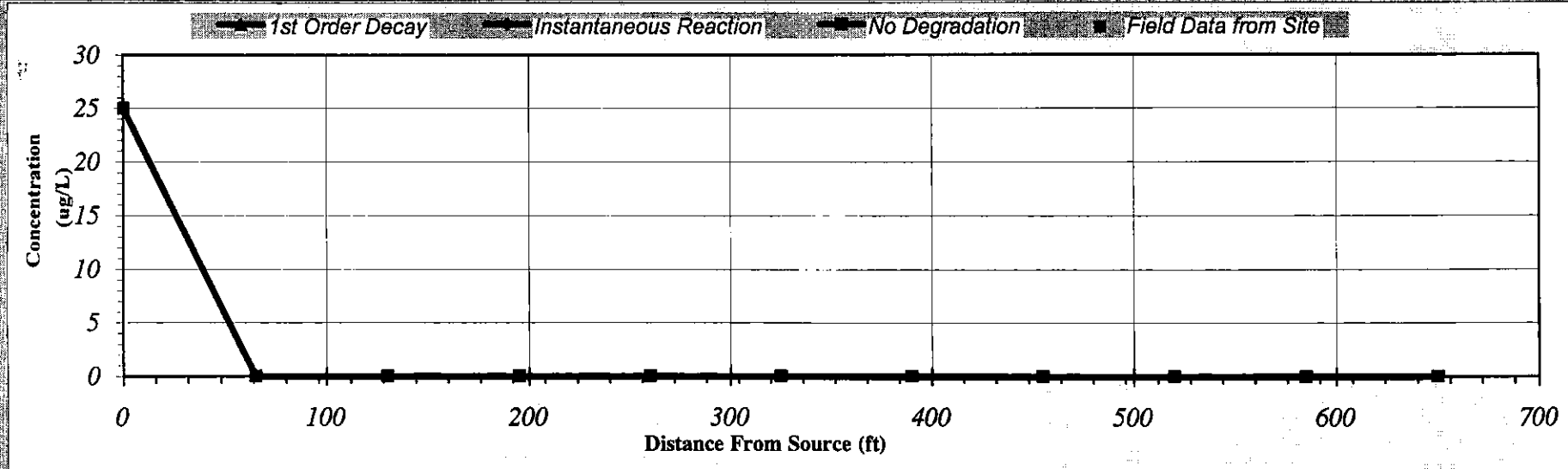
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	65	130	195	260	325	390	455	520	585	650
No Degradation	25.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
VC - CL6-4
Run Name

Data Input Instructions:

115 — 1. Enter value directly ... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	1.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0031	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	17.0	(ft)
Transverse Dispersivity*	alpha y	1.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	450	(ft)

3. ADSORPTION

Retardation Factor*	R	1.5	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	450	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

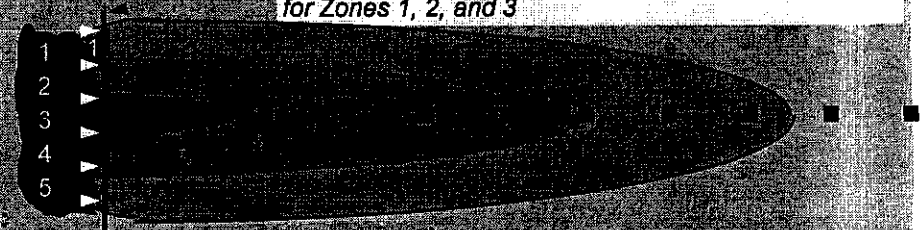
Width* (ft)	Conc. (ug/L)*
1000	180

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

VC - CL6-4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	45	90	135	180	225	270	315	360	405	450

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

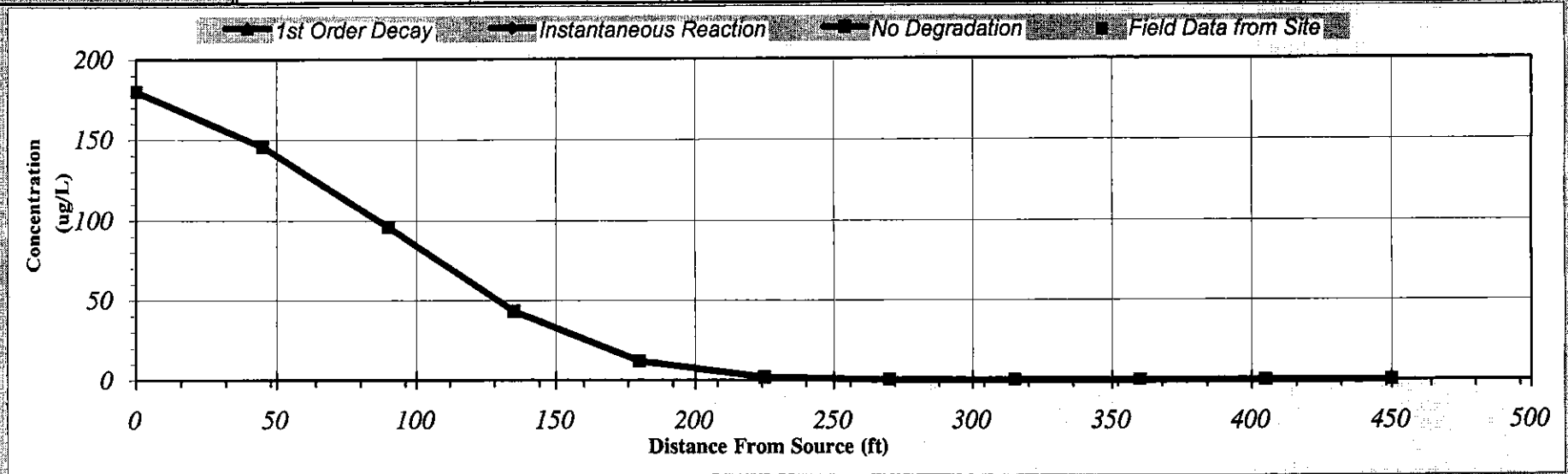
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	45	90	135	180	225	270	315	360	405	450
No Degradation	180.000	145.677	95.967	43.049	11.997	1.964	0.183	0.009	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
VC - CL6-8
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	100.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.213	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	0.5	(ft)
Transverse Dispersivity*	alpha y	0.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	10	(ft)

3. ADSORPTION

Retardation Factor*	R	1.5	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	10	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

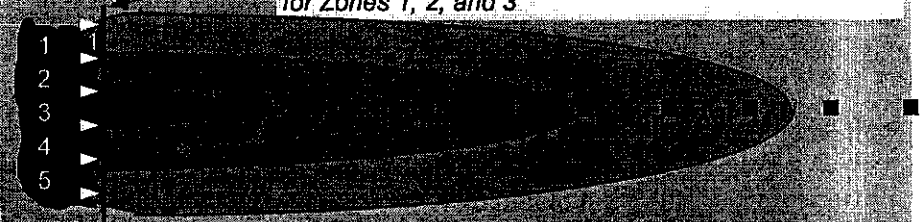
Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	170

VC - CL6-4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	

Soluble Mass infinite (Kg)

In Source NAPL Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter '0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	1	2	3	4	5	6	7	8	9	10

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

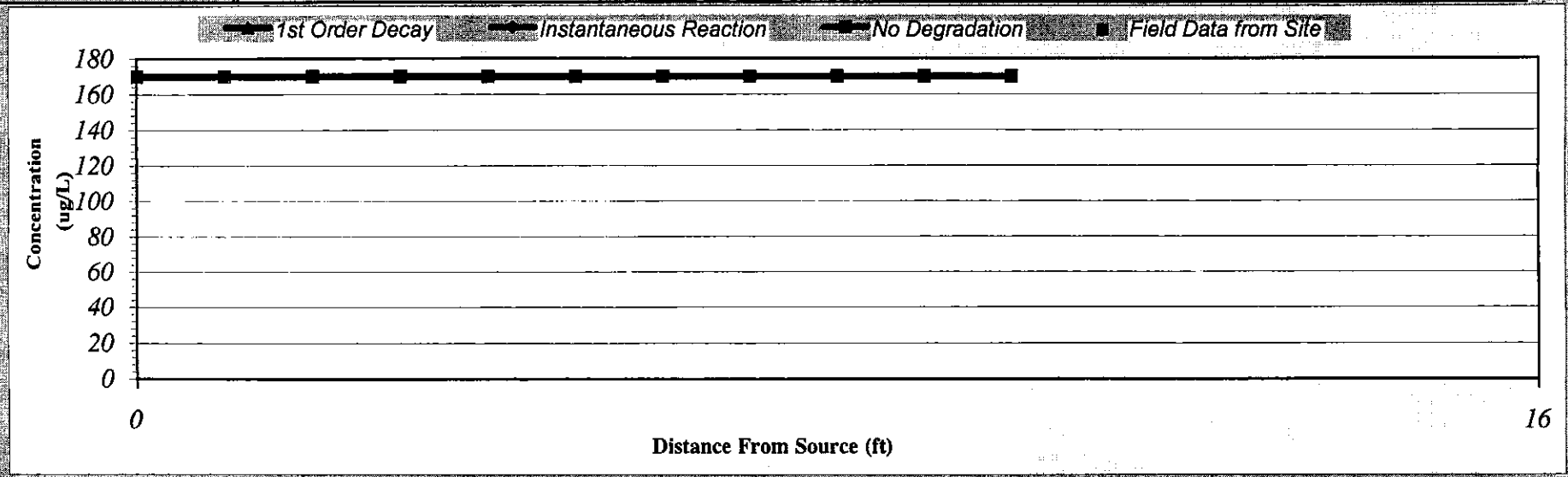
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	1	2	3	4	5	6	7	8	9	10
No Degradation	170.000	170.000	170.000	170.000	170.000	170.000	170.000	170.000	170.000	170.000	170.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
VC - MWB-2
Run Name

