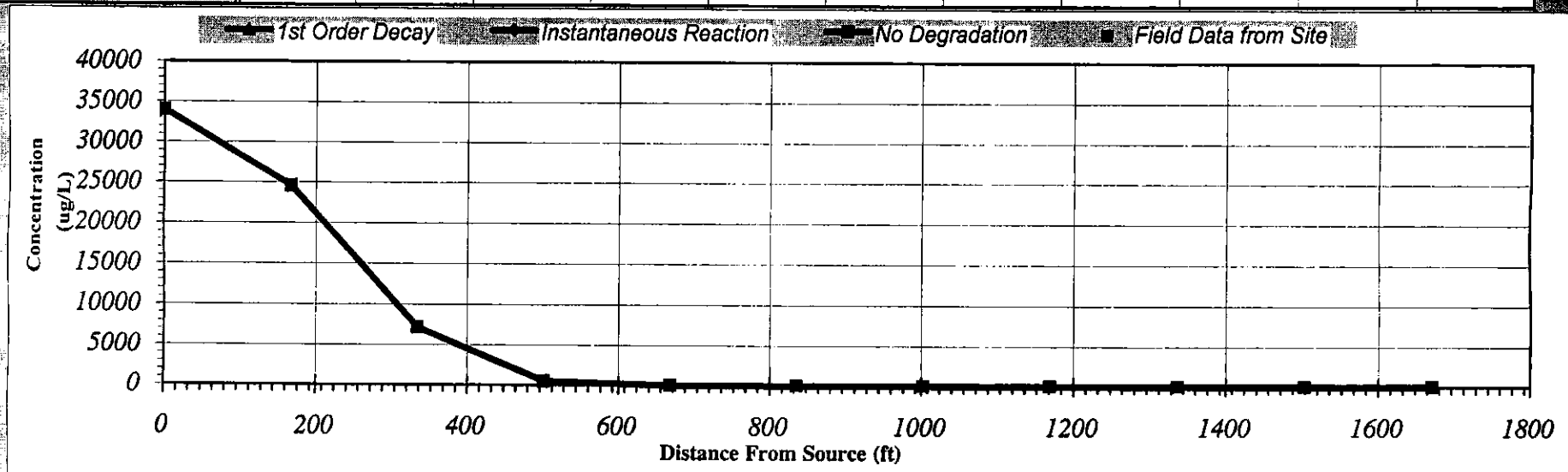
DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

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



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
CT - SW1-8
Run Name

Data Input Instructions:

115 — 1. Enter value directly, or
or — 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	75.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0383	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

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

4. BIODEGRADATION

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

5. GENERAL

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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

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

Source Halflife (see Help)

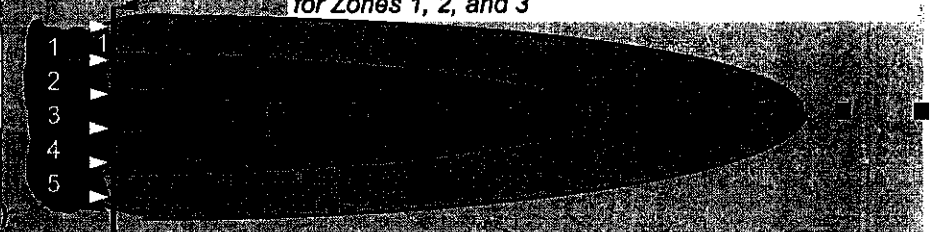
Infinite	Infinite	(yr)

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	125	250	375	500	625	750	875	1000	1125	1250

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

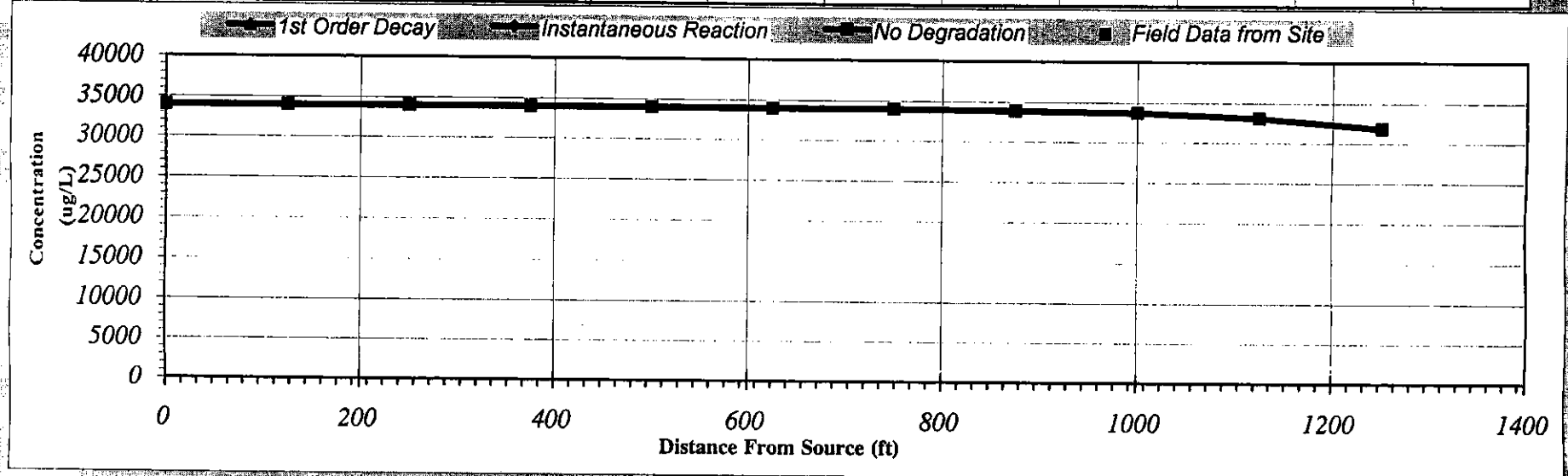
Recalculate This Sheet

Paste Example Dataset

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

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

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



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
CF - SW1-8
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

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

4. BIODEGRADATION

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

5. GENERAL

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

L
W

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

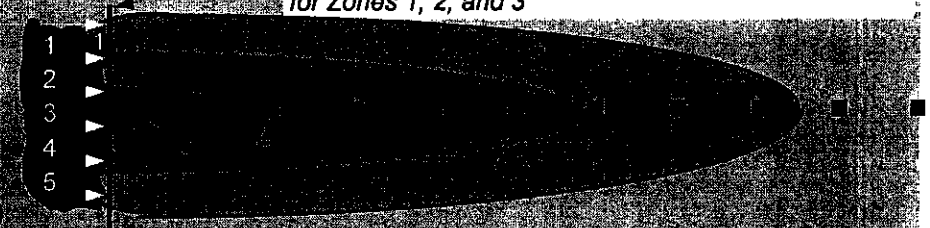
Source Zones:

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

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

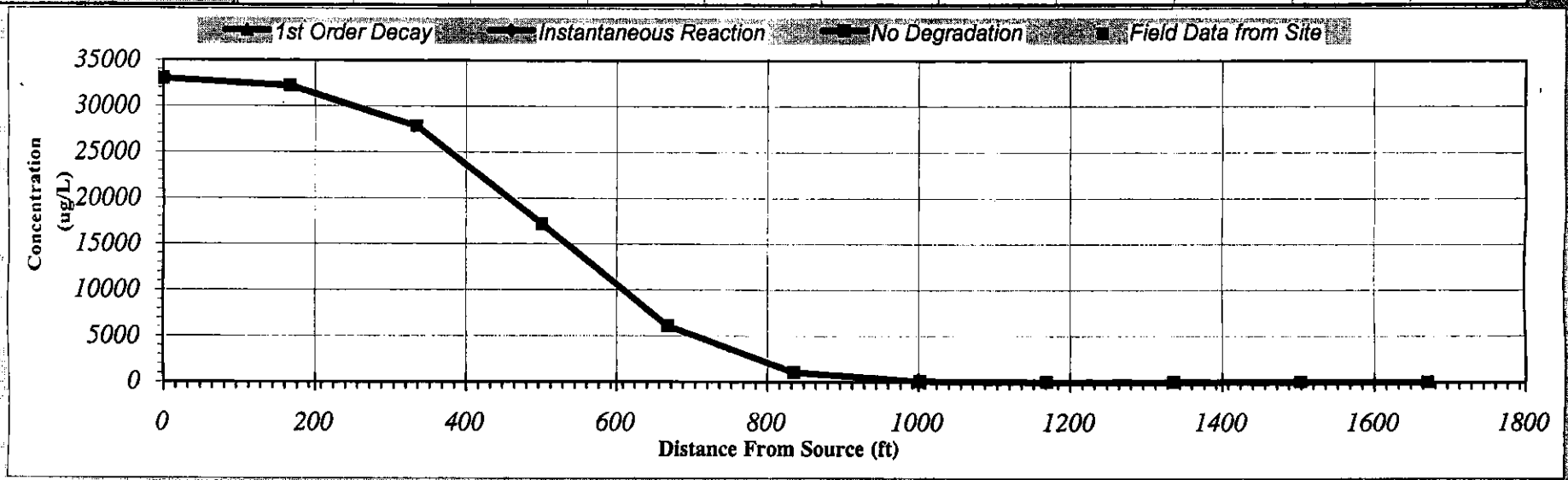
Recalculate This Sheet

Paste Example Dataset

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

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

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



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
CF - SW1-8
Run Name

Data Input Instructions:

115 — 1. Enter value directly ... or
or — 2. Calculate by filling in grey 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	75.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0383	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

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

4. BIODEGRADATION

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

5. GENERAL

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

L
W

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones

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

Source Halflife (see Help)

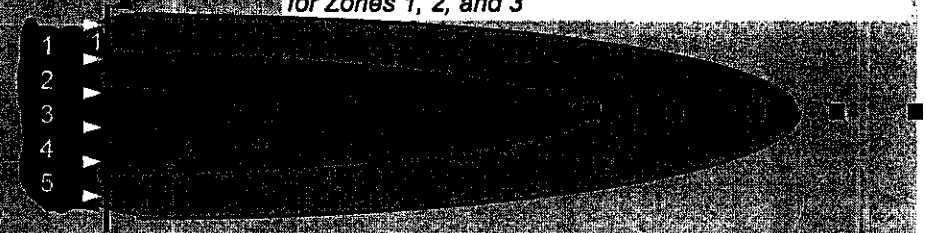
Infinite	Infinite	(yr)

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

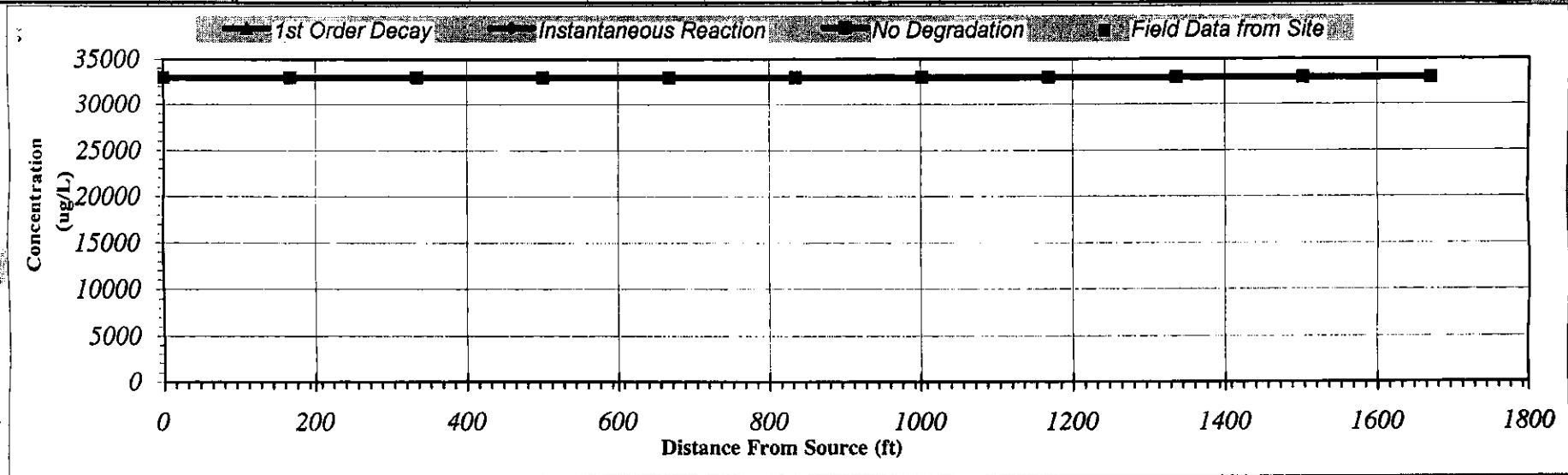
Recalculate This Sheet

Paste Example Dataset

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

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

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



Calculate Next Timestep
Animation Prev Timestep

Time
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
DDT - CL6-1A
Run Name

Data Input Instructions:
1. Enter value directly, or
2. Calculate by filling in grey cells below. (To use the 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	79.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.1685	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

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

4. BIODEGRADATION

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

5. GENERAL

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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

	Width* (ft)	Conc. (ug/L)*
1		
2		
3	1000	0.06
4		
5		

Source Halflife (see Help)

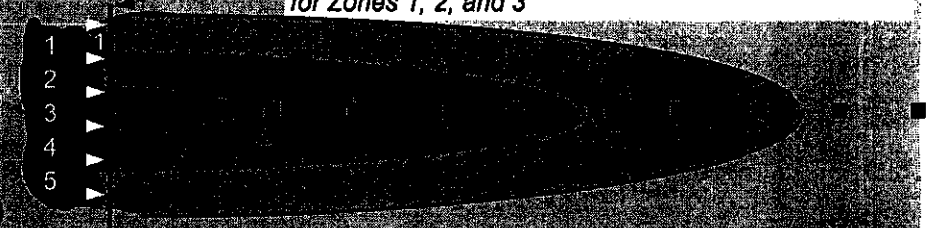
Infinite	Infinite	(yr)

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 at Monitor Wells. If No Data Leave Blank or Enter "0"

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

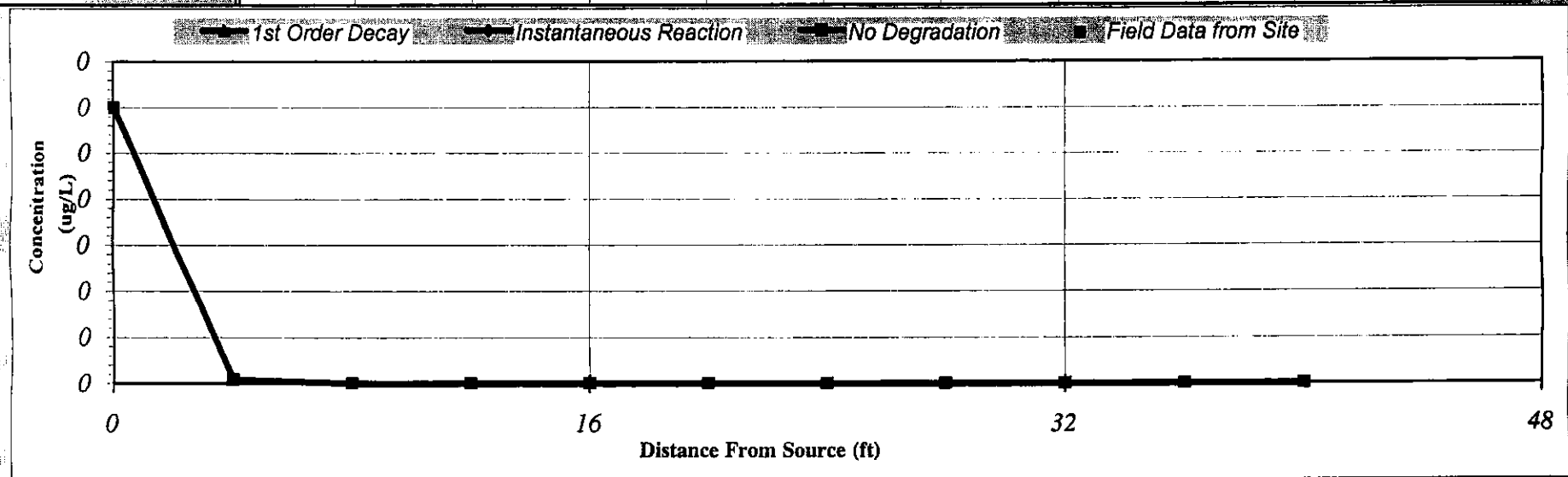
Recalculate This Sheet

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	4	8	12	16	20	24	28	32	36	40
No Degradation	0.060	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
DDT - MW-47
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

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

4. BIODEGRADATION

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

5. GENERAL

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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

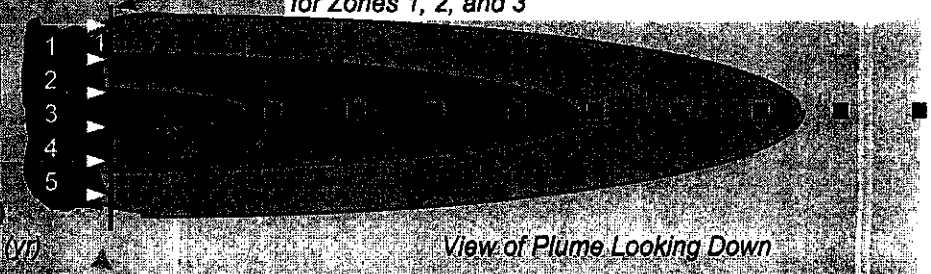
Source Zones

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

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	167	334	501	668	835	1002	1169	1336	1503	1670

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

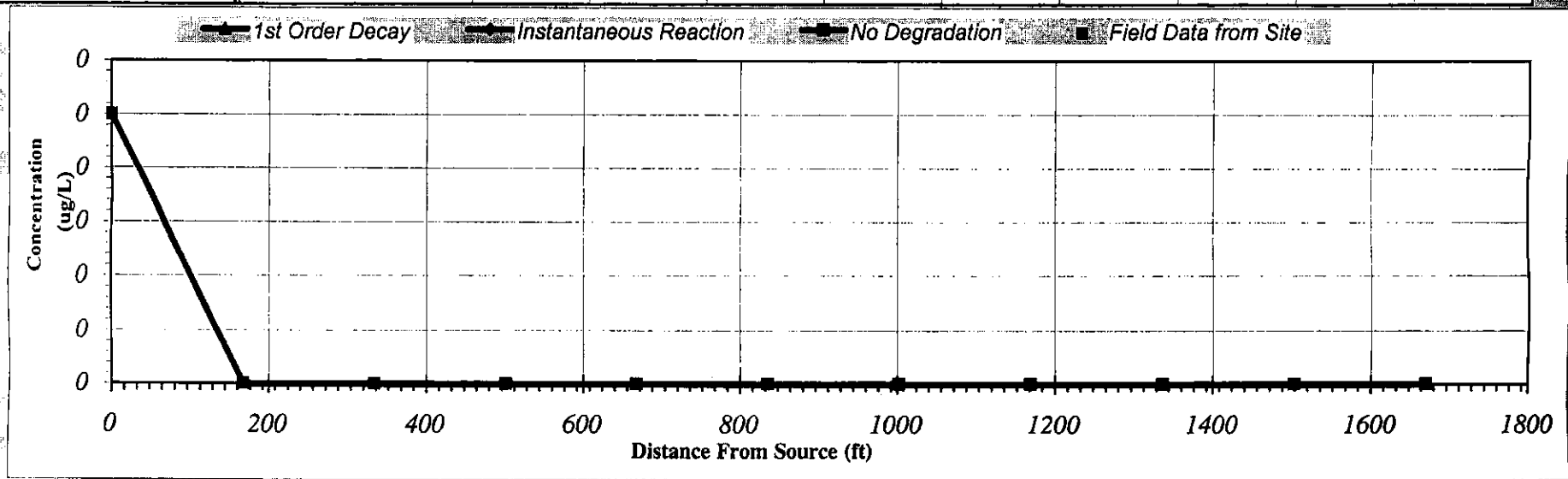
Paste Example Dataset

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

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

Distance from Source (ft)

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



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
DDT - SW1-5
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

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

4. BIODEGRADATION

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

5. GENERAL

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

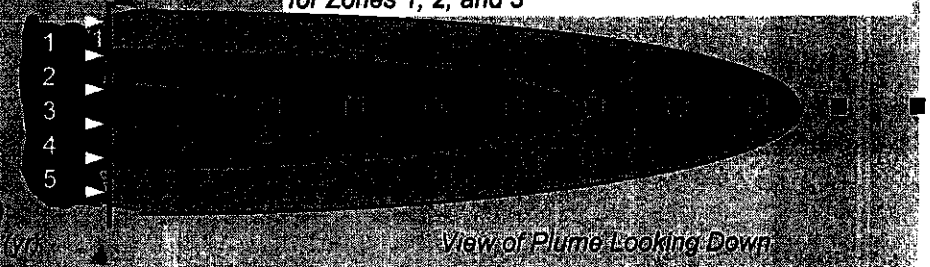
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

