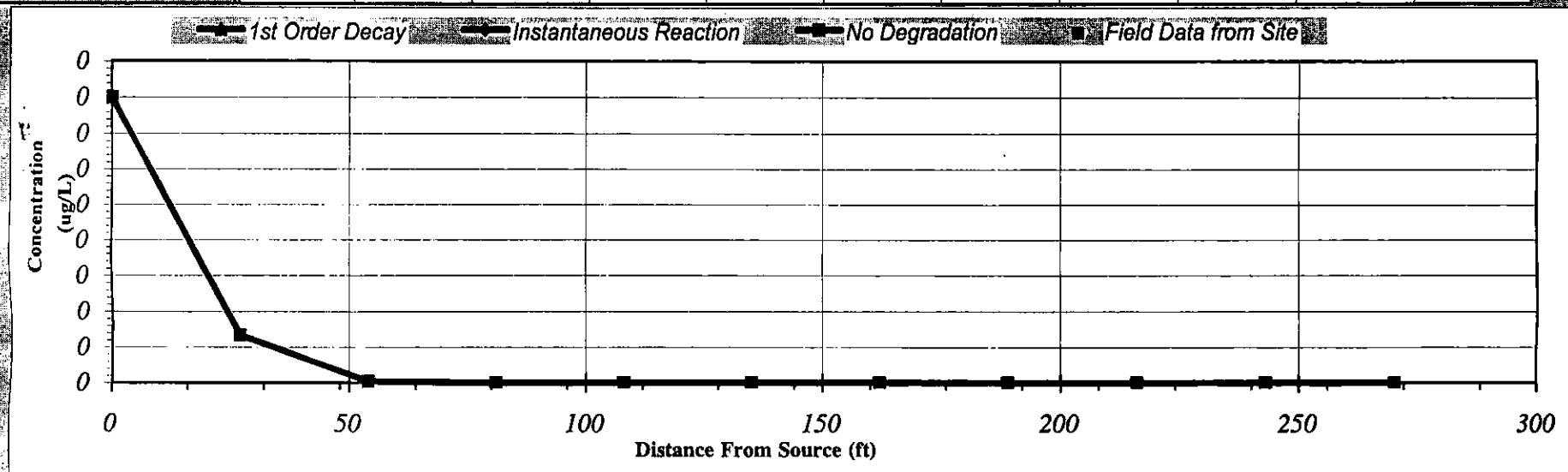
DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z = 1)

TYPE OF MODEL	Distance from Source (ft) 0	27	54	81	108	135	162	189	216	243	270
No Degradation	0.040	0.007	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*

Palnesville - L
Hg - MW-1B1-02
Run Name

Data Input Instructions

115 ↑ or ↓ *Enter value directly or Calculate by filling in the cells below. To restore formulas, click button below.*

Variable: 20 *Data User-specified (or model value date-stamped by model if Calculated and saved)*

1. HYDROGEOLOGY

Seepage Velocity*	Vs	82.3	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	I	0.042	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	24.0	(ft)
Transverse Dispersivity*	alpha y	2.4	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	950	(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	950	(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. (mg/L)
1000	0.075

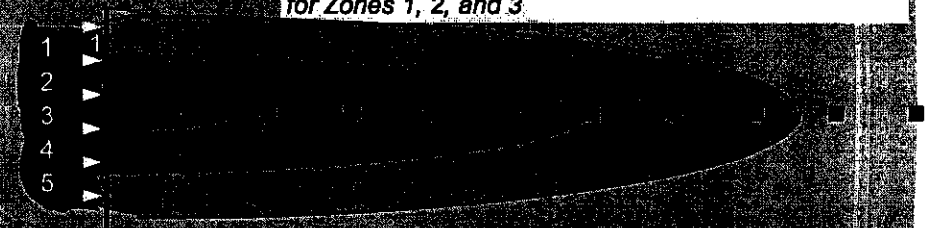
Source Half-life (see Help): Infinite | Infinite (yr)

Inst. Reaction: ↑ or ↓ 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

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations or Monitoring Wells (If No Data, Leave Blank or Enter 0)

Distance from Source (ft)	0	95	190	285	380	475	570	665	760	855	950
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

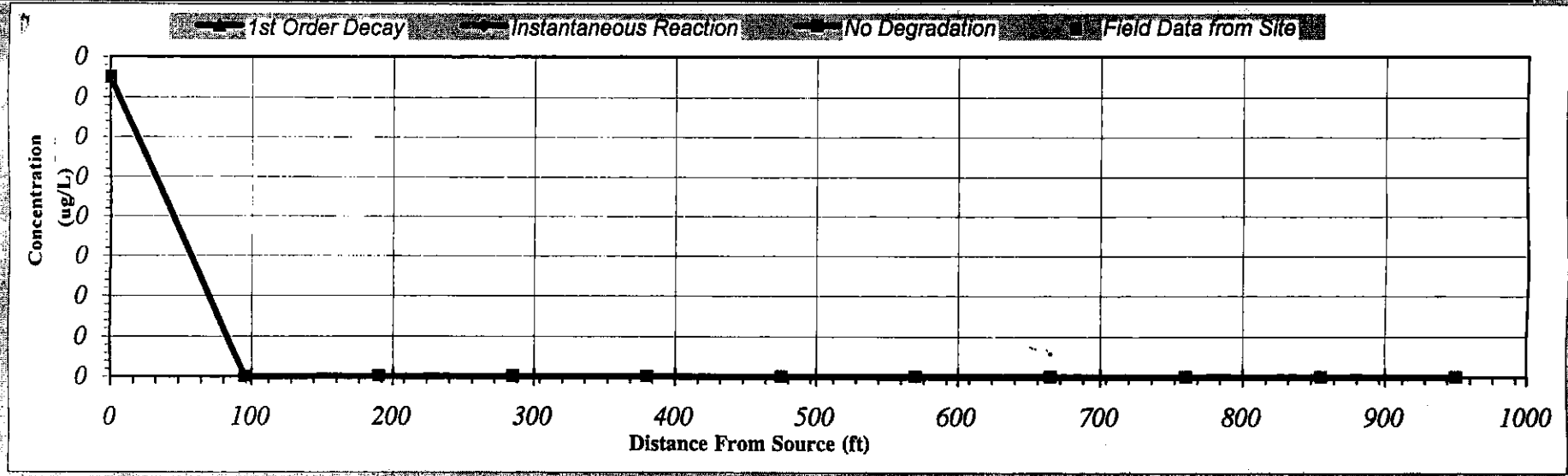
Recalculate This Sheet

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	95	190	285	380	475	570	665	760	855	950
No Degradation	0.075	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 1.3*

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

Data Input Instructions:
1. Enter values directly or
2. Calculate by filling in grey cells below. (Use values in formulas in column below.)
Data used directly in model. Value calculated by model (Domenico or other).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	91.3	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	6.0E-04	(cm/sec)
Hydraulic Gradient	i	0.0466	(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	2818.1	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
Fraction Organic Carbon	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	830	(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)
1		
2		
3	1000	0.043
4		
5		

Source Half-life (use Help)

Infinite	Infinite
(yr)	(yr)

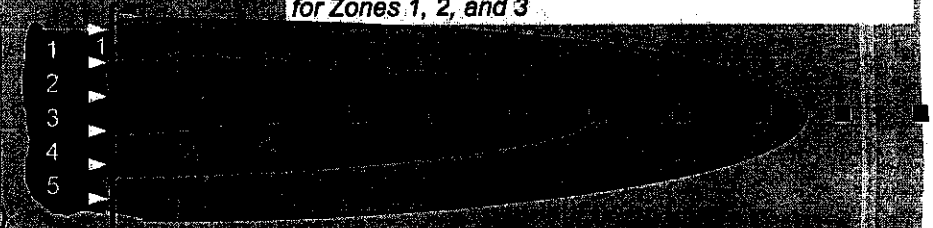
Inst. Reaction ↑ or ↑ 1st Order

Soluble Mass: infinite (kg)

In Source NAPL Soil

Variable: 115 ↑ or 20

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)	0	83	166	249	332	415	498	581	664	747	830
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

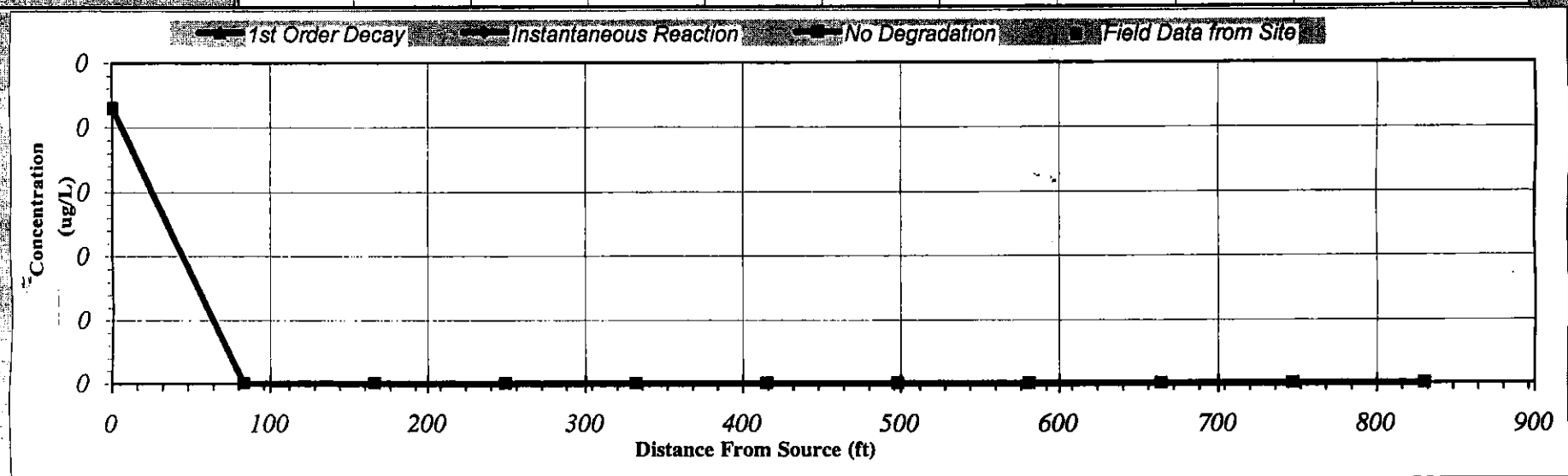
Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE

Distance From Source (ft)

TYPE OF MODEL	0	83	166	249	332	415	498	581	664	747	830
No Degradation	0.043	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
Hg - MW-1B1-04
Run Name

Data Input Instructions
115
or
0.02
1. Enter values directly on
2. Calculate by filling in grey
wells below, also restore
formulas in cells below.
Variable
20
Data used directly in model.
Value calculated by model.
Concentration 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*	2818.1	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	5.6E+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	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. (kg/L)
1000	0.057

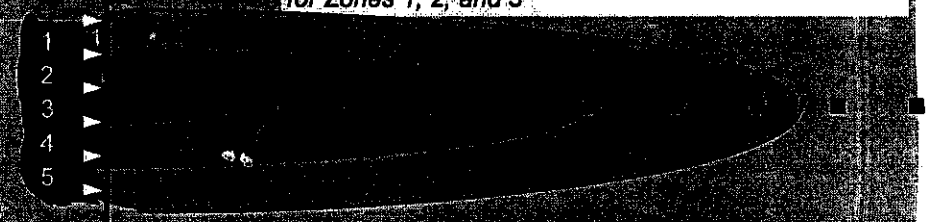
Source Halflife (see Help)

Infinite	Infinite
(yr)	

Inst. Reac. or 1st Order

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



Plan View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
(No Data Leave Blank or Zero *)*

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

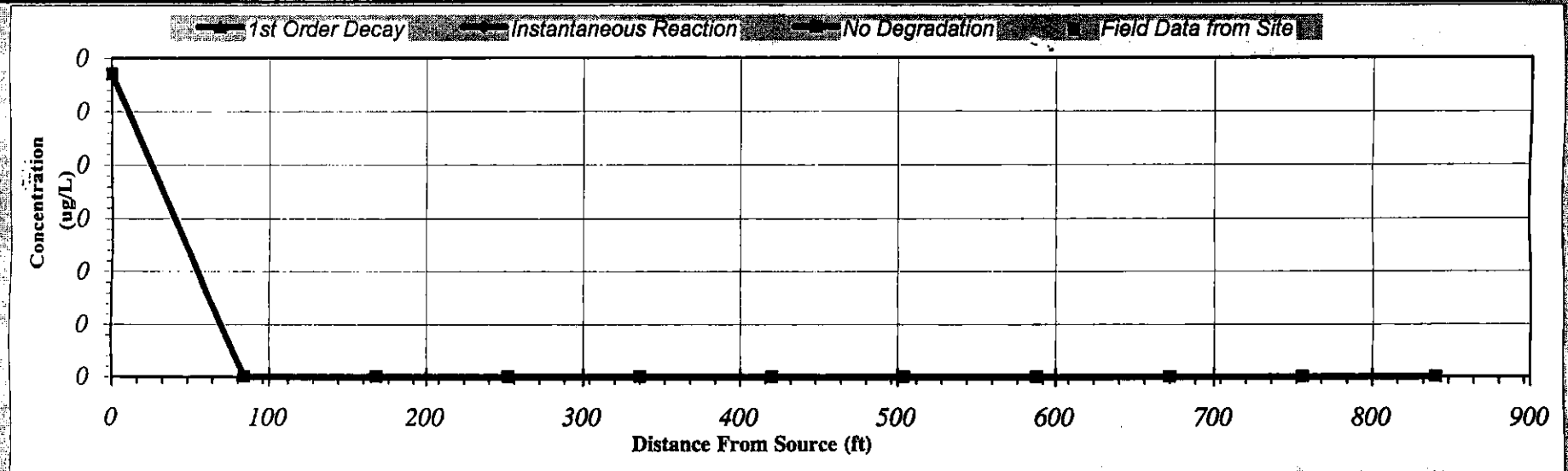
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	84	168	252	336	420	504	588	672	756	840
No Degradation	0.057	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
Hg - MWB-1
Run Name

Data Input Instructions

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	58.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0299	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	29.3	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1550	(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	1550	(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	0.1

Source Half-life (see Help)

Infinite	Infinite

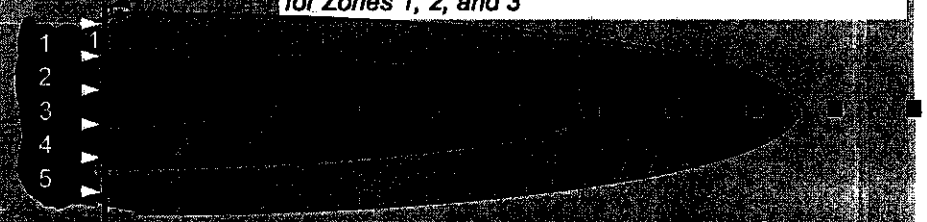
(yr)

Inst Reaction K 1st Order

Soluble Mass infinite (Kg)

If 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

Distance from Source (ft)	0	155	310	465	620	775	930	1085	1240	1395	1550
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

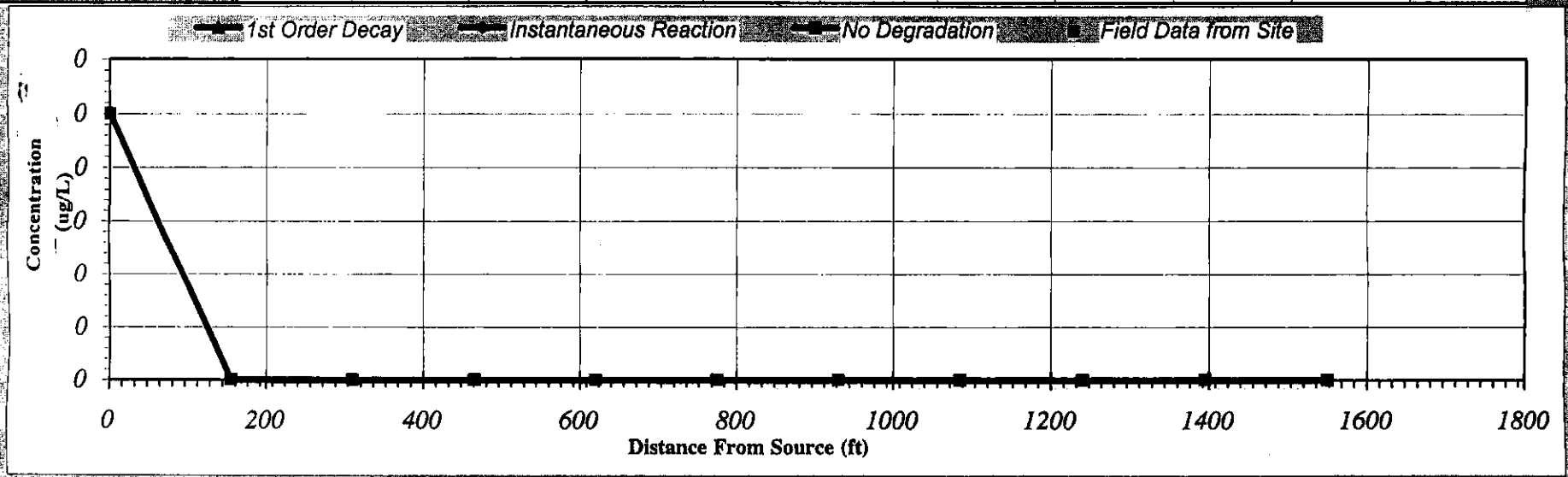
Recalculate This Sheet

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	155	310	465	620	775	930	1085	1240	1395	1550
No Degradation	0.100	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
Hg - MWB-2
Run Name

Data Input Instructions
1. Enter values directly or
2. Calculate by filling in grey cells below. (Overwrite formulas on bottom below.)
Data used directly in model.
Value calculated by model.
(Or non-primary 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	0.45	(-)

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	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
Fraction Organic Carbon	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	1470	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	(yr)

L
W

Variable	
	115
or	
	0.02

Variable
20

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

Source Zones

Width (ft)	Conc. (mg/L)
1000	0.29

Source Half-life (see Help)

Infinite	Infinite

Inst. Reaction | 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 for Comparison Wells
If No Data, Leave Blank or 0

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

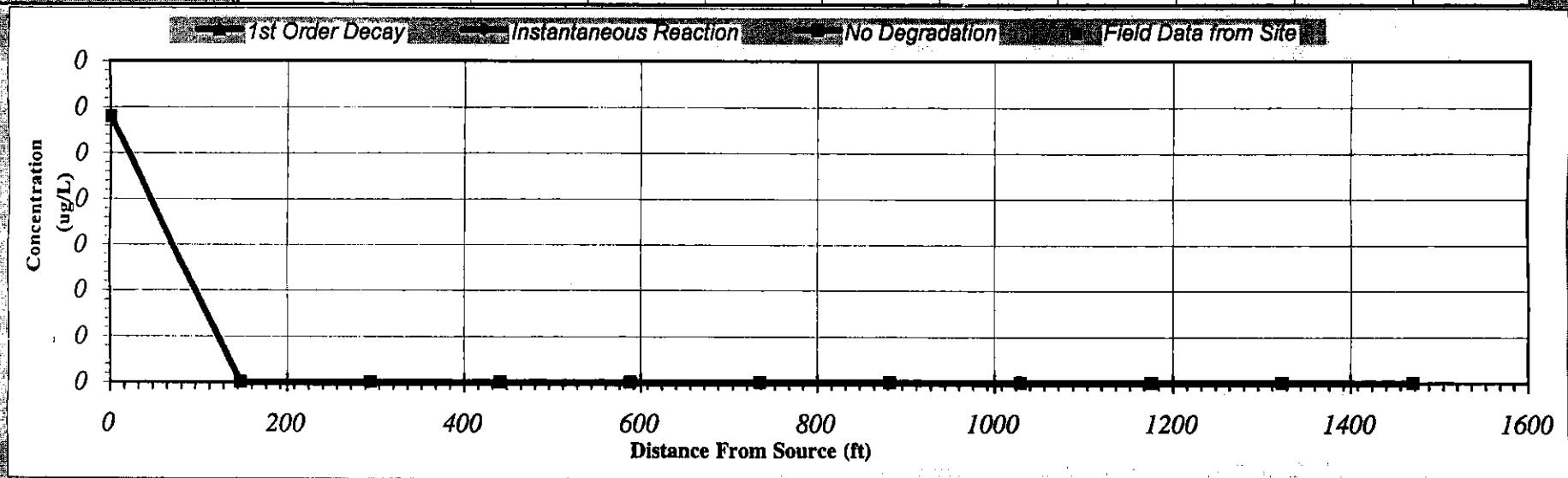
Recalculate This Sheet

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	293	440	588	735	882	1029	1176	1323	1470
No Degradation	0.290	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
Hg - MWB-4
Run Name

Data Input Instructions
115
or
CH2
Variable
20
1. Enter value directly in model
2. Calculate by filling in grey cells below (to restore formulas, run run below)
Data used directly in model
Value calculated by model
Pink cells are inputs

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	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*	thalf		(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. (mg/L)*
1		
2		
3	1000	0.15
4		
5		

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

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations at Monitoring Wells (*No Data: Leave Blank or Zero*)

Distance from Source (ft)	Concentration (mg/L)
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