Data Input Instructions:

115 or 0.02

1. Enter value directly... or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	14.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0304	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	27.7	(ft)
Transverse Dispersivity*	alpha y	2.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1350	(ft)

3. ADSORPTION

Retardation Factor*	R	1.5	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1350	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

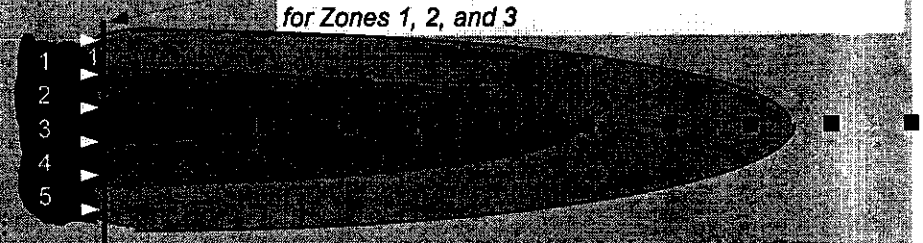
Source Thickness in Sat Zone* 10 (ft)

VC - CL6-4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones

Width* (ft)	Conc. (ug/L)*
1000	2500



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	135	270	405	540	675	810	945	1080	1215	1350

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

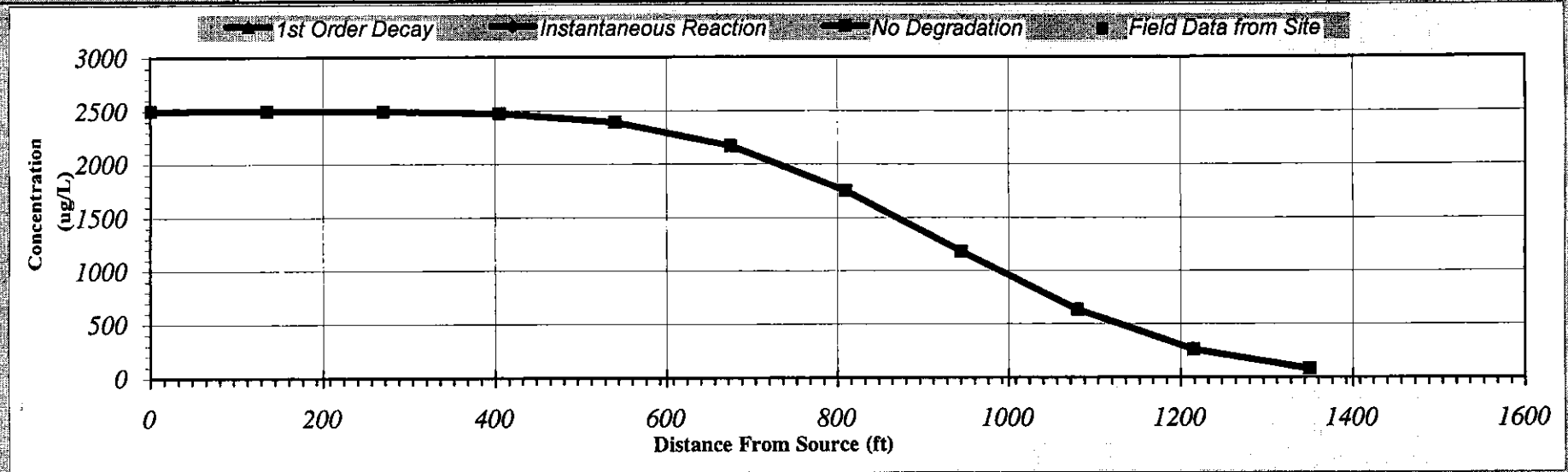
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	135	270	405	540	675	810	945	1080	1215	1350
No Degradation	2500.000	2499.418	2495.402	2473.850	2391.920	2171.221	1749.823	1179.366	631.797	259.120	79.297
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
VC - MWB-4
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	16.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0354	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	26.8	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1240	(ft)

3. ADSORPTION

Retardation Factor*	R	1.5	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1240	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

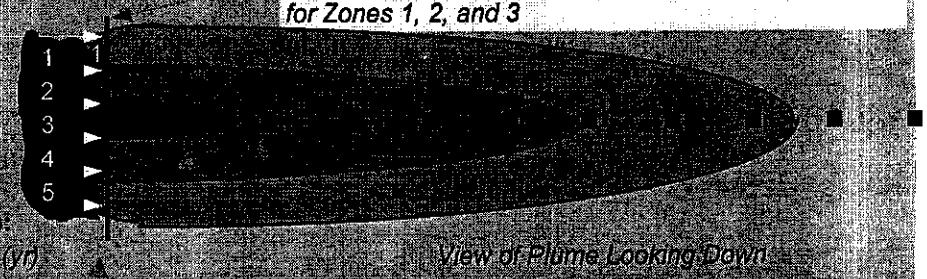
Source Thickness in Sat Zone* 10 (ft)

Source Zones

Width* (ft)	Conc. (ug/L)*
1000	40

VC - CL6-4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	

Soluble Mass: infinite (Kg)

In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	124	248	372	496	620	744	868	992	1116	1240

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

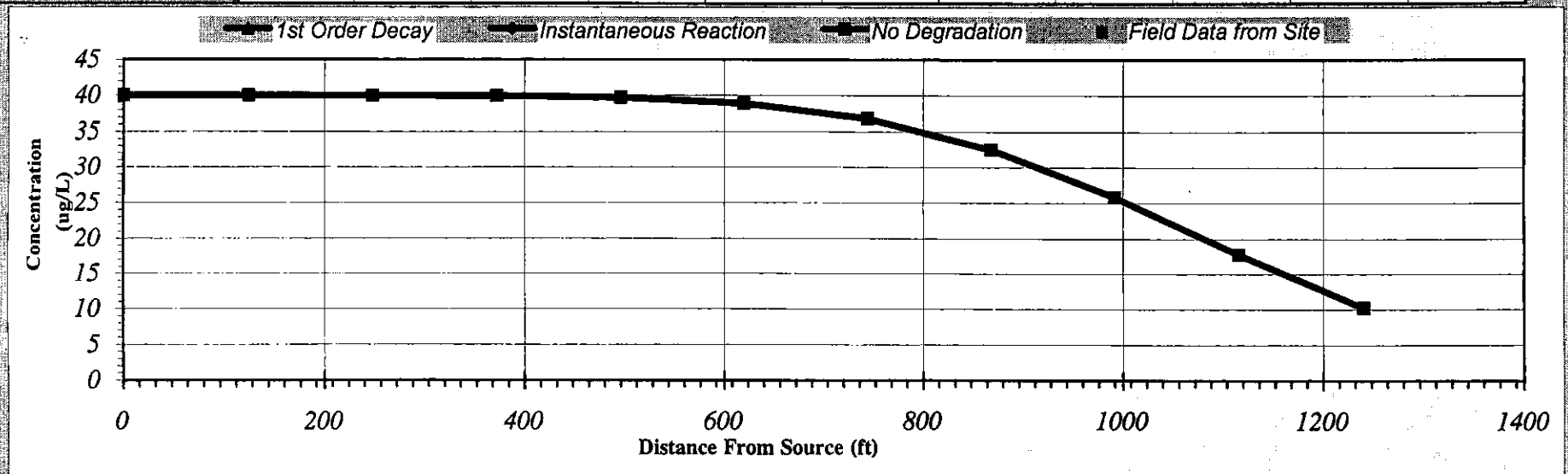
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	124	248	372	496	620	744	868	992	1116	1240
No Degradation	40.000	39.999	39.989	39.936	39.701	38.899	36.790	32.510	25.814	17.733	10.213
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate
Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
VC - SW1-6
Run Name

Data Input Instructions:
115 — 1. Enter value directly ...or
or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
Variable — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	14.3	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	1.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0303	*(ft/ft)*
Porosity	*n*	0.35	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	26.4	*(ft)*
Transverse Dispersivity*	*alpha y*	2.6	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	1200	*(ft)*

3. ADSORPTION

Retardation Factor*	*R*	1.5	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	1.9E+1	*(L/kg)*
FractionOrganicCarbon	*foc*	6.0E-3	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*		*(per yr)*
or		or	
Solute Half-Life	*t-half*		*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron*	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane*	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	1200	*(ft)*
Modeled Area Width*	1500	*(ft)*
Simulation Time*	100	*(yr)*

L
W

6. SOURCE DATA

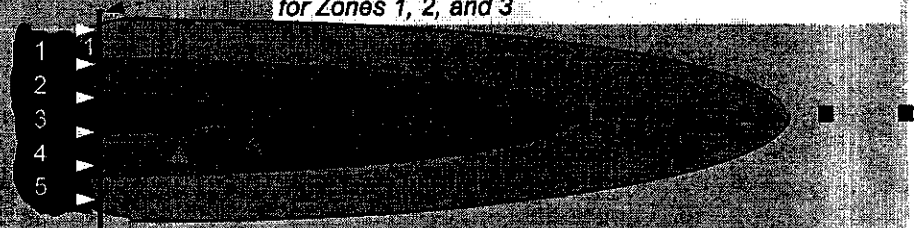
Source Thickness in Sat Zone* 10 *(ft)*

VC - CL6-4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones

Width* (ft)	Conc. (ug/L)*
1000	40



View of Plume Looking Down

Source Halflife (see Help)

Infinite	Infinite	*(yr)*
Inst. React.	1st Order	

Soluble Mass infinite *(Kg)*

In Source NAPL, Soil

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

Distance from Source (ft)	Concentration (mg/L)
0	
120	
240	
360	
480	
600	
720	
840	
960	
1080	
1200	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

