BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - ASRMW-3
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*	11.7	*(ft/yr)*
or		*or*	
Hydraulic Conductivity	*K*	1.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0247	*(ft/ft)*
Porosity	*n*	0.35	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	30.7	*(ft)*
Transverse Dispersivity*	*alpha y*	3.1	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		*or*	
Estimated Plume Length	*Lp*	1750	*(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*	1750	*(ft)*
Modeled Area Width*	1500	*(ft)*
Simulation Time*	100	*(yr)*

6. SOURCE DATA

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

Source Zones:

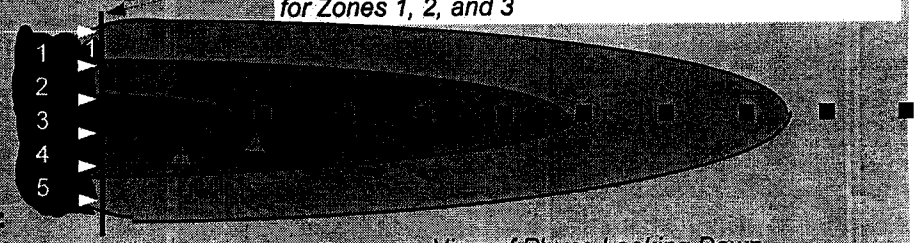
Width* (ft)	Conc. (ug/L)*
1000	0.029

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

7. FIELD DATA FOR COMPARISON

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

Dist. from Source (ft)	0	175	350	525	700	875	1050	1225	1400	1575	1750
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

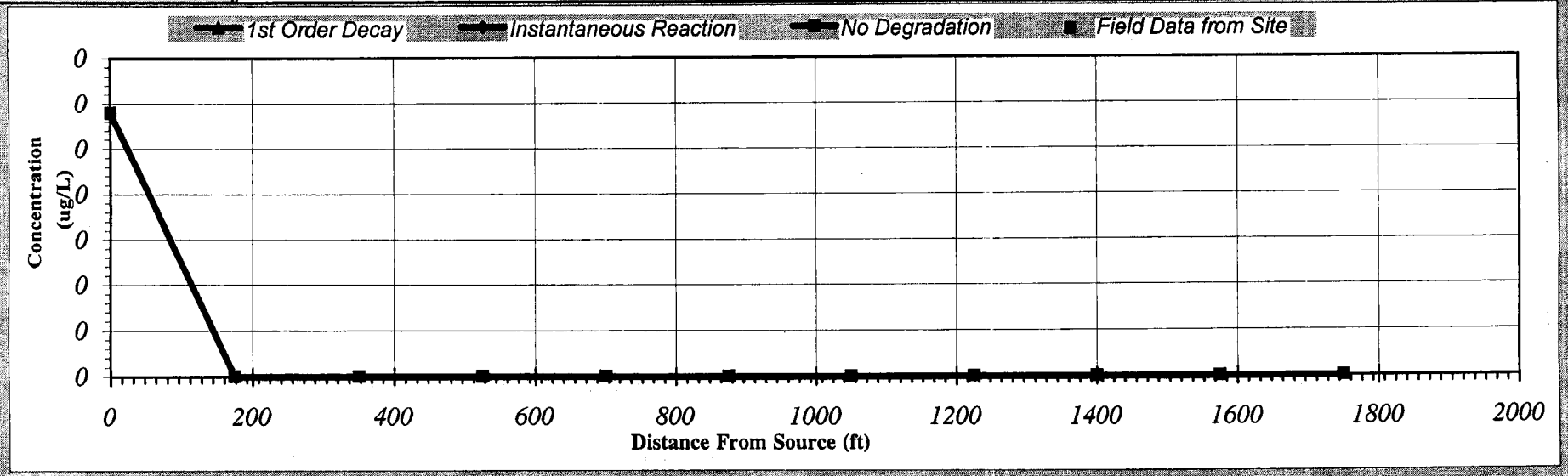
Recalculate This Sheet

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	175	350	525	700	875	1050	1225	1400	1575	1750
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 - R
Hg - ASRMW-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	12.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0256	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.5	(ft)
Transverse Dispersivity*	alpha y	3.1	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1730	(ft)

3. ADSORPTION

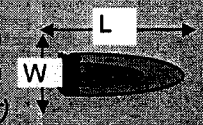
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	1730	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