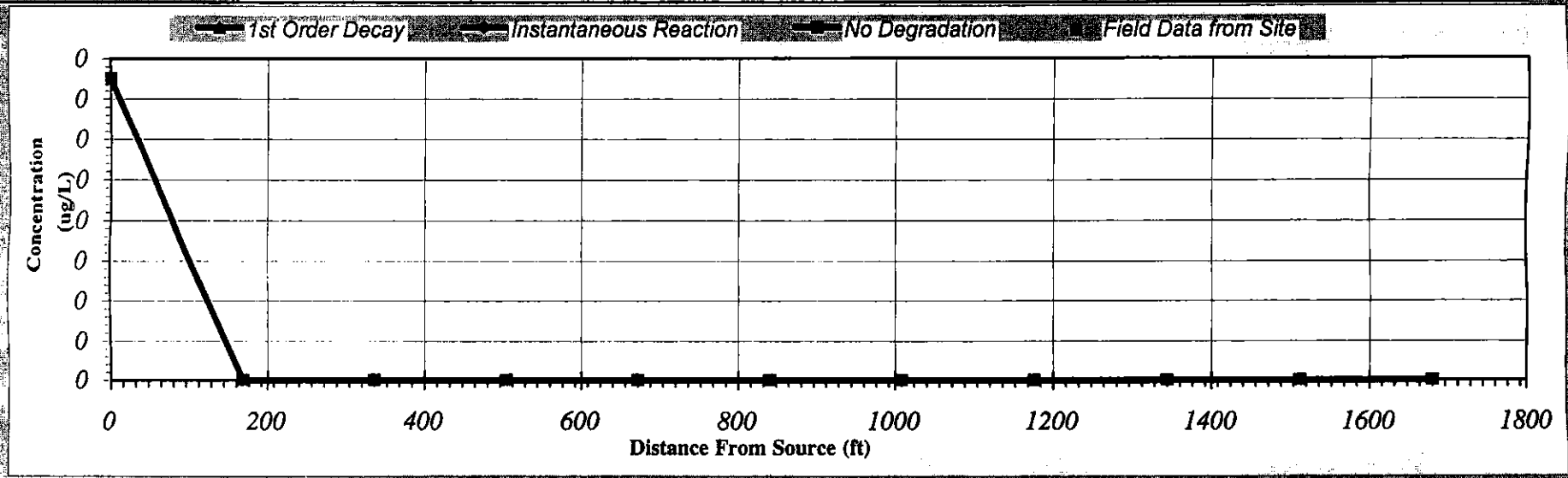
Paste Example Dataset

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	0.150	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 1.3

Painesville - L

Hg - MWB-5

Run Name

Data Input Instructions

1. HYDROGEOLOGY

Seepage Velocity*	Vs	59.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0302	(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	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		(yrs)
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

Source Thickness In Sat Zone: 10 (ft)

Source Zones

Width (ft)	Conc (mg/L)
1000	0.088

Source Half-life (see Help)

Infinite	Infinite

Inst. Reaction: 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

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations in Monitoring Wells (If No Data Leave Blank or Enter 0)

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

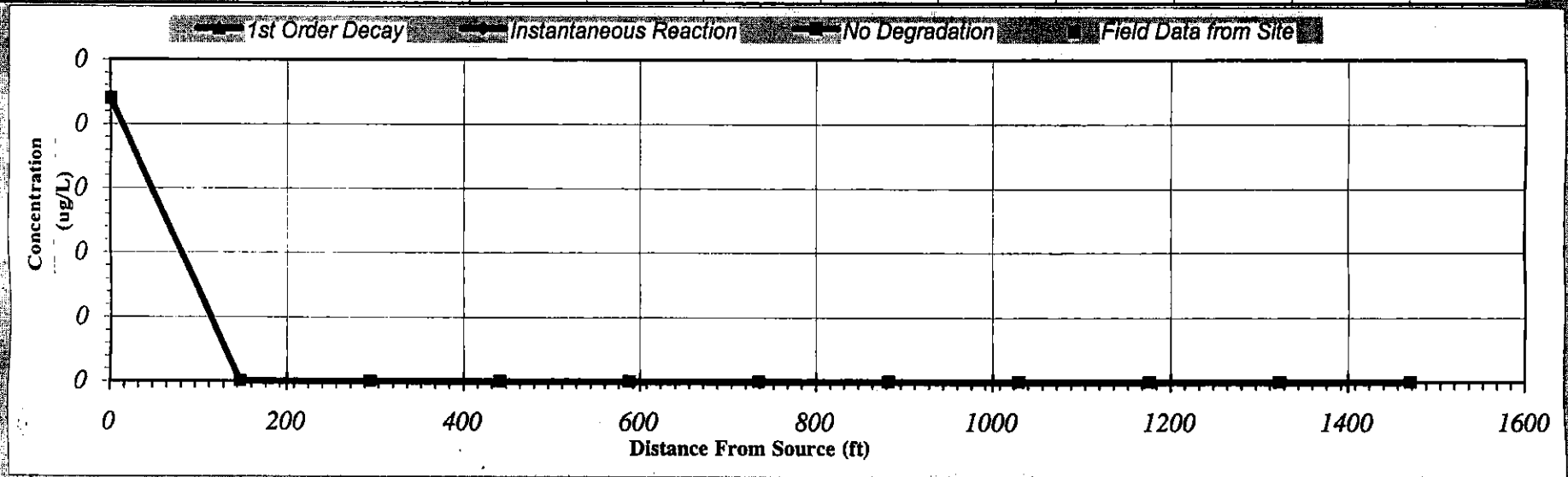
Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (y = 0, z = 0)

Distance from Source (ft)

TYPE OF MODEL	0	147	294	441	588	735	882	1029	1176	1323	1470
No Degradation	0.088	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

Painesville - L
Hg - MWB-6
Run Name

Data Input Instructions:
1. Enter all directly or
2. Calculate by filling in grey cells below (if restore formulas, see button below)
Data used directly in model, while calculated by model (blank after any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	54.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	I	0.0277	(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	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	1720	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	(yr)

L
W

Variable
20

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones

Width (ft)	Conc. (mg/L)
1000	0.23

Source Half-life (see Help)

Infinite	Infinite
Inst. Reaction	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

1
2
3
4
5

View of Source Cross-Section

7. FIELD DATA FOR COMPARISON

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

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

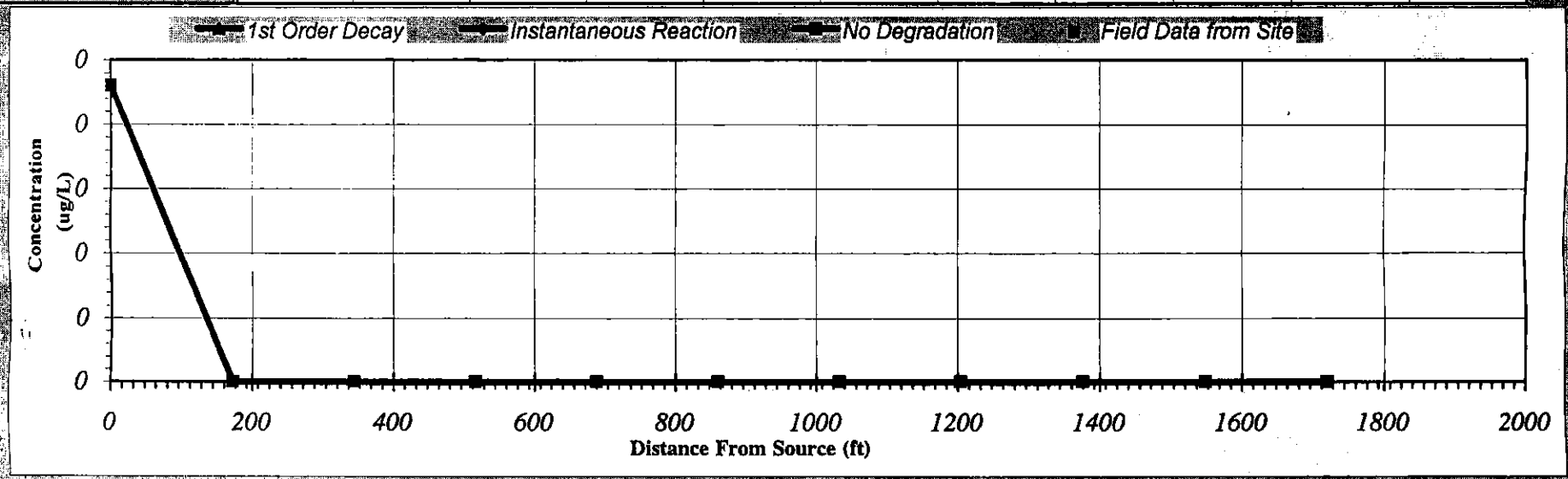
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	172	344	516	688	860	1032	1204	1376	1548	1720
No Degradation	0.230	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
Hg - MW-40
Run Name

Data Input Instructions:
Enter values directly or calculate by filling in grey cells below. Use Restore formulas instructions below. Data used in only the model will be calculated by model (blank if not applicable).

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	1160	(ft)

3. ADSORPTION

Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.6E+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	1130	(ft)
Modeled Area Width	1500	(ft)
Simulation Time*	100	(yr)

L
W

Variable: 115 (or 20)

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

Source Zones

	Width (ft)	Conc. (mg/L)
1		
2		
3	1000	0.11
4		
5		

Source Half-life (see Help)

Inst. Reaction	1st Order
Infinite	Infinite

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 or Revise Lateral Source

Observed Centerline Concentrations in Monitoring Wells (* No Data, Use 0 or Blank or Negative #)

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

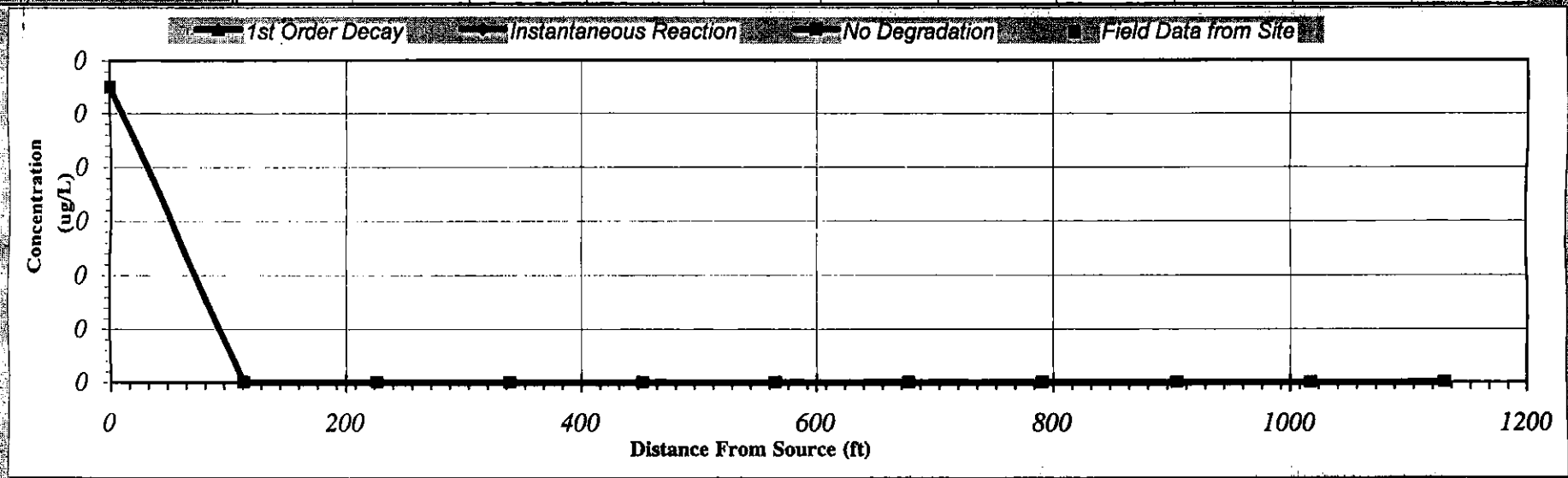
Recalculate This Sheet

Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=1)

TYPE OF MODEL	Distance from Source (ft)										
	0	113	226	339	452	565	678	791	904	1017	1130
No Degradation	0.110	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
Hg - MW-47
Run Name

Data Input Instructions:
115 *(Enter Cross-Section Length or Centerline Distance in grey cells below. Cross-sections formulas are outlined below)*
20 *(Data based on fractal model. Vs is calculated by model. Do not enter any data)*

1. HYDROGEOLOGY

Seepage Velocity*	Vs	61.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0312	(unit)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	28.0	(ft)
Transverse Dispersivity*	alpha y	2.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	1390	(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)
Fraction Organic Carbon	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*	1390	(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	0.09

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

1
2
3
4
5

Source Half-life (see Help)

Infinite	Infinite
Instr. Reaction	1st Order

(yr)

Soluble Mass: infinite (Kg)

In Source NAPL: Sol

View of Plume Looking Down

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

7. FIELD DATA FOR COMPARISON

Distance from Source (ft)	0	139	278	417	556	695	834	973	1112	1251	1390
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

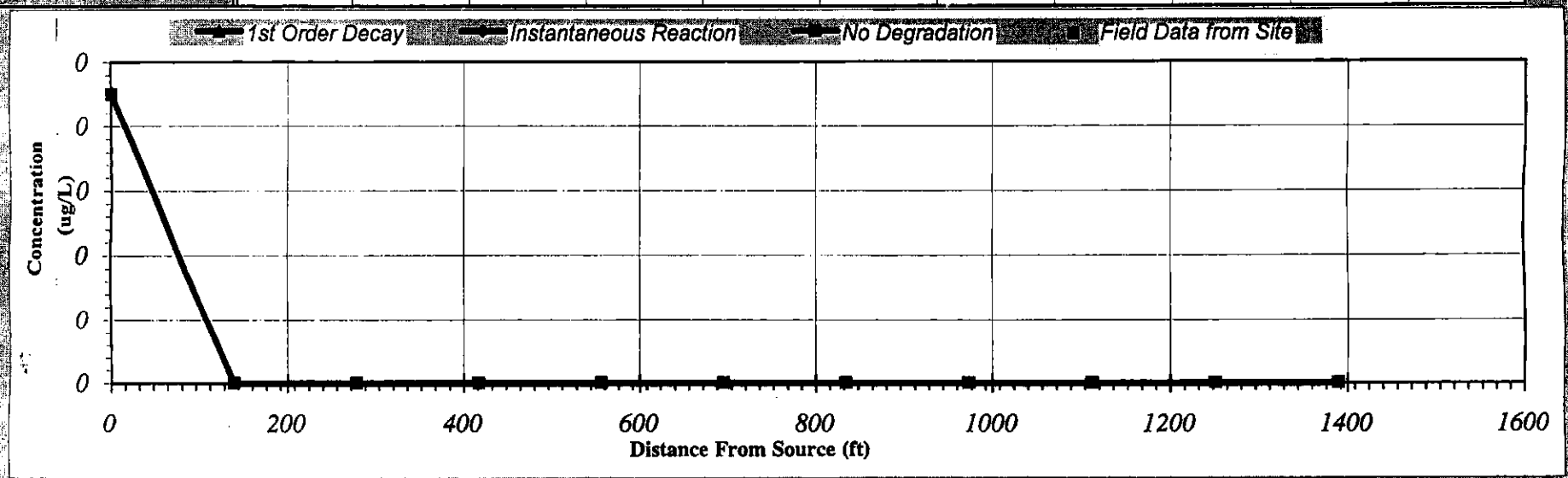
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	139	278	417	556	695	834	973	1112	1251	1390
No Degradation	0.090	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 1.3*

Painesville - L
Hg - MW-49
(Site Name)

Data Input Instructions

115 ft or 0.02 (Cells select Cell restore formulas for calculated values in column below) Data used directly in model Value calculated by model (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	55.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	5.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0282	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	29.0	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1510	(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)
Fraction Organic Carbon	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	1510	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	(yr)

Vehicle: 20

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones:

Width (ft)	Conc (mg/L)
1000	0.25

Source Half-life (see Help)

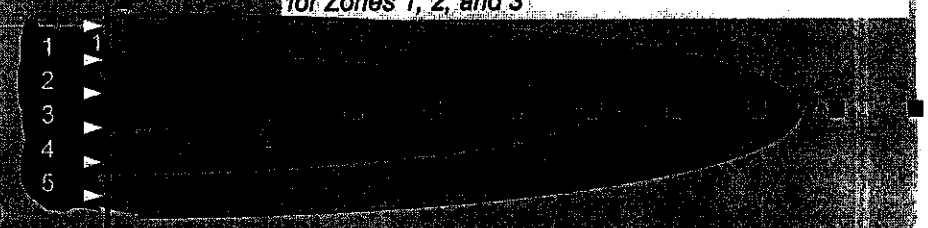
Infinite	Infinite (yr)

Inst Reaction: 1st Order

Source 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

Distance from Source (ft)	Concentration (mg/L)
0	
151	
302	
453	
604	
755	
906	
1057	
1208	
1359	
1510	

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

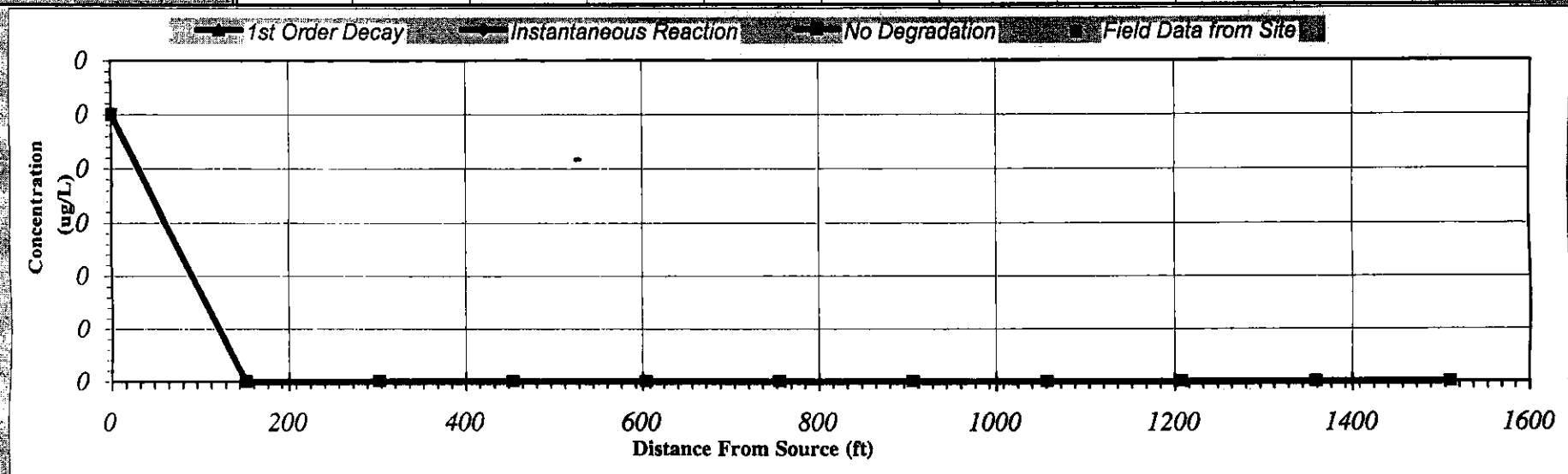
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	151	302	453	604	755	906	1057	1208	1359	1510
No Degradation	0.250	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
Hg - SW1-1
Run Name

Data Input Instructions:
Enter velocity or calculate by filling in grey cells below. Formulas can be restored (Formulas tab, button below). Data input directly in yellow cells calculated by Excel. (Do not enter any data).