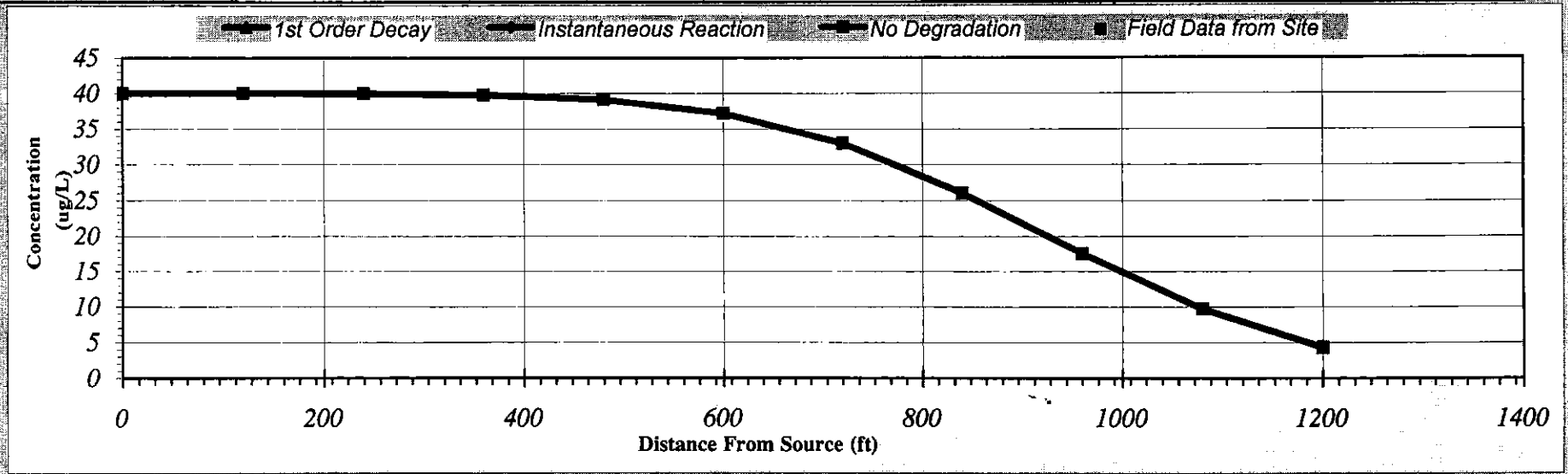
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	120	240	360	480	600	720	840	960	1080	1200
No Degradation	40.000	39.995	39.961	39.790	39.124	37.188	32.962	26.044	17.547	9.716	4.303
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
VC - MWB-2
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or — 2. Calculate by filling in grey cells below... (To restore formulas, hit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	57.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0294	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	28.7	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1470	(ft)

3. ADSORPTION

Retardation Factor*	R	1.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+1	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1470	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

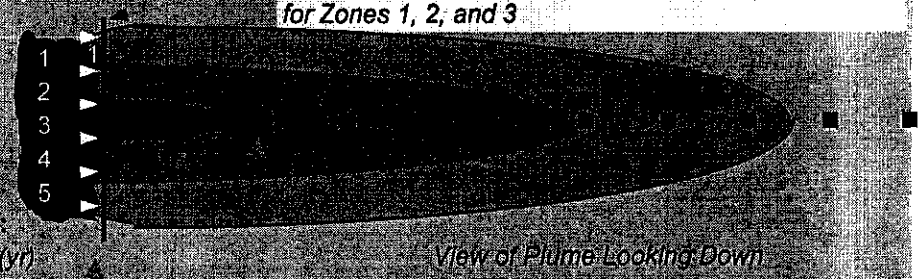
VC - CL6-4

Source Thickness in Sat Zone* 10 (ft)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	2500



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	147	294	441	588	735	882	1029	1176	1323	1470

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

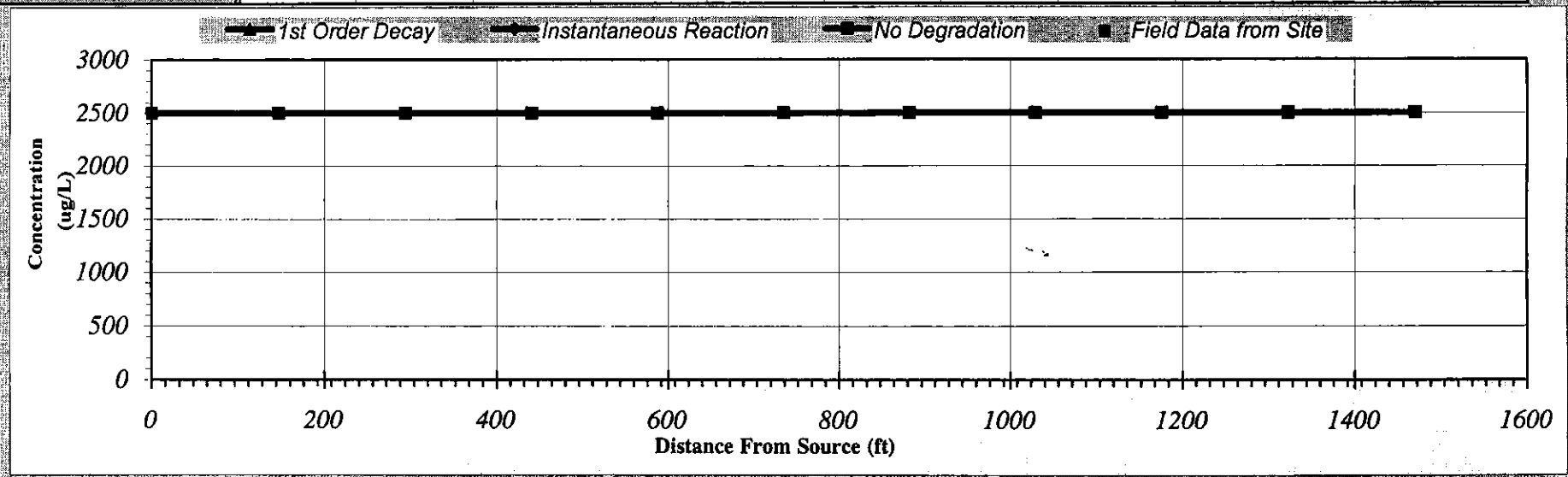
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	147	294	441	588	735	882	1029	1176	1323	1470
No Degradation	2500.000	2500.000	2500.000	2500.000	2500.000	2500.000	2500.000	2500.000	2500.000	2500.000	2499.998
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
VC - MWB-4
Run Name

Data Input Instructions:

115 — 1. Enter value directly ... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	53.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0275	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.1	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1660	(ft)

3. ADSORPTION

Retardation Factor*	R	1.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+1	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1660	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

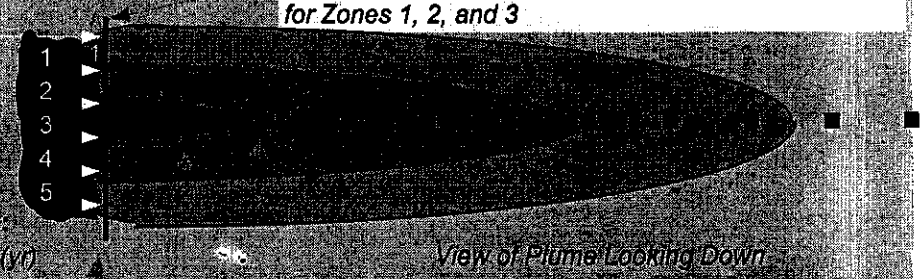
Source Thickness in Sat Zone* 10 (ft)

VC - CL6-4

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	40



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	166	332	498	664	830	996	1162	1328	1494	1660

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

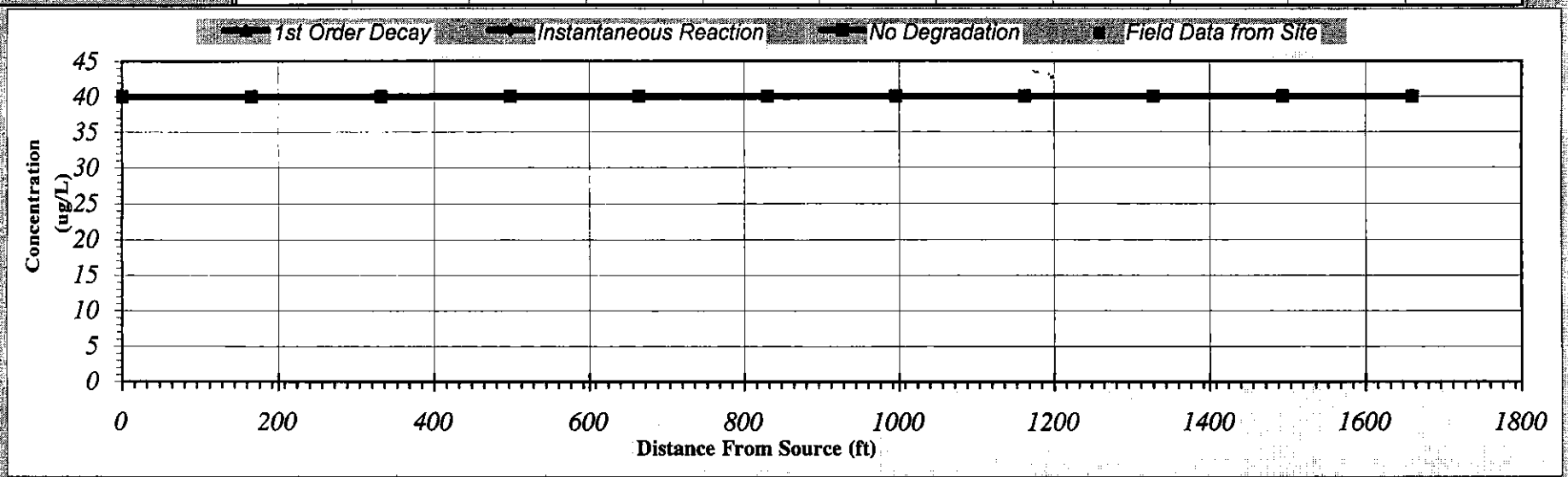
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	166	332	498	664	830	996	1162	1328	1494	1660
No Degradation	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	39.998
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
VC - SW1-6
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	59.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0303	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	29.9	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1640	(ft)