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

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



View of Plume Looking Down

Source Halflife (see Help)

Infinite	Infinite	(yr)

Inst. React. 1st Order

Soluble Mass infinite (Kg)

In Source NAPL, Soil

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

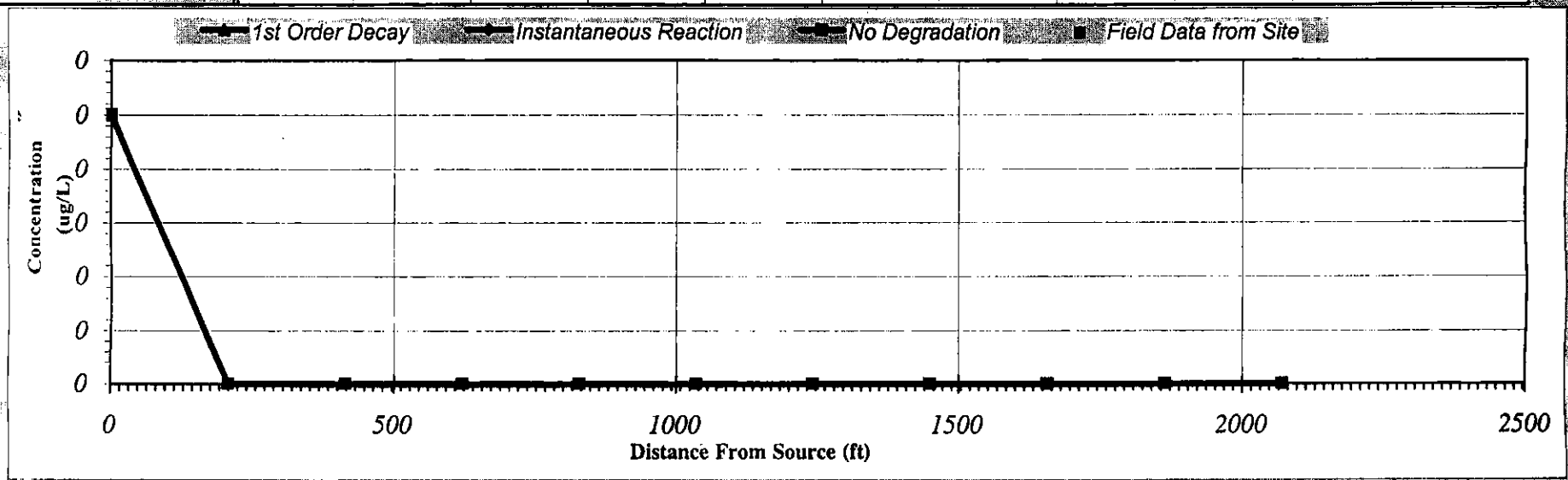
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	207	414	621	828	1035	1242	1449	1656	1863	2070
No Degradation	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
DDT - SW4-4
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	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	19759.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

Modeled Area Length*	890	(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	0.06

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	89	178	267	356	445	534	623	712	801	890

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

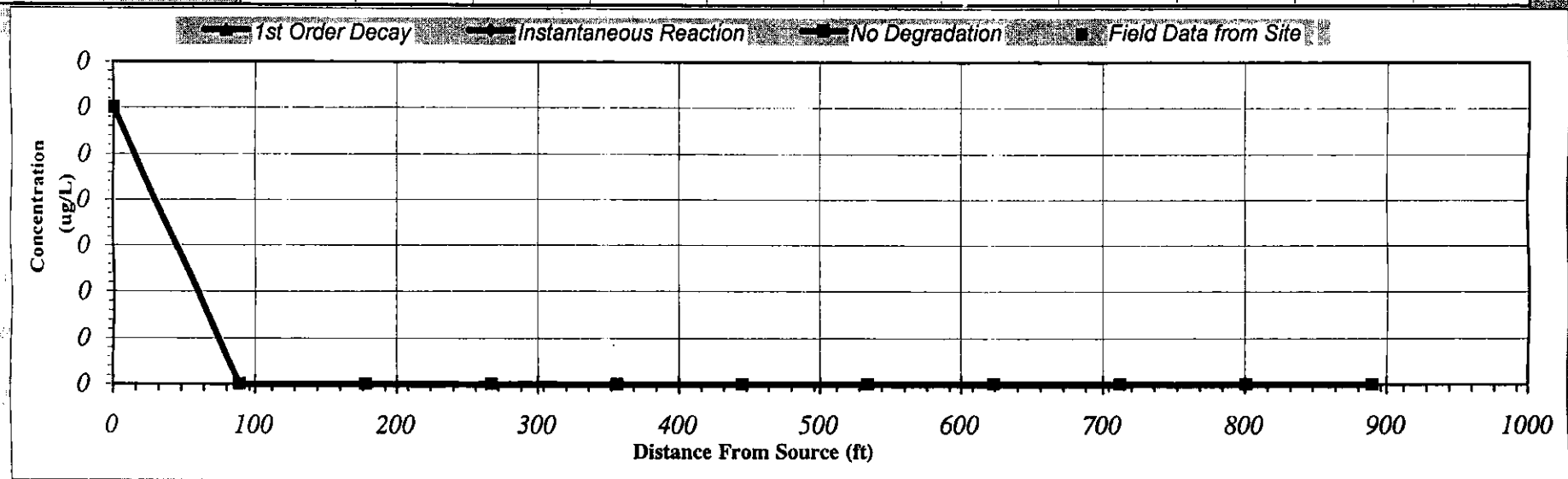
Recalculate This Sheet

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	0.060	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
DDT - MW-2C1-02
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	287.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.1466	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	23711.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
Fraction Organic Carbon	foc	7.2E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.0098

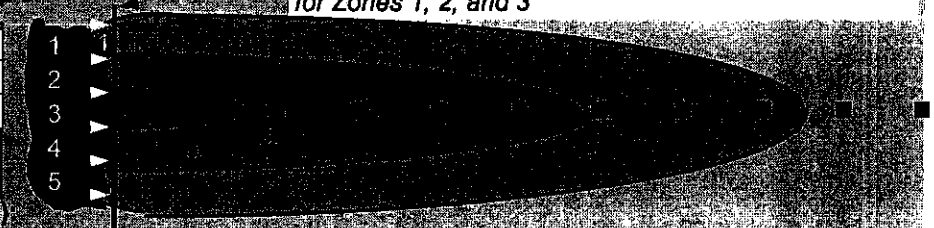
Source Half-life (see Help)

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"

Dist. 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

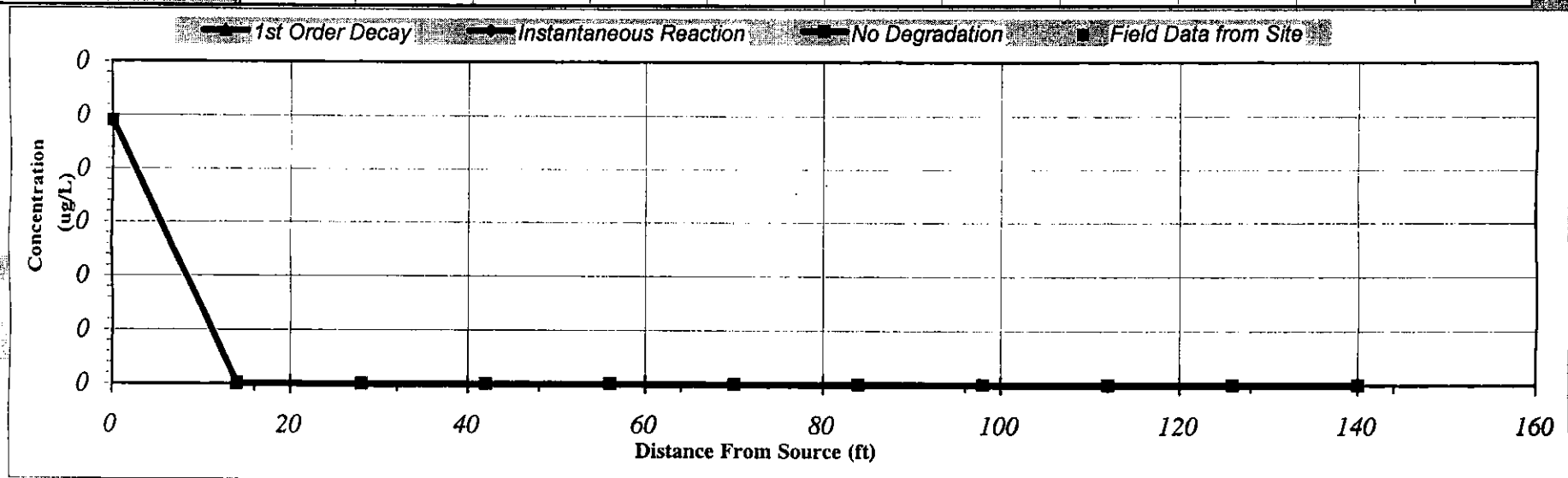
Recalculate This Sheet

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	0.010	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
DDT - MW-2C1-03
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	290.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.148	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	23711.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

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

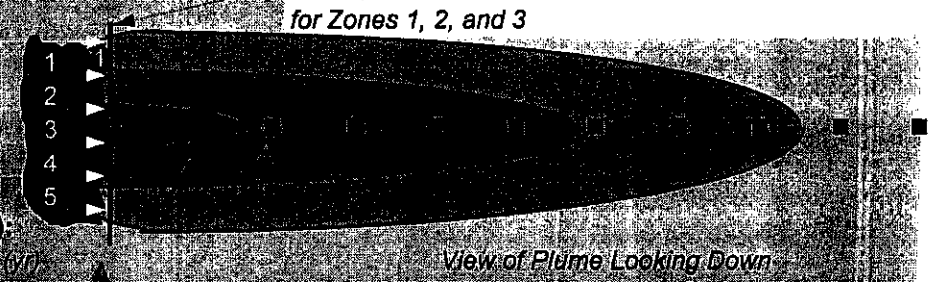
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

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

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

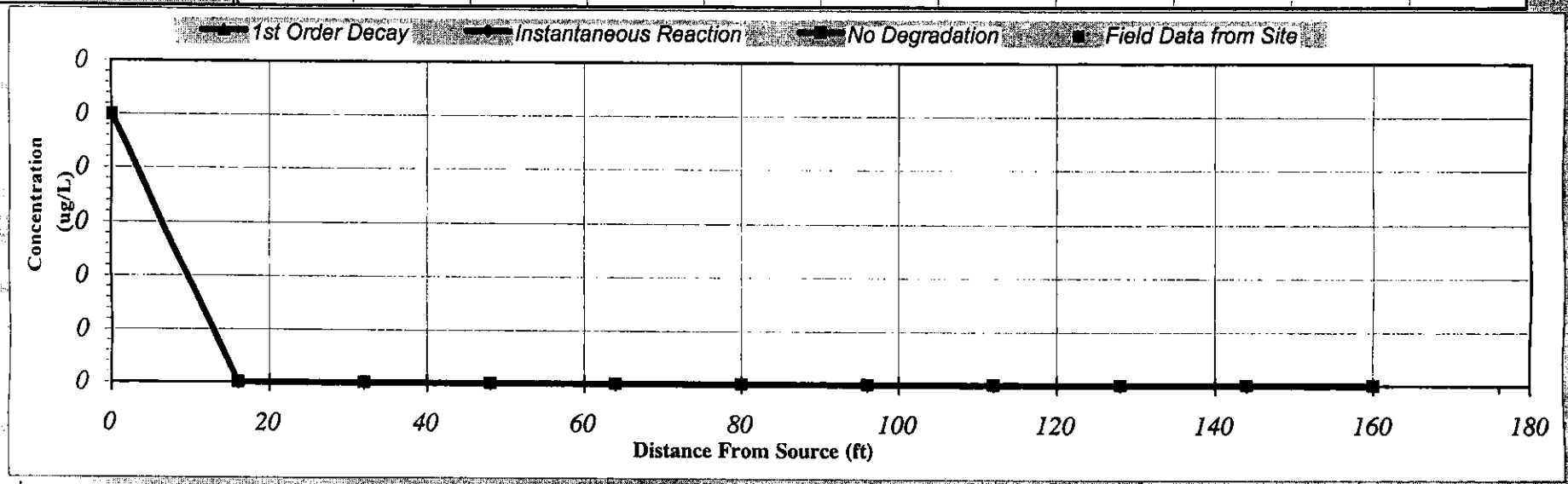
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	16	32	48	64	80	96	112	128	144	160
No Degradation	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 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
DDT - MW-2C1-04
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	268.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.137	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

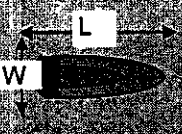
Retardation Factor*	R	23711.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

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



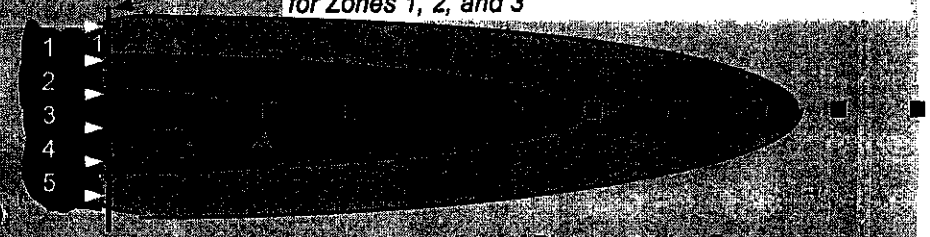
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.042

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



View of Plume Looking Down

Source Halflife (see Help)

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

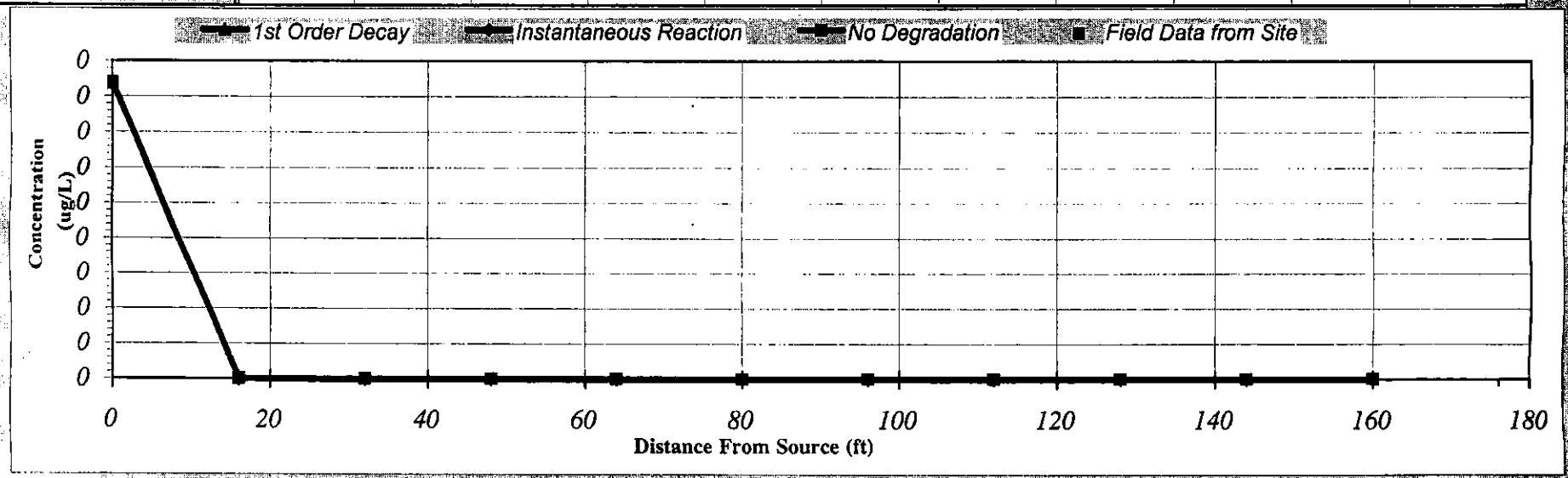
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	16	32	48	64	80	96	112	128	144	160
No Degradation	0.042	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
DDT - MW-2C1-05
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	297.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.152	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	23711.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

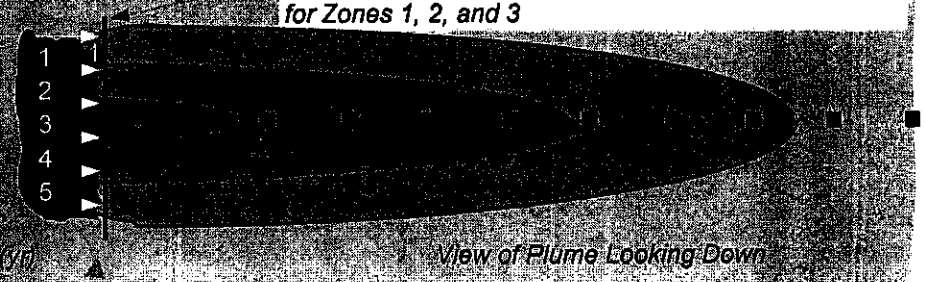
Source Zones

Width* (ft)	Conc. (ug/L)*
1000	0.046

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	16	32	48	64	80	96	112	128	144	160

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

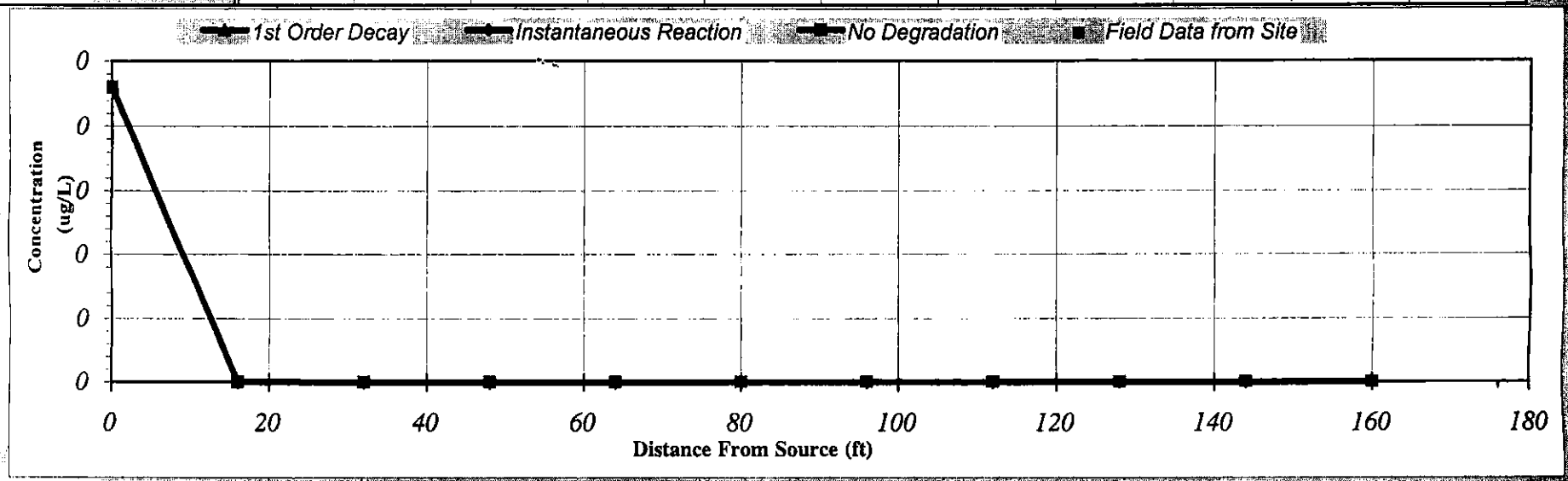
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	16	32	48	64	80	96	112	128	144	160
No Degradation	0.046	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
DDT - MW-2C1-06
Run Name

Data Input Instructions:

115 — 1. Enter value directly, or
or — 2. Calculate by filling in array
5.02 — cells below (if blank, enter formulas, hit button below)
Variable* — Data used directly in model
20 — Value calculated by model (Don't enter any data)

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	23711.6	(-)
or		or	
Soil Bulk Density*	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	7.2E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones	Width* (ft)	Conc. (ug/L)*
1		
2		
3	1000	0.016
4		
5		

Source Halflife (see Help)

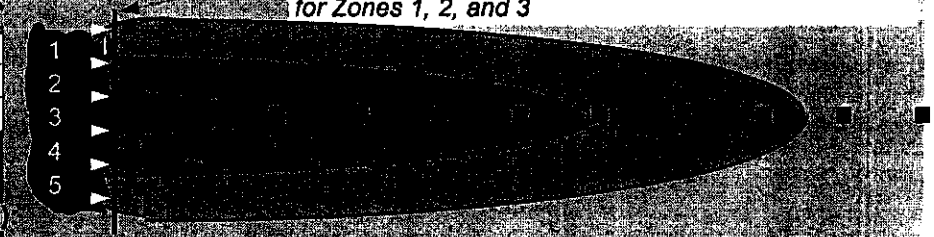
Infinite	Infinite	(yr)