115 ft/yr
or
0.021 ft/ft

1. HYDROGEOLOGY

Seepage Velocity*	Vs*	61.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0314	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	27.5	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1320	(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		(years)
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	1320	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	(yr)

L
W

Variable
20

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 (mg/L)
1		
2		
3	1000	0.04
4		
5		

Source Half-life (see Help)

Infinite	Infinite
Instr. Reac.	1st Order
Soluble Mass	infinite (Kg)
In Source NAPL Soil	

View of Plume Looking Down

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentration at Monitoring Wells (If No Data, Leave Blank or Enter 0)

Distance from Source (ft)	0	132	264	396	528	660	792	924	1056	1188	1320
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

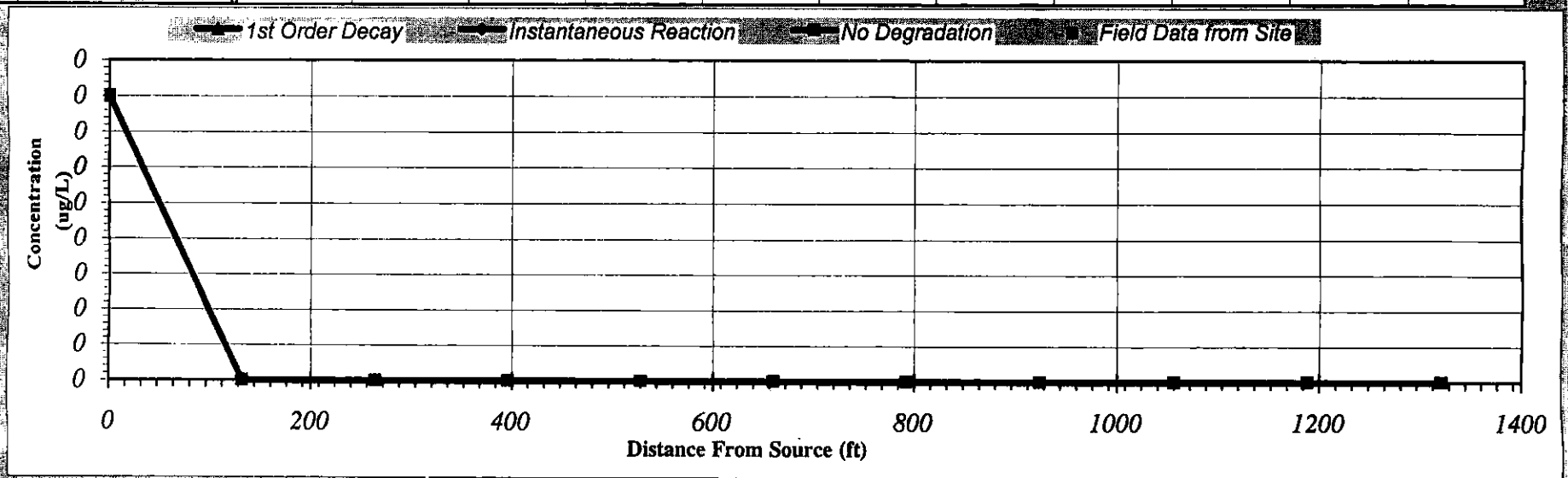
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	132	264	396	528	660	792	924	1056	1188	1320
No Degradation	0.040	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
Hg - SW1-5
Run Name

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in grey cells below (Click here for formulas in tables below)
3. Data used directly in model
4. Value calculated by model (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	95.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0438	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	23.2	(ft)
Transverse Dispersivity*	alpha y	2.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	880	(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	880	(ft)
Modeled Area Width	1500	(ft)
Simulation Time*	100	(yr)

115 ft or 0.02 — Variable: 20

6. SOURCE DATA

Source Thickness In Sat Zone* 10 (ft)

Source Zones

Width (ft)	Conc (ug/L)
1000	0.04

Source Half-life (see Help)

Infinite	Infinite

Insit 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

Dist. from Source (ft)	Concentration (mg/L)
0	
88	
176	
264	
352	
440	
528	
616	
704	
792	
880	

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

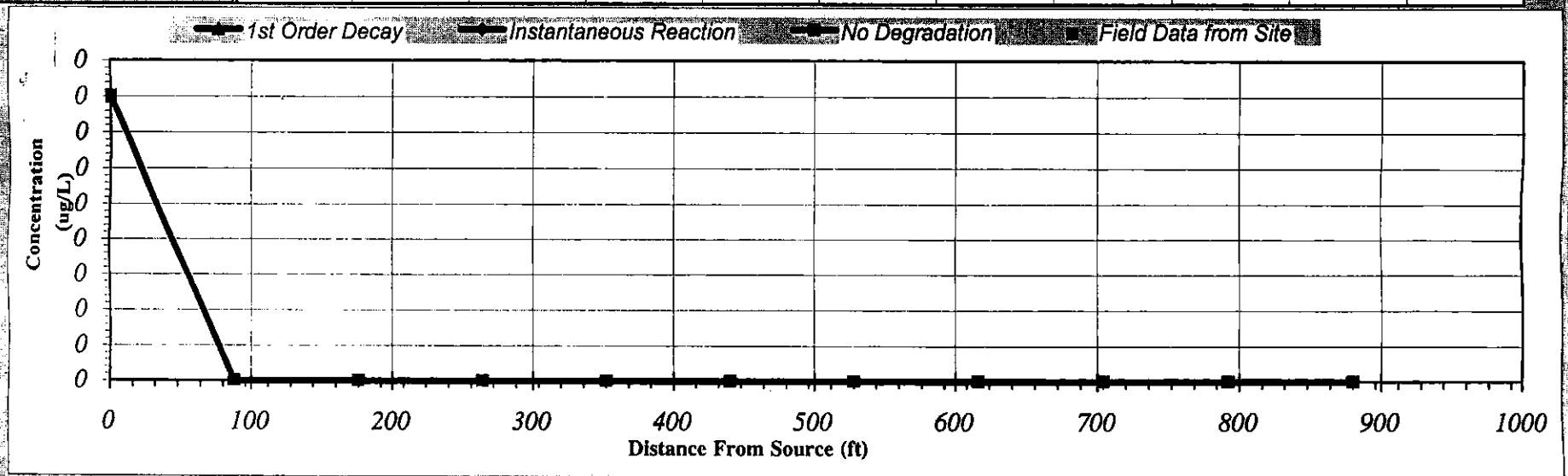
Paste Example Dataset

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	88	176	264	352	440	528	616	704	792	880
No Degradation	0.040	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
Hg - SW1-10
Run Name

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in grey cells below. (No restore formulas, hit button below)

115 or 0.02

Variable: 20

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	66.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0339	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	28.3	(ft)
Transverse Dispersivity*	alpha y	2.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1420	(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	1420	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	yr

L
W

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

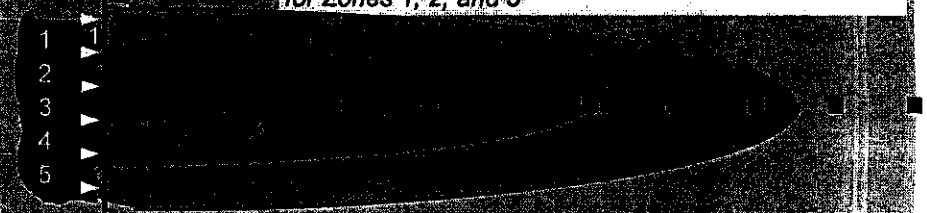
Source Zones:

Width (ft)	Conc. (ug/L)
1000	0.09

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	142	284	426	568	710	852	994	1136	1278	1420

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

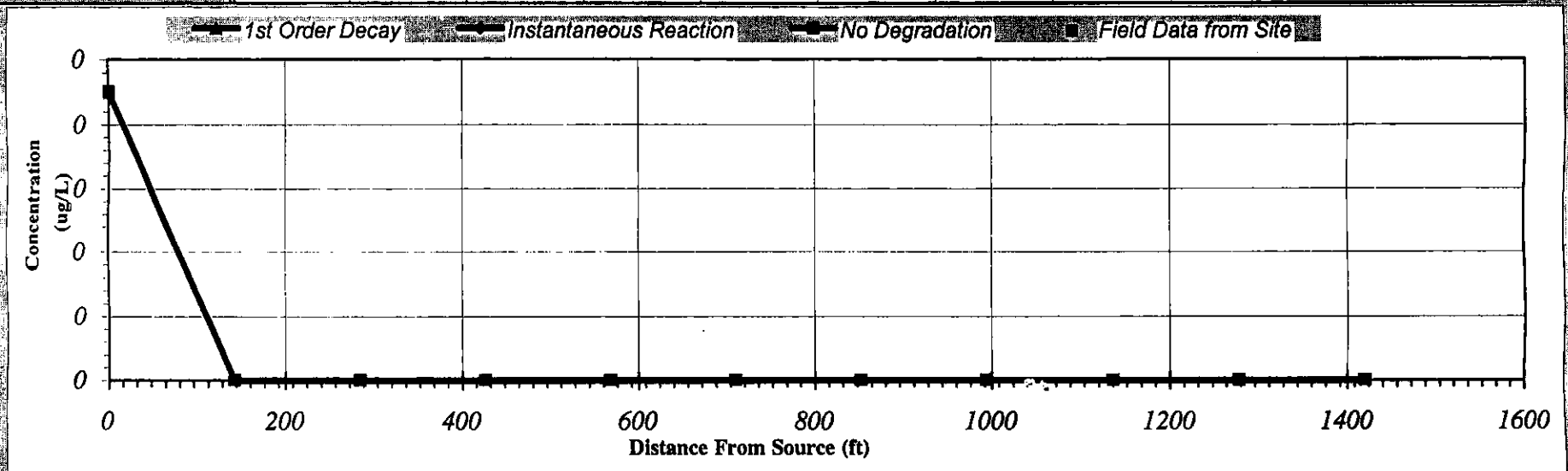
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Plume from Source (ft) 0	142	284	426	568	710	852	994	1136	1278	1420
No Degradation	0.090	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
Hq - SW1-12
Run Name

Data Input Instructions
115 *1. Enter value directly, or*
21 or *2. Calculate by filling in grey*
0.02 *cells below (or restore formulas with button below)*
Variable *(parameter directly in model; variable calculated by model; Conc only data)*
20

1. HYDROGEOLOGY

Seepage Velocity*	VS	36.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	I	0.0187	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	31.3	(ft)
Transverse Dispersivity*	alpha y	3.1	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1840	(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*	1840	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones:

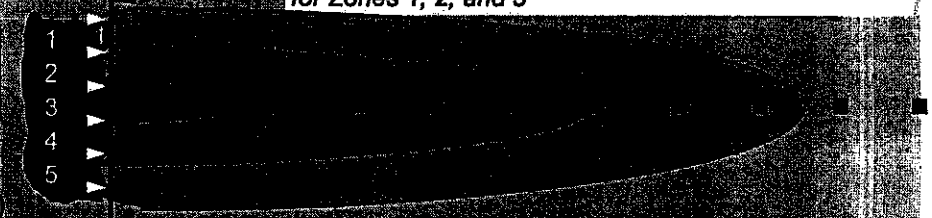
Width* (ft)	Conc. (ug/L)
1000	0.047

Source Half-life (see Help): Infinite | Infinite (yr)

Inst. Reaction: 1 - 1st Order

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)

Dist. from Source (ft)	0	184	368	552	736	920	1104	1288	1472	1656	1840
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

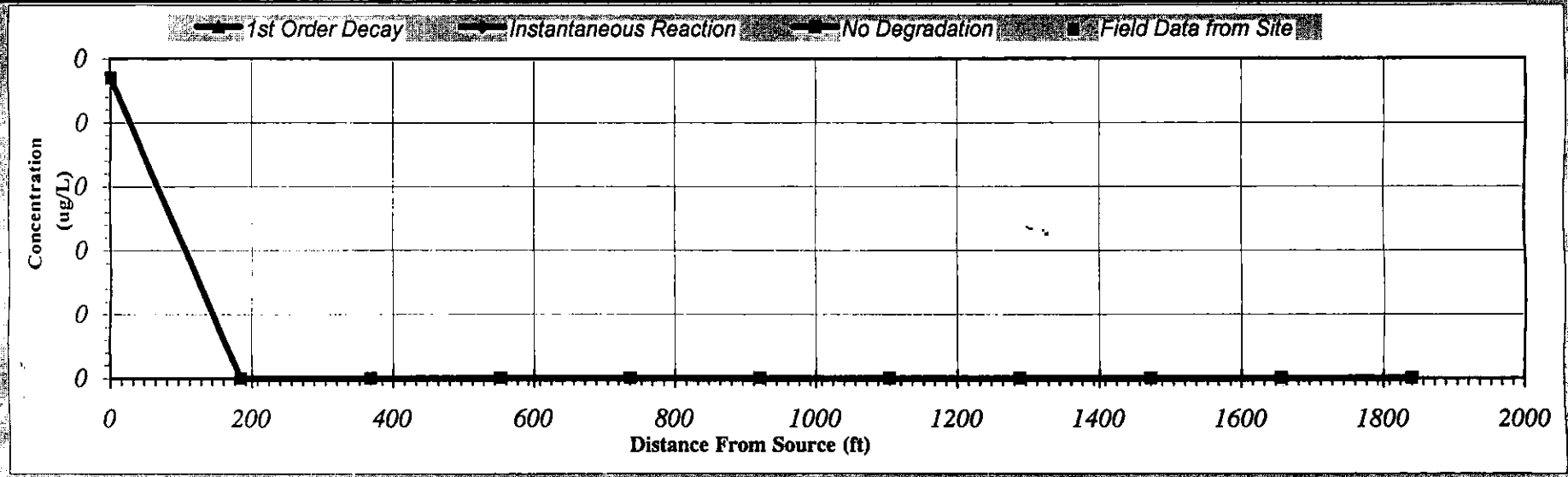
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	184	368	552	736	920	1104	1288	1472	1656	1840
No Degradation	0.047	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
MC - SW1-8
Run Name

Data Input Instructions:
115 — 1. Enter value directly, or
or — 2. Calculate by filling in gray 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	1.3	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.0E+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)

L
W

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

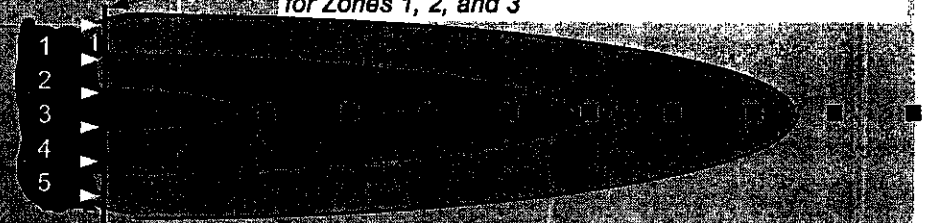
Source Zones

Width* (ft)	Conc. (ug/L)*
1000	11000

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	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

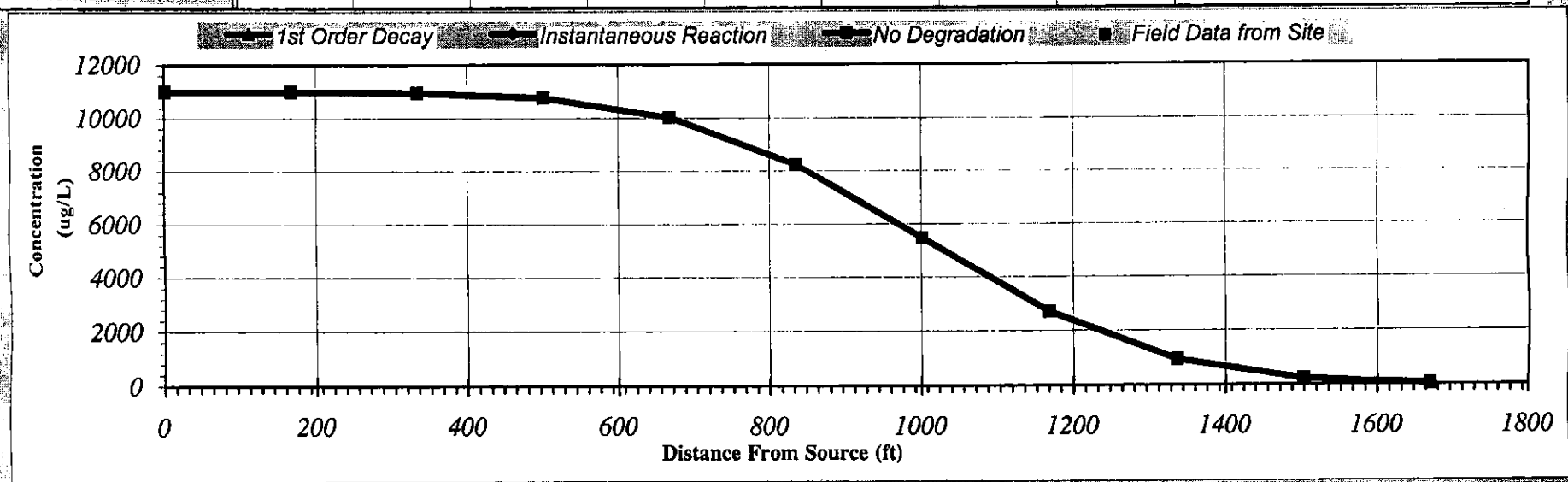
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	167	334	501	668	835	1002	1169	1336	1503	1670
No Degradation	11000.000	10996.202	10963.318	10768.432	10030.080	8240.119	5461.600	2698.950	939.494	222.005	34.790
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
MC - 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	1.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.0E+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*	1250	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L
W

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones

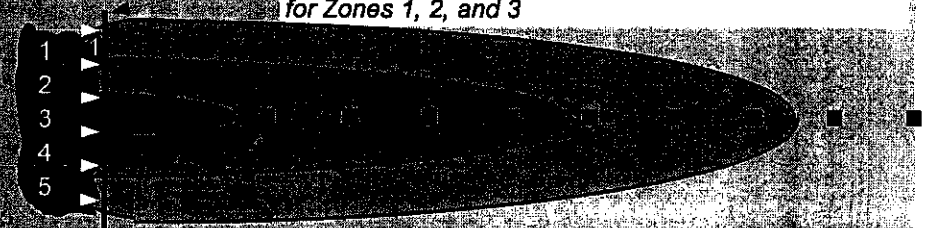
Width* (ft)	Conc. (ug/L)*
1000	11000

Source Halflife (see Help)

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

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"

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

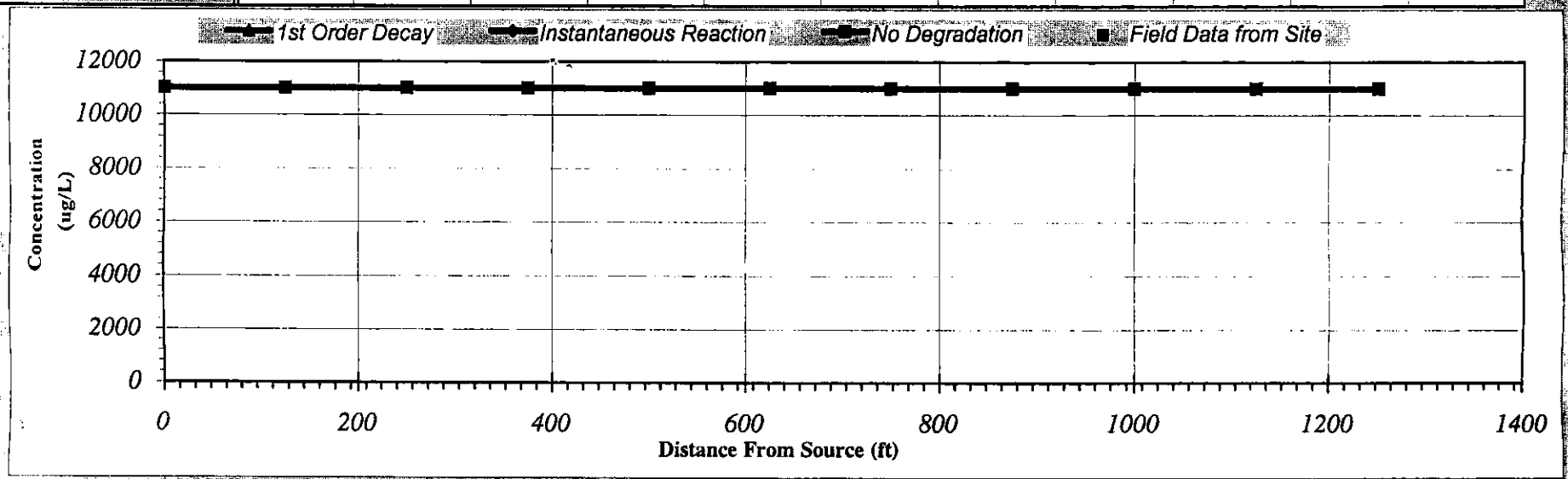
Recalculate This Sheet

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	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000
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
1,2-DCA - MWB-1
Run Name

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

115 ft/yr
or
0.025 (-)

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	17.1	(ft/yr)
or		or	
Hydraulic Conductivity*	K	1.6E-04	(cm/sec)
Hydraulic Gradient*	I	0.0361	(ft/ft)
Porosity*	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	26.6	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length*	Lp	1220	(ft)

3. ADSORPTION

Retardation Factor*	R	2.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.8E+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*	1220	(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	890

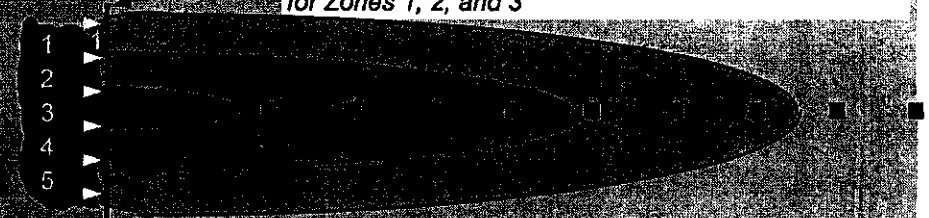
Source Half-life (see Help)

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

Dist. from Source (ft)	Concentration (mg/L)
0	
122	
244	
366	
488	
610	
732	
854	
976	
1098	
1220	

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

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
CN - CL6-9
Run Name

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	57.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.121	(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	4.4	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	7.0E-1	(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*	10	(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	58.5

Source Halflife (see Help)

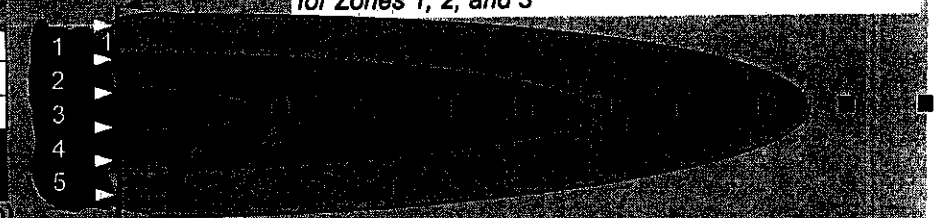
Infinite	Infinite
(yr)	