3. ADSORPTION

Retardation Factor*	R	1.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+1	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1640	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

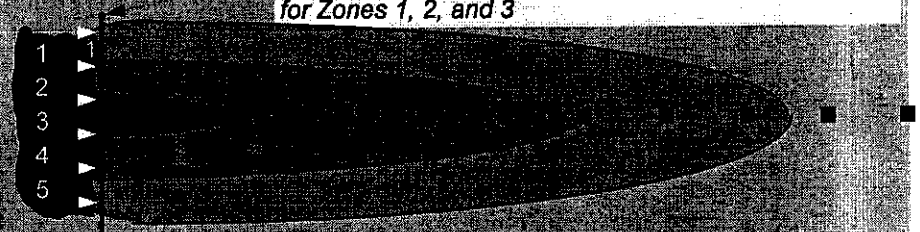
VC - CL6-4

Source Thickness in Sat.Zone* 10 (ft)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	1200



View of Plume Looking Down

Source Halflife (see Help)

Infinite	Infinite	(yr)
Inst. React.	1st Order	

Soluble Mass infinite (Kg)

In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter '0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	164	328	492	656	820	984	1148	1312	1476	1640

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

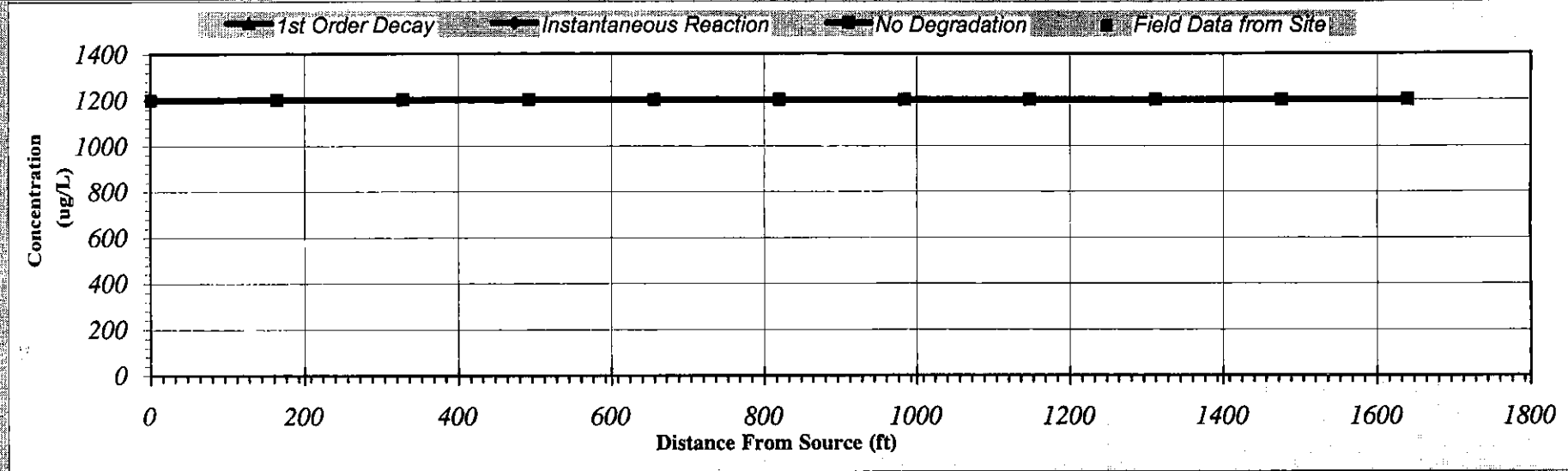
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	164	328	492	656	820	984	1148	1312	1476	1640
No Degradation	1200.000	1200.000	1200.000	1200.000	1200.000	1200.000	1200.000	1200.000	1200.000	1199.999	1199.995
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Benzene - SW4-6
Run Name

Data Input Instructions:

115 — 1. Enter value directly...or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	1.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	5.0E-05	(cm/sec)
Hydraulic Gradient	i	0.0092	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	22.1	(ft)
Transverse Dispersivity*	alpha y	2.2	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	790	(ft)

3. ADSORPTION

Retardation Factor*	R	2.8	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.2E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	790	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

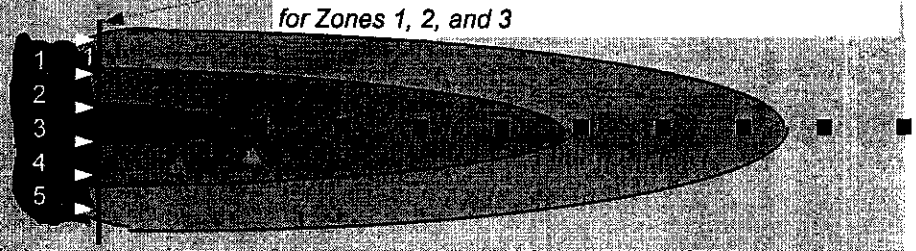
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	380

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	79	158	237	316	395	474	553	632	711	790

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

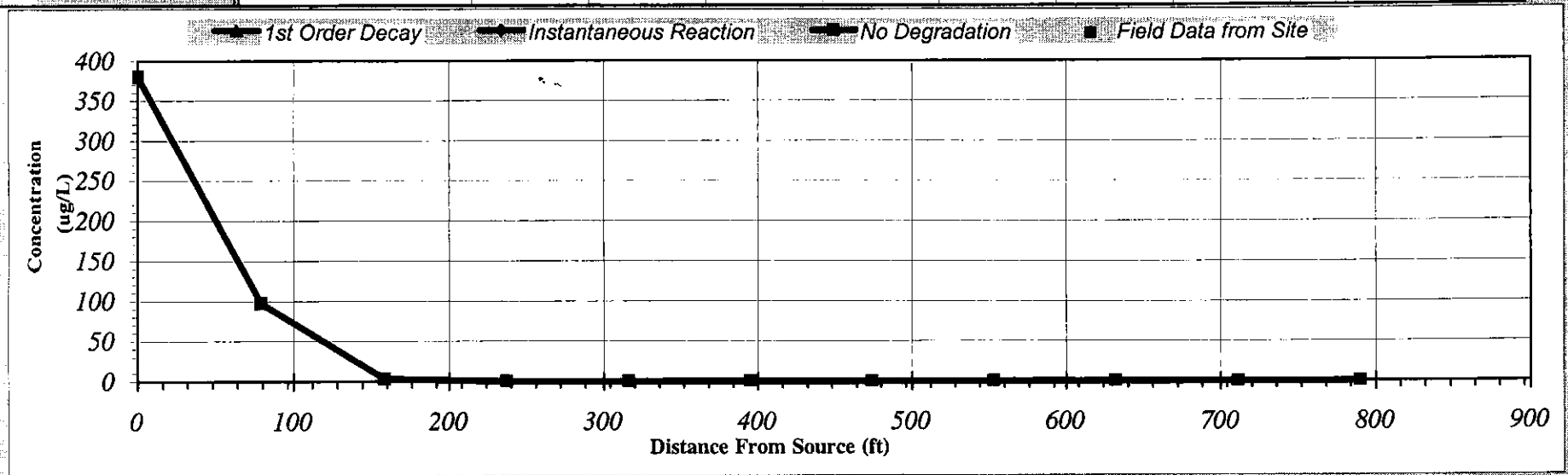
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft)										
	0	79	158	237	316	395	474	553	632	711	790
No Degradation	380.000	97.286	3.477	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
BAP - MW-1B1-04
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	42.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0143	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	35.9	(ft)
Transverse Dispersivity*	alpha y	3.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	2680	(ft)

3. ADSORPTION

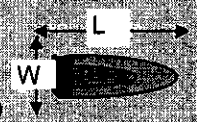
Retardation Factor*	R	16003.3	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	9.7E+5	(L/kg)
FractionOrganicCarbon	foc	3.4E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	2680	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



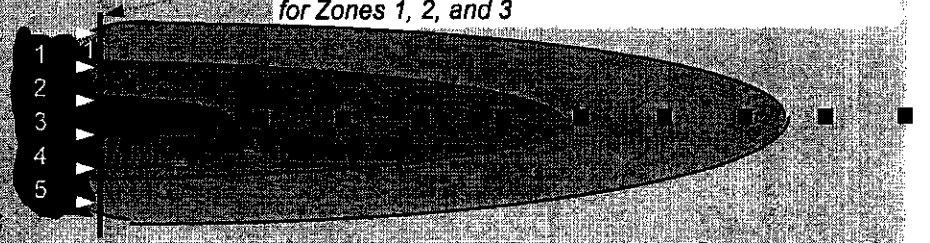
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	6

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	268	536	804	1072	1340	1608	1876	2144	2412	2680