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
If No Data Leave Blank or Enter "0"

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

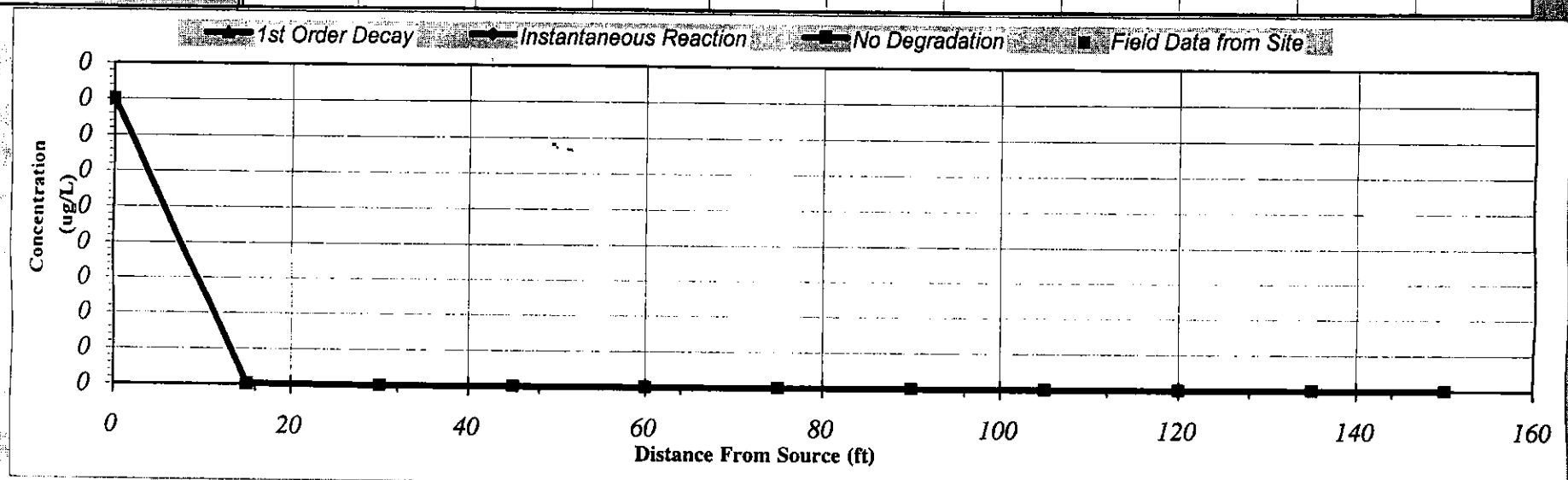
Recalculate This Sheet

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	15	30	45	60	75	90	105	120	135	150
No Degradation	0.016	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
DDT - MW-47
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	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	20747.8	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

Modeled Area Length*	1390	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

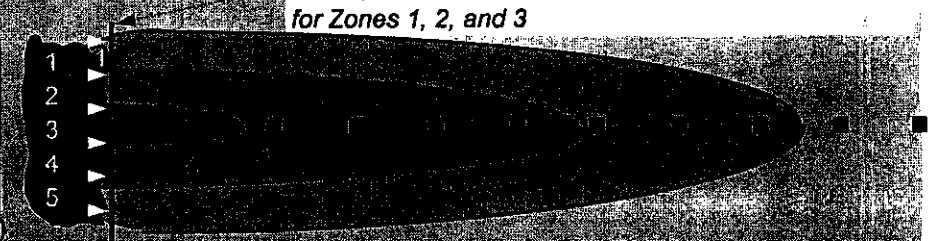
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

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

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	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

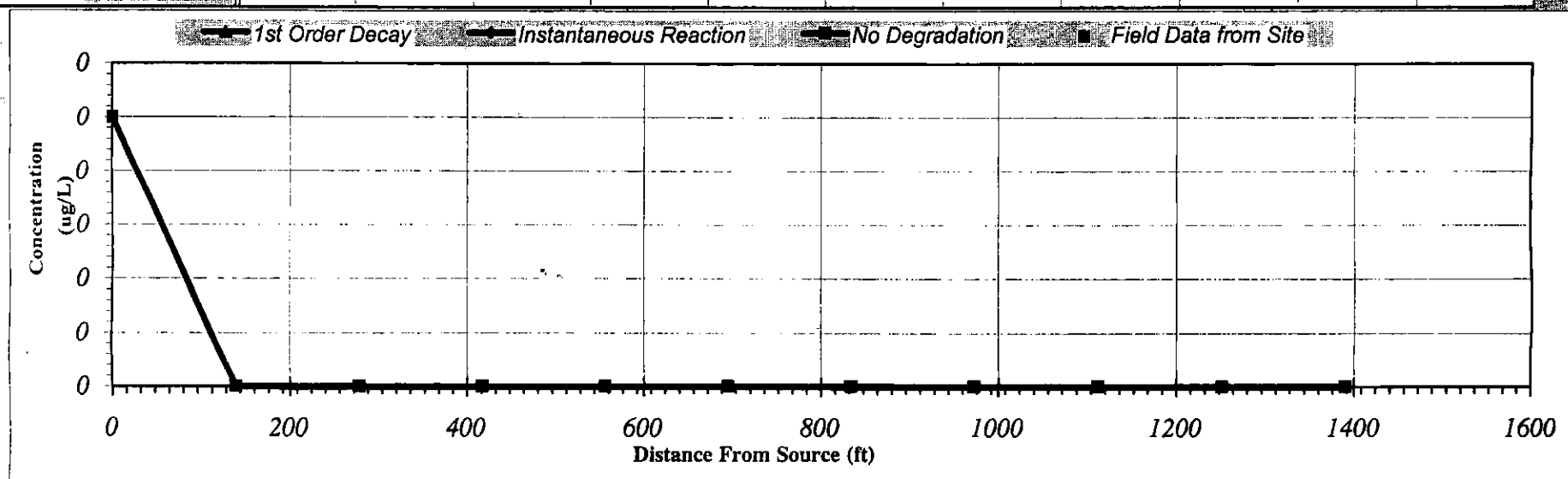
Recalculate This Sheet

Paste Example Dataset

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

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

	Distance from Source (ft)										
TYPE OF MODEL	0	139	278	417	556	695	834	973	1112	1251	1390
No Degradation	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - L
DDT - SW1-5
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	95.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0488	(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	15149.5	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	6.8E+5	(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*	880	(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)
1		
2		
3	1000	0.01
4		
5		

Source Half-life (see Help)

Infinite	Infinite	(yr)

Inst. 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

Distance 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

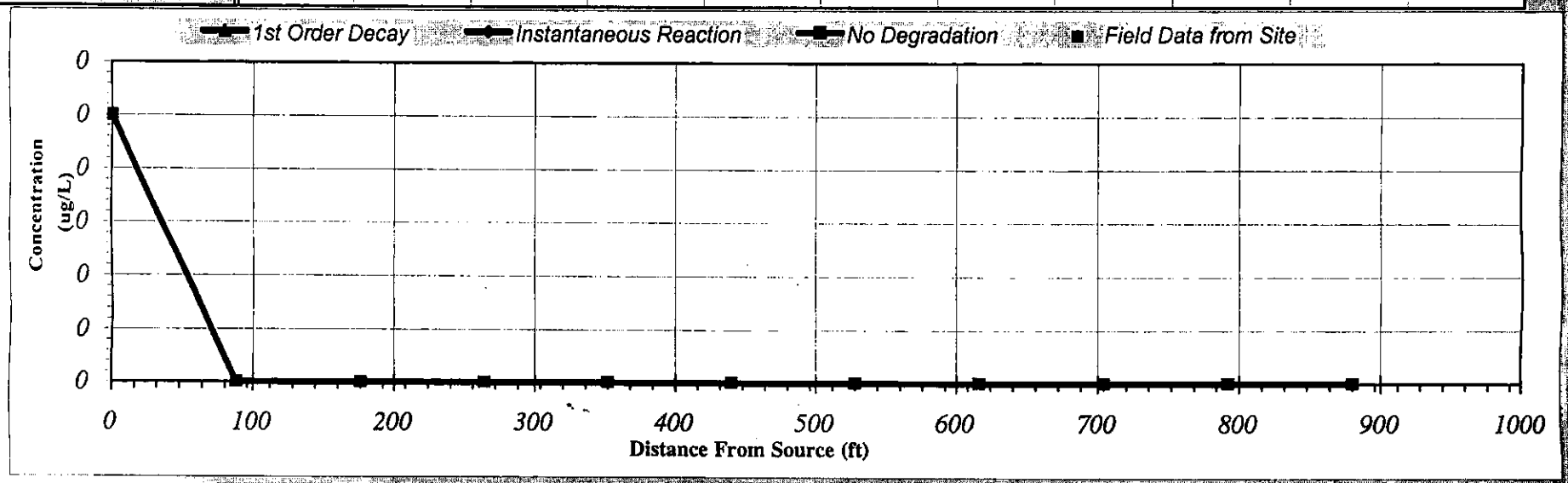
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	88	176	264	352	440	528	616	704	792	880
No Degradation	0.010	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
Ar - CL6-3
Run Name

Data Input Instructions

115 or 0.02 — Variable 20

1. Enter value directly, or
2. Calculate (within the grey cells below, or using formulas in column below)
3. Interface directly in model
4. Alternate calculation method (Contact developers)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	3.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0076	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	10.0	(ft)
Transverse Dispersivity*	alpha y	1.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length*	Lp*	170	(ft)

3. ADSORPTION

Retardation Factor*	R	95.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+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*	170	(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	2000

Source Half-life (see Help)

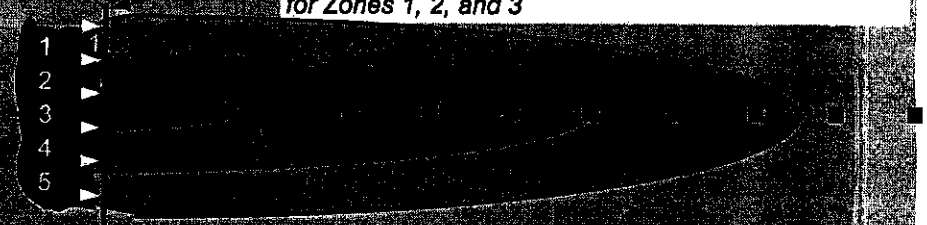
Infinite	Infinite	(yr)

Inst. Reaction: 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)	Concentration (mg/L)
0	
17	
34	
51	
68	
85	
102	
119	
136	
153	
170	

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
Ar - CL6-4
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	7.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	I	0.0168	(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	95.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+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*	450	(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	948

Source Halflife (see Help):

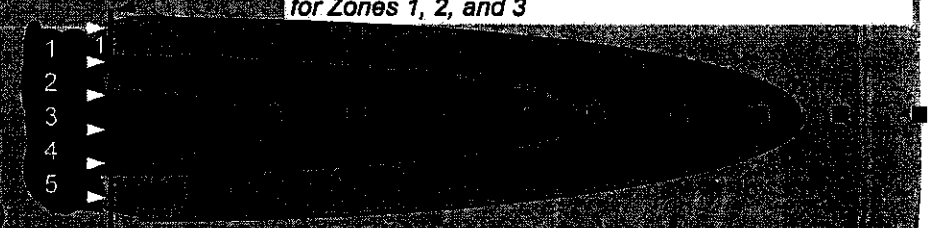
Infinite	Infinite	(yr)

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	45	90	135	180	225	270	315	360	405	450

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

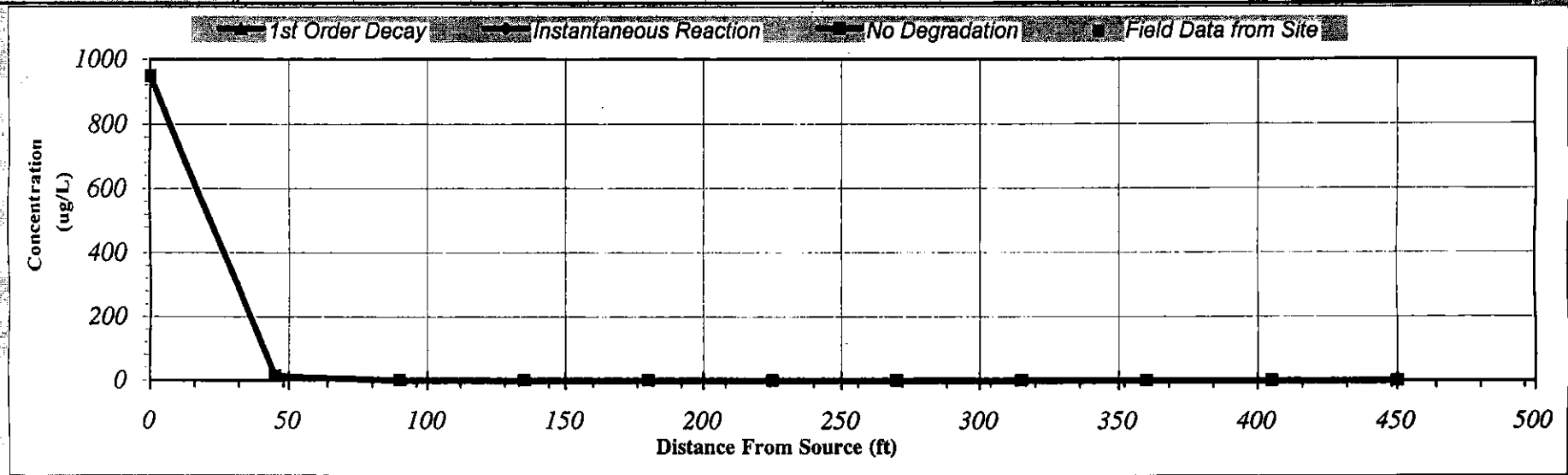
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	45	90	135	180	225	270	315	360	405	450
No Degradation	948.000	14.073	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - IR
Ar - CL6-8
Run Name

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

115 or 0.02

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	95.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(Kg/l)
Partition Coefficient	Koc	1.9E+1	(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*	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	158

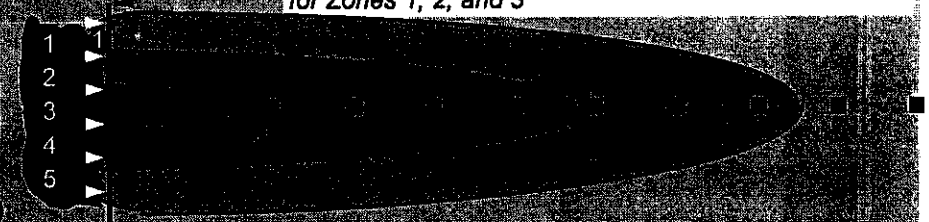
Source Half-life (see Help)

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"

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

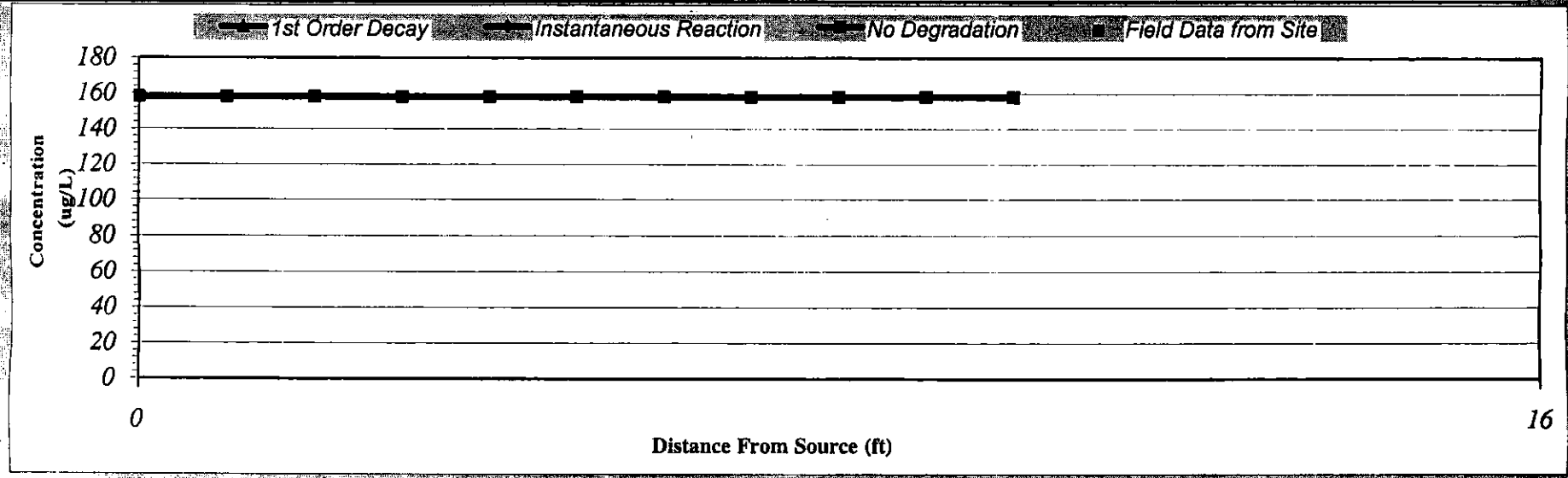
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	1	2	3	4	5	6	7	8	9	10
No Degradation	158.000	158.000	158.000	158.000	158.000	158.000	158.000	158.000	158.000	158.000	158.000
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
Ar - SW4-4
Run Name

Data Input Instructions:

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	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	95.2	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	1.9E+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

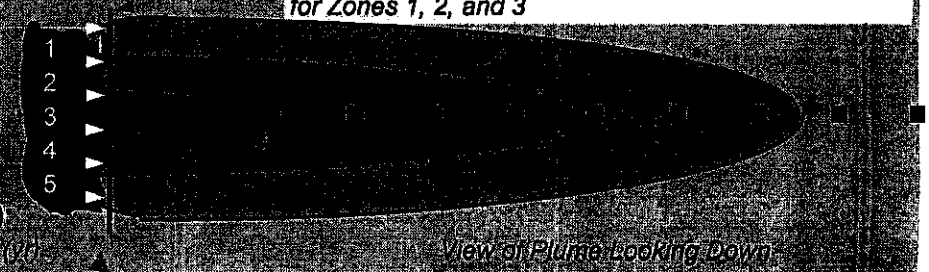
6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones

Width (ft)	Conc. (ug/L)
1000	166

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	89	178	267	356	445	534	623	712	801	890

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

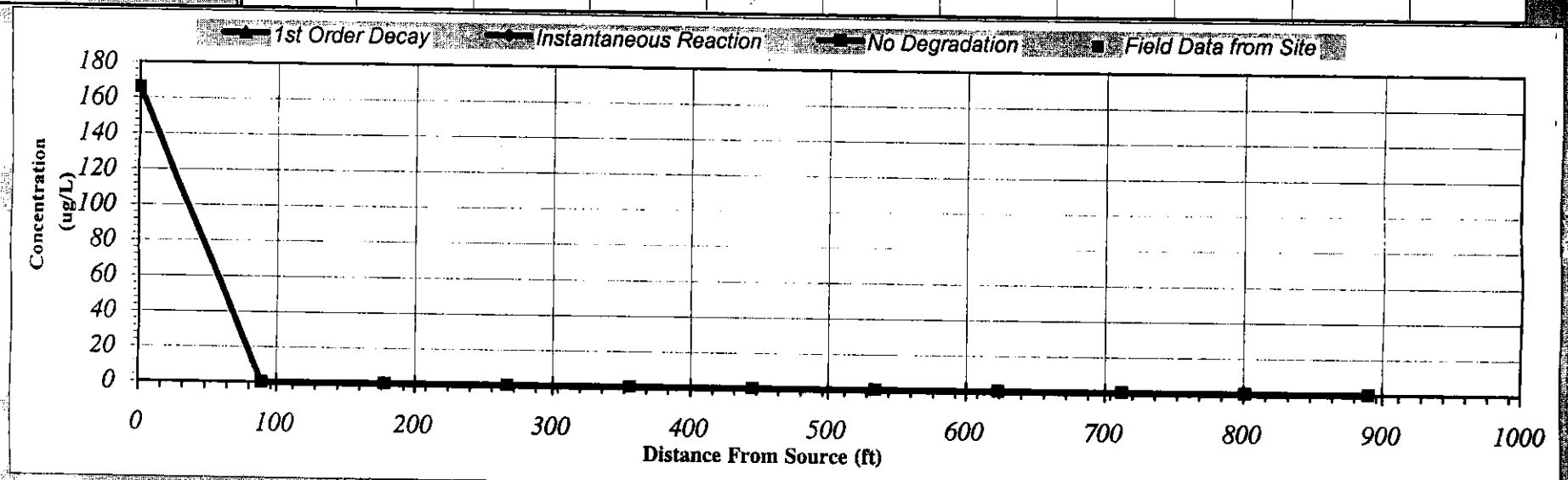
Recalculate This Sheet

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	166.000	0.063	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
Ba - CL1-1
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: 20 — Data used directly in model. Value calculated by model. (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	11.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0257	(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	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient*	Koc	2.8E+3	(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*	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. (ug/L)*
1000	417