Inst. Reac. or 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

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

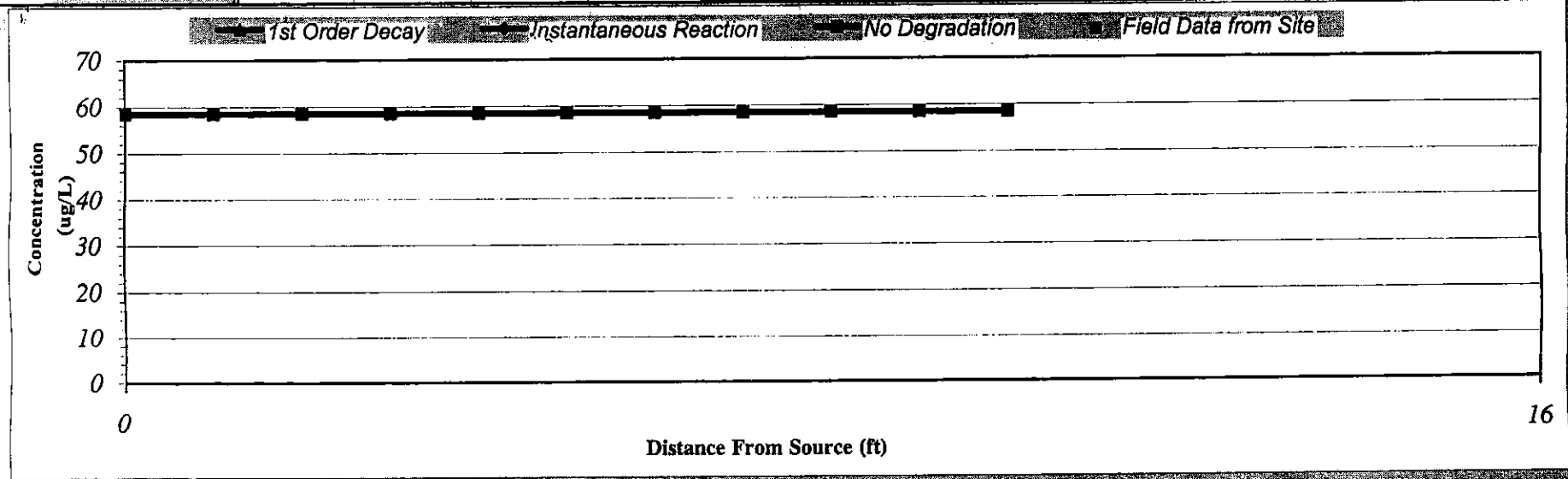
Paste Example Dataset

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	1	2	3	4	5	6	7	8	9	10
No Degradation	58.500	58.500	58.500	58.500	58.500	58.500	58.500	58.500	58.500	58.500	58.500
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
CN - SW4-4
Run Name

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in gray cells below or Toggle formulas (button below)

115 ft/yr
or
0.02 ft/ft

Variable X: Data used directly in model
20 value calculated by model
Don't enter any data

1. HYDROGEOLOGY

Seepage Velocity*	Vs	10.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0245	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	23.3	(ft)
Transverse Dispersivity*	alpha y	2.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length*	Lp	890	(ft)

3. ADSORPTION

Retardation Factor*	R	4.4	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	7.0E-1	(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*	890	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L
W
Y

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width (ft)	Conc (mg/L)
1000	34.2

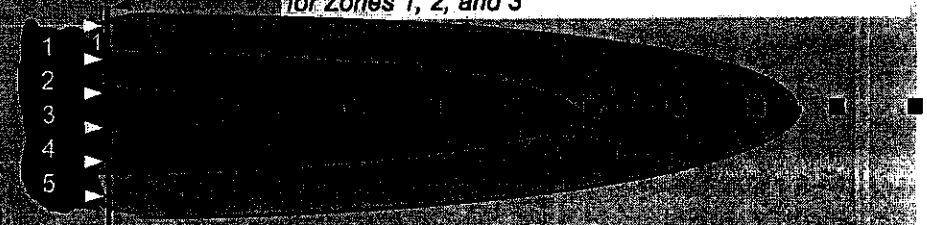
Source Half-life (see Help)

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

Soluble Mass infinite (kg)

If 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

Dist. from Source (ft)	0	89	178	267	356	445	534	623	712	801	890
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

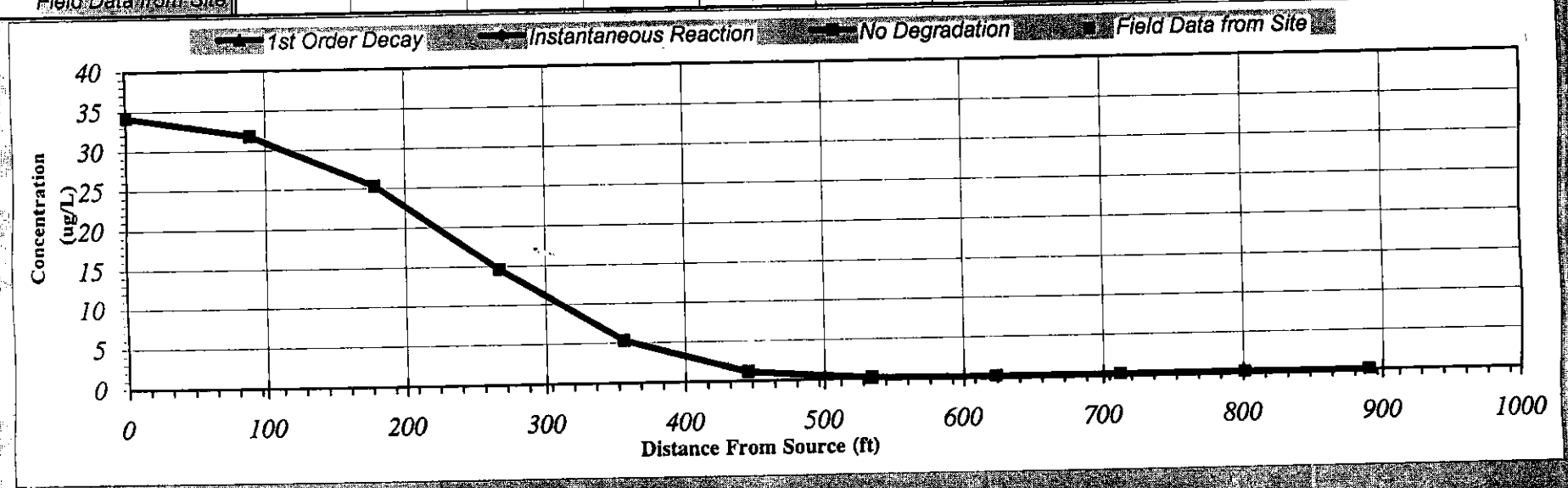
Recalculate This Sheet

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	89	178	267	356	445	534	623	712	801	890
No Degradation	34.200	31.789	25.298	14.559	5.286	1.108	0.127	0.008	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
CN - SW4-11
Run Name

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in grey cells below (or restore formulas in column below)
Only used direct (v) in model
Value calculated by model
(Do not enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	15.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0348	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	15.2	(ft)
Transverse Dispersivity*	alpha y	1.5	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	358	(ft)

3. ADSORPTION

Retardation Factor*	R	4.4	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	7.0E+1	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lamda		(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	358	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L
W

Variable: 115 (or 0.02)
20

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones:

Width (ft)	Conc. (ug/L)
1000	13.3

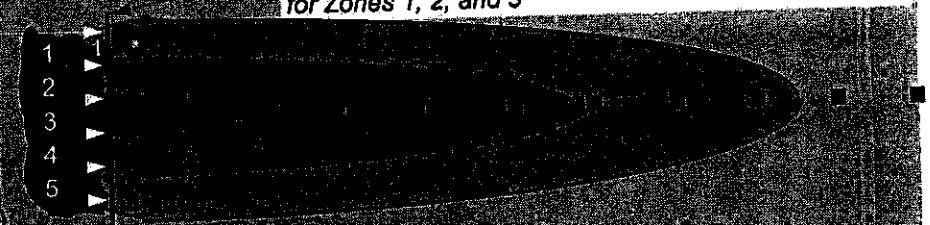
Source Half-life (see Help): Infinite | Infinite (yr)

Instt. Reaction: 1st Order

Solute 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

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	
36	
72	
107	
143	
179	
215	
251	
286	
322	
358	

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

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - SW1-10
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	3.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	5.0E-05	(cm/sec)
Hydraulic Gradient	i	0.0266	(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	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*	1720	(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	0.09

Source Halflife (see Help):

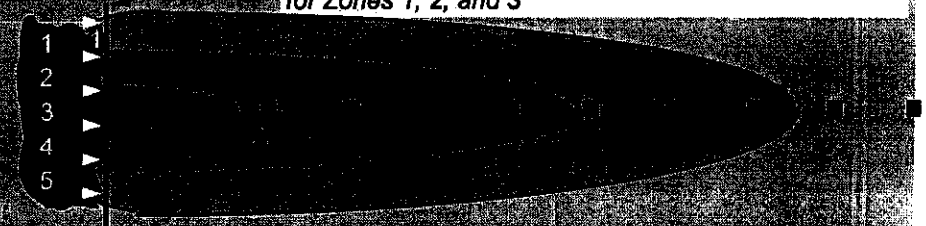
Infinite	Infinite	(yr)

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	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

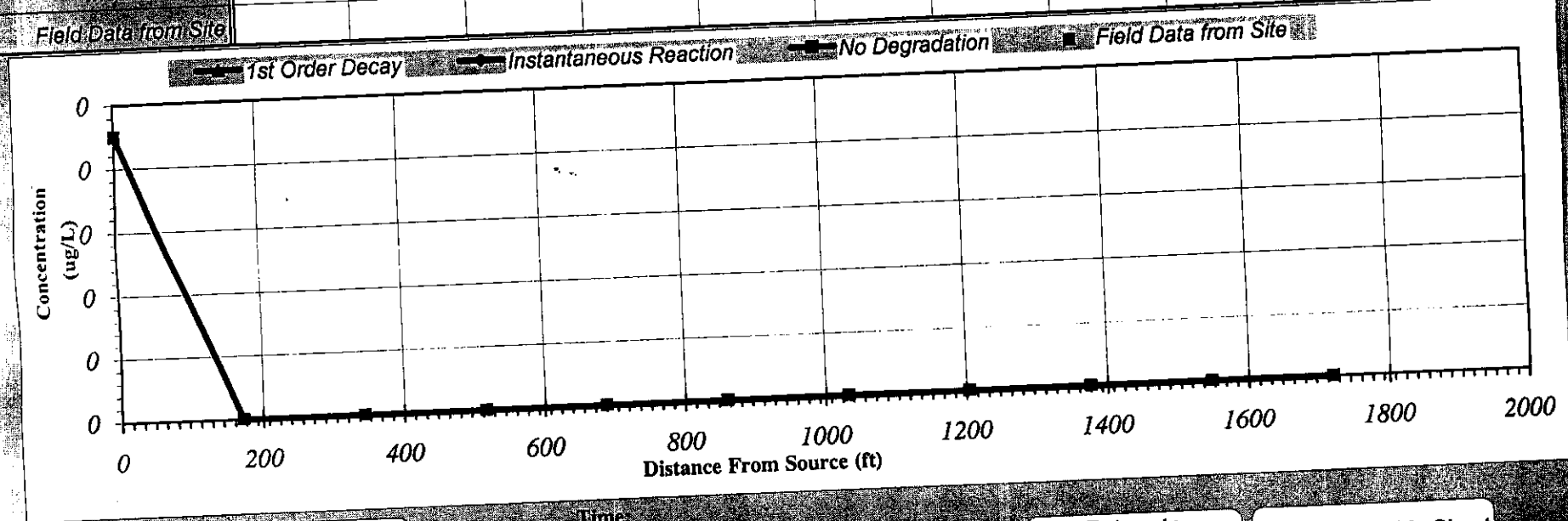
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	172	344	516	688	860	1032	1204	1376	1548	1720
No Degradation	0.090	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
Hg - SW1-12
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly, or 2. Calculate by filling in gray 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	12.6	(ft/yr)
or		or	
Hydraulic Conductivity*	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0267	(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	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*	1200	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L

W

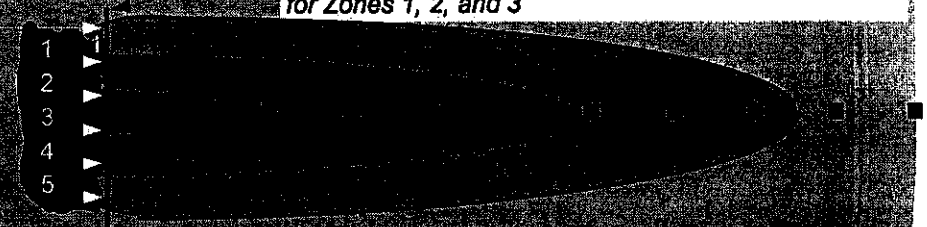
6. SOURCE DATA

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	0.047



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)

Inst. React. A 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	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

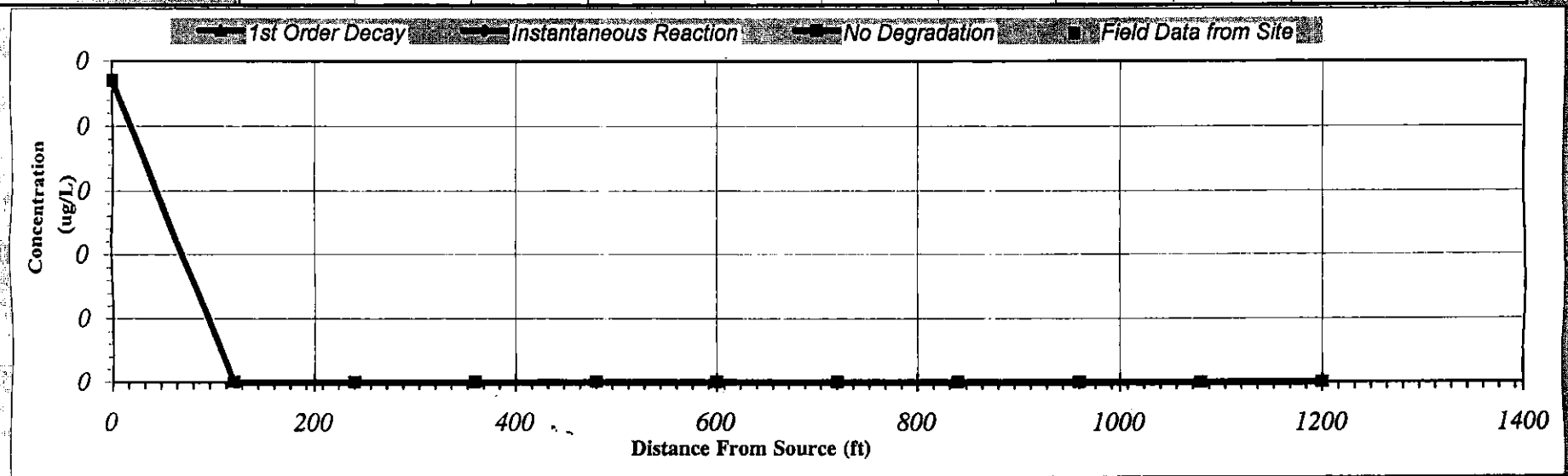
Paste Example Dataset

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

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

Distance From Source (ft)

TYPE OF MODEL	0	120	240	360	480	600	720	840	960	1080	1200
No Degradation	0.047	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*

Run Name: Painesville - R / Hg - SW4-1

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

Data used directly in model
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	Lo	650	(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*	650	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L

W

Variable* 115 (ft) or 0.02 (-)

Variable* 20 (yr)

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

	Width (ft)	Conc. (ug/L)*
1		
2		
3	1000	0.1
4		
5		

Source Half-life (see Help)

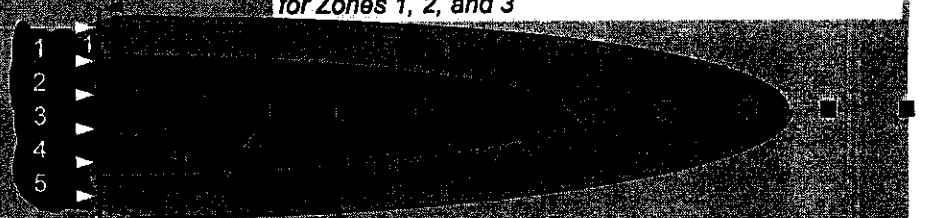
Infinite	Infinite	(yr)

1st Reaction: 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

7. FIELD DATA FOR COMPARISON

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

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

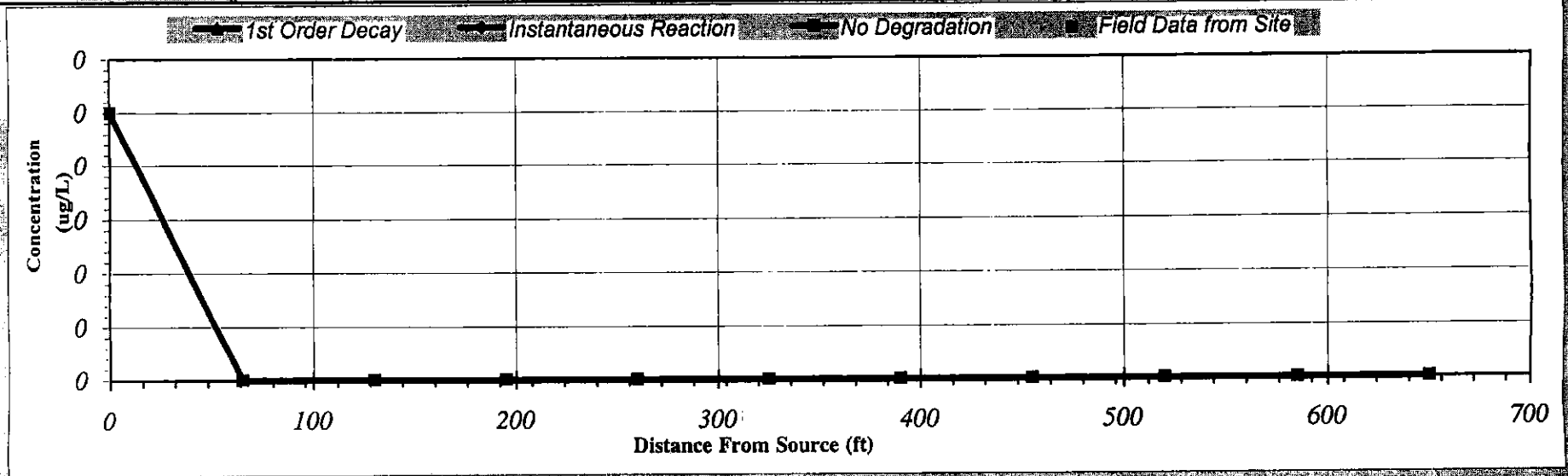
Recalculate This Sheet

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	0.100	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
Hg - SW4-11
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	15.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0348	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	15.2	(ft)
Transverse Dispersivity*	alpha y	1.5	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	358	(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*	358	(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	0.04

1
2
3
4
5

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	36	72	107	143	179	215	251	286	322	358

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

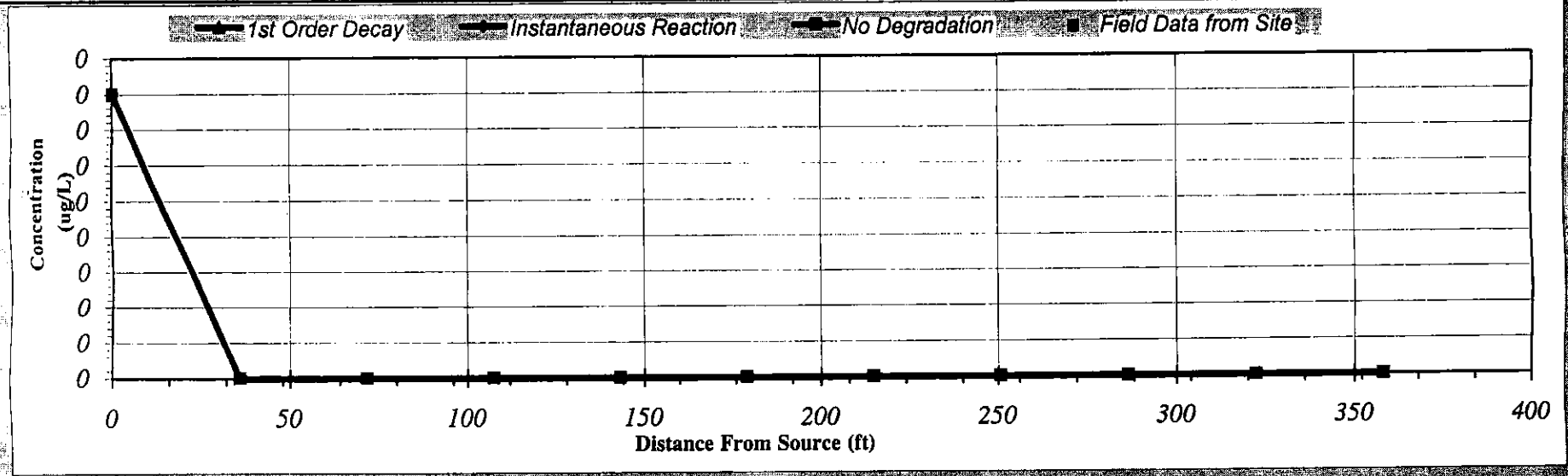
Recalculate This Sheet

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	36	72	107	143	179	215	251	286	322	358
No Degradation	0.040	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
Hg - SW7-2
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	2734.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	3.6E-03	(cm/sec)
Hydraulic Gradient	i	0.2555	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	1.5	(ft)
Transverse Dispersivity*	alpha y	0.2	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	20	(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*	20	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

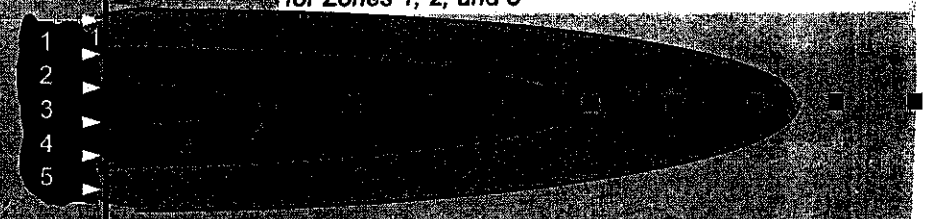
Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.068