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

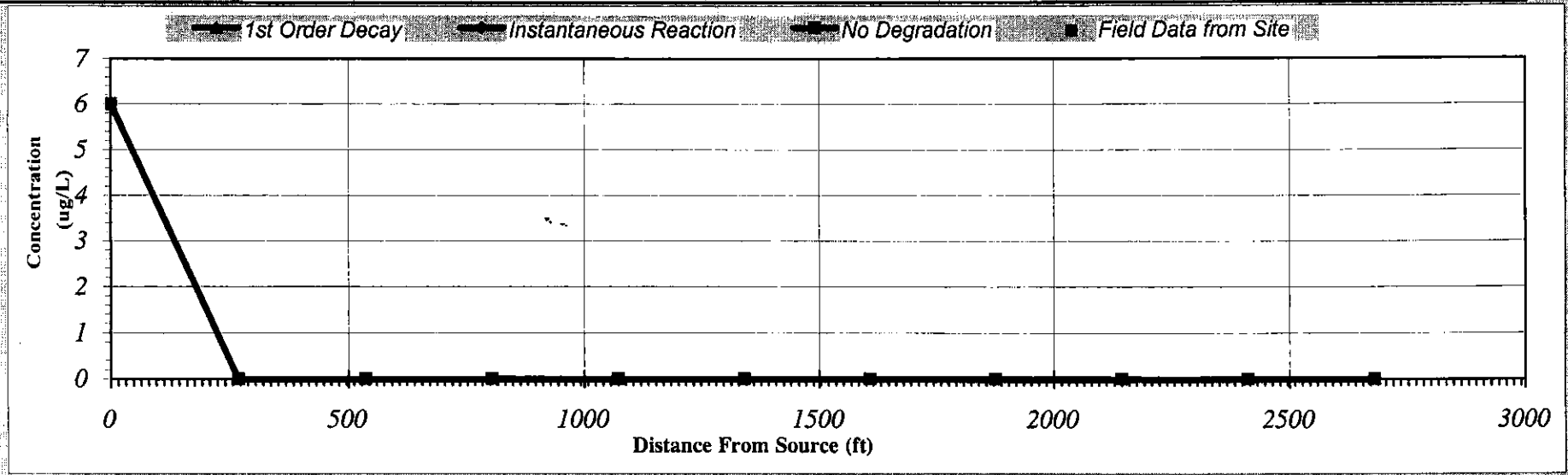
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	268	536	804	1072	1340	1608	1876	2144	2412	2680
No Degradation	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
BAP - MW-1B1-04
Run Name

Data Input Instructions:

115 → 1. Enter value directly... or
or
0.02 → 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	92.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0471	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	22.7	(ft)
Transverse Dispersivity*	alpha y	2.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	840	(ft)

3. ADSORPTION

Retardation Factor*	R	37653.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	9.7E+5	(L/kg)
FractionOrganicCarbon	foc	8.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	840	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

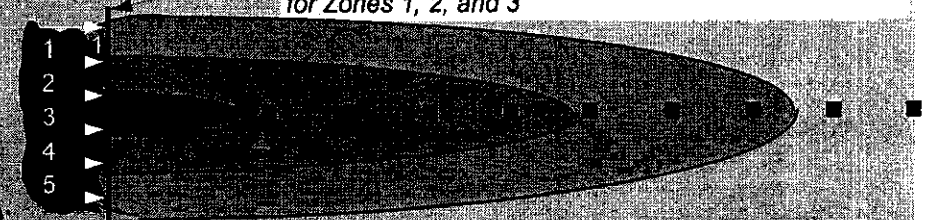
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	6

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	84	168	252	336	420	504	588	672	756	840

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

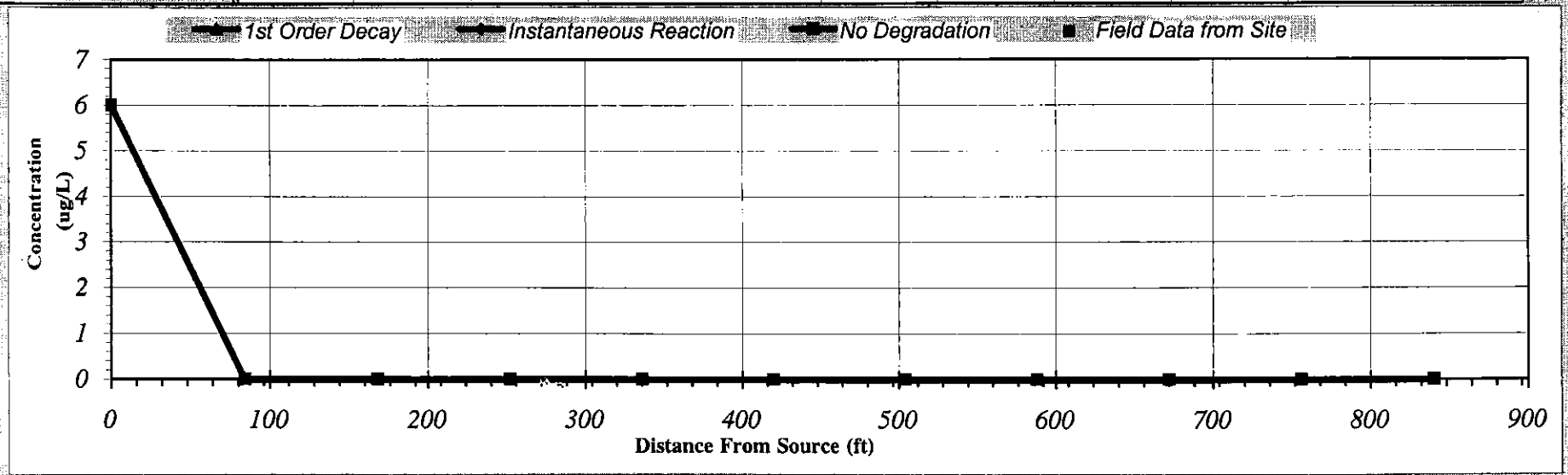
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	84	168	252	336	420	504	588	672	756	840
No Degradation	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
BAP - MW-40
Run Name

Data Input Instructions:

115 — *1. Enter value directly... or*
or — *2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*
0.02

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	12.4	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	1.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0262	*(ft/ft)*
Porosity	*n*	0.35	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	30.5	*(ft)*
Transverse Dispersivity*	*alpha y*	3.0	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	1720	*(ft)*

3. ADSORPTION

Retardation Factor*	*R*	28240.4	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	9.7E+5	*(L/kg)*
FractionOrganicCarbon	*foc*	6.0E-3	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*		*(per yr)*
or		or	
Solute Half-Life	*t-half*		*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron*	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane*	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	1720	*(ft)*
Modeled Area Width*	1500	*(ft)*
Simulation Time*	100	*(yr)*

L
W

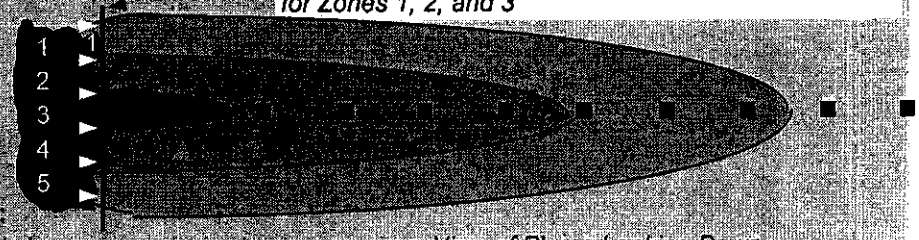
6. SOURCE DATA

Source Thickness in Sat Zone* 10 *(ft)*

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	2

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	*(yr)*
Inst. React	1st Order	

Soluble Mass infinite *(Kg)*
In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	
172	
344	
516	
688	
860	
1032	
1204	
1376	
1548	
1720	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

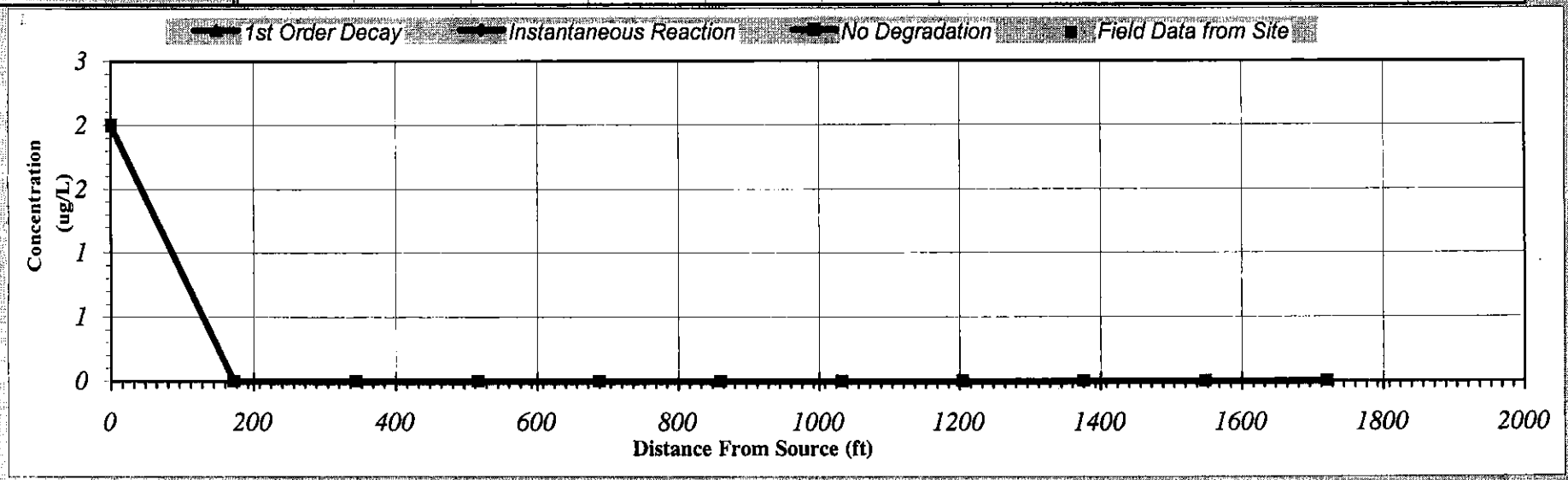
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	172	344	516	688	860	1032	1204	1376	1548	1720
No Degradation	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