Source Halflife (see Help)

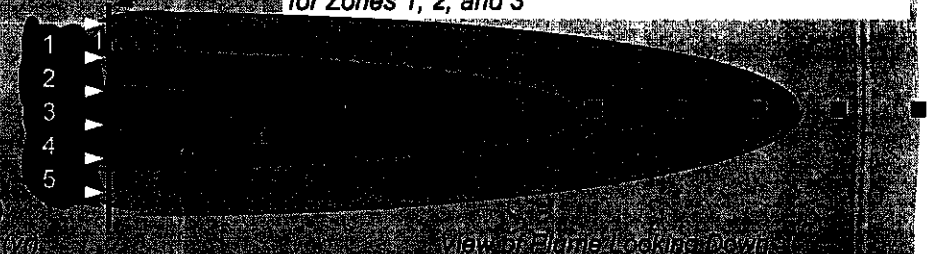
Infinite	Infinite	(yr)

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	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

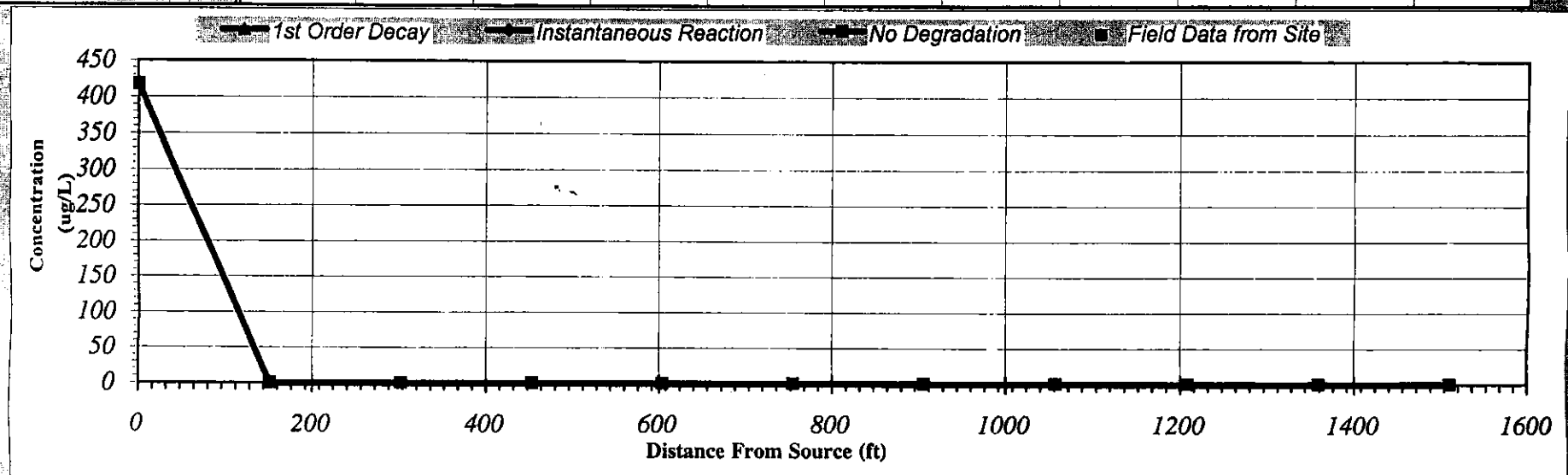
Recalculate This Sheet

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	755	906	1057	1208	1359	1510
No Degradation	417.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Ba - CL5-2
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	125.0	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0423	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	2.5	(ft)
Transverse Dispersivity*	alpha y	0.2	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	30	(ft)

3. ADSORPTION

Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(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*	30	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time	100	(yr)

L
W

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

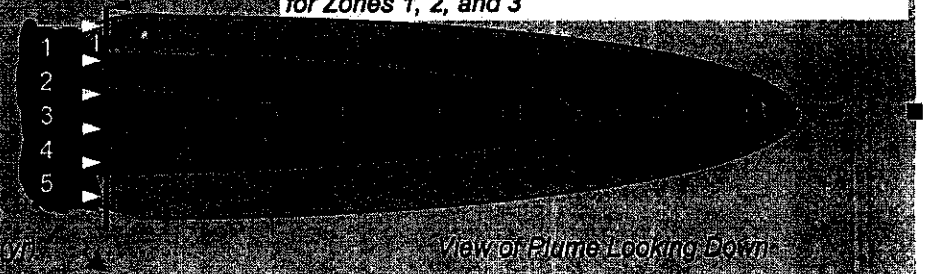
Source Zones

Width* (ft)	Conc. (ug/L)
1000	461

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	3	6	9	12	15	18	21	24	27	30

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

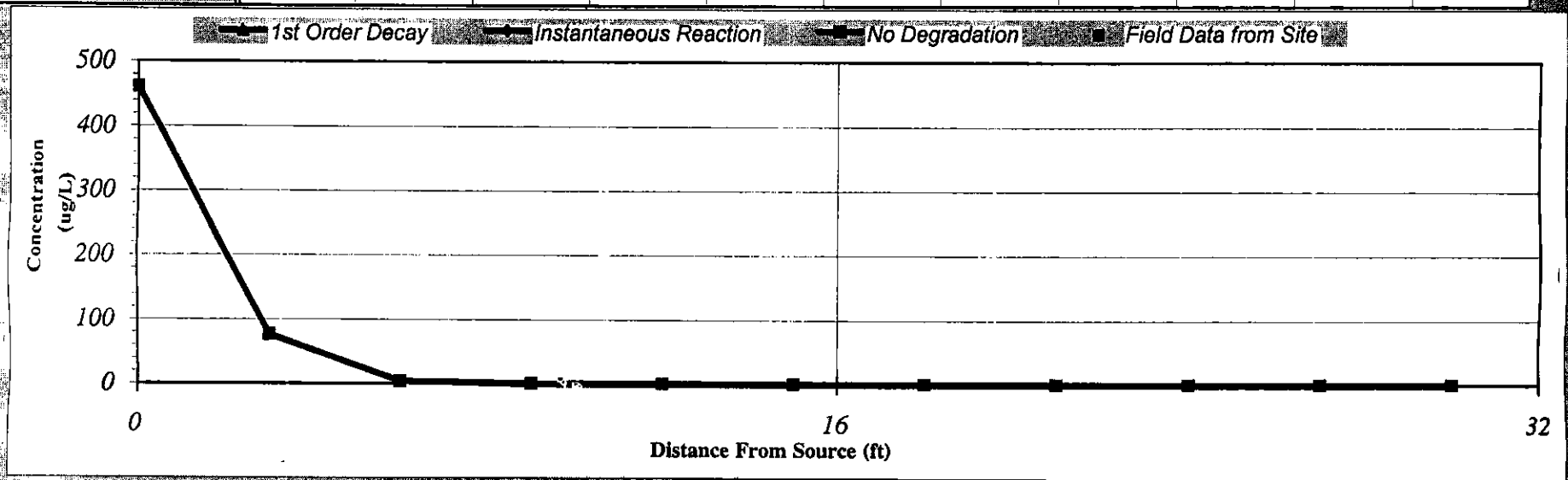
Recalculate This Sheet

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	3	6	9	12	15	18	21	24	27	30
No Degradation	461.000	75.920	3.972	0.035	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 / Ba - CL6-1

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	71.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	I	0.1515	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life*	t1/2		(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width (ft)	Conc. (ug/L)
1000	625

Source Half-life (see Help)

Infinite	Infinite

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

7. FIELD DATA FOR COMPARISON

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

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

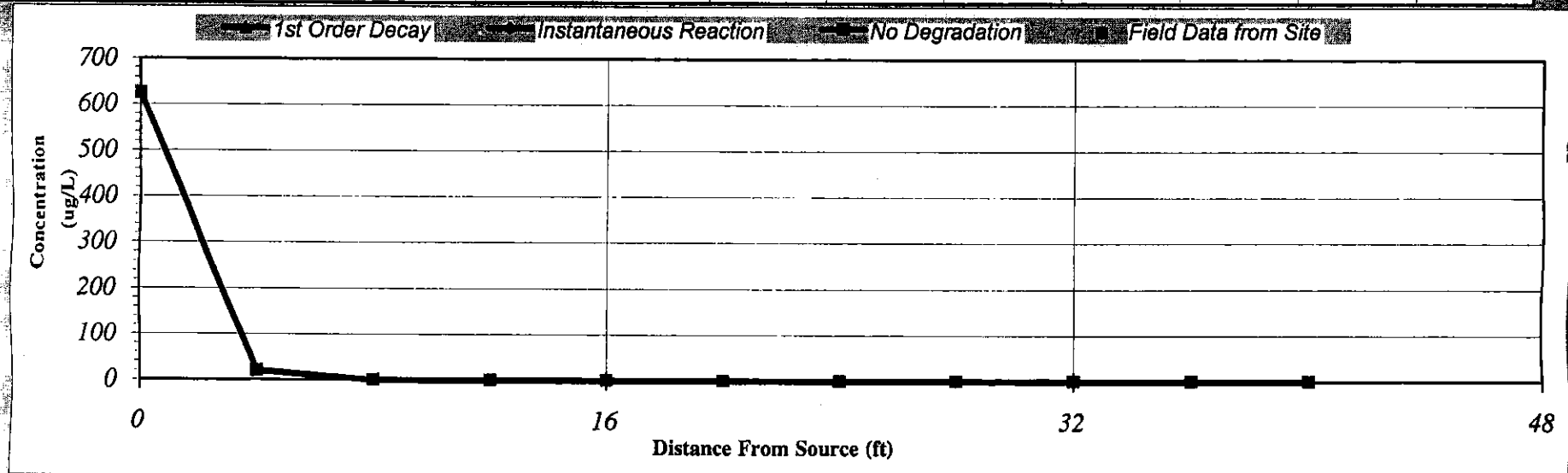
Recalculate This Sheet

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	4	8	12	16	20	24	28	32	36	40
No Degradation	625.000	19.834	0.020	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
Ba - CL6-7
Run Name

Data Input Instructions:
1. Enter value directly or
2. Calculate by filling in green 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	85.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	I	0.181	(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	Lo	10	(ft)

3. ADSORPTION

Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(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	361

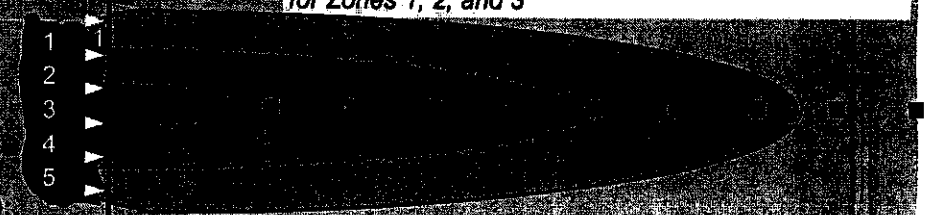
Source Half-life (see Help)

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

7. FIELD DATA FOR COMPARISON

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

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

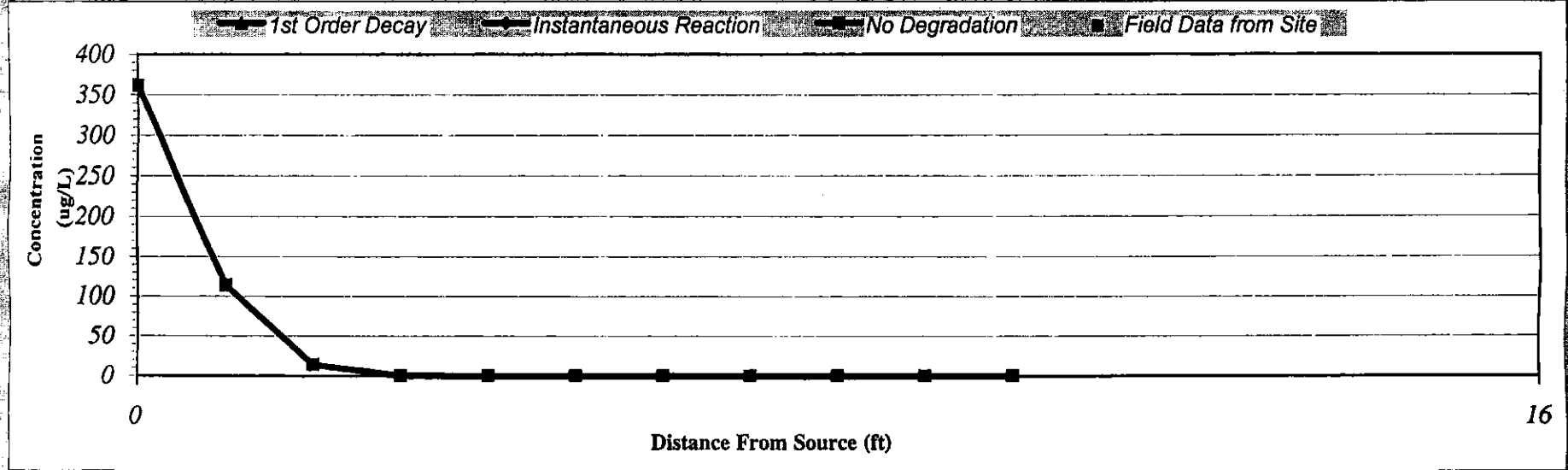
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	1	2	3	4	5	6	7	8	9	10
No Degradation	361.000	113.878	13.640	0.382	0.002	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

Ba - CL6-8

Run Name

Data Input Instructions

115 — *1. Enter value directly, or*

or — *2. Calculate by clicking on the cells below the arrows*

Formulas: Hit button on left

Variable — Data used directly in model

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(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*	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

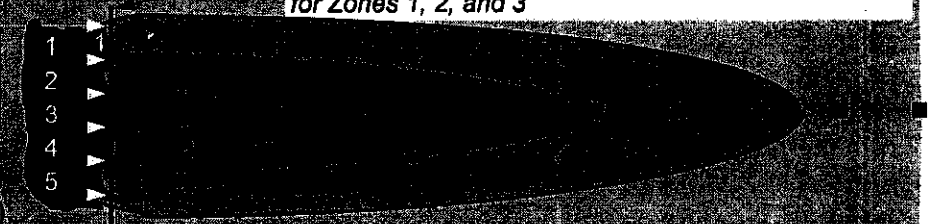
Width (ft)	Conc. (ug/L)
1000	372

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

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	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

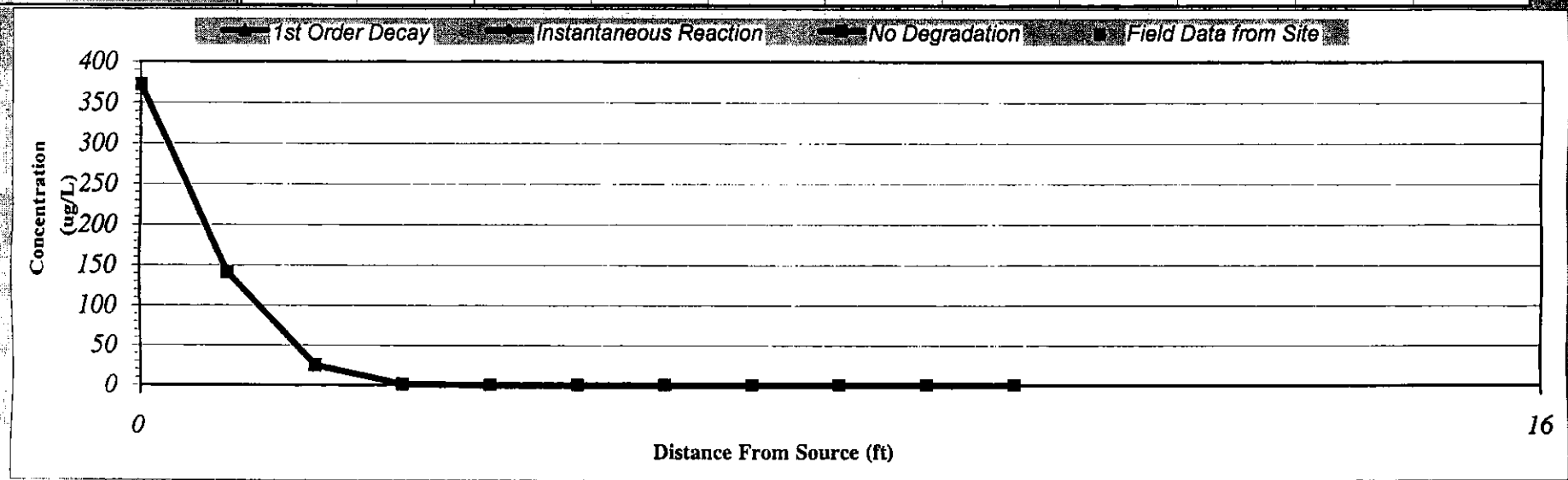
Recalculate This Sheet

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	372.000	140.735	24.608	1.289	0.018	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
Ba - SW1-10
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	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	13601.0	(-)
or		or	
Soil Bulk Density	mo	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		(per yr)
or		or	
Solute Half-Life	f-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)

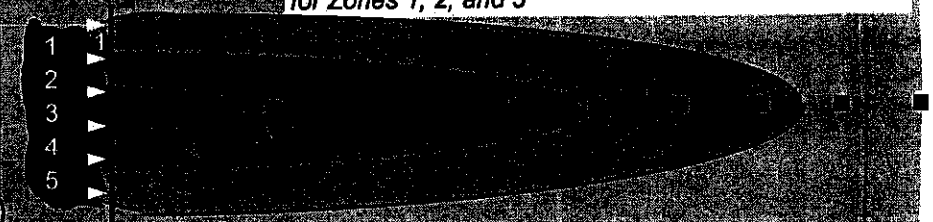
Source Zones:

Width* (ft)	Conc. (ug/L)
1000	240

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

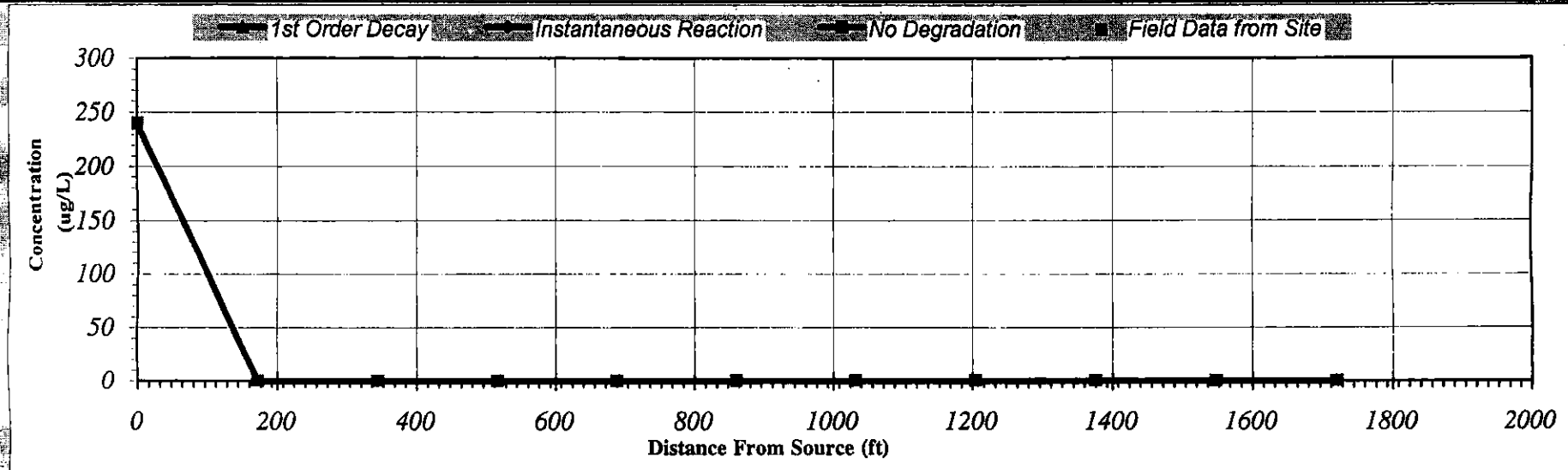
Recalculate This Sheet

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	240.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Ba - SW4-6
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

Retardation Factor	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(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*	790	(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	259

Source Halflife (see Help)

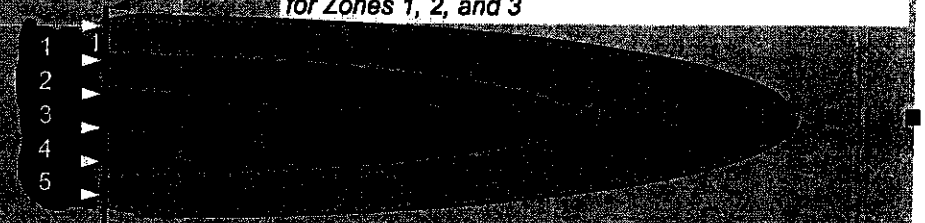
Infinite	Infinite	(yr)