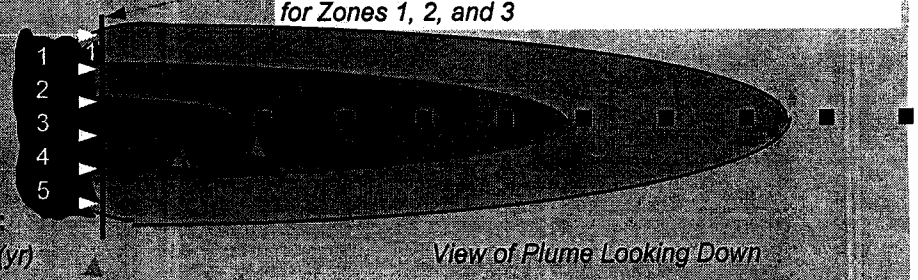
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.058

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	173	346	519	692	865	1038	1211	1384	1557	1730

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

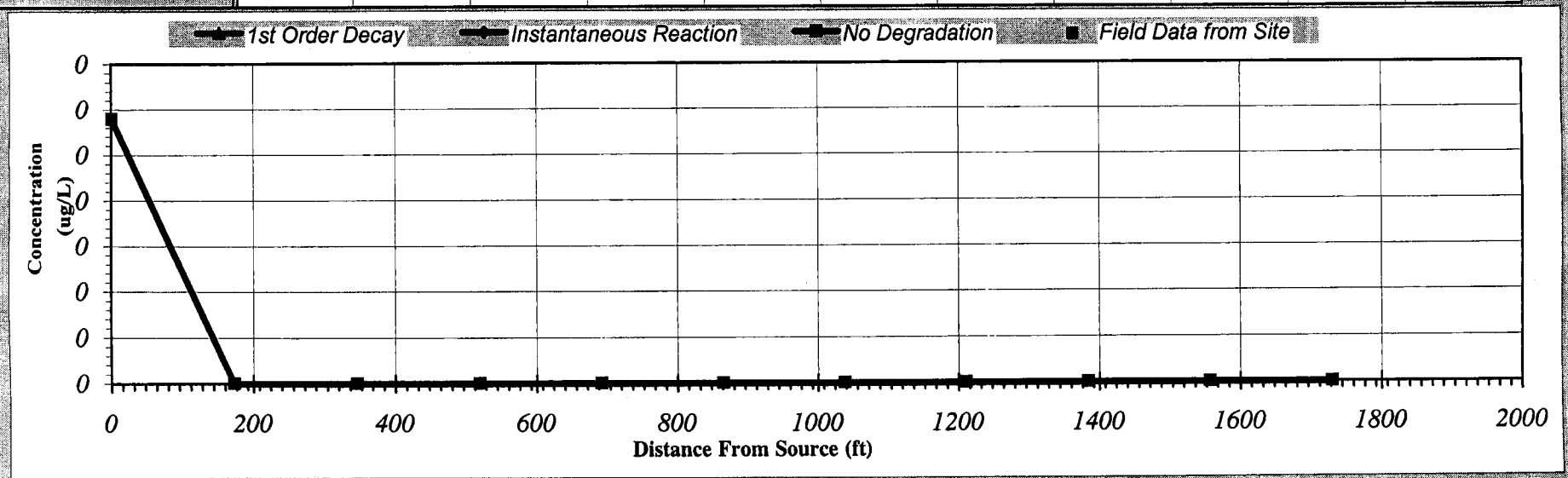
Recalculate This Sheet

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	173	346	519	692	865	1038	1211	1384	1557	1730
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 - R
Hg - ASRMW-5
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	8.6	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0181	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

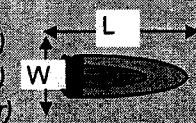
Retardation Factor*	R	2818.1	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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



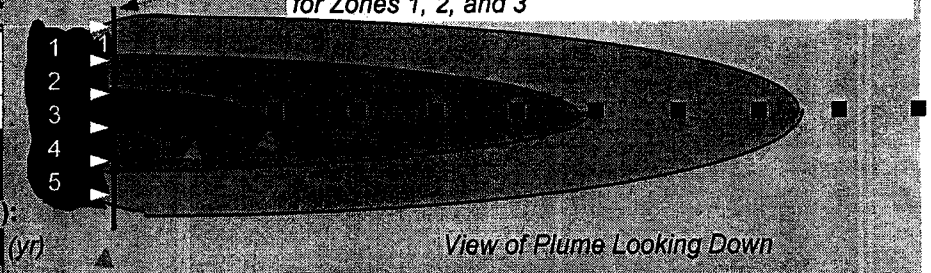
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.28