.100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
BAP - MW-40
Run Name

Data Input Instructions:

115 — 1. Enter value directly...or
or — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	82.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0419	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	25.8	(ft)
Transverse Dispersivity*	alpha y	2.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1130	(ft)

3. ADSORPTION

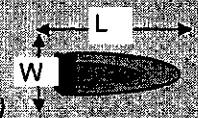
Retardation Factor*	R	29652.4	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	9.7E+5	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1130	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



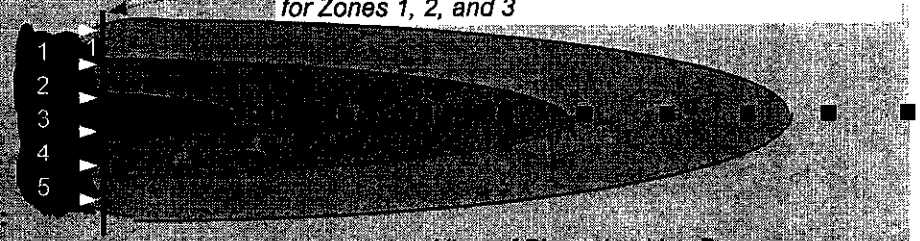
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	2

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	

Soluble Mass infinite (Kg)
In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	113	226	339	452	565	678	791	904	1017	1130

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

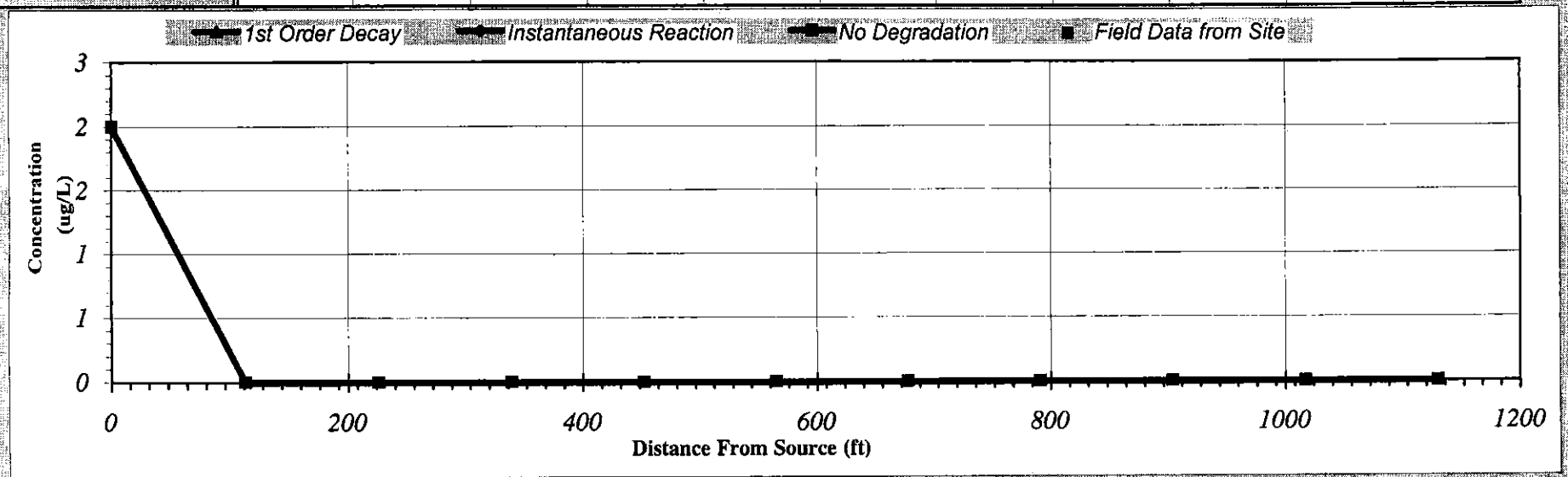
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	113	226	339	452	565	678	791	904	1017	1130
No Degradation	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time: *100 Years*

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
CT - SW1-8
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model
20 — Value calculated by model. (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	12.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0273	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.1	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1670	(ft)

3. ADSORPTION

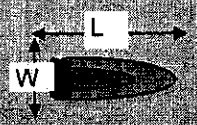
Retardation Factor*	R	5.4	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.5E+2	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1670	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



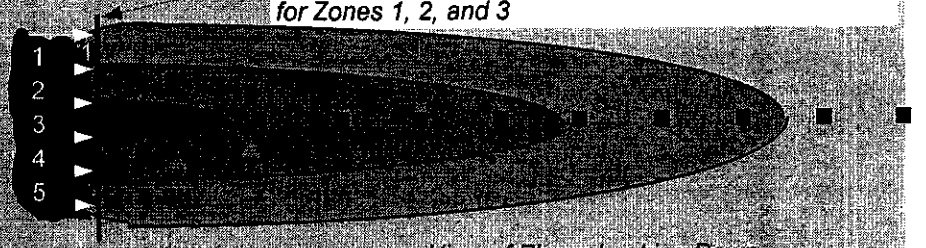
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	34000

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	167	334	501	668	835	1002	1169	1336	1503	1670

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

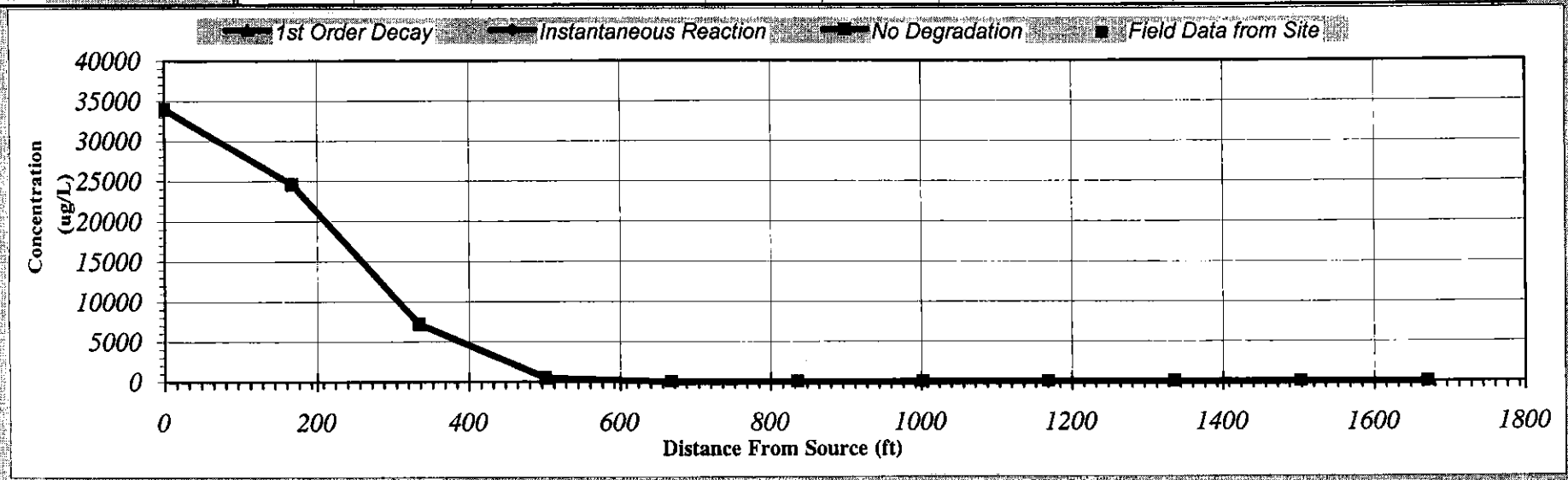
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	167	334	501	668	835	1002	1169	1336	1503	1670
No Degradation	34000.000	24579.600	7167.609	474.191	5.537	0.010	0.000	0.000	0.000	0.000	0.000
1st Order Decay	34000.000	24579.600	7167.609	474.191	5.537	0.010	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	34000.000	24579.600	7167.609	474.191	5.537	0.010	0.000	0.000	0.000	0.000	0.000
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
CT - SW1-8
Run Name

Data Input Instructions:

115 → 1. Enter value directly...or
or
0.02 → 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	75.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0383	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	26.9	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1250	(ft)

3. ADSORPTION

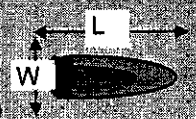
Retardation Factor*	R	4.4	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.5E+2	(L/kg)
FractionOrganicCarbon	foc	4.6E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1250	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



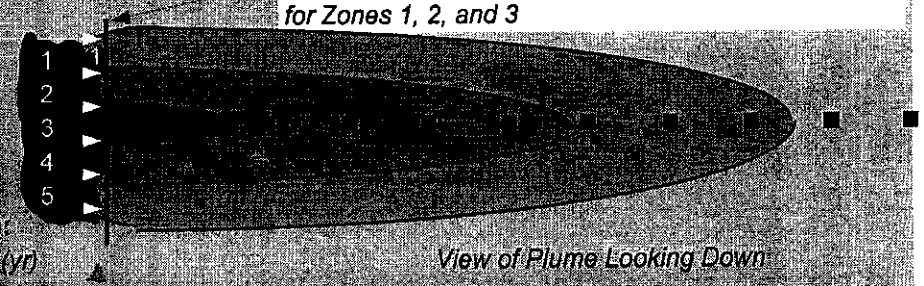
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	34000

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	125	250	375	500	625	750	875	1000	1125	1250