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	79	158	237	316	395	474	553	632	711	790

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

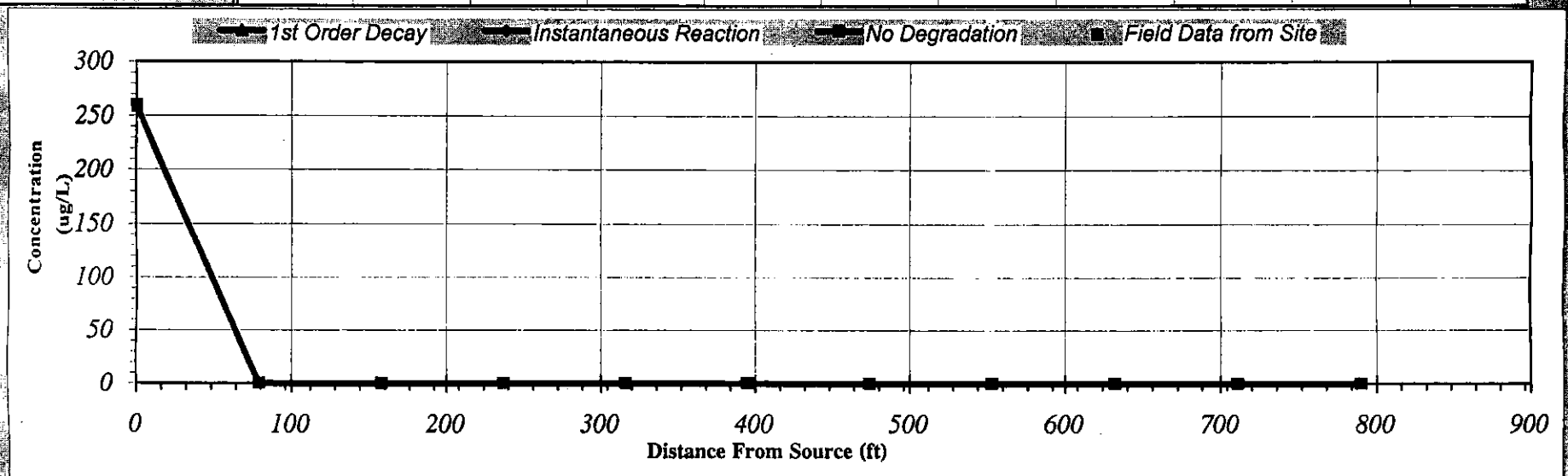
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance From Source (ft) 0	79	158	237	316	395	474	553	632	711	790
No Degradation	259.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — Version 1.4

Painesville - R
Ba - SW4-8
Run Name

Data Input Instructions:
1. Enter value directly in
2. Calculate by filling in only
cell(s) below (for restore
formulas, hit button below)
Variable — Data used directly in model
Value calculated by model
Port (enter any data)

115
or
0.02

1. HYDROGEOLOGY

Seepage Velocity*	Vs	0.6	(ft/yr)
or		or	
Hydraulic Conductivity*	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.00014	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	15.0	(ft)
Transverse Dispersivity*	alpha y	1.5	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	350	(ft)

3. ADSORPTION

Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.17	(kg/l)
Partition Coefficient	Koc	2.8E+3	(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*	350	(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	232

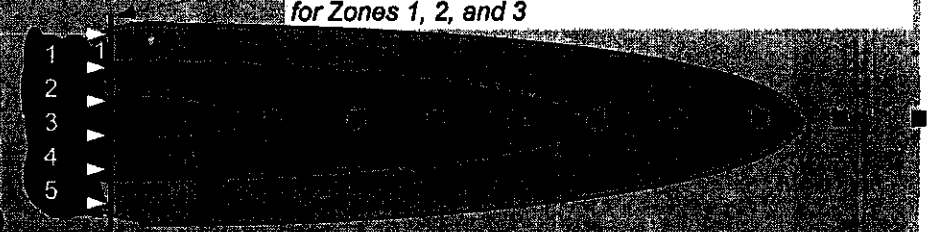
Source Half-life (see Help)

Inst. Reaction	1st Order
Infinite	Infinite

(yr)

Soluble Mass In Source NAPL Soil: infinite (Kg)

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



View of Plume Looking Down

7. FIELD DATA FOR COMPARISON

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

Distance from Source (ft)	0	35	70	105	140	175	210	245	280	315	350
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

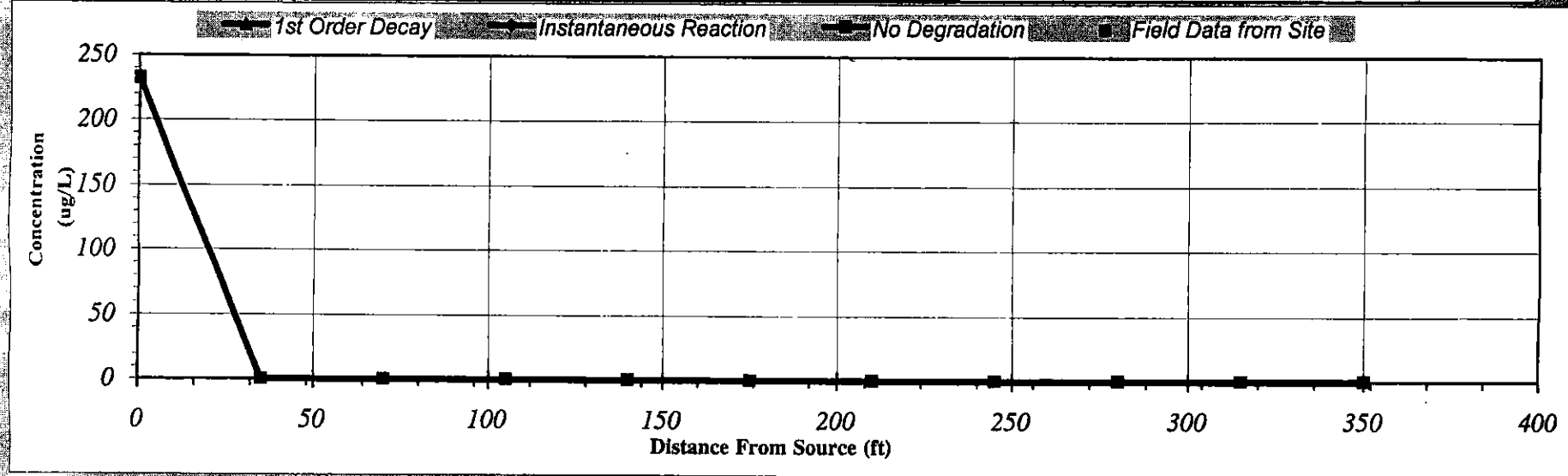
Recalculate This Sheet

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	35	70	105	140	175	210	245	280	315	350
No Degradation	232.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — Version 1.4

Painesville - R
Ba - SW4-9
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	6.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0151	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	6.9	(ft)
Transverse Dispersivity*	alpha y	0.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	96	(ft)

3. ADSORPTION

Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(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*	96	(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	3660

Source Half-life (see Help)

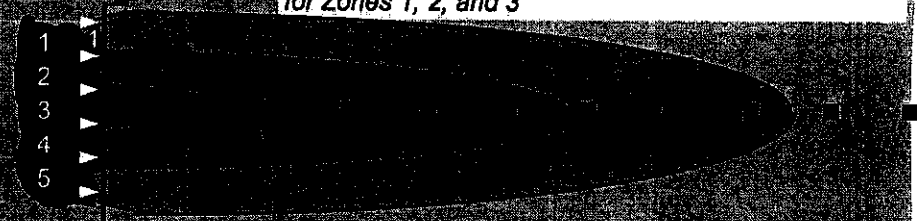
Infinite	Infinite	(yr)

1st 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
If No Data Leave Blank or Enter '0'

Dist. from Source (ft)	0	10	19	29	38	48	58	67	77	86	96
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

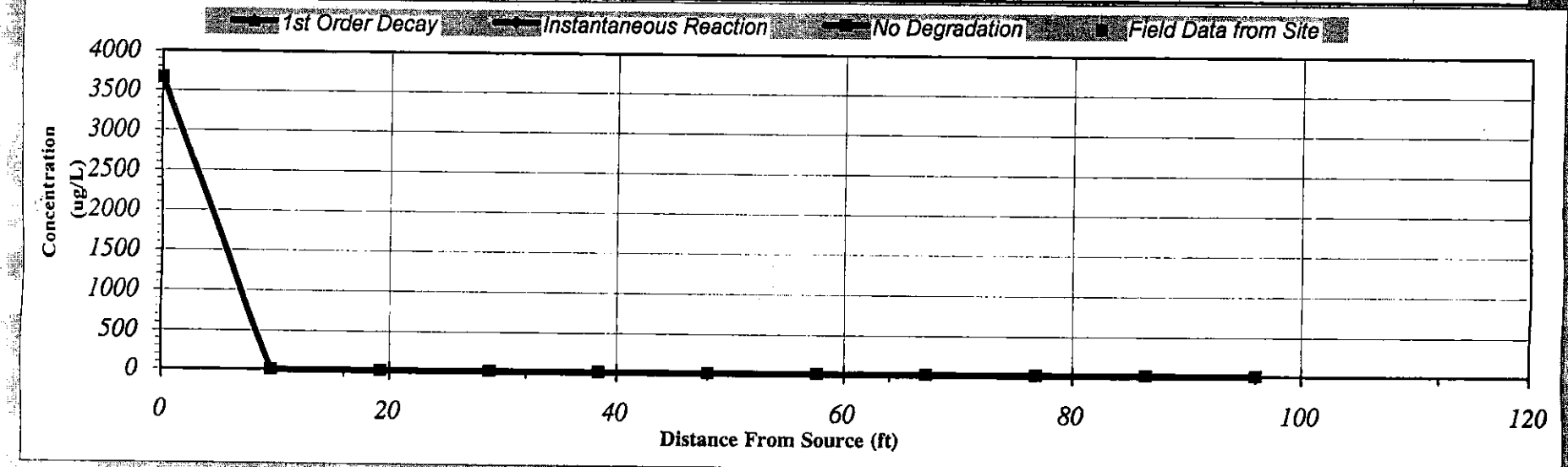
Recalculate This Sheet

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	10	19	29	38	48	58	67	77	86	96
No Degradation	3660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — Version 1.4

Painesville - R
Ba - SW4-10
Run Name

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

115 ft
or
0.021 ft

Variable* — Data used directly in the model
20 — Value calculated by model (Do not enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	102.7	(ft/yr)
or		or	
Hydraulic Conductivity*	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.2315	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	4.8	(ft)
Transverse Dispersivity*	alpha y	0.5	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lo	60*	(ft)

3. ADSORPTION

Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda1		(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*	60	(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	443

Source Half-life (use 1 to 3 p)

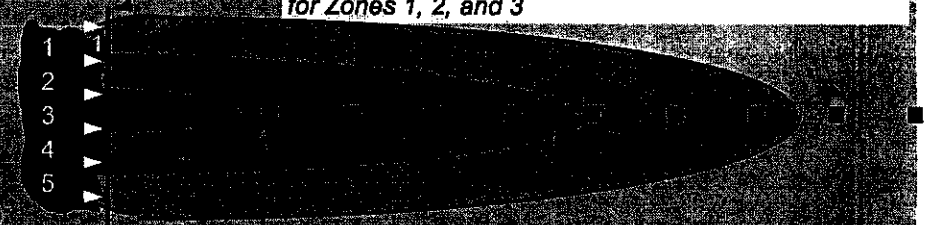
Infinite	Infinite

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

Distance from Source (ft)	Concentration (mg/L)
0	
6	
12	
18	
24	
30	
36	
42	
48	
54	
60	

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

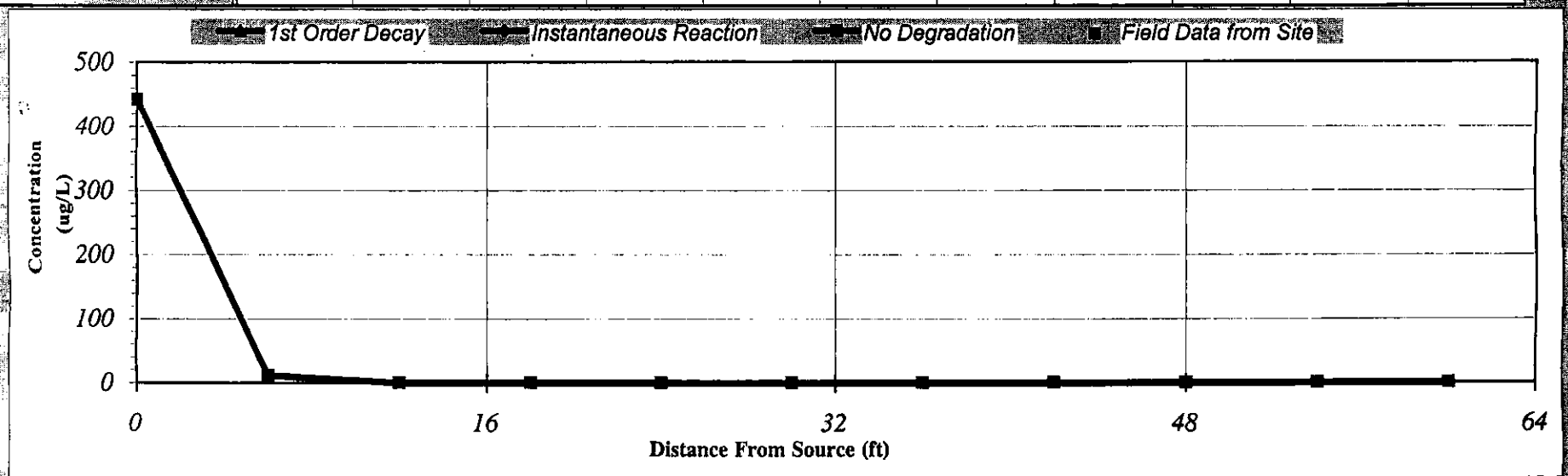
Recalculate This Sheet

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	6	12	18	24	30	36	42	48	54	60
No Degradation	443.000	11.247	0.006	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
Ba - SW7-4
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	523.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	3.6E-03	(cm/sec)
Hydraulic Gradient	i	0.0489	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	20.7	(ft)
Transverse Dispersivity*	alpha y	2.1	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	680	(ft)

3. ADSORPTION

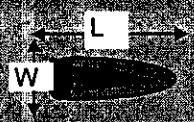
Retardation Factor*	R	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	680	(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	1360.

Source Halflife (see Help)

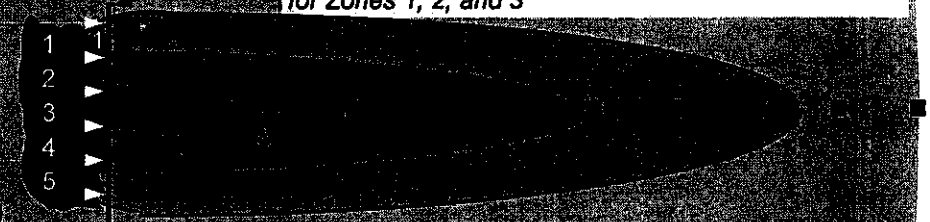
Infinite	Infinite	(yr)

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	68	136	204	272	340	408	476	544	612	680

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

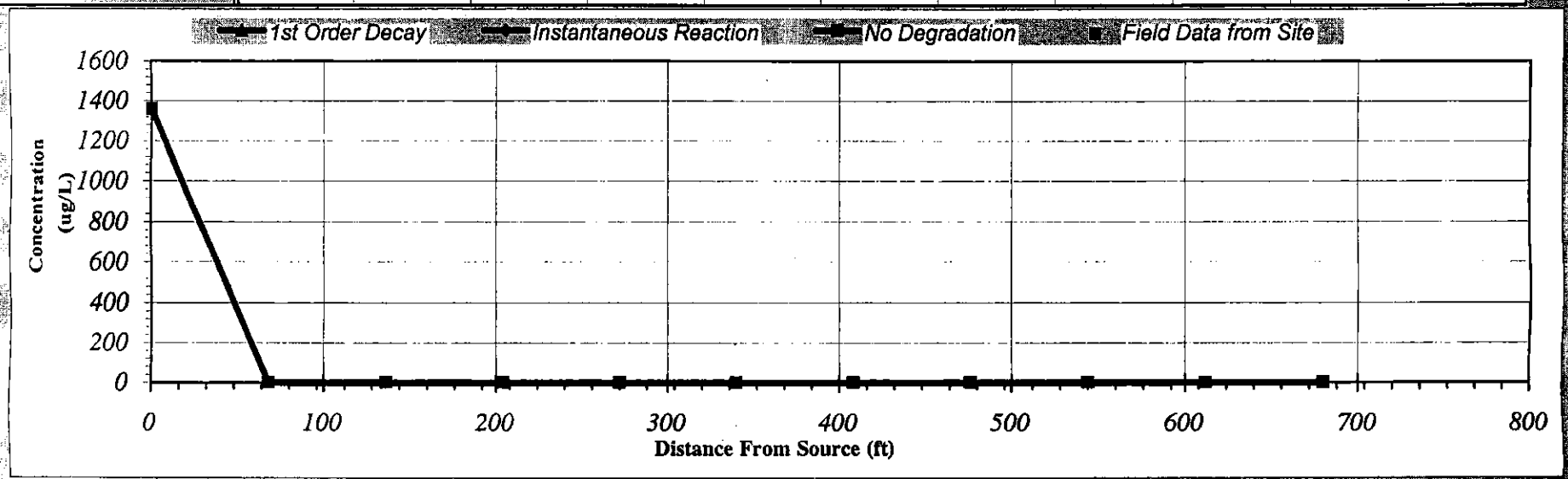
Recalculate This Sheet

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	68	136	204	272	340	408	476	544	612	680
No Degradation	1360.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Ba - SW7-5
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	498.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	3.6E-03	(cm/sec)
Hydraulic Gradient	i	0.0466	(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	13601.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	2.8E+3	(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*	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. (ug/L)*
1000	307

Source Half-life (see Help)

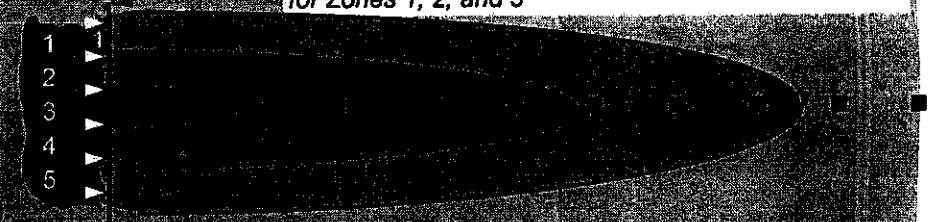
Infinite	Infinite	(yr)

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	14	28	42	56	70	84	98	112	126	140

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

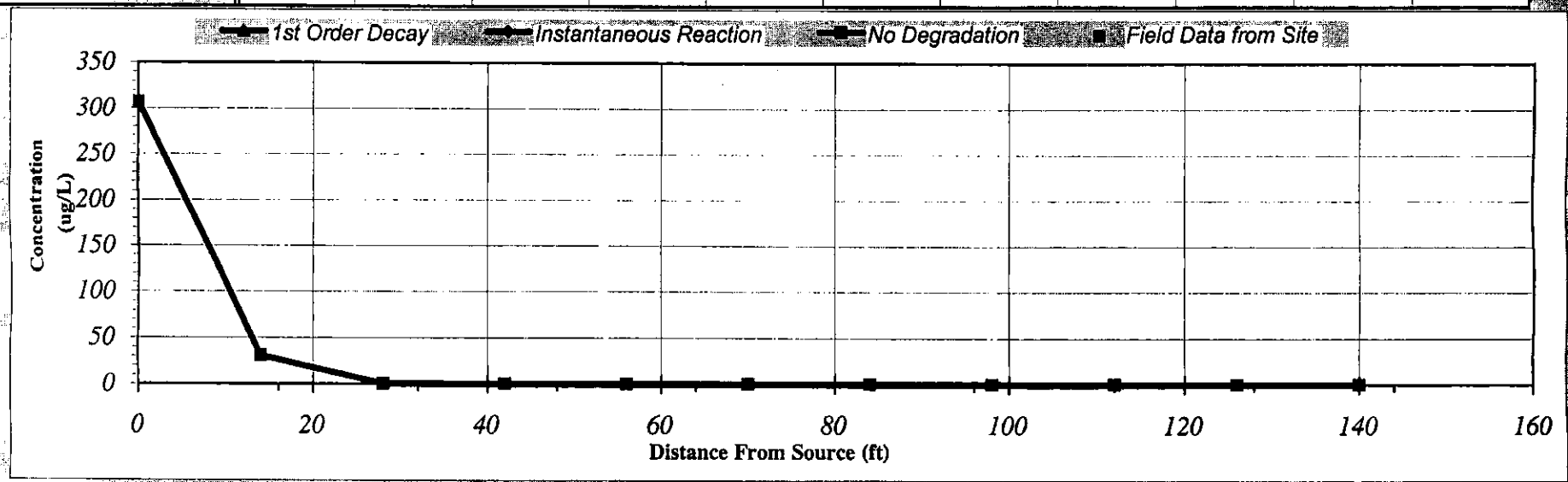
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	14	28	42	56	70	84	98	112	126	140
No Degradation	307.000	30.667	0.389	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
CN - CL6-9
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: 20 — Data used directly in model. 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