Source Halflife (see Help)

Infinite	Infinite	(yr)
Inst. Reac.	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	2	4	6	8	10	12	14	16	18	20

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

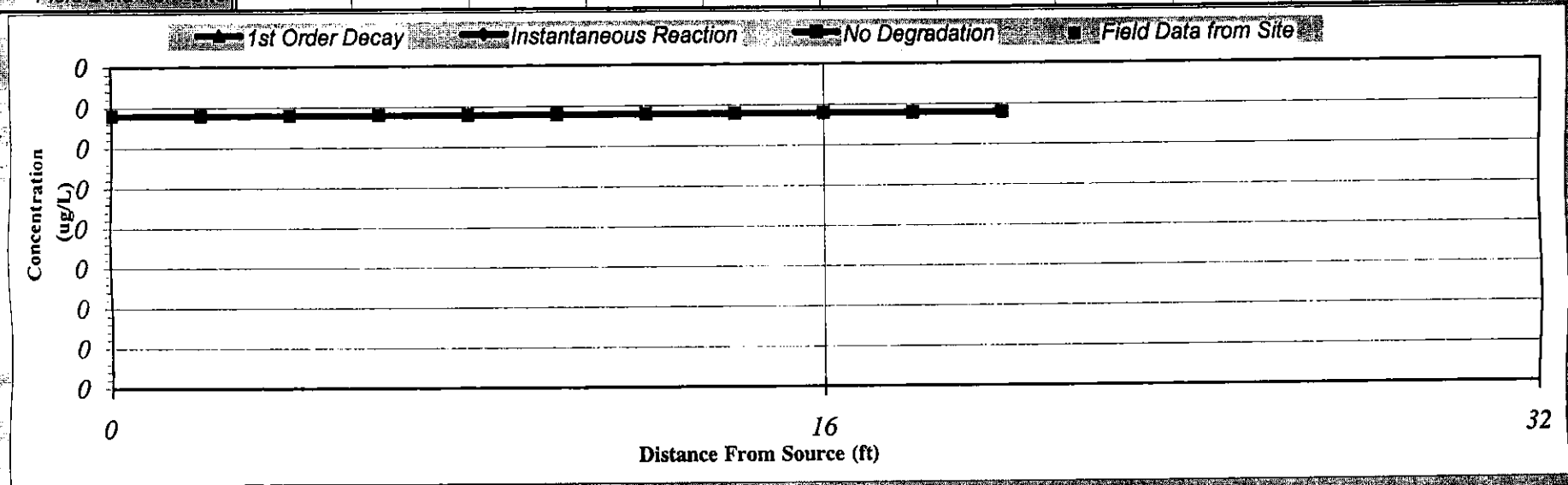
Paste Example Dataset

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	2	4	6	8	10	12	14	16	18	20
No Degradation	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068
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
Hg - SW7-9
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	573.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	3.6E-03	(cm/sec)
Hydraulic Gradient	I	0.0536	(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	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*	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	0.033

Source Halflife (see Help)

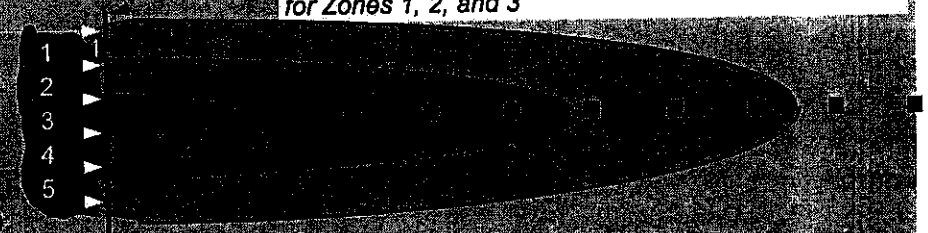
Infinite	Infinite	(yr)

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	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

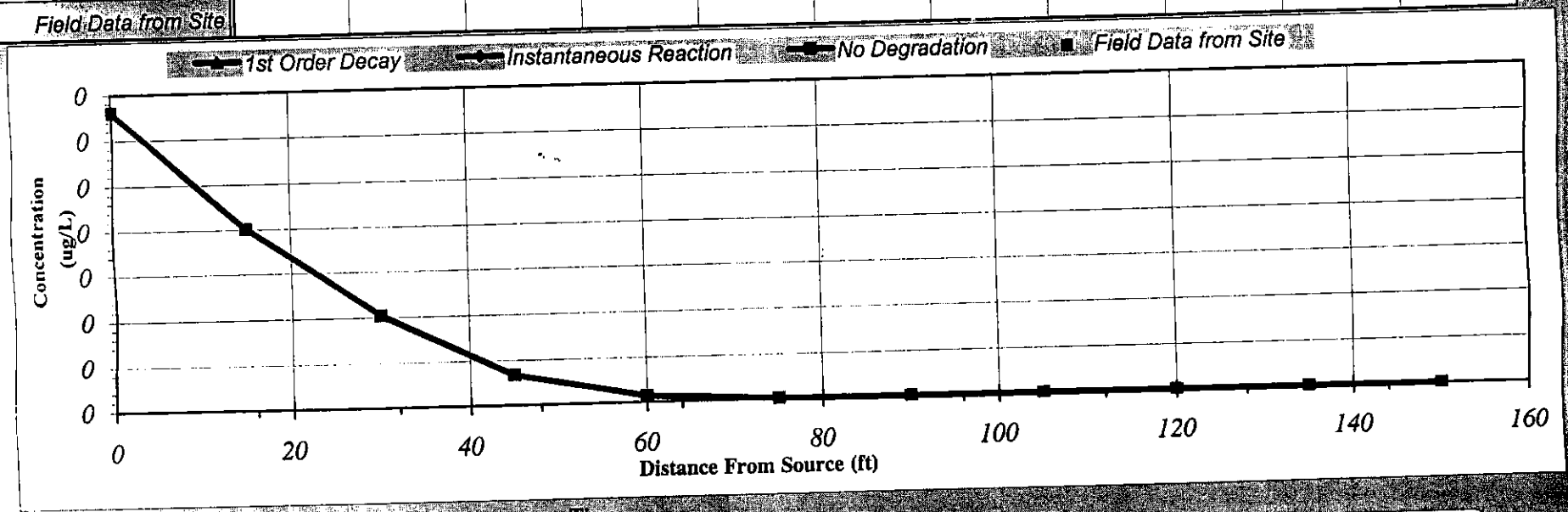
Recalculate This Sheet

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	0.033	0.020	0.010	0.003	0.001	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
Hg - SW7-12
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	2985.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	3.6E-03	(cm/sec)
Hydraulic Gradient	i	0.279	(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	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*	10	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

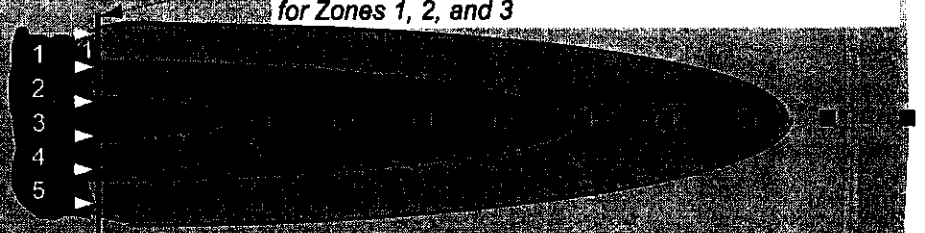
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.029

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

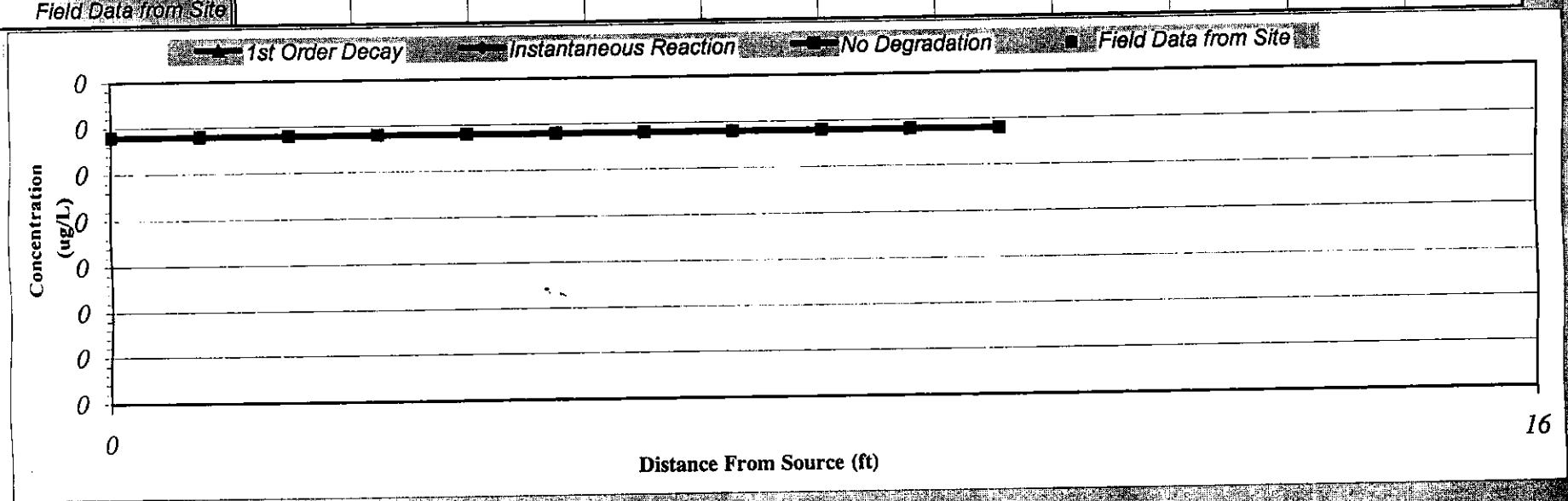
Recalculate This Sheet

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	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	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 - L
Hg - ASRMW-1
Run Name

Data Input Instructions

115 — 1. Enter value directly, or
or — 2. Calculate by filling in grey
0.02 — cells below. (Do 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	69.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0353	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	26.1	(ft)
Transverse Dispersivity*	alpha y	2.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1170	(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*	1170	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

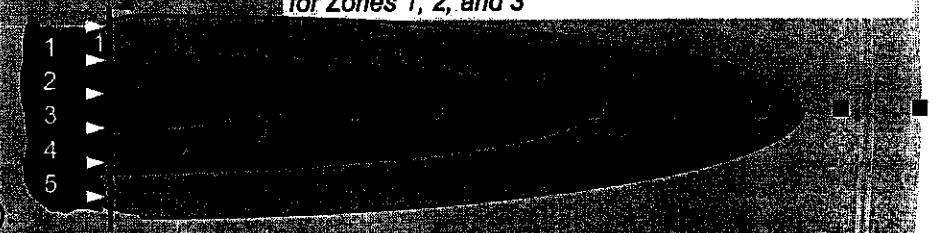
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.034

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	117	234	351	468	585	702	819	936	1053	1170

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

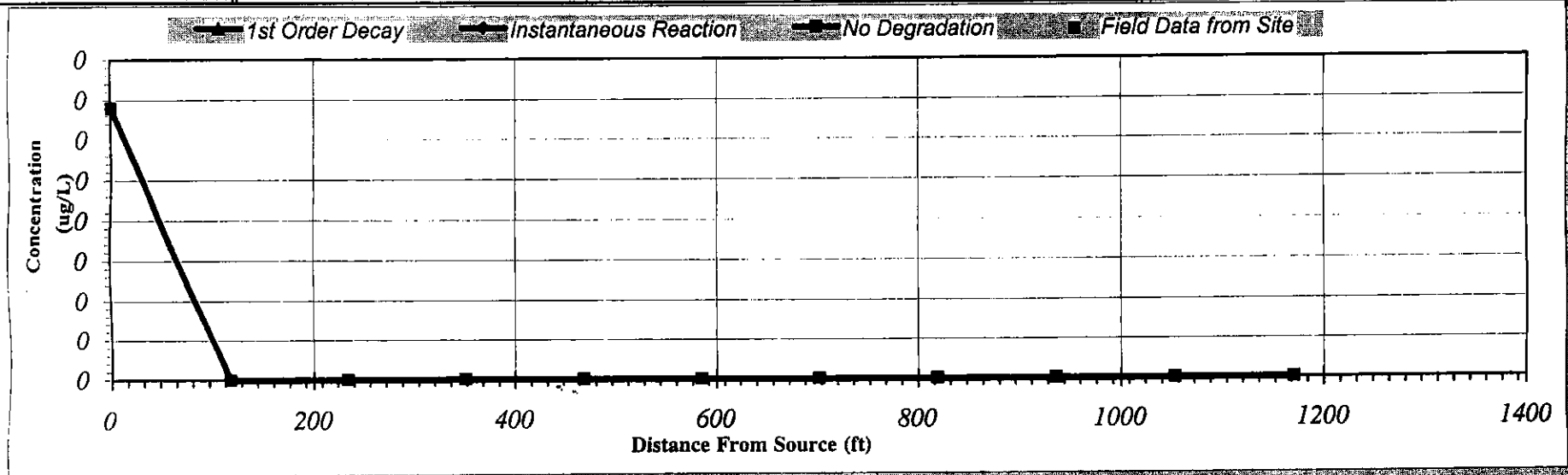
Recalculate This Sheet

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	117	234	351	468	585	702	819	936	1053	1170
No Degradation	0.034	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
Hg - ASRMW-3
Run Name

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

Variable — Data used directly in model
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	29.3	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1550	(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*	1550	(ft)
Modeled Area Width	1500	(ft)
Simulation Time*	100	(yr)

115 or 0.02

20

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

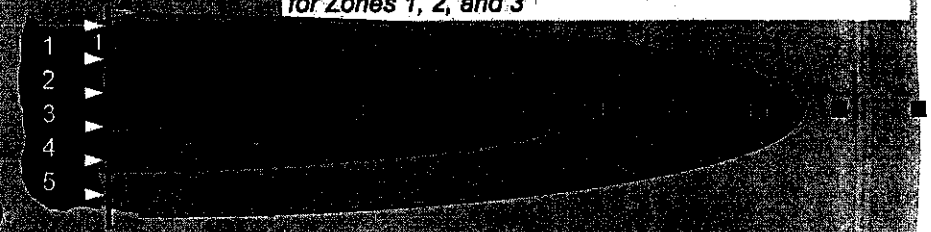
Source Zones:

Width (ft)	Conc. (ug/L)
1000	0.029

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	155	310	465	620	775	930	1085	1240	1395	1550

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

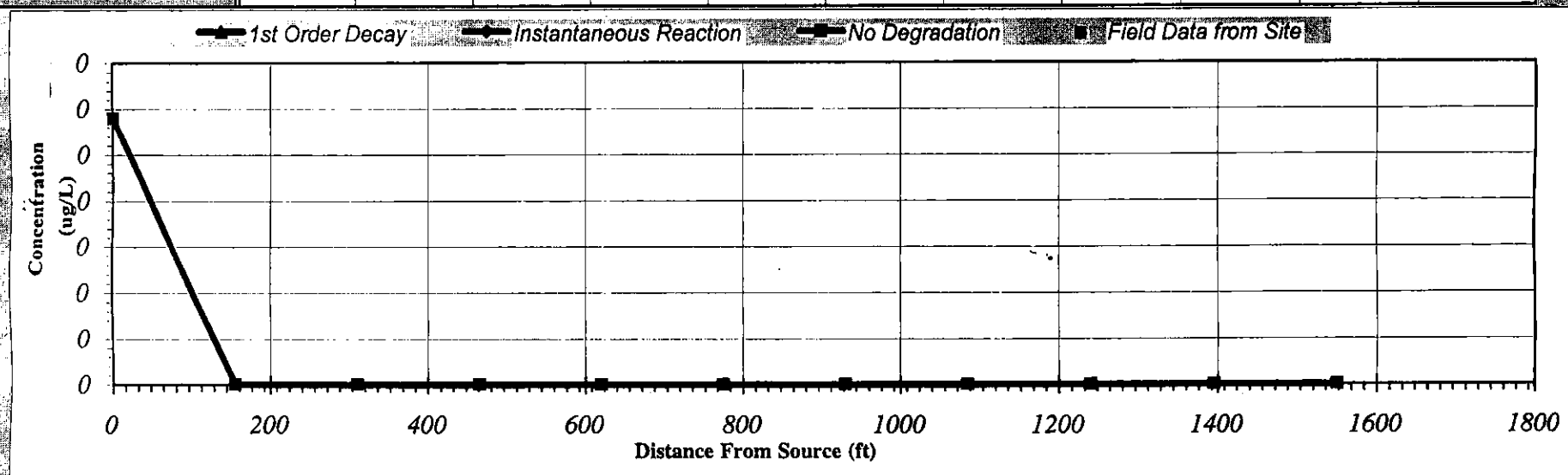
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	155	310	465	620	775	930	1085	1240	1395	1550
No Degradation	0.029	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
Hg - ASRMW-4
Run Name

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

115 or 0.02 — Variable: 20

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

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	70.8	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	6.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0361	*(ft/ft)*
Porosity	*n*	0.35	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	27.2	*(ft)*
Transverse Dispersivity*	*alpha y*	2.7	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	1290	*(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*	1290	*(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	0.058

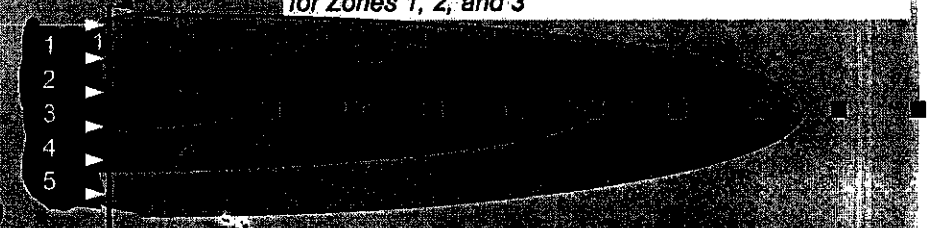
Source Half-life (see Help)

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

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

7. FIELD DATA FOR COMPARISON

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

Distance (ft)	Concentration (mg/L)
0	
129	
258	
387	
516	
645	
774	
903	
1032	
1161	
1290	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

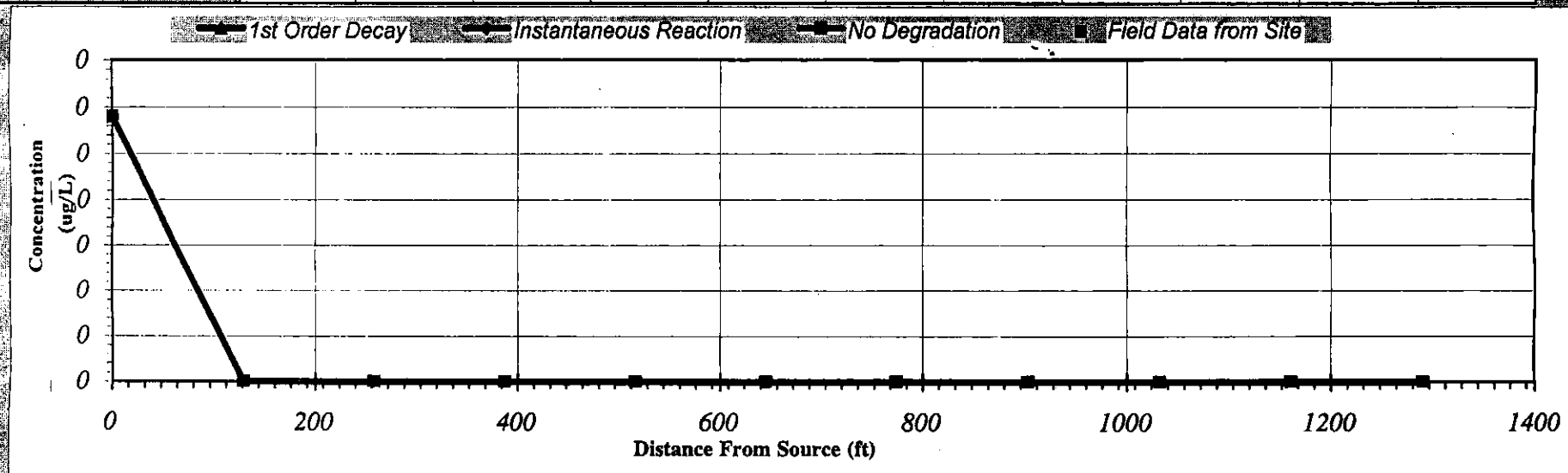
Recalculate This Sheet

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	129	258	387	516	645	774	903	1032	1161	1290
No Degradation	0.058	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
Hg - ASRMW-5
Run Name

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

115 or 0.02

Variable: 20

Data used directly in model
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	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	900	(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	0.28

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	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