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

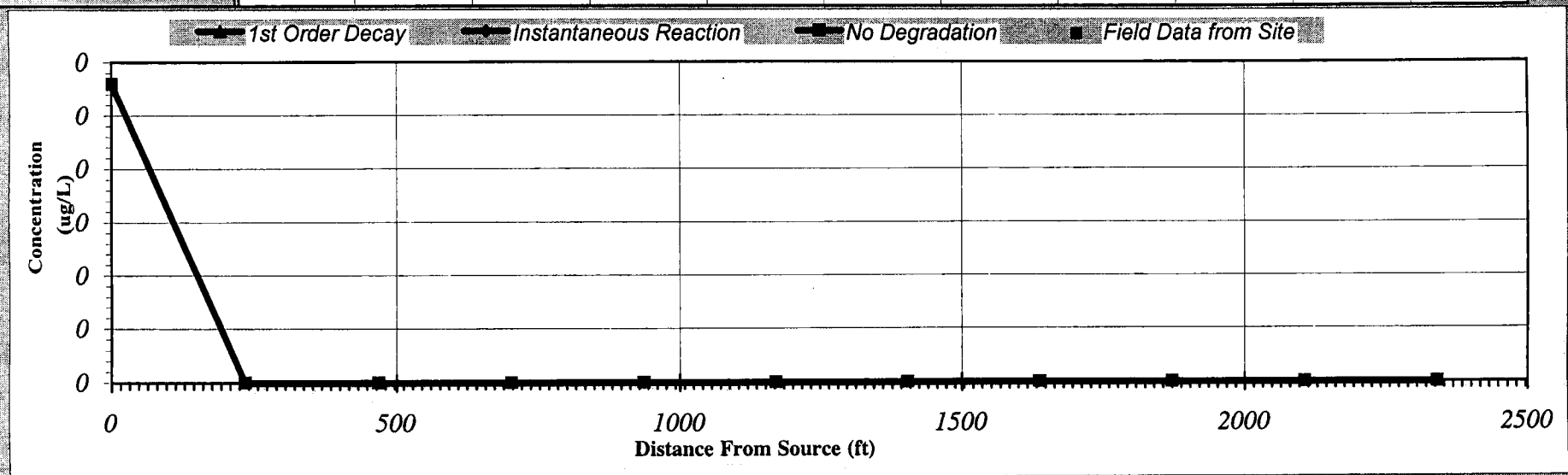
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	234	468	702	936	1170	1404	1638	1872	2106	2340
No Degradation	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 - R
Hg - ASRMW-8
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	7.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0152	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	35.6	(ft)
Transverse Dispersivity*	alpha y	3.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	2620	(ft)

3. ADSORPTION

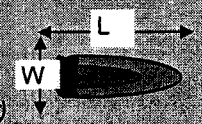
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	2620	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



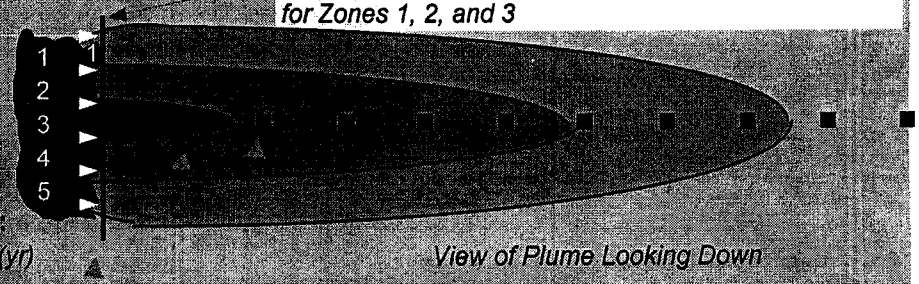
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.071

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	262	524	786	1048	1310	1572	1834	2096	2358	2620