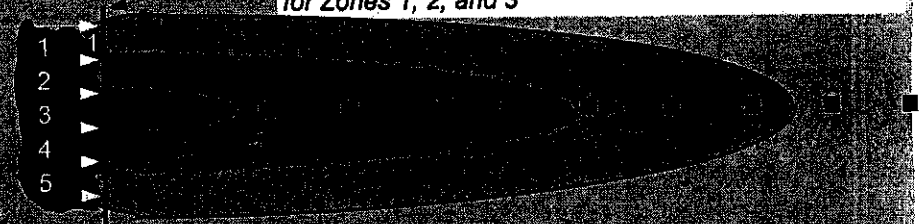
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

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	58.5



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	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

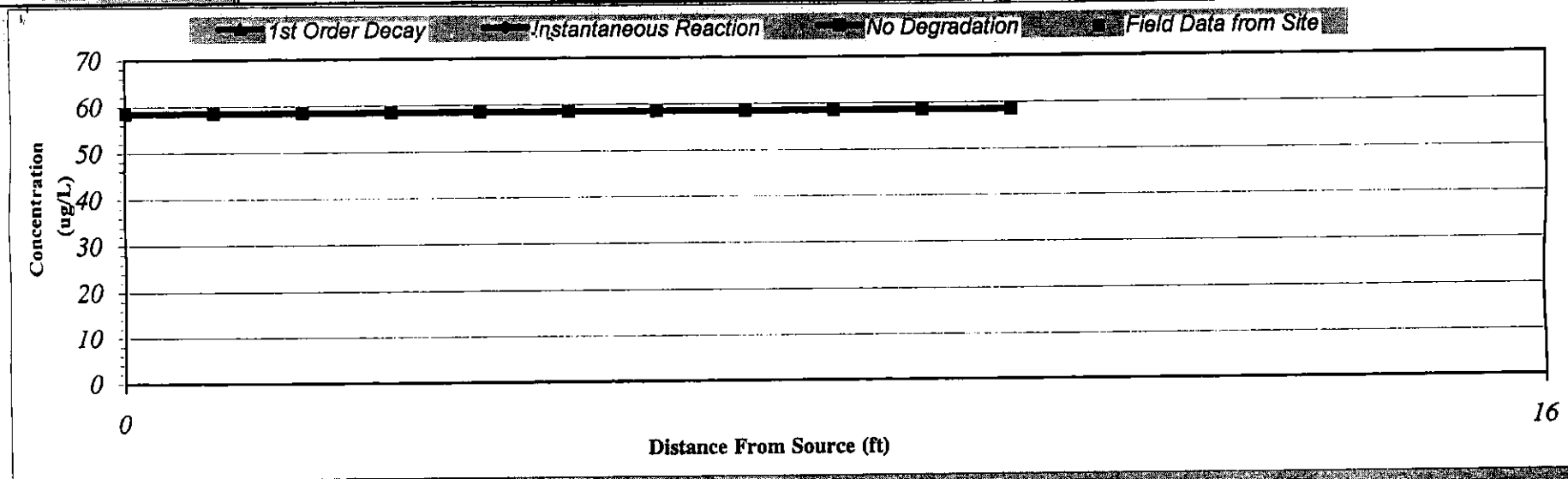
Recalculate This Sheet

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	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 grey cells below. (To restore formulas, hit button below)

115 ft or 0.002 ft

Variable → 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

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones:

	Width* (ft)	Conc (mg/L)
1		
2		
3	1000	34.2
4		
5		

Source Halflife (see Help)

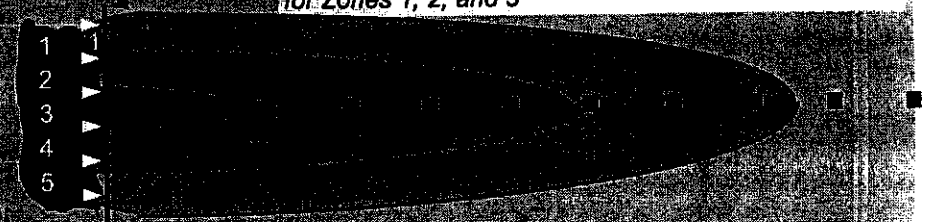
Infinite	Infinite	(yr)

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'

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

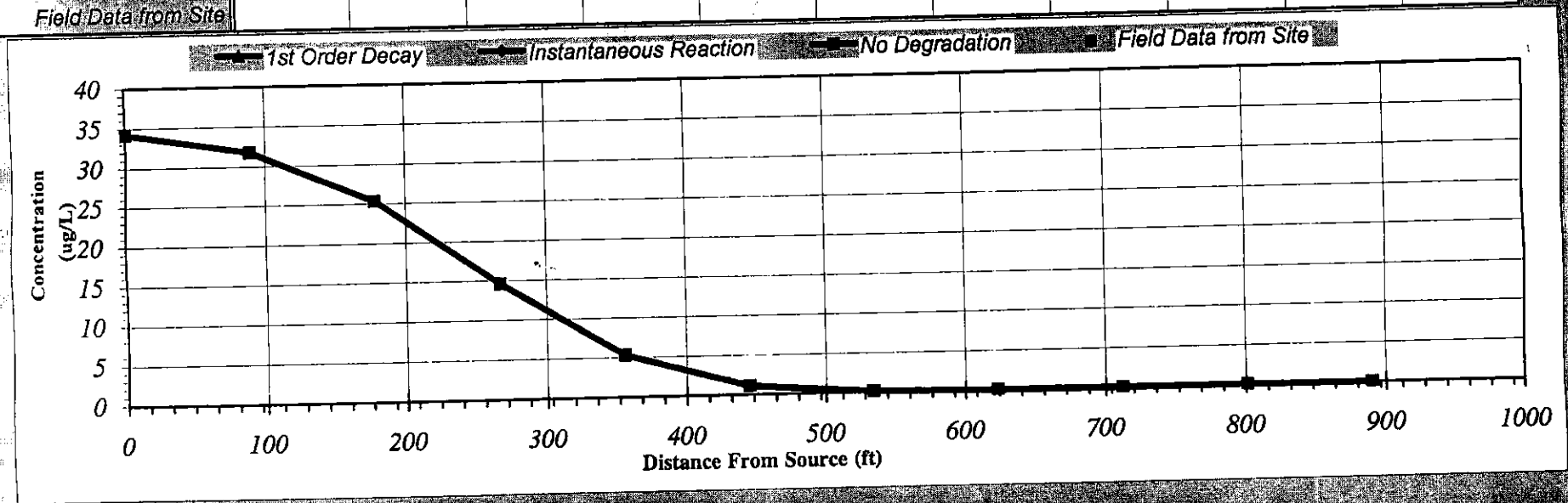
Recalculate This Sheet

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 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

CN - SW4-11

Run Name

Data Input Instructions:

1. Enter value directly ...or
2. Calculate by filling in grey cells below. Results are in blue (below)

115 ft or 0.02 (-)

Variable 20

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

1. HYDROGEOLOGY

Seepage Velocity	Vs	15.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-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	35p	(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	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)
1		
2		
3	1000	13.3
4		
5		

View of Plume Looking Down

Source Half-life (see Help)

Infinite | Infinite (yr)

Inst. Reaction 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

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

Variable — Data used directly in model
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)

L
W

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones

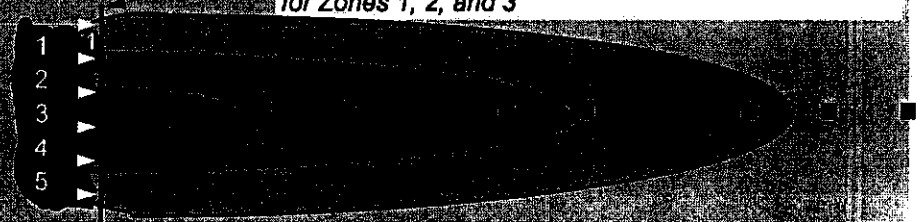
Width* (ft)	Conc. (ug/L)*
1000	0.09

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	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

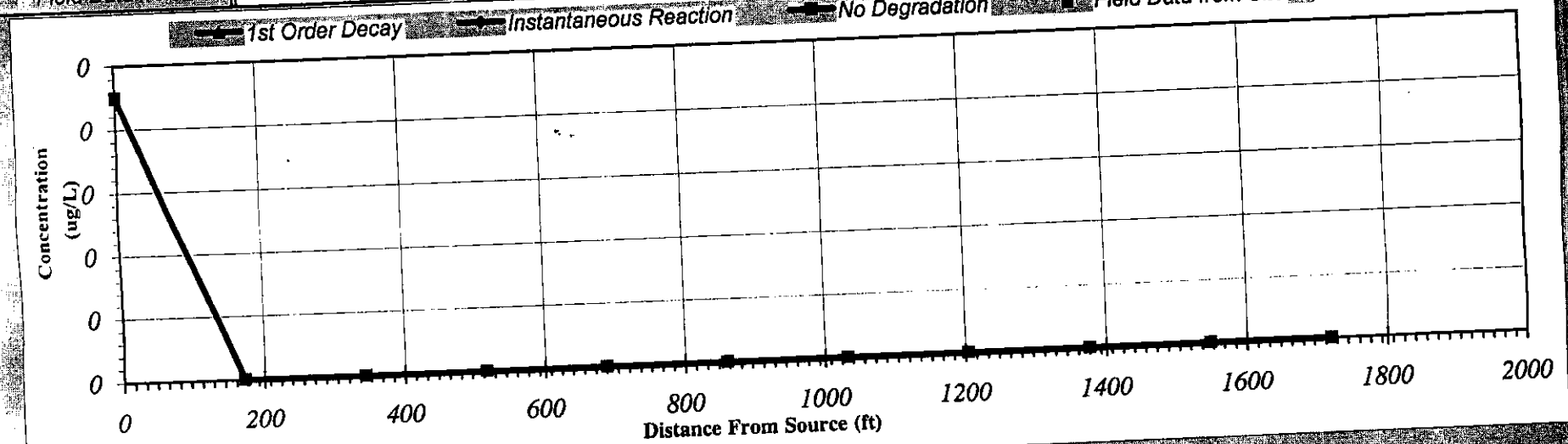
Recalculate This Sheet

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 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 - SW1-12
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	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)

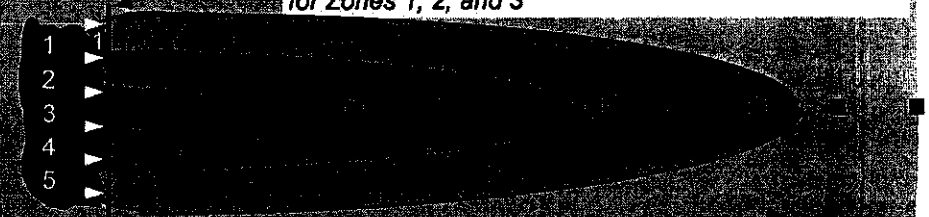
6. SOURCE DATA

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. — 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

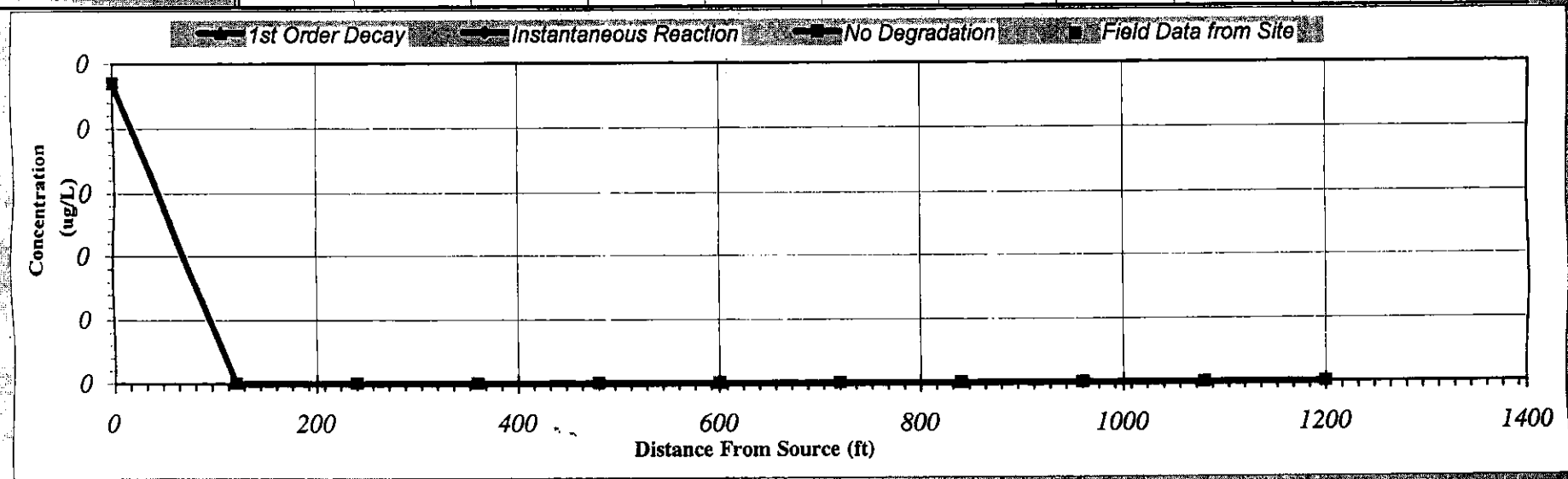
Paste Example Dataset

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*

Painesville - R
Hg - SW4-1
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 or 0.02

Variable: 20

- 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	Lp	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

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

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

Source Halflife (see Help)

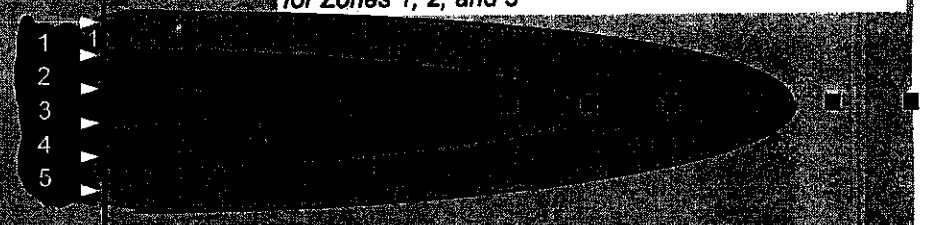
Infinite	Infinite	(yr)

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	65	130	195	260	325	390	455	520	585	650

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

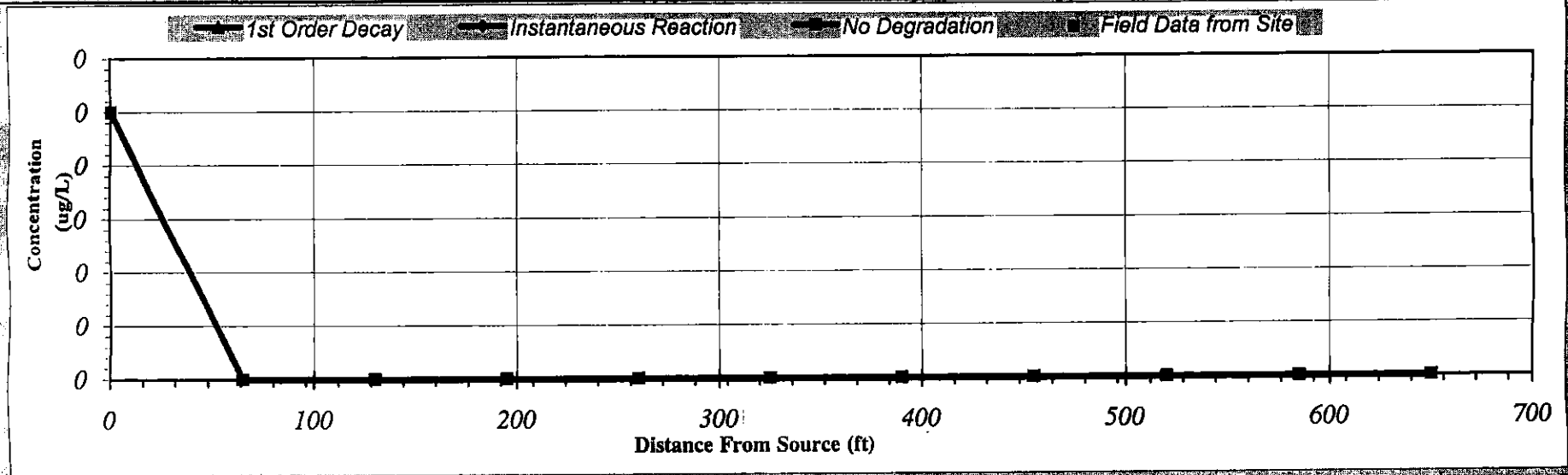
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	65	130	195	260	325	390	455	520	585	650
No Degradation	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 or 0.02 — 1. Enter value directly or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below)

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	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)

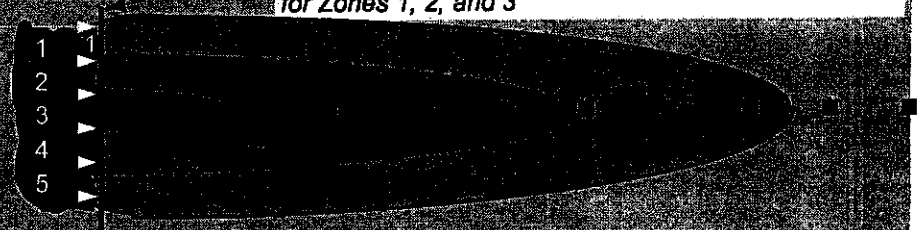
6. SOURCE DATA

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



View of Plume Looking Down

Source Halflife (see Help)

Inst. Reactu	1st Order	
Infinite	Infinite	(yr)

Soluble Mass in Source NAPL Soil: infinite (Kg)

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

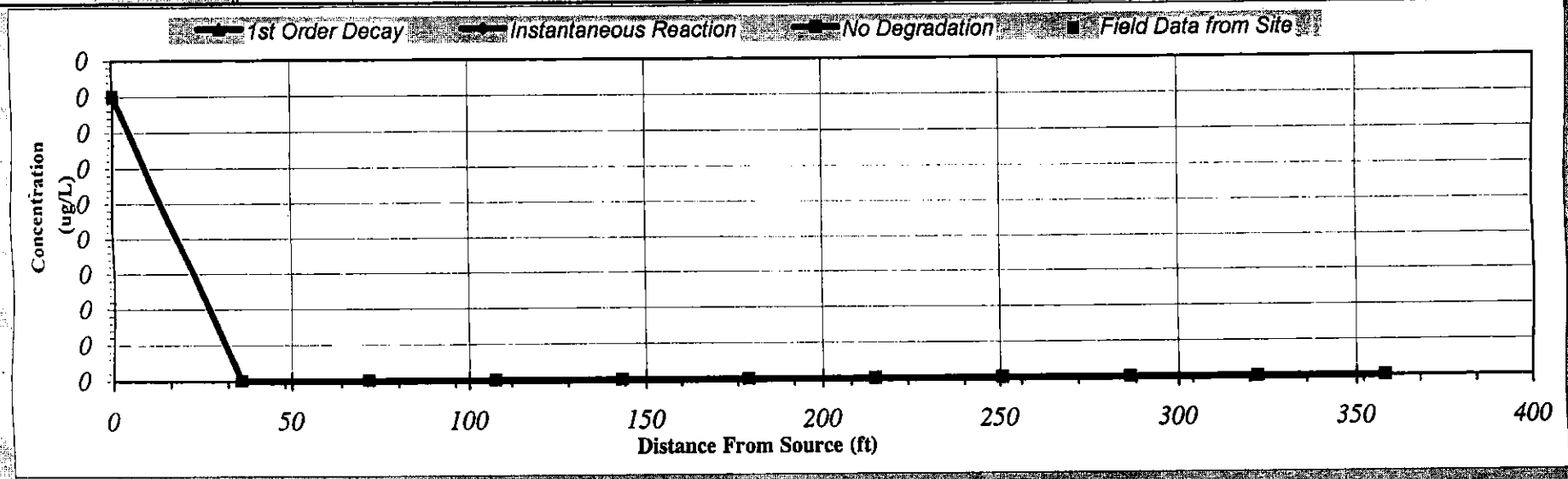
Recalculate This Sheet

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
0.02 → 2. Calculate by filling in grey cells below ... (To restore formulas, hit button below)

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	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)

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	0.068

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	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