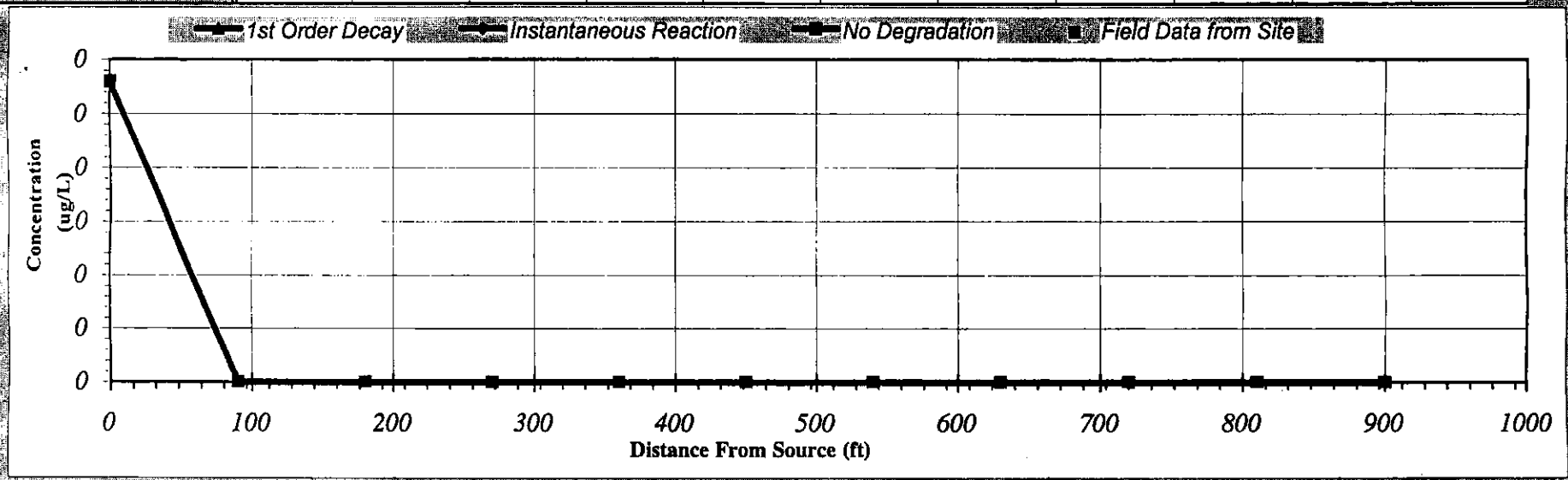
Recalculate This Sheet

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	0.280	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
Hg - ASRMW-8
Run Name

Data Input Instructions

115 ↑ or 2. Calculate Vx (filling in grey cells below, then restore formulas using button below)
0.02
Variable: Data used directly in model
20 Value calculated by model (Dollar centerline data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	88.8	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0453	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	23.7	(ft)
Transverse Dispersivity*	alpha y	2.4	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	930	(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)
Fraction Organic Carbon	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	930	(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	0.071

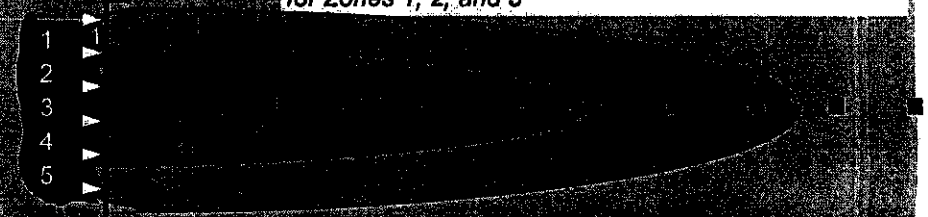
Source Lifetime (see Help)

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

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

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations at Monitoring Wells (if No Data Leave Blank or Enter 0)

Distance from Source (ft)	0	93	186	279	372	465	558	651	744	837	930
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

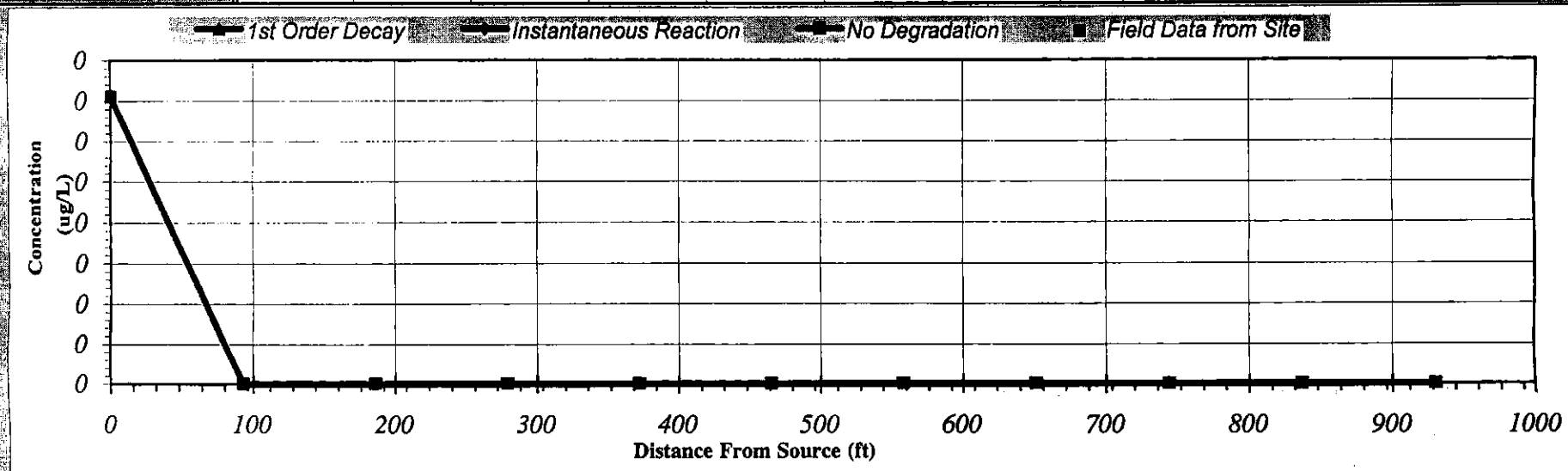
Paste Example Dataset

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	93	186	279	372	465	558	651	744	837	930
No Degradation	0.071	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
Hg - CL3-1
Run Name

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in grey cells below, or restore formulas (instruction below). Data used directly in model. Value calculated by model. (Borderline entry data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	179.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	I	0.0914	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	17.8	(ft)
Transverse Dispersivity*	alpha y	1.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lo	490	(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)
Fraction Organic Carbon	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*	490	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

L
W
Y

115 or 0.02

Variable: 20

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

Source Zones

Width* (ft)	Conc. (mg/L)*
1000	0.02

Source Half-life (see Help)

Infinite	Infinite
Incl. Reaction?	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 an Plume Centerline 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	49	98	147	196	245	294	343	392	441	490

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

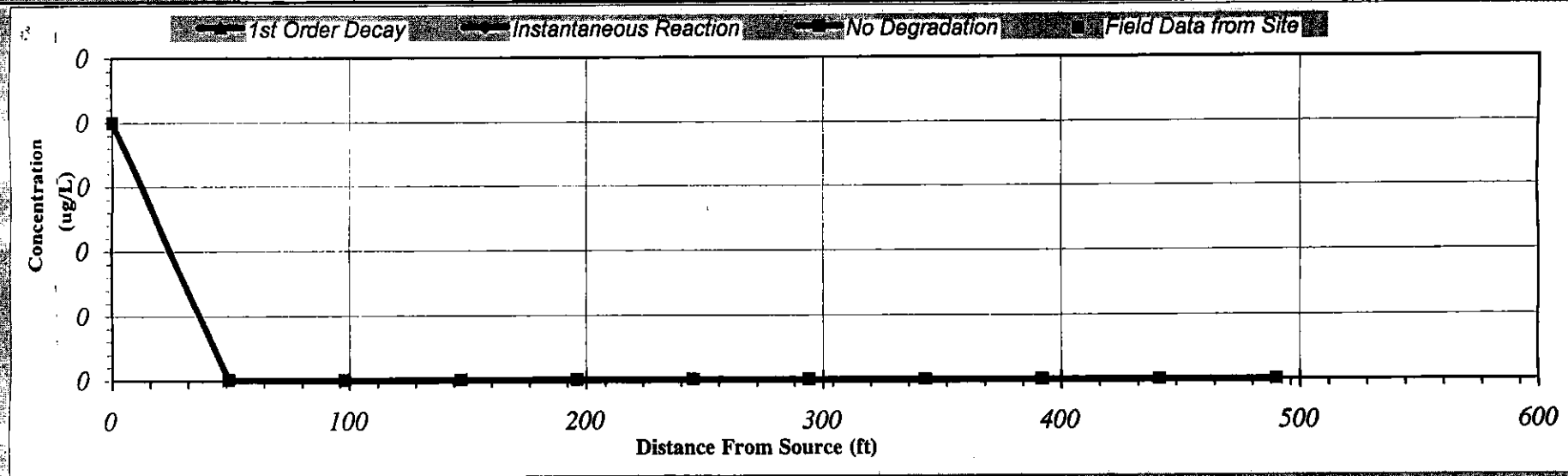
Paste Example Dataset

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	49	98	147	196	245	294	343	392	441	490
No Degradation	0.020	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*

Painesville - L
Hg - CL3-2
Run Name

Data Input Instructions
1. Enter value directly, or
2. Calculate by filling in grey cells below. To restore formulas, run a run below. Data used directly in model. Value calculated by model. Don't enter dry data.

1. HYDROGEOLOGY

Seepage Velocity*	Vs	179.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0918	(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	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(Kg/l)
Partition Coefficient	Koc	5.8E+2	(L/Kg)
Fraction Organic Carbon	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	450	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	(yr)

L
W

Variable: 115 (or 0.32)
Variable: 20

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

Source Zones

	Width (ft)	Conc. (Kg/L)
1		
2		
3	1000	0.11
4		
5		

Source Half-life (see Help)

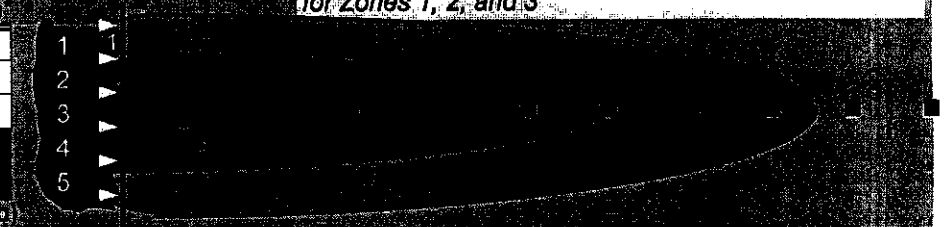
Infinite	Infinite
(yr)	

Inst. Reaction: 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 or Monitoring Wells (If No Data, Leave Blank or Enter 0)

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

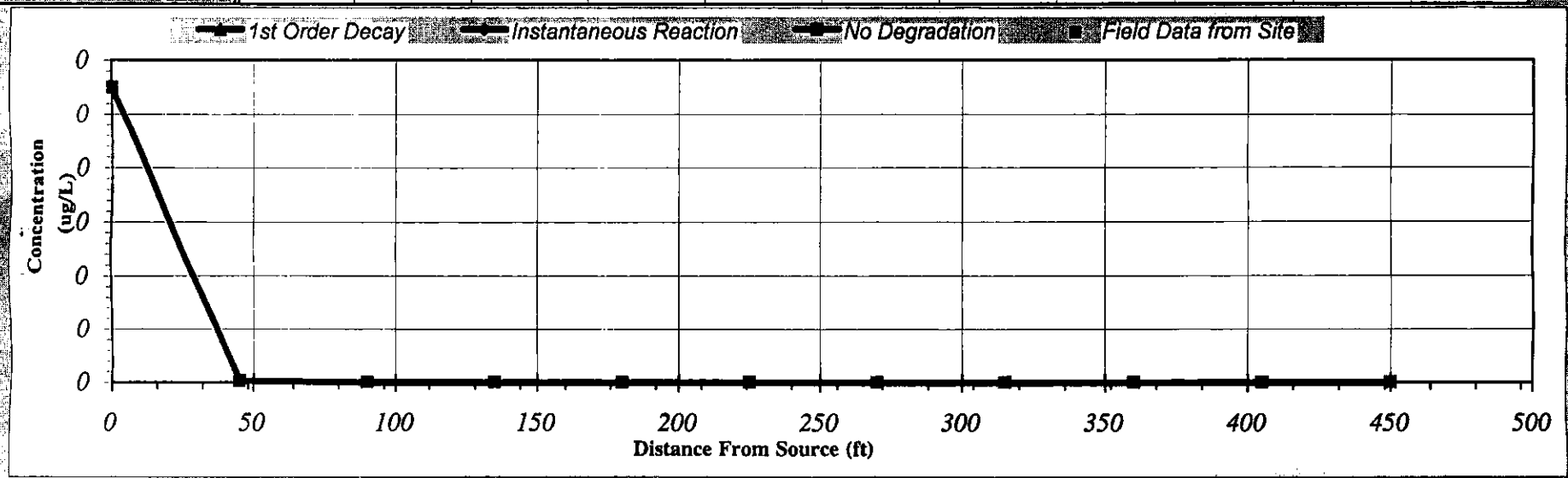
Recalculate This Sheet

Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=1)

TYPE OF MODEL	Distance from Source (ft)										
	0	45	90	135	180	225	270	315	360	405	450
No Degradation	0.110	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 1.3*

Painesville - L
Hg - CL3-3
Run Name

Data Input Instructions
1. Enter values directly into cells below
2. Calculate values using formulas in cells below or restore formulas in cells below
Data used directly in model
(Don't enter any data)

115 ft or 0.02 (Variable 20)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	341.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.1741	(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	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient*	Koc	5.6E+2	(L/kg)
Fraction Organic Carbon	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*	140	(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 (mg/L)
1000	0.06

Source Half-life (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

1 2 3 4 5

View of Plume Looking Down

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

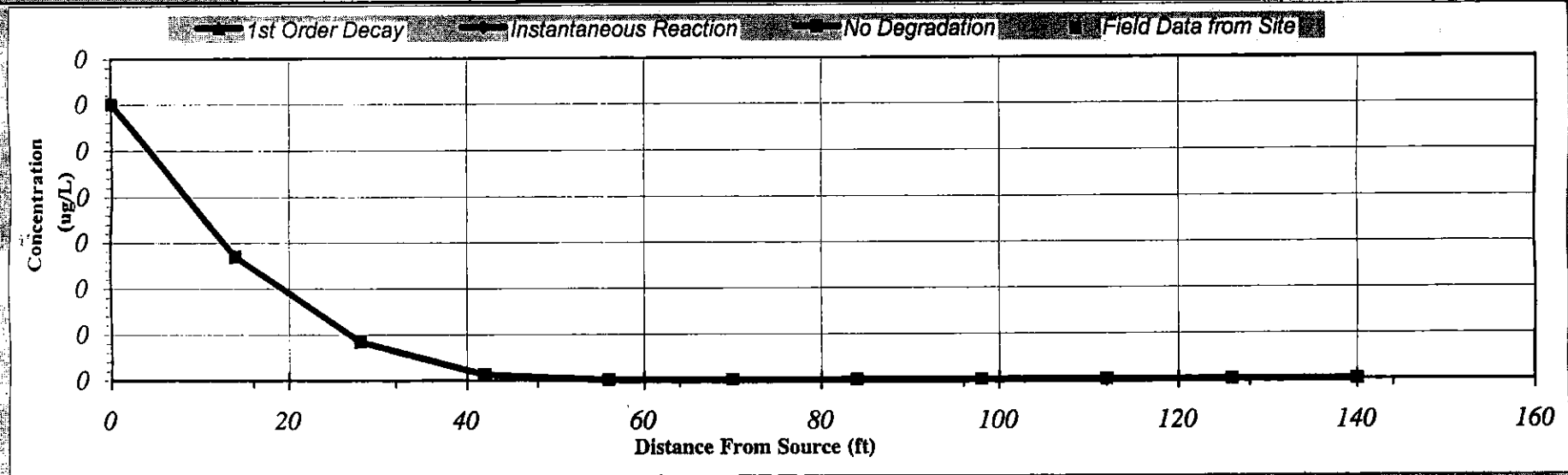
Recalculate This Sheet

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	0.060	0.027	0.008	0.001	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
Hg - CL3-4
Run Name

Data Input Instructions:
1. Enter value directly or
2. Calculate by filling in grey cells below. To restore formulas, see notes below. Data used directly in model. Values calculated to model in from center area data.

115 ft or 0.02 Variable 20

1. HYDROGEOLOGY

Seepage Velocity*	Vs	409.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient*	i	0.2088	(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	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.8E+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*	150	(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. (mg/L)
1000	0.03

Source Halflife (see Help)

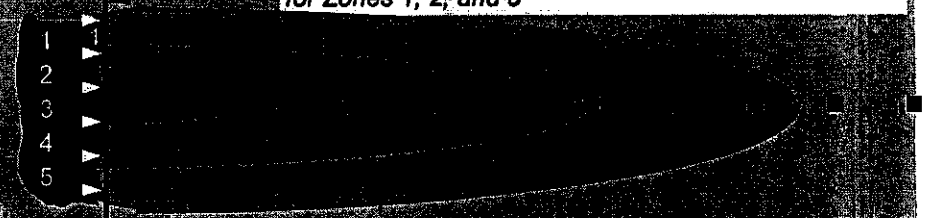
Infinite	Infinite	(yr)

Instr. Reaction? 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 Not Centerline Enter Distance Below)

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

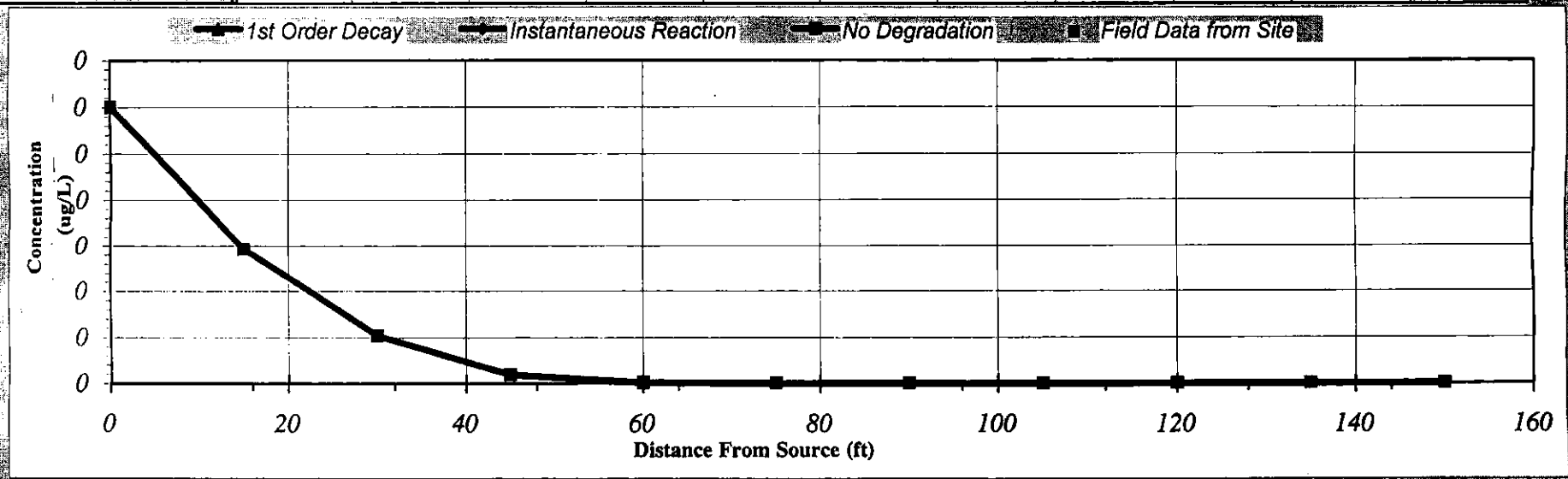
Recalculate This Sheet

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	0.030	0.015	0.005	0.001	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
Hg - CL3-5
Run Name

Data Input Instructions:
115 ft or 0.02 ft/ft — *Enter value directly, or calculate by filling in cells below (formulas will overwrite below); Vs, dispersivities, R, model value can be entered by model (Concentration data)*

1. HYDROGEOLOGY

Seepage Velocity*	Vs	462.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.2361	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	8.0	(ft)
Transverse Dispersivity*	alpha y	0.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	120	(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 Areal Length	120	(ft)
Modeled Areal Width*	1500	(ft)
Simulation Time*	100	(yr)

L, W

Variable: 20

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

Source Zones

	Width (ft)	Conc. (mg/L)
1		
2		
3	1000	0.03
4		
5		

Source Half-life (see Help): Infinite | Infinite (yr)

Inst. Reaction: 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

Observed Centerline Concentrations at Monitoring Wells (If No Data Leave Blank, or Enter 0)

7. FIELD DATA FOR COMPARISON

Distance from Source (ft)	Concentration (mg/L)
0	
12	
24	
36	
48	
60	
72	
84	
96	
108	
120	