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

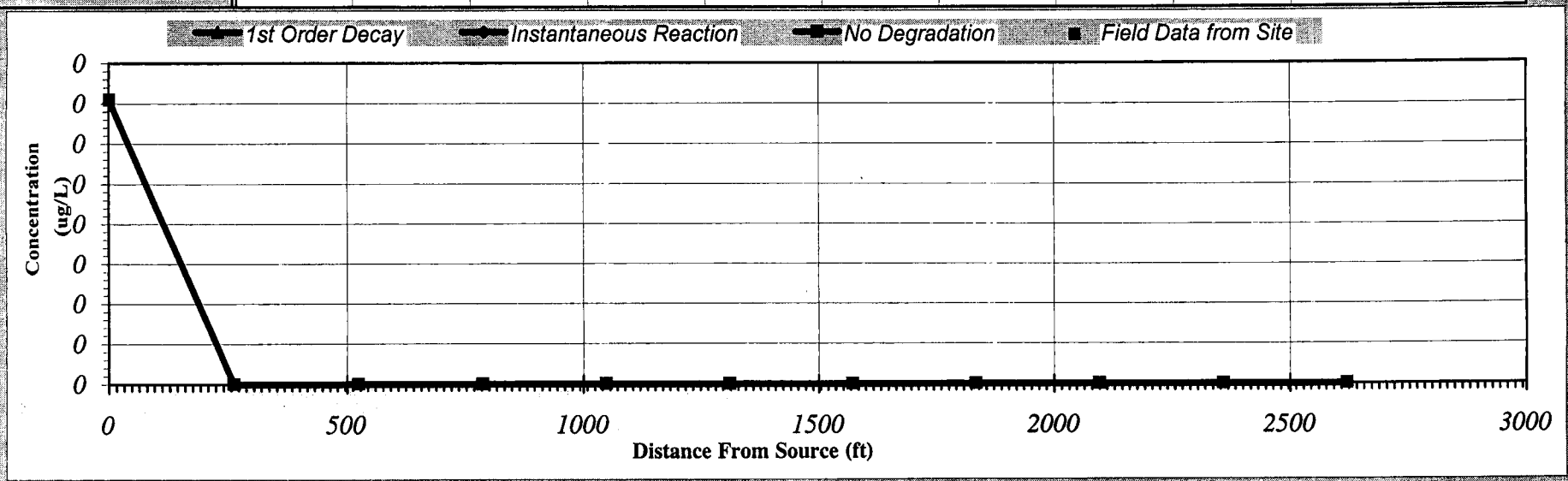
Recalculate This Sheet

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	262	524	786	1048	1310	1572	1834	2096	2358	2620
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 - R
Hg - CL5-1
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	24.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0083	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	24.7	(ft)
Transverse Dispersivity*	alpha y	2.5	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1020	(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*	1020	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

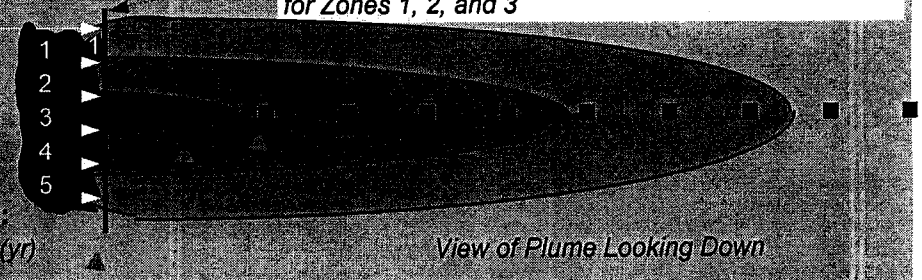
Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.044

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	102	204	306	408	510	612	714	816	918	1020
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