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

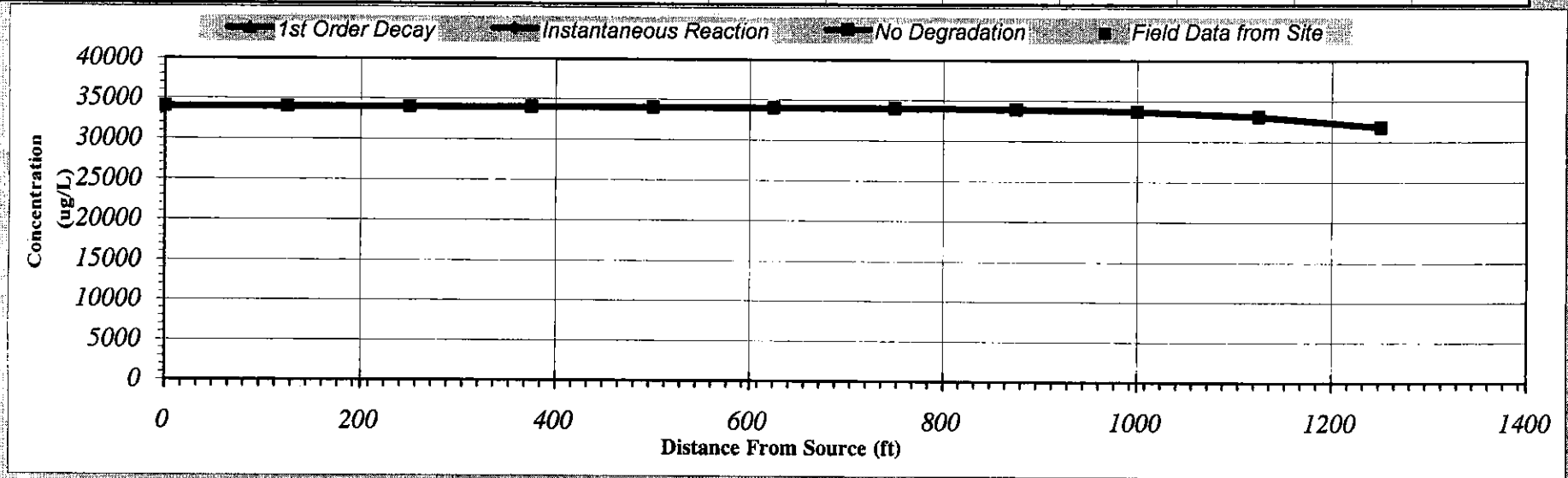
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	125	250	375	500	625	750	875	1000	1125	1250
No Degradation	34000.000	33999.997	33999.975	33999.816	33998.864	33994.037	33973.348	33898.403	33668.929	33075.020	31775.691
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
CF - SW1-8
Run Name

Data Input Instructions:

115 — 1. Enter value directly...or
or — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
0.02

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	12.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0273	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.1	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1670	(ft)

3. ADSORPTION

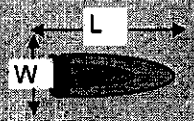
Retardation Factor*	R	2.5	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.3E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1670	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



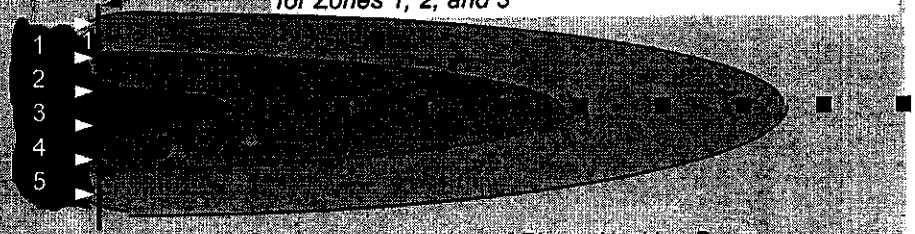
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	33000

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	167	334	501	668	835	1002	1169	1336	1503	1670

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

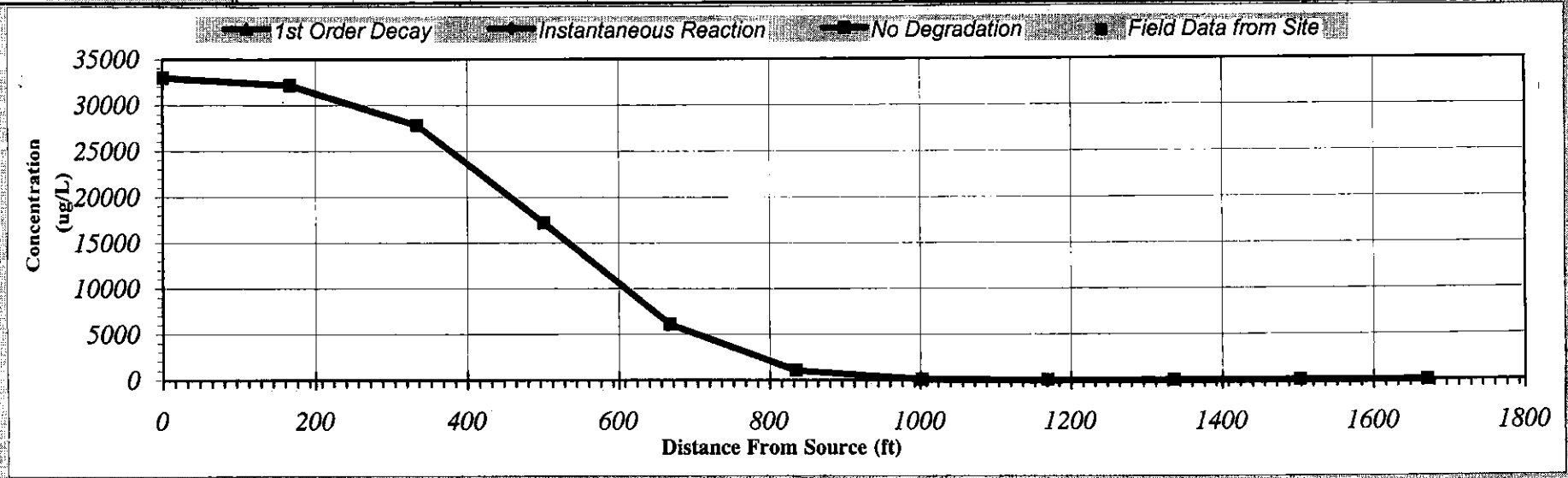
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	167	334	501	668	835	1002	1169	1336	1503	1670
No Degradation	33000.000	32171.500	27810.520	17203.189	6083.485	1058.143	83.375	2.849	0.041	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
CF - SW1-8
Run Name

Data Input Instructions:

115 — 1. Enter value directly...or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	75.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0383	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.1	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1670	(ft)

3. ADSORPTION

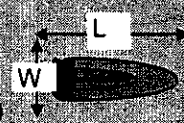
Retardation Factor*	R	2.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.3E+1	(L/kg)
FractionOrganicCarbon	foc	4.6E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1670	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



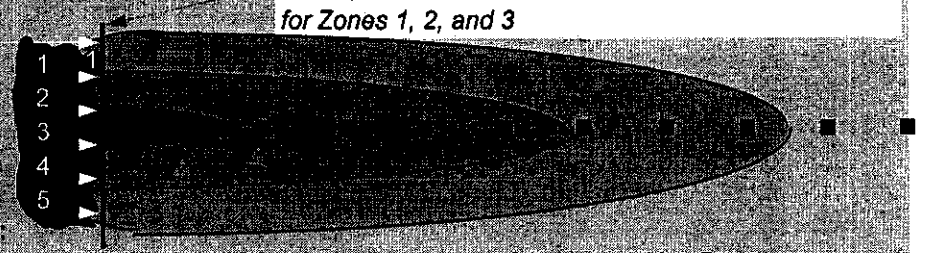
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	33000

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	167	334	501	668	835	1002	1169	1336	1503	1670

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

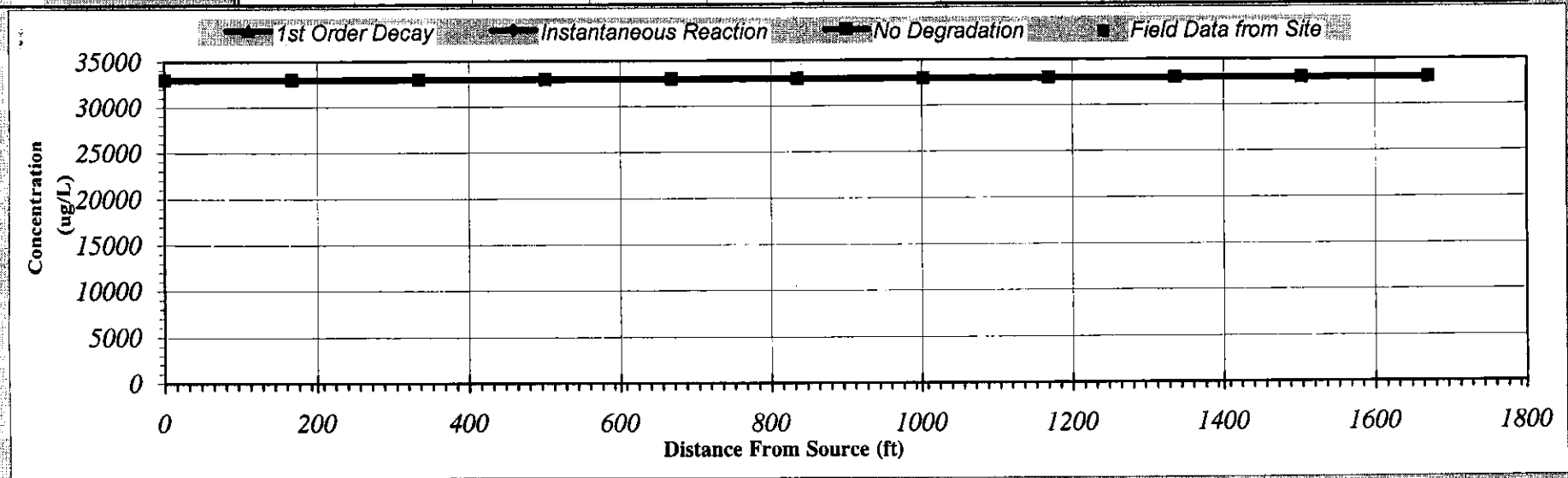
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	167	334	501	668	835	1002	1169	1336	1503	1670
No Degradation	33000.000	33000.000	33000.000	33000.000	33000.000	33000.000	32999.999	32999.991	32999.943	32999.683	32998.466
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
DDT - CL6-1A
Run Name