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

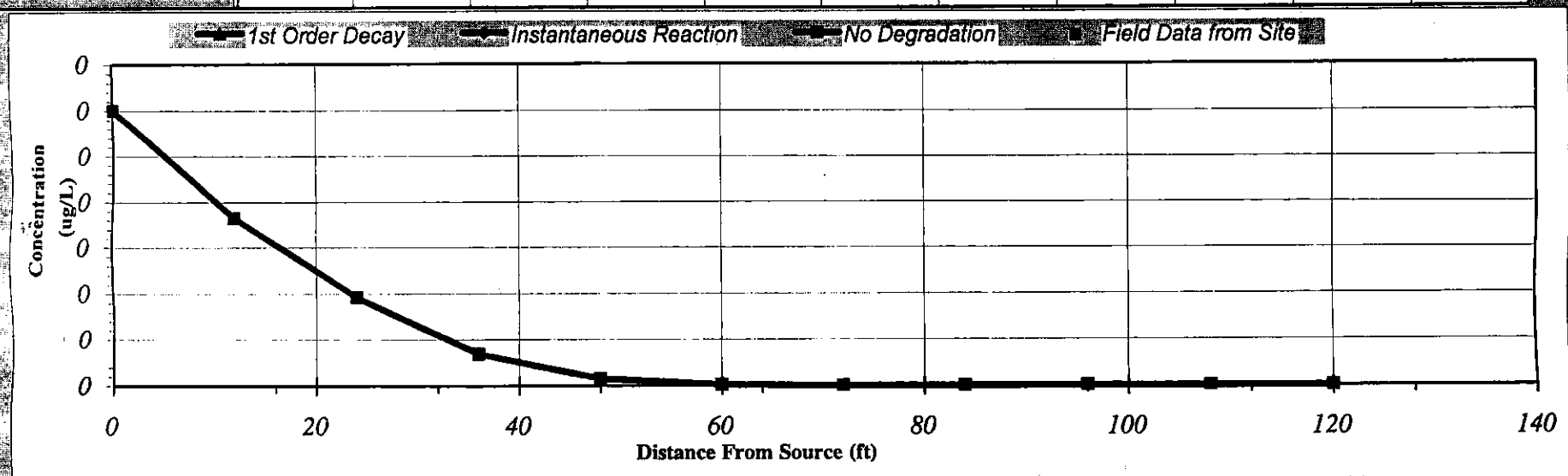
Recalculate This Sheet

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	12	24	36	48	60	72	84	96	108	120
No Degradation	0.030	0.018	0.010	0.003	0.001	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
Hg - CL3-6
Run Name

Data Input Instructions

1. HYDROGEOLOGY

Seepage Velocity*	Vs	304.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-01	(cm/sec)
Hydraulic Gradient	I	0.1553	(ft/ft)
Porosity*	n	0.25	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.1	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	270	(ft)

3. ADSORPTION

Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.3E+2	(l/kg)
Fraction Organic Carbon	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	270	(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. (mg/L)
1		
2		
3	1000	0.04
4		
5		

Source Half-life (see Help)

Infinite	Infinite
Inst. Reaction	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 Contaminant Concentrations at Monitoring Wells
If No Data, Leave Blank or Enter 0

7. FIELD DATA FOR COMPARISON

Distance from Source (ft)	Concentration (mg/L)
0	
27	
54	
81	
108	
135	
162	
189	
216	
243	
270	

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

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Palnesville - L
Hg - MW-1B1-02
Run Name

Data Input Instructions

115 ↑ or
1. Enter value directly or
2. Calculate by filling in gray cells below. (To restore formulas, use option below)

Variable: 20
Data Used directly in model or to calculate by model (Bold, Italic, and Bold)

1. HYDROGEOLOGY

Seepage Velocity*	*VS*	82.3	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	6.8E-04	*(cm/sec)*
Hydraulic Gradient	*I*	0.042	*(ft/ft)*
Porosity	*n*	0.35	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	24.0	*(ft)*
Transverse Dispersivity*	*alpha y*	2.4	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	950	*(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*	950	*(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	0.075

Source Half Life (see Help)

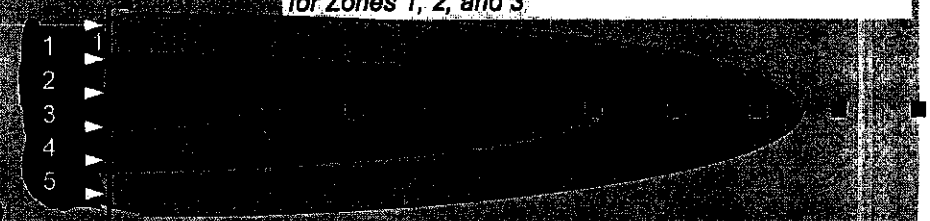
Inst. Reaction	1st Order
Infinite	Infinite

(yr)

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

Dis. from Source (ft)	Concentration (mg/L)
0	
95	
190	
285	
380	
475	
570	
665	
760	
855	
950	

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

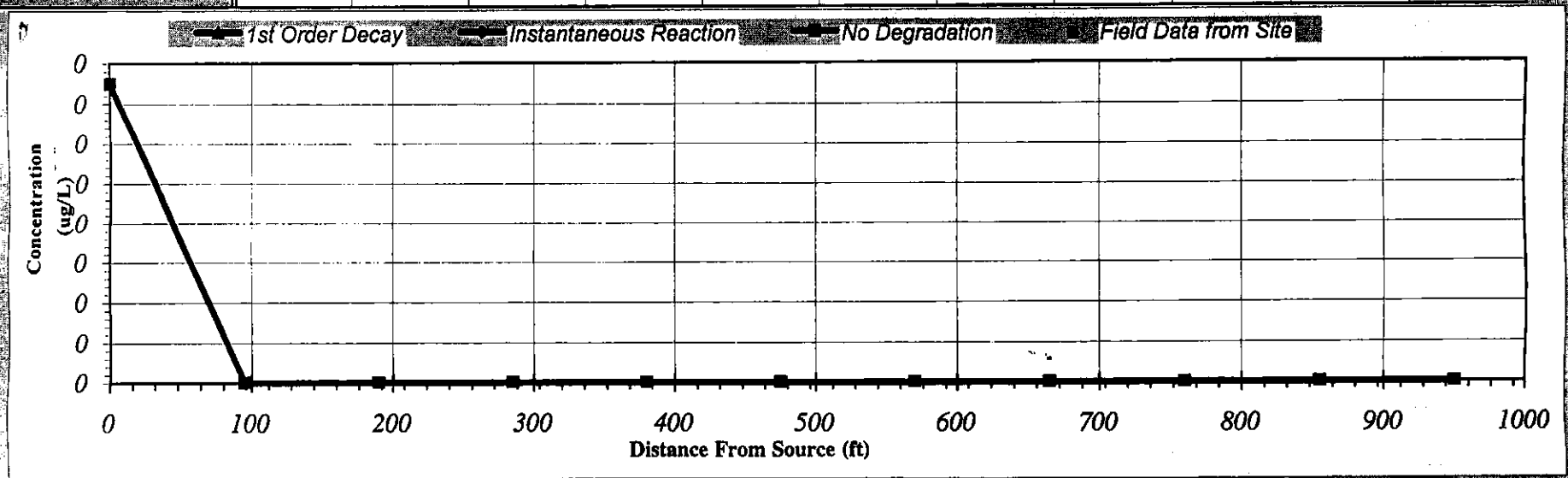
Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (at Y = 0)

Distance from Source (ft)

TYPE OF MODEL	0	95	190	285	380	475	570	665	760	855	950
No Degradation	0.075	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
Hg - MW-1B1-03
Run Name

Data Input Instructions:
1. Enter value directly or
2. Calculate by filling in grey cells below. Restore formulas in yellow below.

115 ft or
Length L
Variable 20
Value calculated by model (Concentration data)

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	91.3	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	6.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0466	*(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*	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	830	*(ft)*
Modeled Area Width	1500	*(ft)*
Simulation Time	100	*(yr)*

6. SOURCE DATA

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

Source Zones

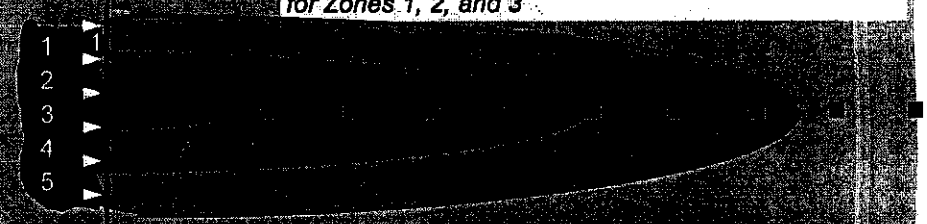
	Width (ft)	Conc. (ug/L)
1		
2		
3	1000	0.043
4		
5		

Source Half-life (see Help)

Infinite	Infinite	*(yr)*
Inst. Reaction	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

7. FIELD DATA FOR COMPARISON

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

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

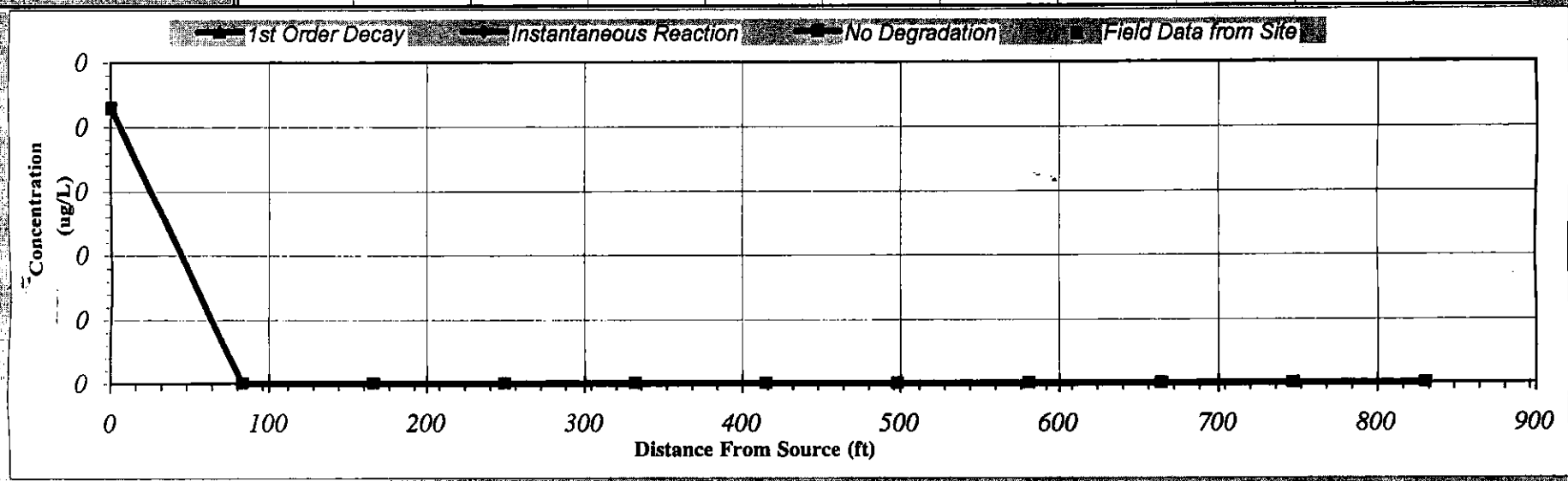
Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (at y = 0)

Distance from Source (ft)

TYPE OF MODEL	0	83	166	249	332	415	498	581	664	747	830
No Degradation	0.043	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
Hg - MW-1B1-04
Run Name

Data Input Instructions
1. Enter value directly or
2. Calculate by filling in grey cells below (if to restore formulas, hit button below)
Data used directly in model
Value calculated by model (Don't enter any data)

115 or 0.02
Variable 20

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

L
W

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

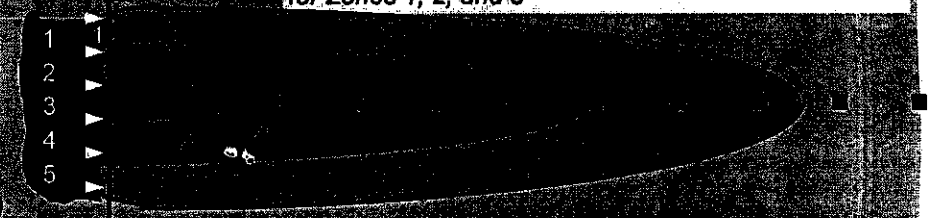
Source Zones

Width* (ft)	Conc. (ug/L)*
1000	0.057

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	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

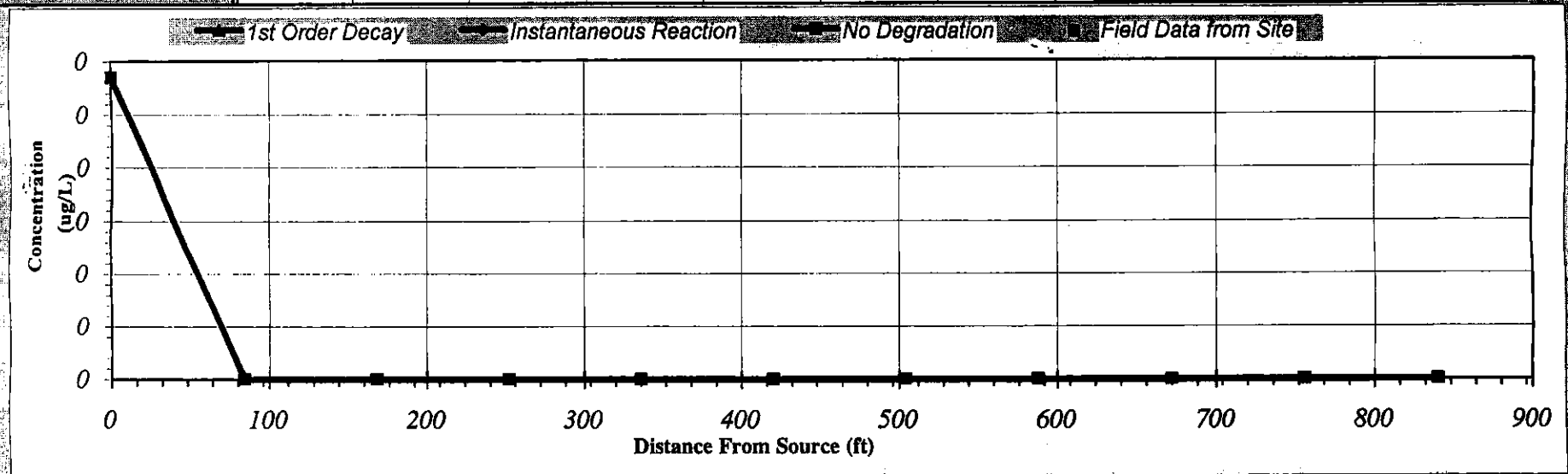
Recalculate This Sheet

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	0.057	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
Hq - MWB-1
Run Name

Data Input Instructions:
1. Enter value directly into or
2. Calculate by filling in grey cells below and pressure formulas in column below. Data used directly in model.

1. HYDROGEOLOGY

Seepage Velocity*	Vs	58.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0299	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	29.3	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1550	(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)
Fraction Organic Carbon	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*	1550	(ft)
Modeled Area Width	1500	(ft)
Simulation Time*	100	(yr)

L
W

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

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

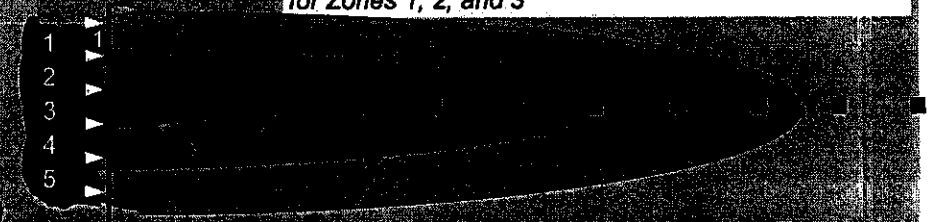
Width* (ft)	Conc. (ug/L)
1000	0.1

Source Half-life (see Help)

Infinite	Infinite	(yr)
Inst. Reaction	1st Order	

Soluble Mass infinite (Kg)

If Source NAPL, Soil



View of Plume Looking Down

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

7. FIELD DATA FOR COMPARISON

Distance from Source (ft)	0	155	310	465	620	775	930	1085	1240	1395	1550
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

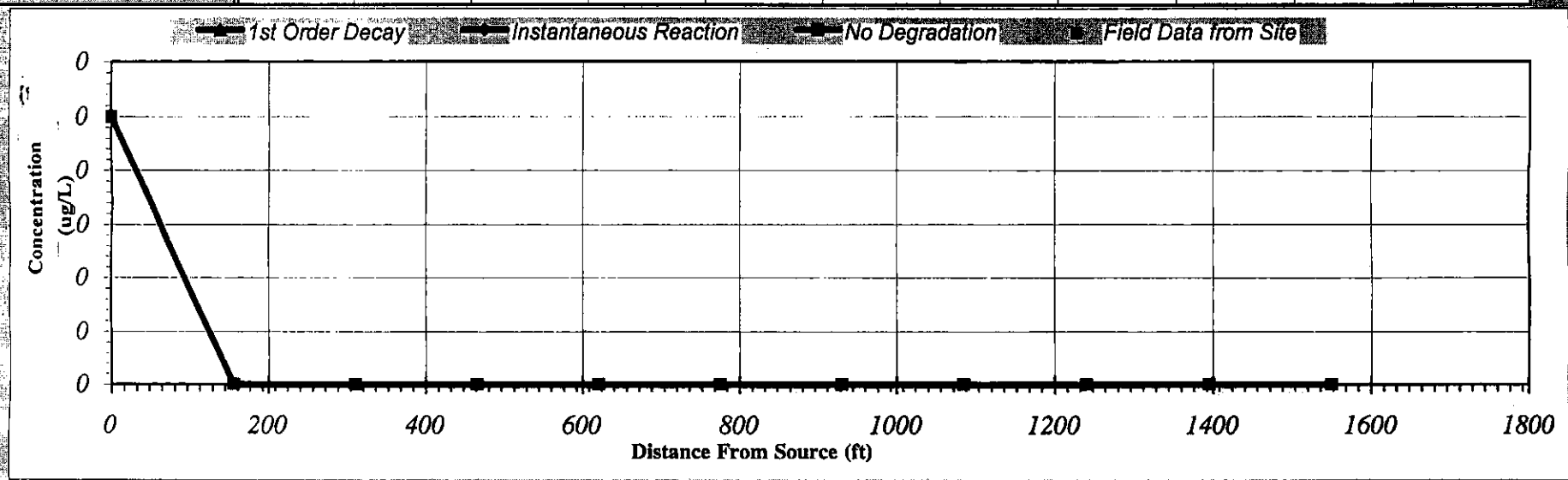
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	155	310	465	620	775	930	1085	1240	1395	1550
No Degradation	0.100	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 1.3

Painesville - L

Hg - MWB-2

Plot Name

Data Input Instructions

115 ft or

Enter velocity or calculate by filling in grey cells below (or restore formulas in column below)

Variable

20

Data used directly in model

Data calculated by model

Color order of 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	2818.1	(-)
or		or	
Soil Bulk Density	rho b	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	1470	(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 (mg/L)
1000	0.29

Source Half-life (see Help)

Infinite	Infinite
(yr)	

Inst. Reaction Model: 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 Zero)

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

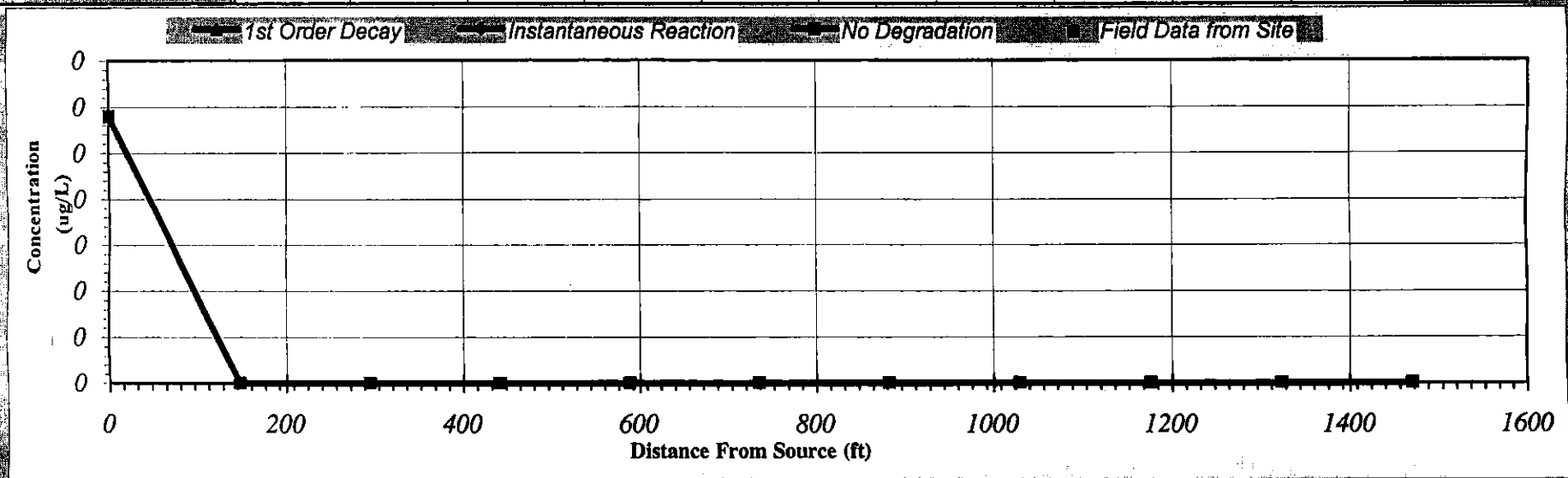
Recalculate This Sheet

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	0.290	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

Hq - MWB-4

Run Name

Data Input Instructions

115

4 or

0.02

Variable

20

Enter values directly or calculate by filling in grey cells below. (Do not enter formulas, all output below)

Data Used directly in model

Value calculated by model

(Do not 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	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	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	0.15

Source Half-life (use Hflb)