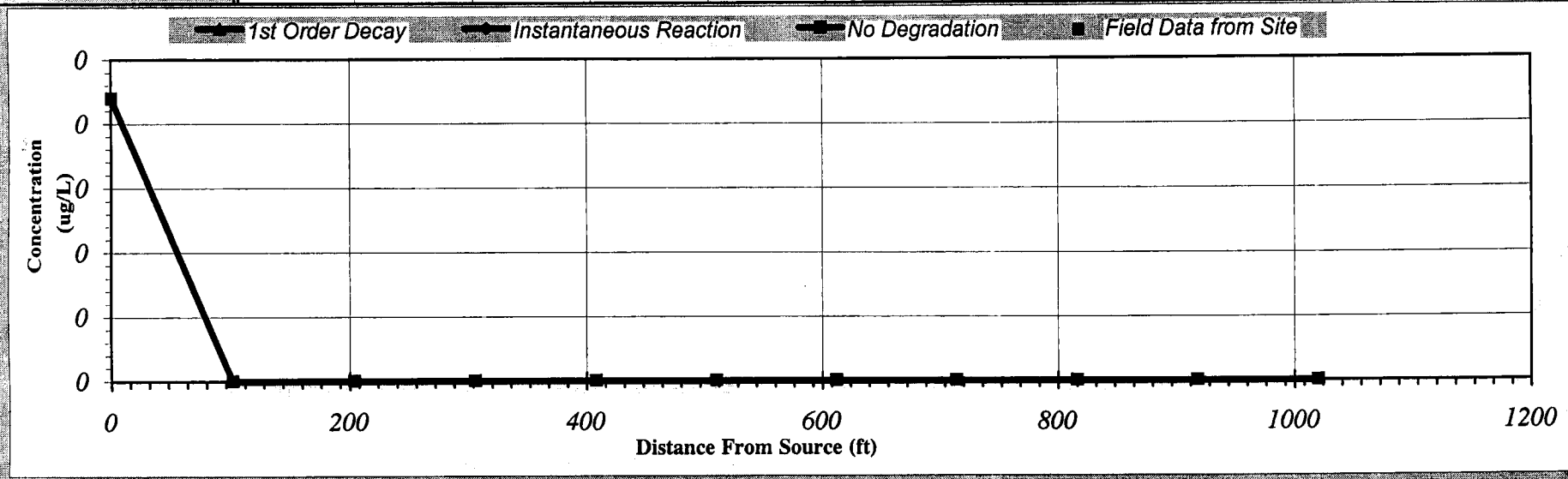
Recalculate This Sheet

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	102	204	306	408	510	612	714	816	918	1020
No Degradation	0.044	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 - CL5-2
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* → 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

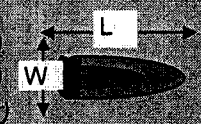
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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



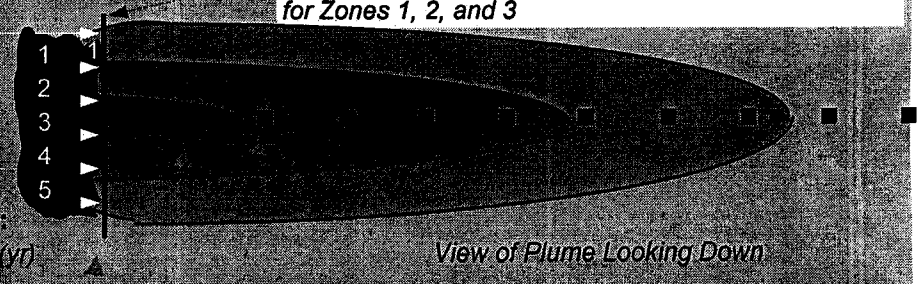
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.028
[redacted]	

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	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

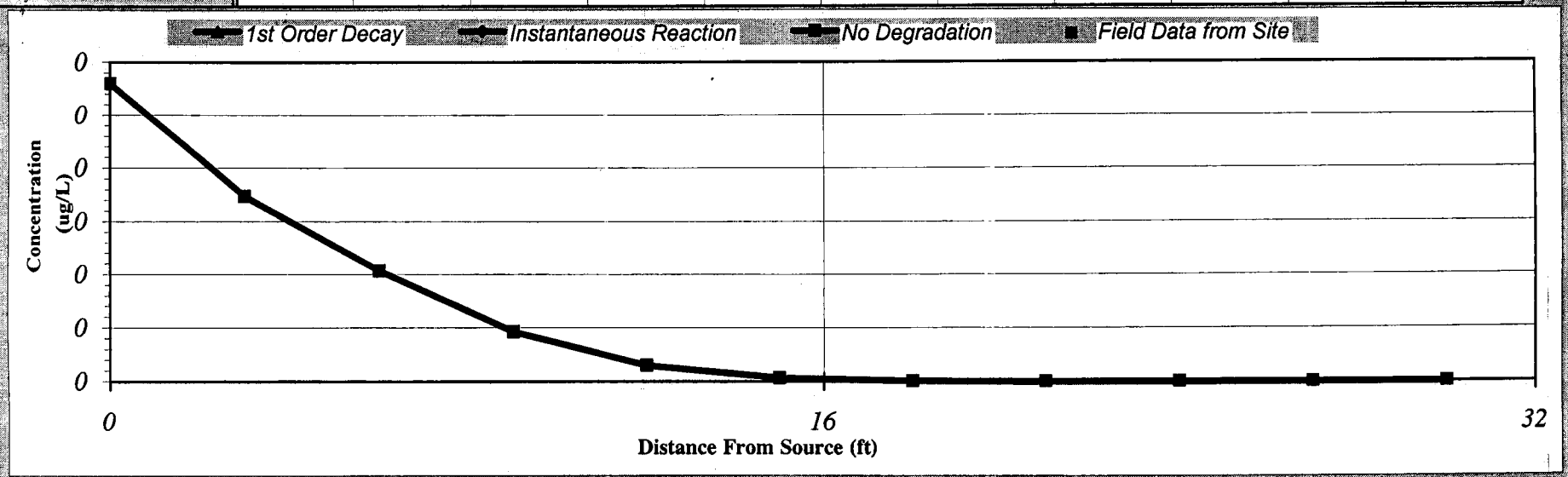
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	3	6	9	12	15	18	21	24	27	30
No Degradation	0.028	0.017	0.010	0.005	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 - R
Hg - CL6-1A
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*	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