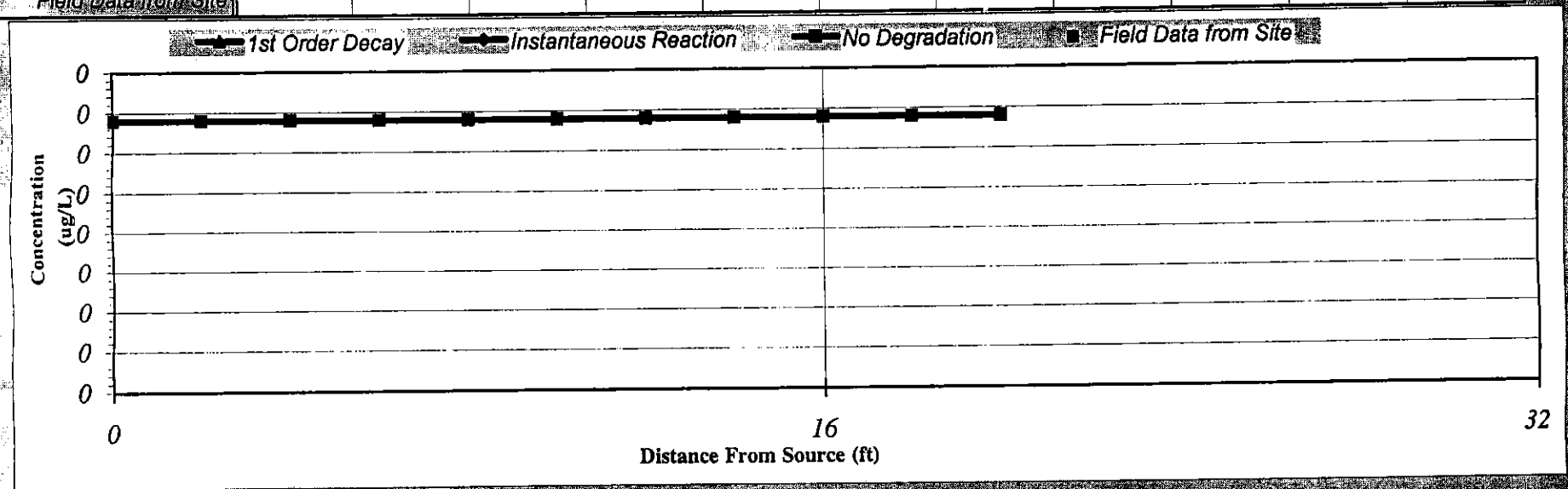
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 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 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 - SW7-9
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)

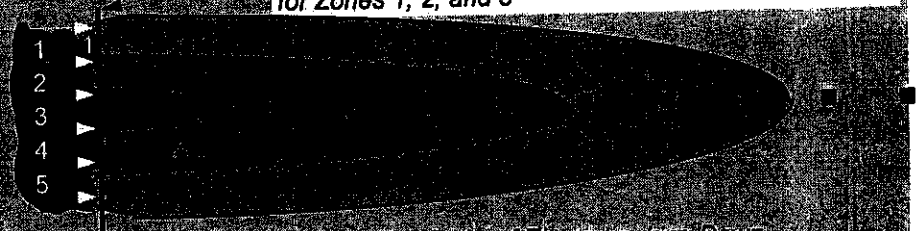
Source Zones

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

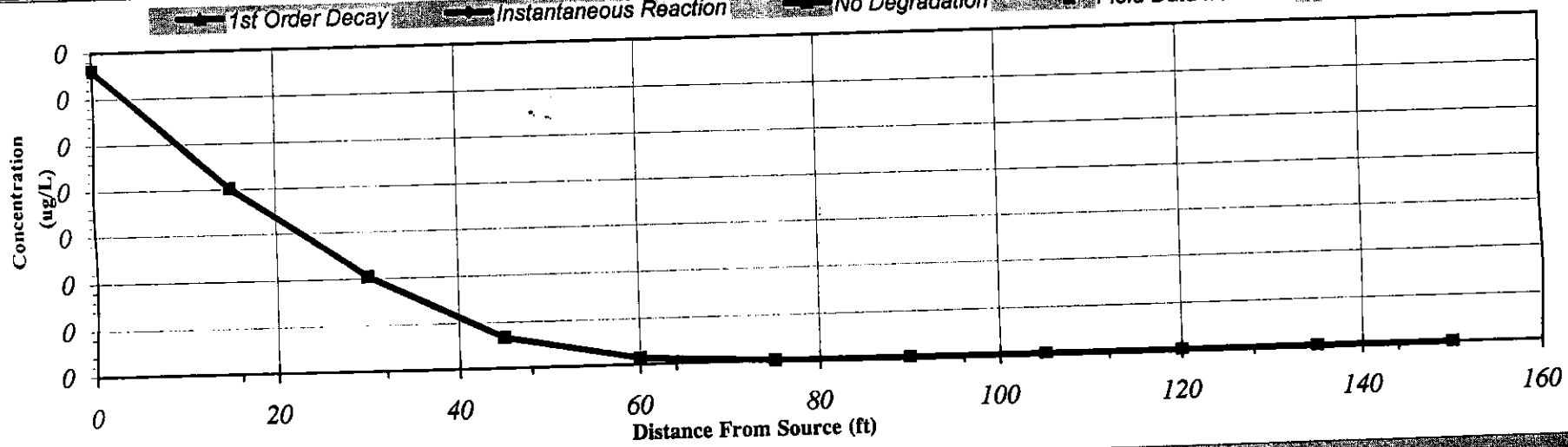
Recalculate This Sheet

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)

L
W

6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

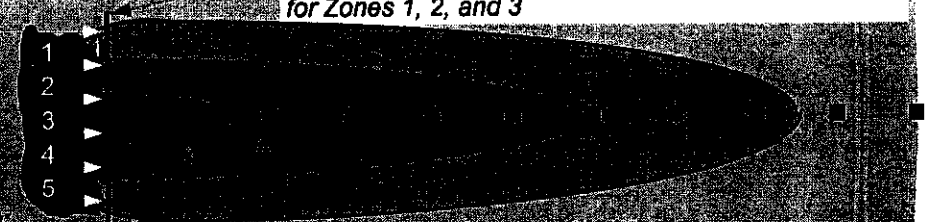
Source Zones:

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	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

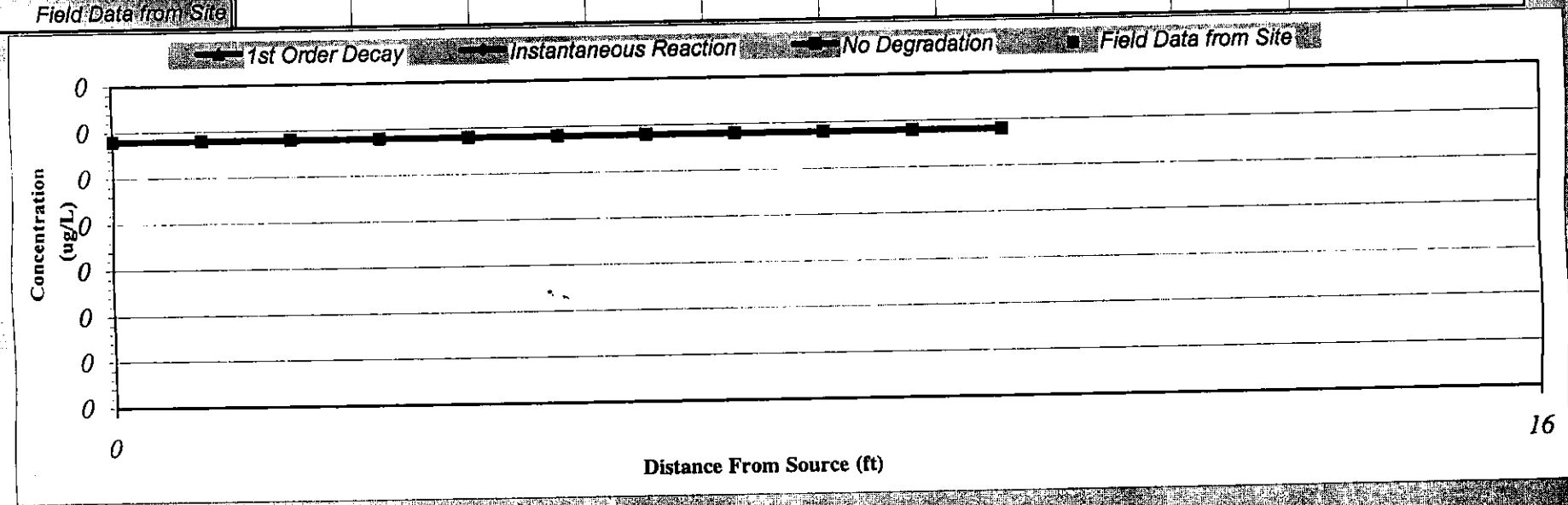
Recalculate This Sheet

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 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-1
Run Name

Data Input Instructions

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

Variable — *Data used directly in model* — 20 — *Value calculated by model (Plot, time and date)*

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)*

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

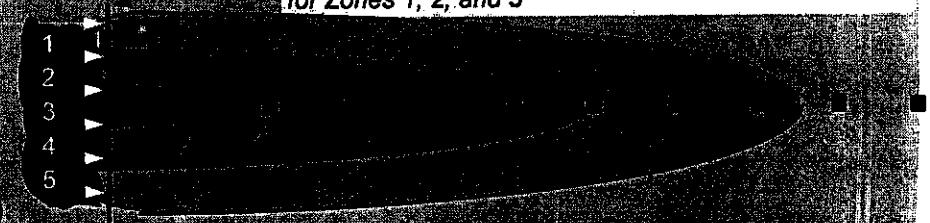
Source Zones	Width* (ft)	Conc* (ug/L)
1		
2		
3	1000	0.034
4		
5		

Source Halflife (see Help) | Infinite | Infinite | *(Yr)*

Inst. React. ↑ 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

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

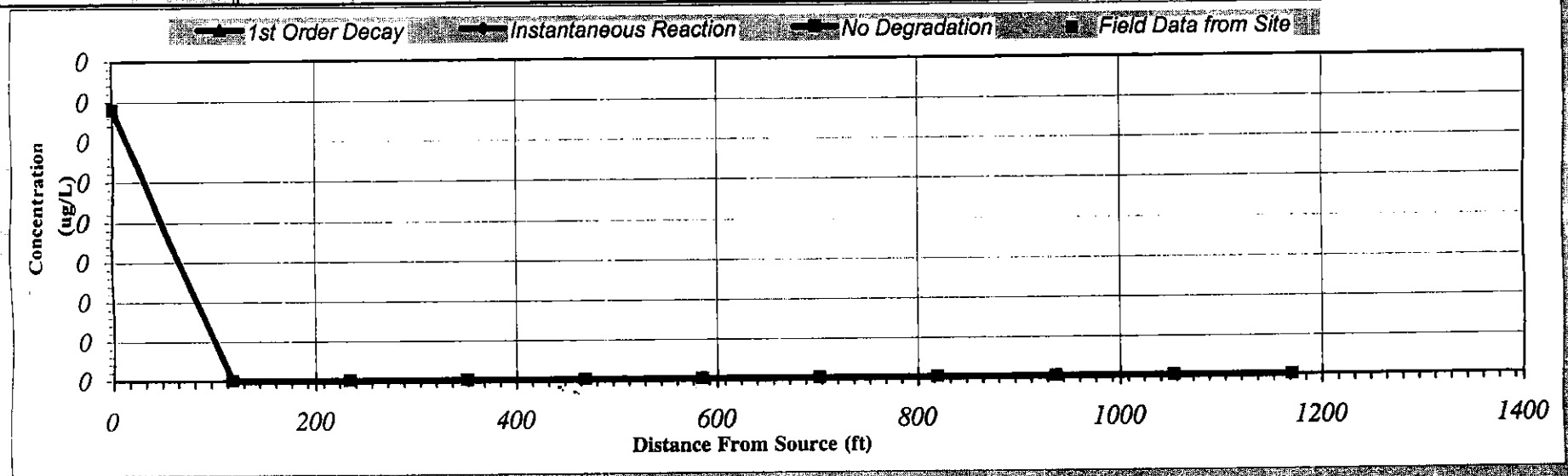
Recalculate This Sheet

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 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-3
Run Name

Data Input Instructions

115 or 0.02

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

Variable: 20

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	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)

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones

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

Source Halflife (see Help)

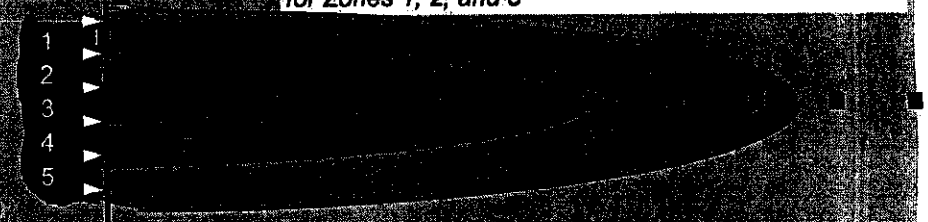
Infinite	Infinite	(yr)

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

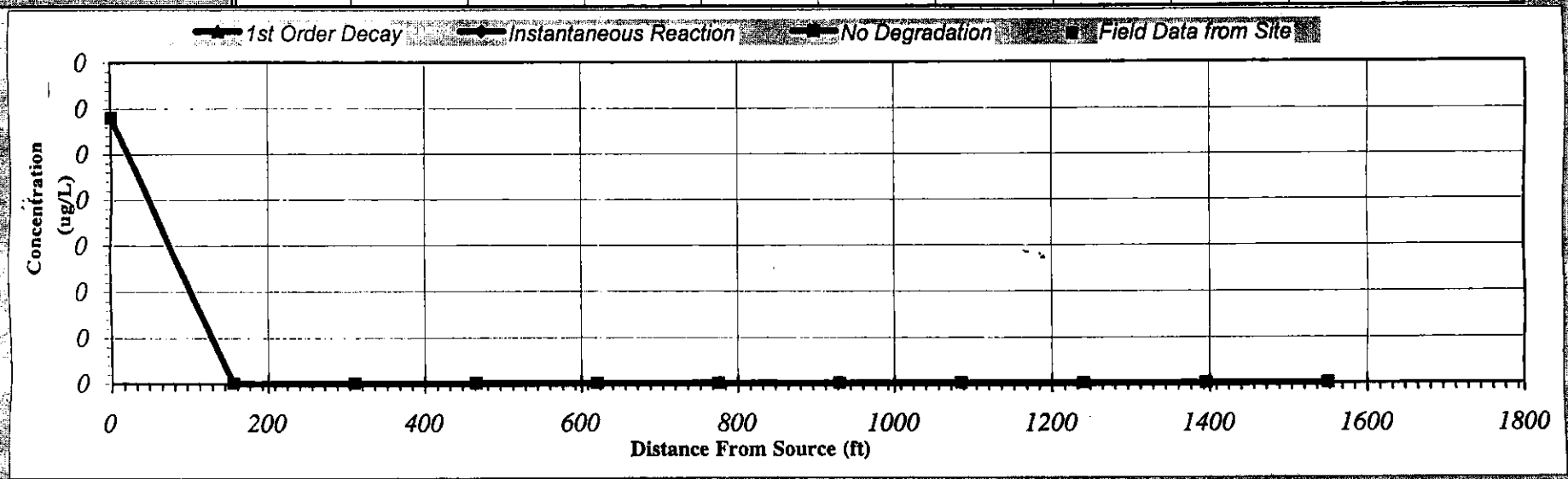
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	10	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 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-4
Run Name

Data Input Instructions
1. Enter value directly, or
2. Calculate here (yellow cells below), or (formulas, no button below)

Variable	Data used directly in model	Value calculated by model (Don't ordinarily date)
115	or	
0.02		
20		

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

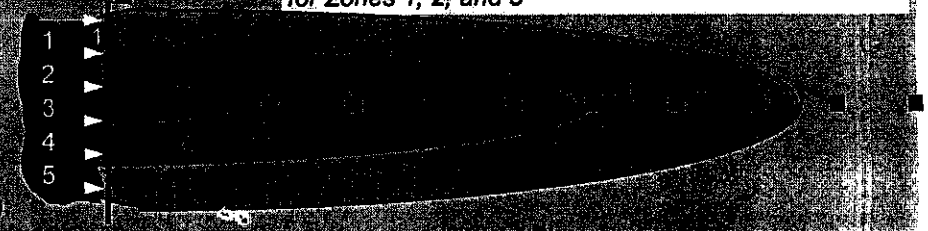
Source Half-life (see Help)

Inst. React	1st Order
Infinite	Infinite

(yr)

Soluble Mass in Source NAPL Soil: infinite (Kg)

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



View of Plume Looking Down

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	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

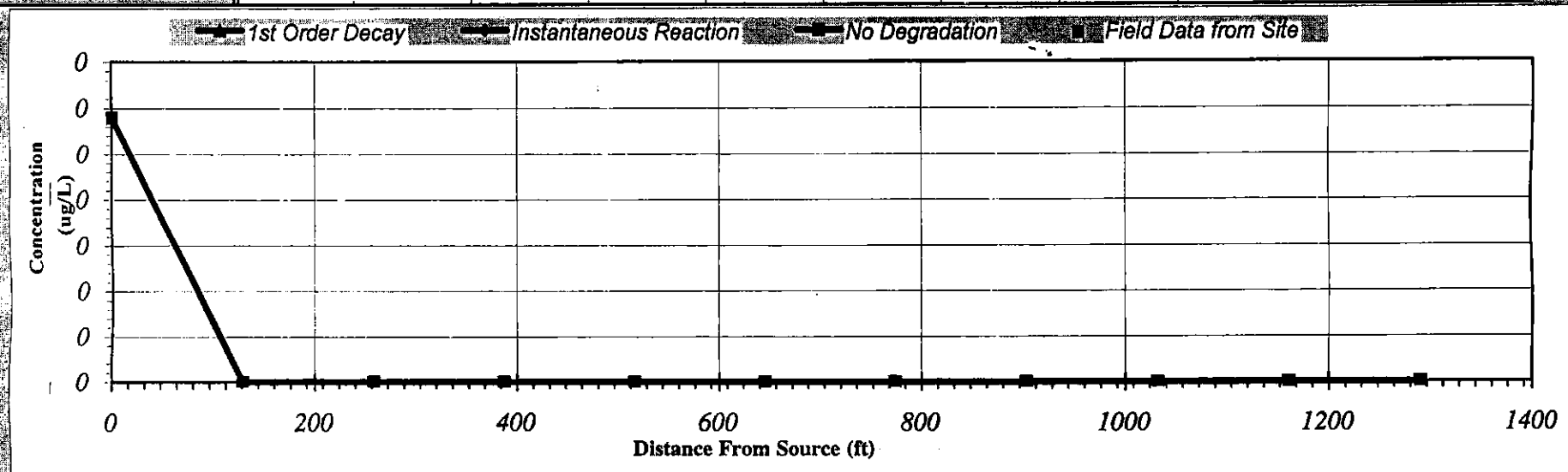
Recalculate This Sheet

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 dividing grey cells below. Consult formulas in cell to the right. Value used directly in model. Value calculated by model (Performance 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)
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*	900	(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	0.28
4		
5		

Source Half-life (see Help)

Infinite	Infinite	(yr)

Insp. Rate: 1st Order

Soluble Mass: Infinite (Kg)

In Solution NAPL Soil

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

Layout of Plume Looking Down

7. FIELD DATA FOR COMPARISON

Observed Centerline Concentrations in Monitoring Wells
If No Data Leave Blank or Enter Zero

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

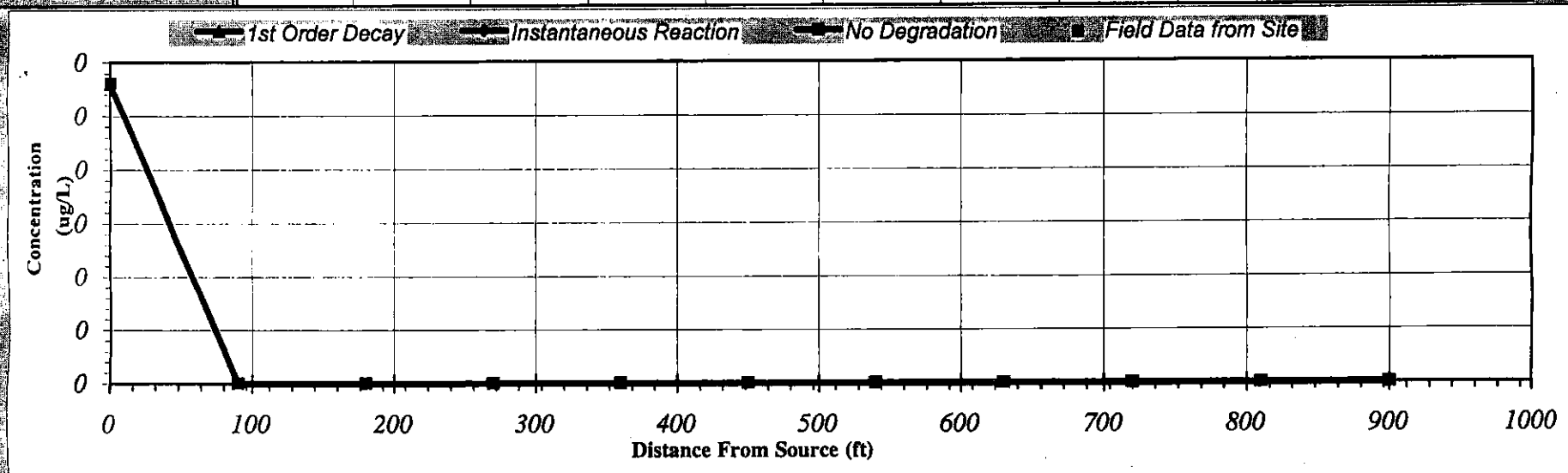
Paste Example Dataset

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	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