Infinite	Infinite

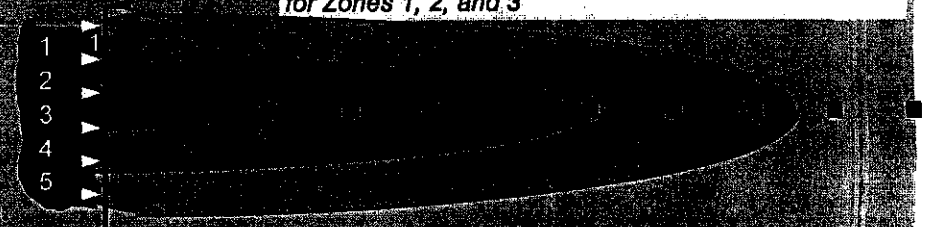
(yr)

Inst. React. or 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

7. FIELD DATA FOR COMPARISON

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

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

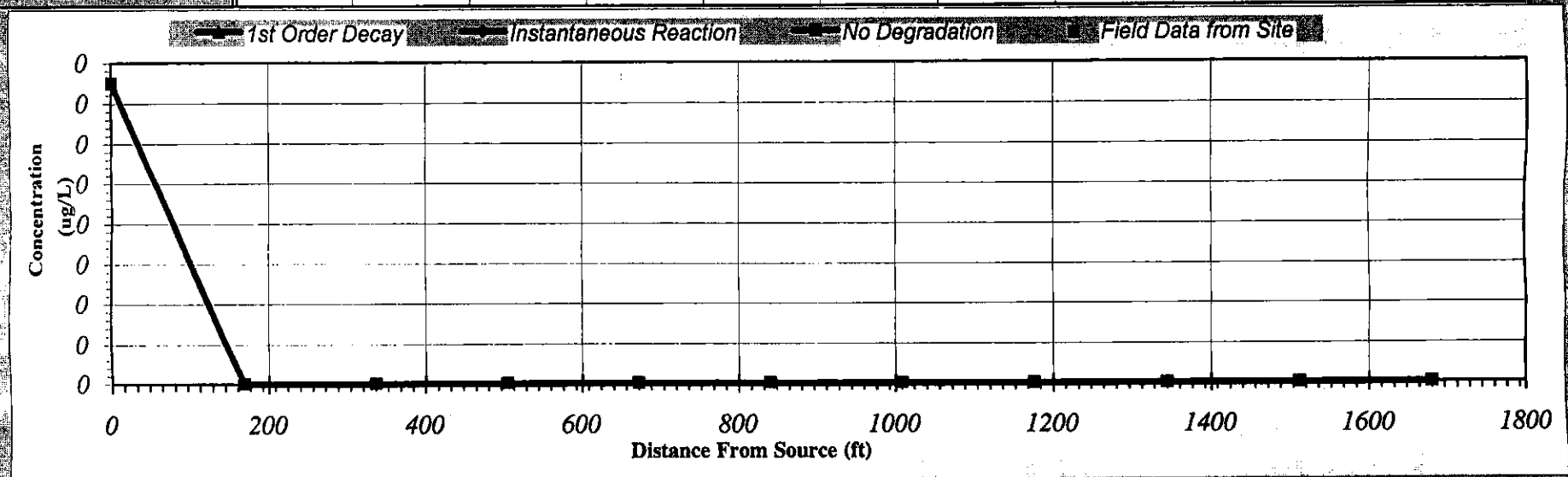
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	0	168	336	504	672	840	1008	1176	1344	1512	1680
No Degradation	0.150	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
Hg - MWB-5
Site Name

Data Input Instructions

115 — Enter values in boxes or cells below to restore
or — Centerline or filling in grey
0.02 — cells below. To restore
L — formulas, run option below)
W — Data used directly in model
Velocity — Data used directly in model
20 — Value can be used in model
Porosity — Value can be used in model

1. HYDROGEOLOGY

Seepage Velocity*	*vs*	59.2	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	6.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0302	*(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*	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*	1470	*(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)*
1		
2		
3	1000	0.088
4		
5		

Source Half-life (see Help)

Infinite	Infinite
(y)	

Inst. React. N/A — 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

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations or Downgradient Wells
If No Data, Leave Blank or Enter "0"

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

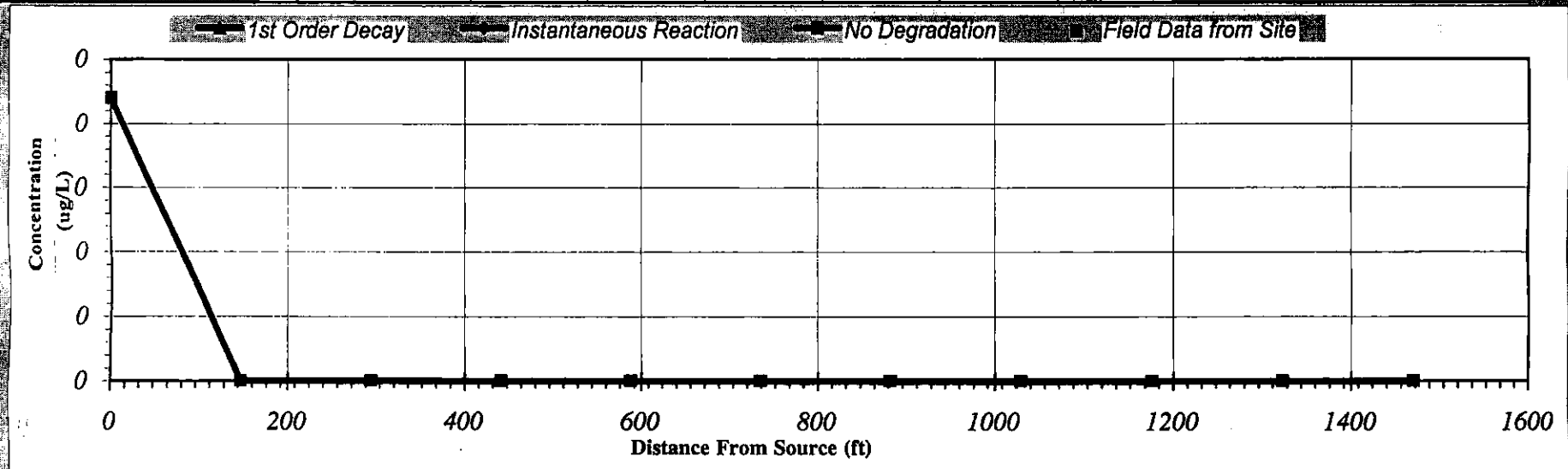
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	147	294	441	588	735	882	1029	1176	1323	1470
No Degradation	0.088	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 1.3

Painesville - L
Hg - MWB-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	54.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0277	(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	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 Areal Length	1720	(ft)
Modeled Areal 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	0.23

Source Half-life (See Help)

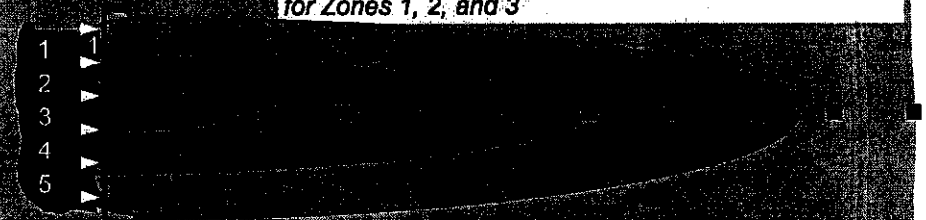
Infinite	Infinite	(yr)

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	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

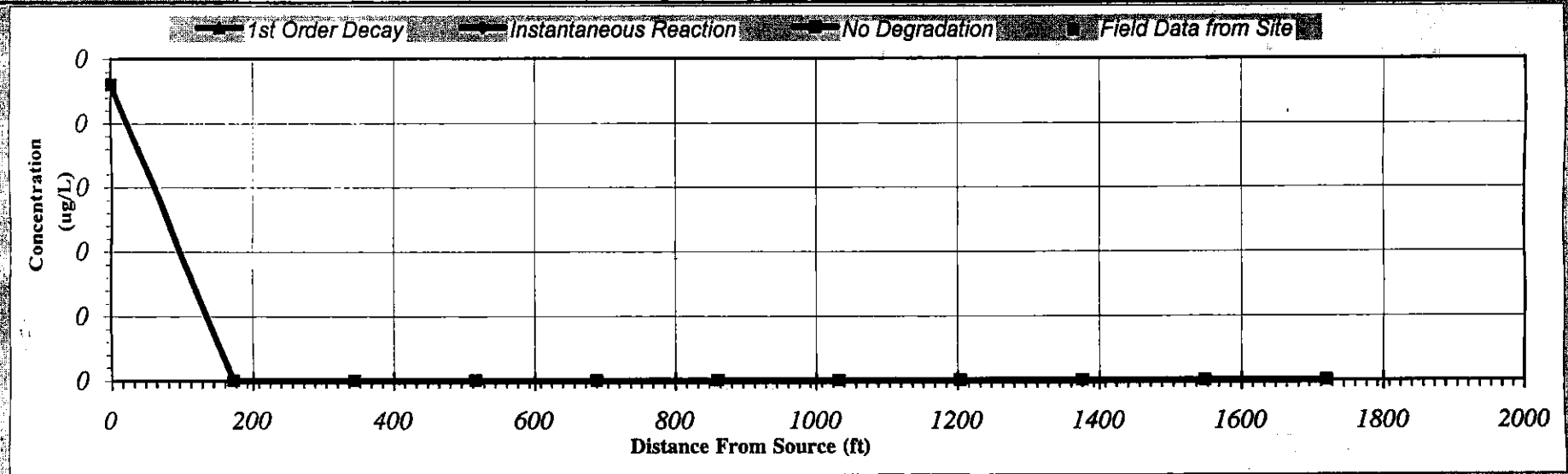
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	172	344	516	688	860	1032	1204	1376	1548	1720
No Degradation	0.230	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

Palnesville - L
Hg - MW-40
Run Name

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in prev. cells below (or restore formulas via button below)
Variable — Value used directly in model
Value calculated by model
(Non-Variable Input 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	Lo	1130	(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	1130	(ft) L
Modeled Area Width	1500	(ft) W
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. (g/L)
1		
2		
3	1000	0.11
4		
5		

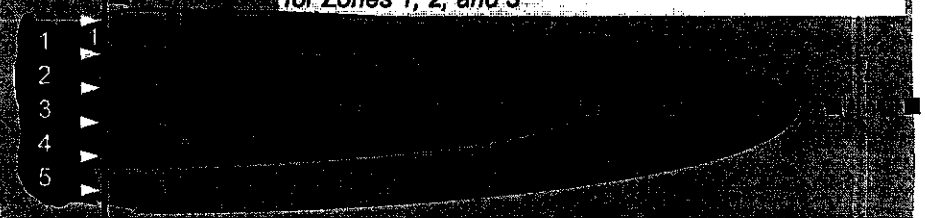
Source Halflife (see Help)

Infinite	Infinite	(yr)

1st Reaction: 1st Order

Soluble Mass: infinite (Kg)

In Source NAPL Soil



View of Plume Looking Down

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

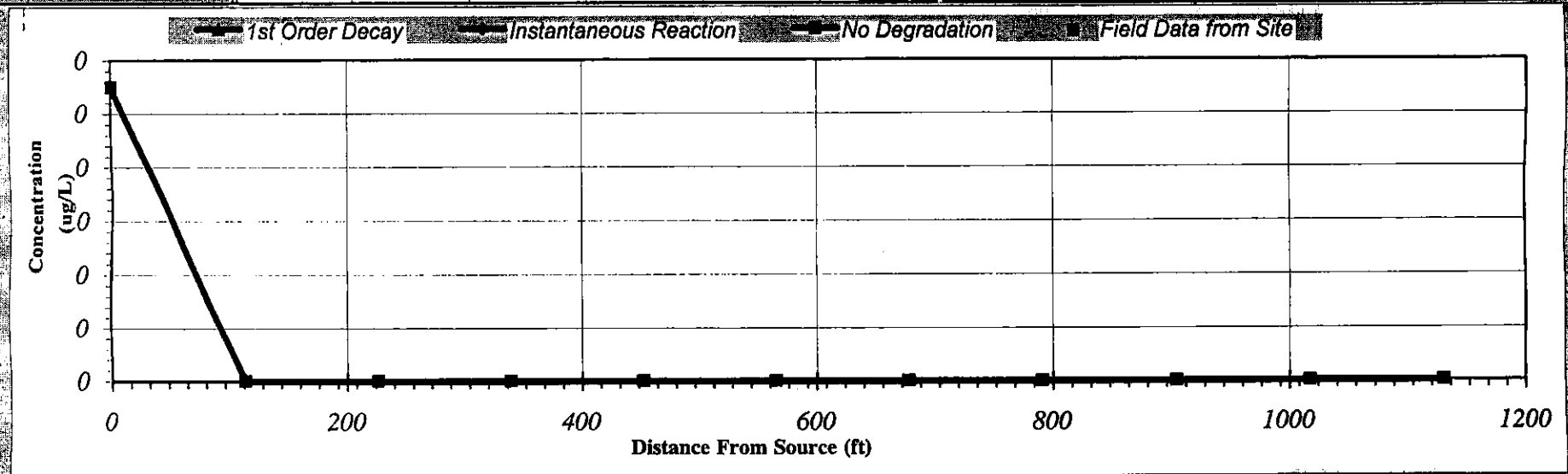
Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATIONS 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	0.110	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 1.3*

Run Name: *Painesville - L*
Hg - MW-47

Data Input Instructions:
1. Enter values directly or
2. Calculate values using Excel cell formulas (in parentheses below)
Variables: *Data used directly in model*
Values calculated by model (Comments only data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	61.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0312	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	28.0	(ft)
Transverse Dispersivity*	alpha y	2.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1390	(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)
Fraction Organic Carbon	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	1390	(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. (mg/L)
1000	0.09

Source Half-life (see Help)

Infinite	Infinite

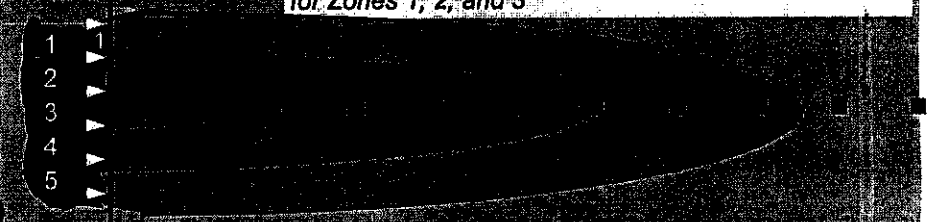
(yr)

Inst. React. NAPL: 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

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations or Vertical Wells
If No Data, Leave Blank or Enter "0"

Distance from Source (ft)	Concentration (mg/L)
0	
139	
278	
417	
556	
695	
834	
973	
1112	
1251	
1390	

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

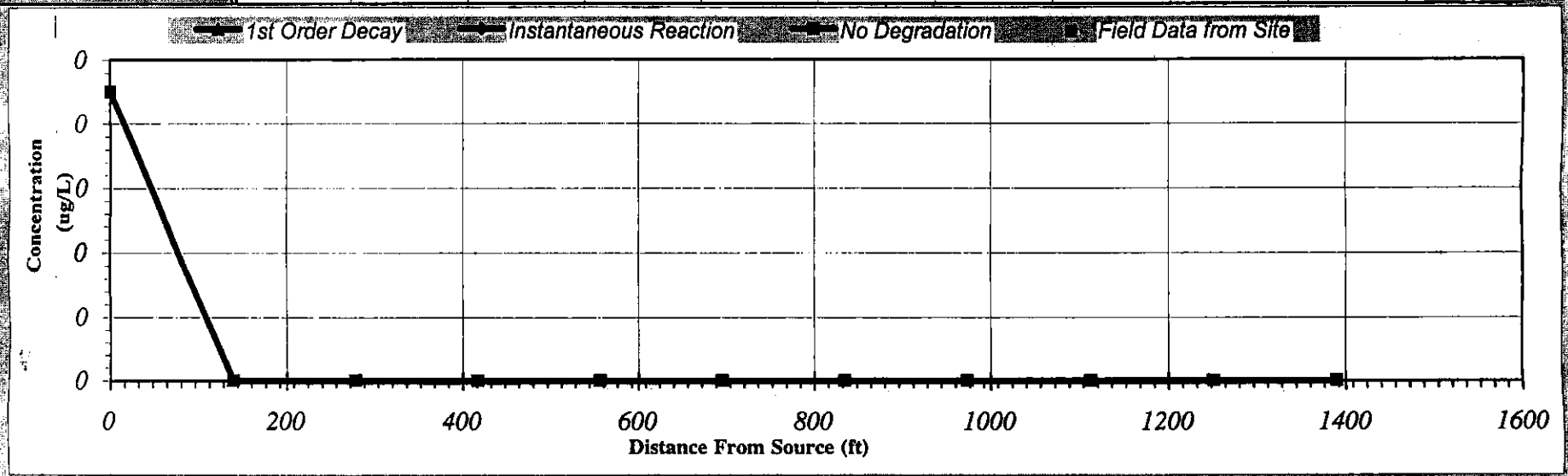
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	139	278	417	556	695	834	973	1112	1251	1390
No Degradation	0.090	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 1.2

Painesville - L
Hg - MW-49
Run Name

Data Input Instructions

115 ft or 0.62 (Enter value directly or calculate by filling in cells below and then copy value into cell above)

Variable: Data used directly in model; Value calculated by model; Data entered by user

1. HYDROGEOLOGY

Seepage Velocity*	VS	55.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.3E-04	(cm/sec)
Hydraulic Gradient	I	0.0282	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	29.0	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1510	(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)
Fraction Organic Carbon	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*	1510	(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 (mg/L)
1000	0.25

Source Half-life (see Help)

Infinite	Infinite	(yr)

Inst. Reaction or 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

1 2 3 4 5

View of Plume Looking Down

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations at Monitoring Wells (if No Data Leave Blank or Enter 0)

Dist. from Source (ft)	Concentration (mg/L)
0	
151	
302	
453	
604	
755	
906	
1057	
1208	
1359	
1510	

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

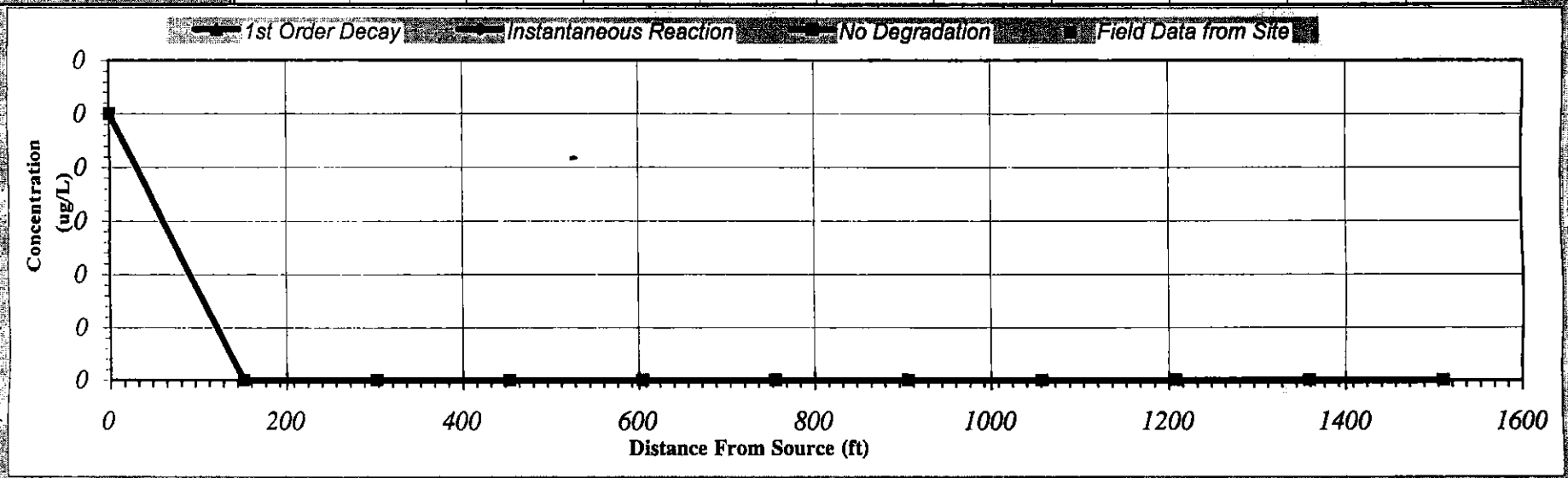
Recalculate This Sheet

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	151	302	453	604	756	906	1057	1208	1359	1510
No Degradation	0.250	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
Hg - SW1-1
Run Name

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

115 or 0.02

Variable: 20

1. HYDROGEOLOGY

Seepage Velocity*	Vs	61.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	L	0.0314	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	27.5	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1320	(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	1320	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	(yr)

L
W

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

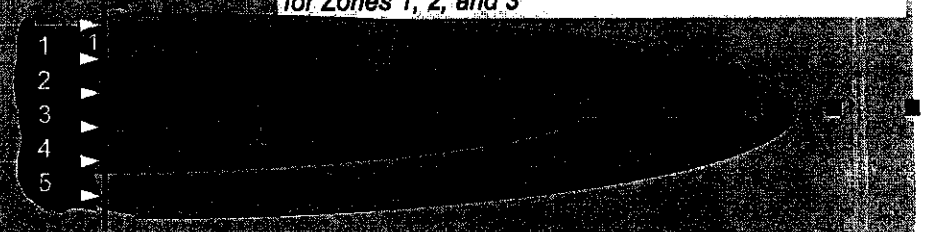
Source Zones:

Width (ft)	Conc. (ug/L)
1000	0.04

Source Halflife (see Help)

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

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	132	264	396	528	660	792	924	1056	1188	1320

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