Data Input Instructions:

115 — 1. Enter value directly...or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	79.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.1685	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	3.3	(ft)
Transverse Dispersivity*	alpha y	0.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	40	(ft)

3. ADSORPTION

Retardation Factor*	R	19759.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	40	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

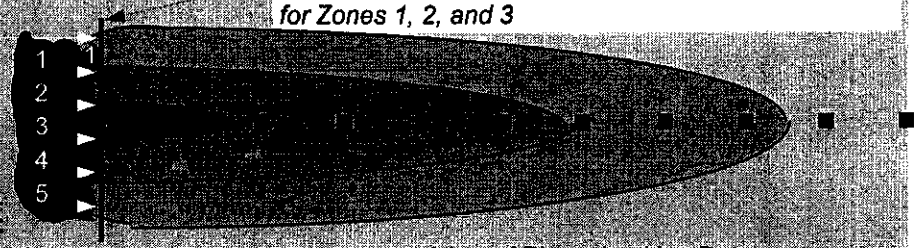
Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.06

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	4	8	12	16	20	24	28	32	36	40

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

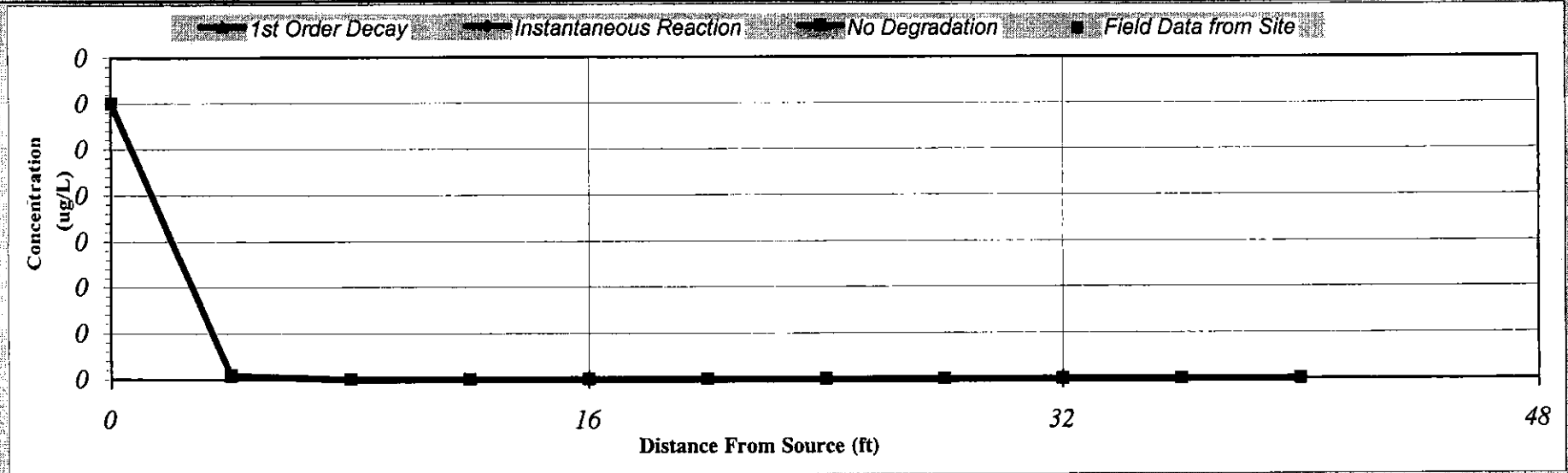
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	4	8	12	16	20	24	28	32	36	40
No Degradation	0.060	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
DDT - MW-47
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
↑ or
0.02 → 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.

20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	11.6	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0246	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.1	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	1670	(ft)

3. ADSORPTION

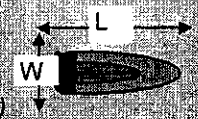
Retardation Factor*	R	19759.9	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		↑ or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1670	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



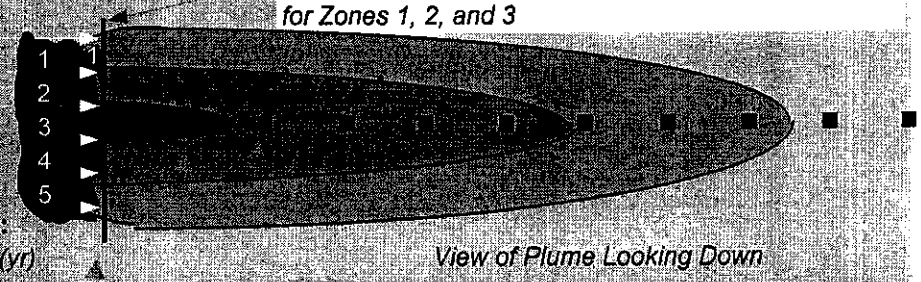
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.05
[redacted]	

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React	↑ 1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	167	334	501	668	835	1002	1169	1336	1503	1670

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

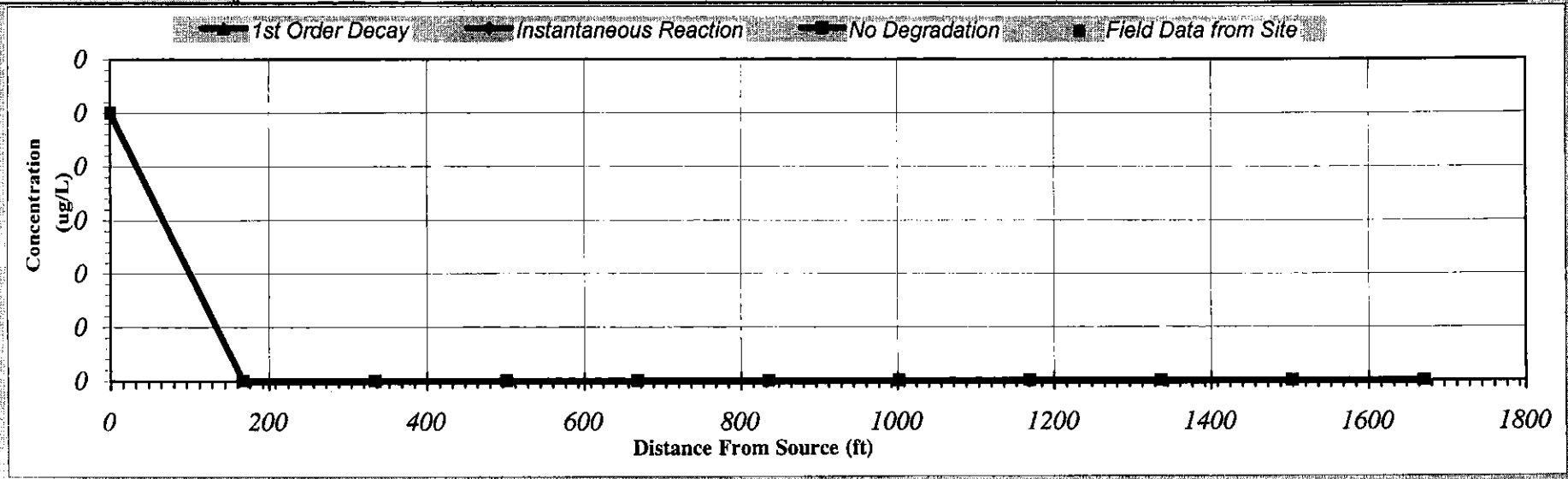
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	167	334	501	668	835	1002	1169	1336	1503	1670
No Degradation	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
DDT - SW1-5
Run Name

Data Input Instructions:

115 — 1. Enter value directly...or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	9.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0196	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	32.7	(ft)
Transverse Dispersivity*	alpha y	3.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	2070	(ft)

3. ADSORPTION

Retardation Factor*	R	19759.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	t-half		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	2070	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

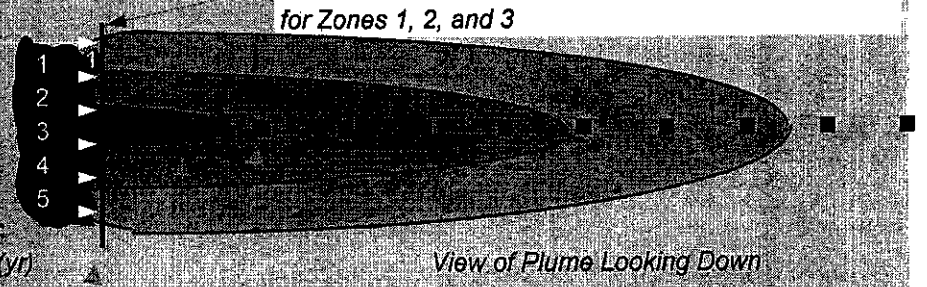
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.01

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	207	414	621	828	1035	1242	1449	1656	1863	2070

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other