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

Variable — Data used directly in model

115			
or			
0.02			
20			

Value calculated by model (Don't enter any 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)
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*	930	(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	0.071

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

View of Plume Looking Down

Source Half-life (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	93	186	279	372	465	558	651	744	837	930

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate This Sheet

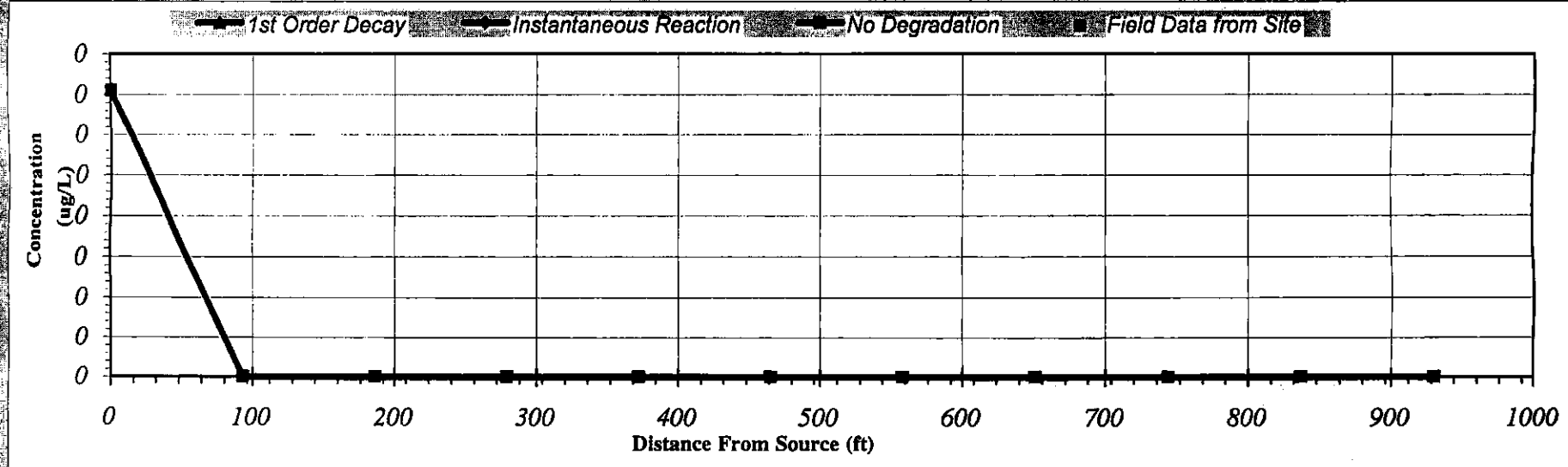
Paste Example Dataset

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

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE at 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

115 ft
or
0.02 ft/ft

1. Enter value directly, or
2. Calculate by filling in green milk below (restore formulas in cells below)

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

6. SOURCE DATA

Source Thickness in Sat Zone: 10 (ft)

Source Zones

	Width (ft)	Conc. (ug/L)
1		
2		
3	1000	0.02
4		
5		

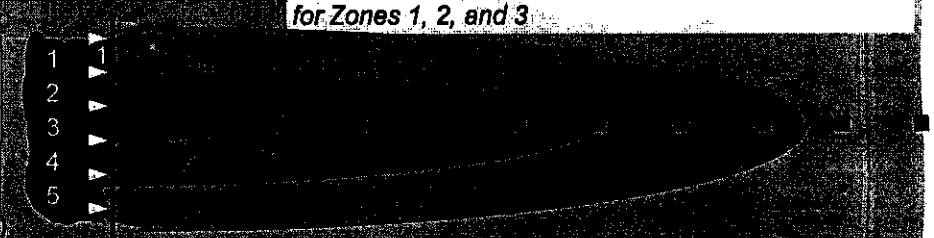
Source Half-life (see Help)

Inst. React.	1st Order
Infinite	Infinite

(yr)

Soluble Mass In Source NAPL Soil: Infinite (Kg)

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



View of Plume Looking Down

7. FIELD DATA FOR COMPARISON

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

Distance from Source (ft)	0	49	98	147	196	245	294	343	392	441	490
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

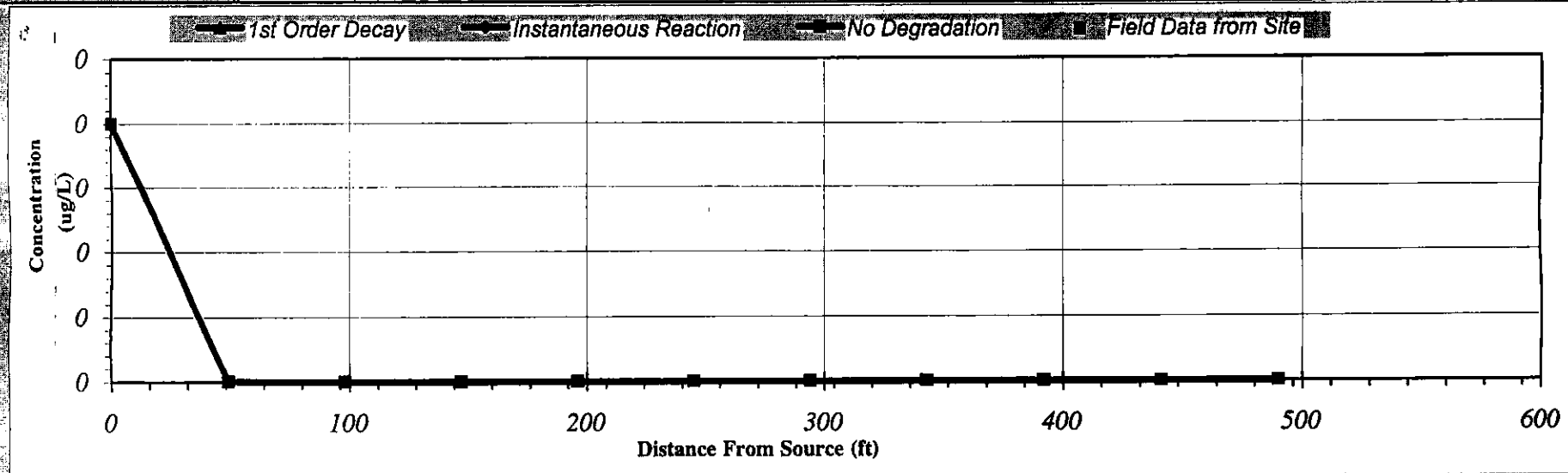
Paste Example Dataset

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	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 1.3*

Painesville - L
Hg - CL3-2
Run Name

Data Input Instructions:
1. Enter value directly or
2. Calculate by filling in grey cells below. (Formulas in Hydrogeology & Dispersion are optional.)
Data used directly in model
Value calculated by model
(Blank enter any 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	Lo	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)

Variable: 115 / or / 0.02 / 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 (per Half)

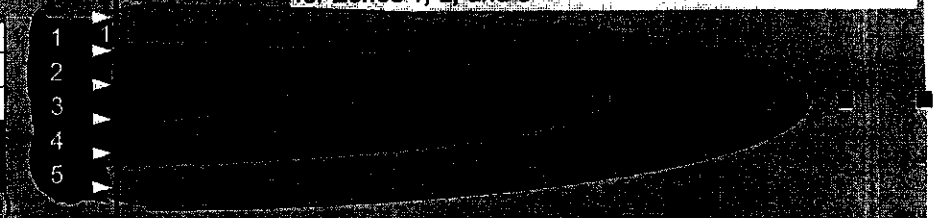
Infinite	Infinite	(yr)

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



(e.g. 1 or Plume Cross-Section)

7. FIELD DATA FOR COMPARISON

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

Dist. 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

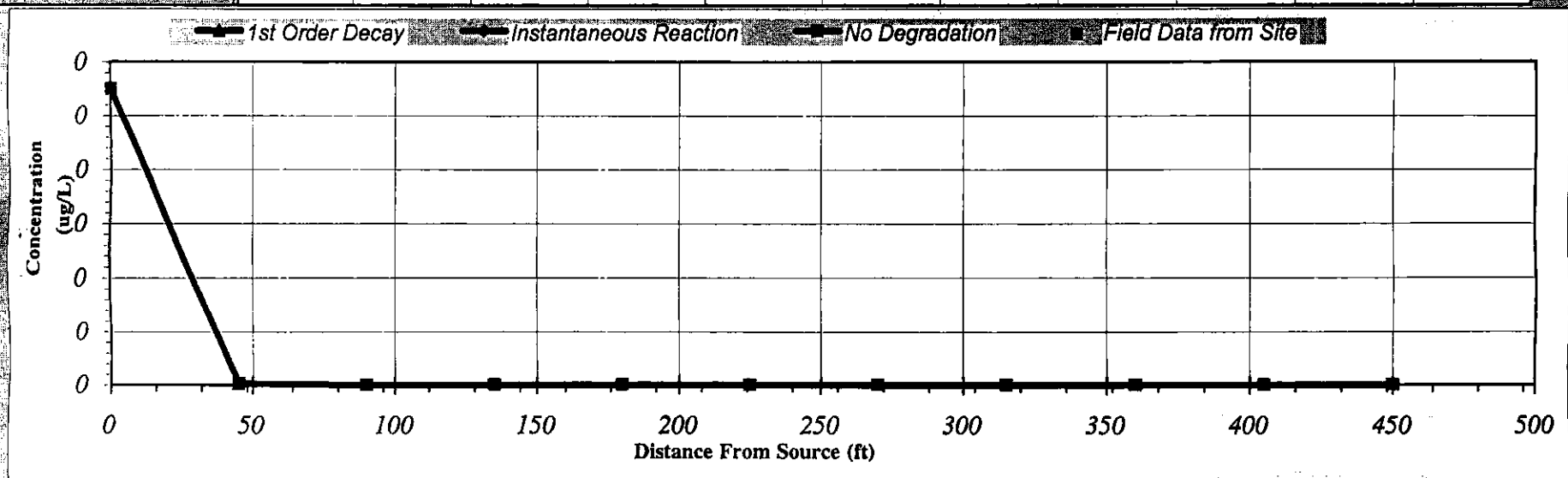
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	45	90	135	180	225	270	315	360	405	450
No Degradation	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 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 - CL3-3

(Run Name)

Data Input Instructions:

115 — *Enter Vel. directly, or*

or — *(2) Calculate by filling in grey*

0.002 — *cells below. (To restore*

formulas, see instructions below.)

Variable — *Data used directly in model.*

20 — *Time calculated by model.*

(Centerline only data)

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	5.8E+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*	140	(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)
1		
2		
3	1000	0.06
4		
5		

Source Halflife (see Help)

	Infinite	Infinite (yr)
Inst. React.		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	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

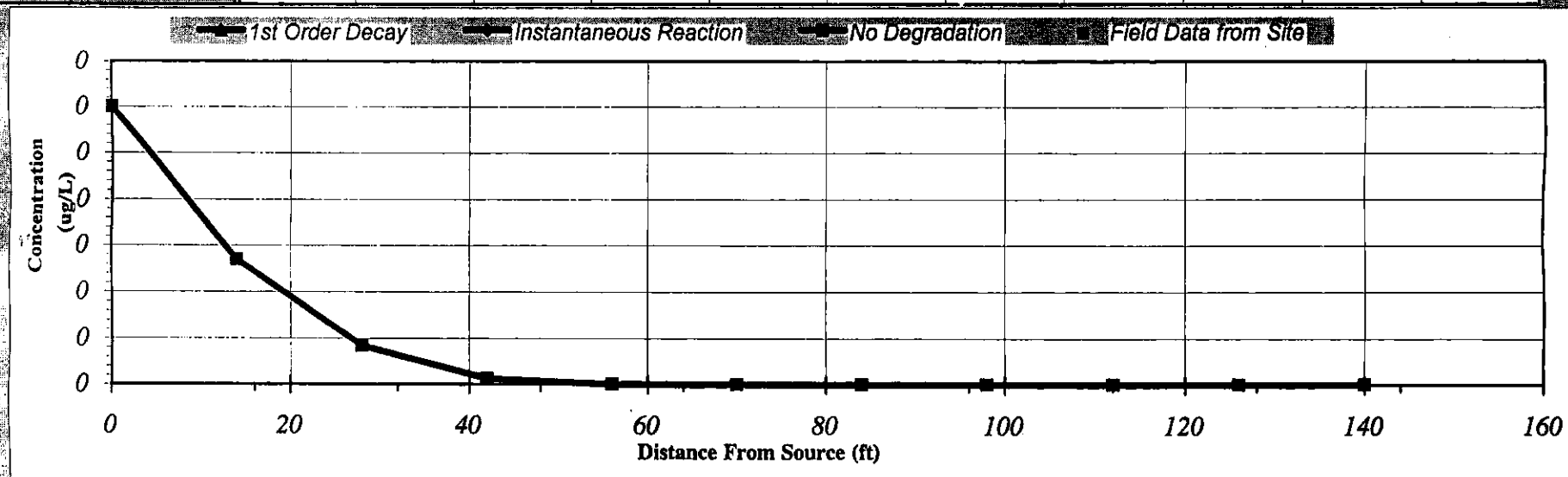
Recalculate This Sheet

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:
115
or
0.02
1. Enter value directly or
2. Calculate by filling in grey cells below and hit Restore formulas button below.
Variable: 20
Data used directly in model. Value calculated by model (Dom. equilib. data)

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	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*	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. (ug/L)*
1		
2		
3	1000	0.03
4		
5		

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

Source Halflife (See Help)

Infinite	Infinite	(yr)
Inst. Reaction	1st Order	

View or Plume Location Plots

Soluble Mass: infinite (Kg) in Source NAPL Soil

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

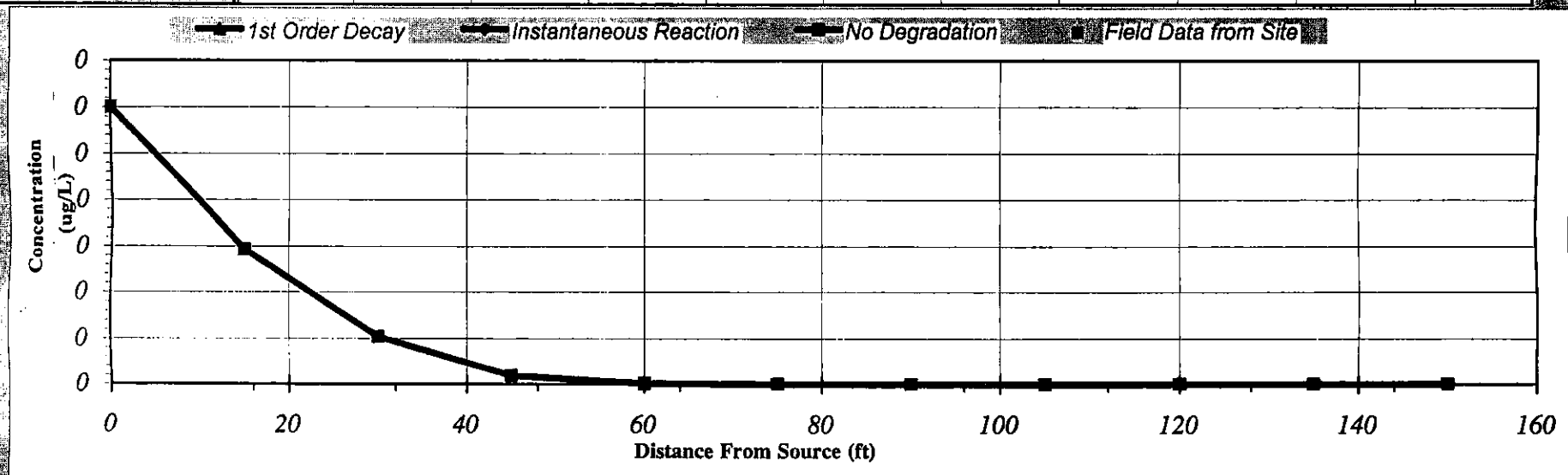
Recalculate This Sheet

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	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 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 - CL3-5
Run Name

Data Input Instructions:
1. Enter value directly on
2. Calculate by filling in key
cells (each of parameters
formulas (in bottom below)
3. Data is saved directly in model
Value calculated by model
(not current entered data)

115
or
0.02

Variable
20

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 Area Length*	120	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

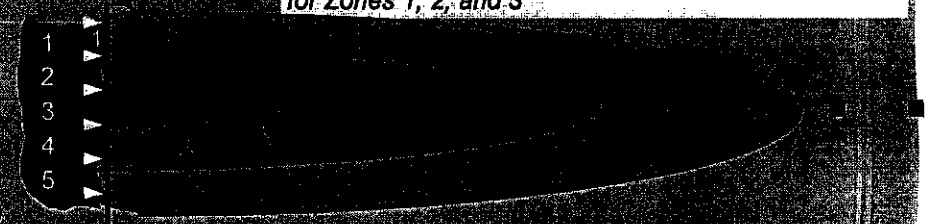
Source Zones

Width (ft)	Conc. (mg/L)
1000	0.03

Source Half-life (see Help)	
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

Observed Centerline Concentrations at Indicated Widths
If No Data Leave Blank or Enter 0

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE

RUN CENTERLINE
View Output

RUN ARRAY
View Output

Help

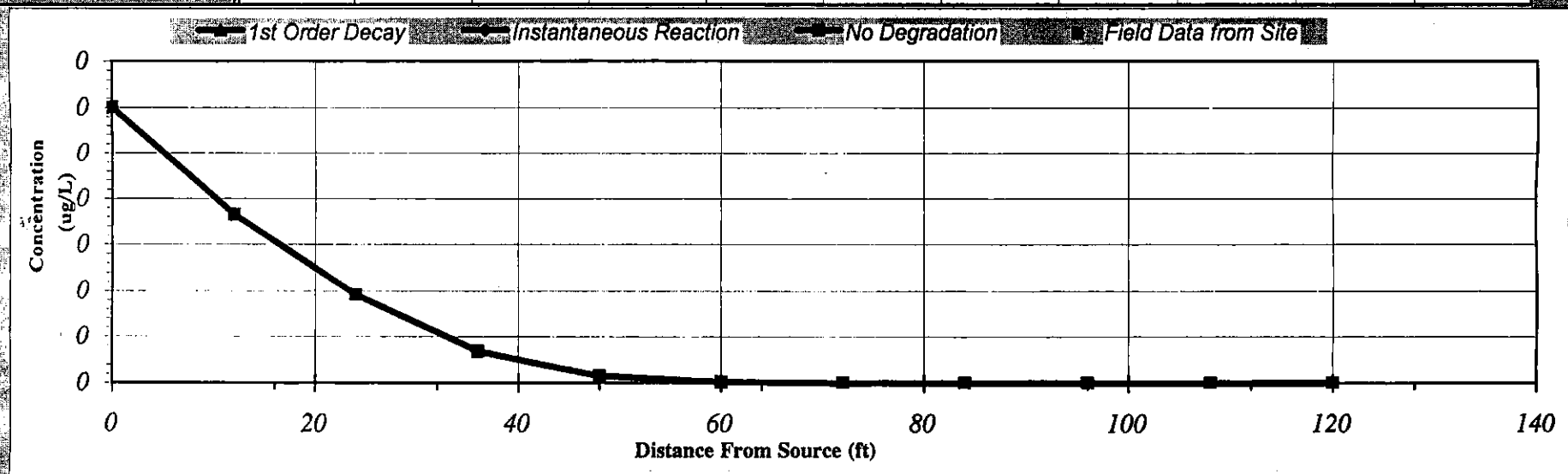
Recalculate This Sheet

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	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. Enter values directly, or
2. Calculate by filling in gray cells (then restore formulas in cells below) Otherwise directly input model values calculated by model (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	304.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.0E-04	(cm/sec)
Hydraulic Gradient	i	0.1553	(ft/ft)
Porosity	n	0.35	(-)

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	5.8E+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	270	(ft)
Modeled Area Width	1500	(ft)
Simulation Time	100	(yr)

Variable: 20

6. SOURCE DATA

Source Thickness in Sat. Zone: 10 (ft)

Source Zones:

Width (ft)	Conc. (ppm)
1000	0.04

Source Half-life (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

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	
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