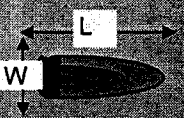
Retardation Factor*	*R*	2818.1	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	5.8E+2	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

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



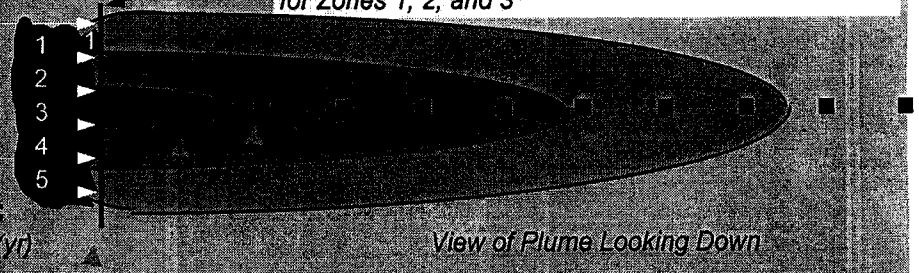
6. SOURCE DATA

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	0.08



View of Plume Looking Down

Source Halflife (see Help):

Inst. React.	1st Order
Infinite	Infinite

(yr)

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

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

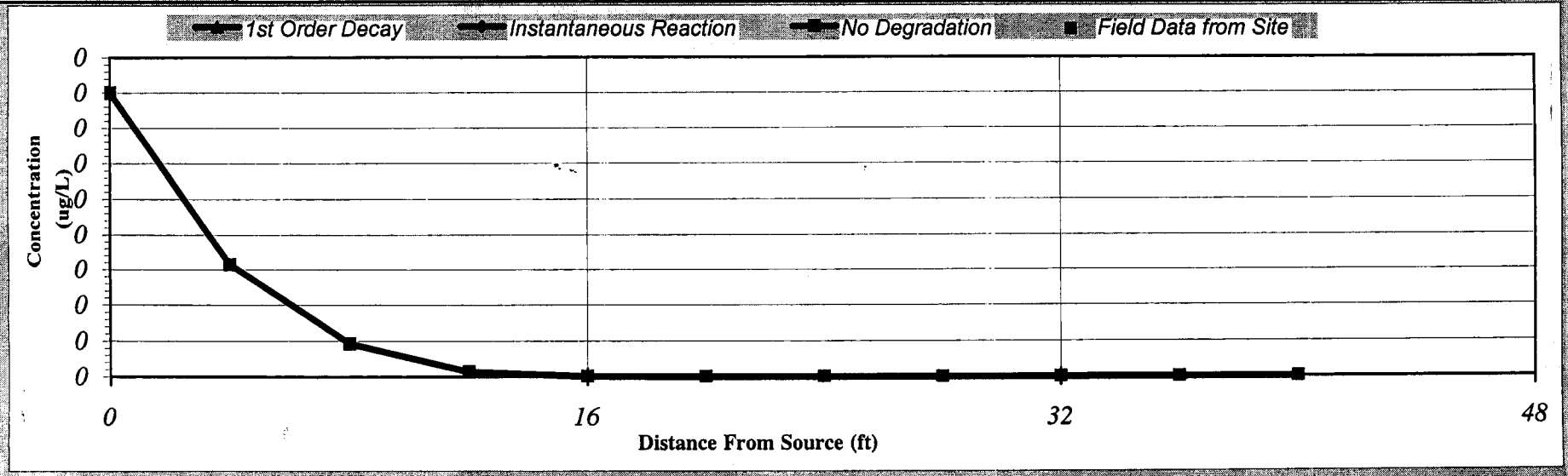
Recalculate This Sheet

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	0.080	0.031	0.009	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 - R
Hg - CL6-3
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	3.6	*(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

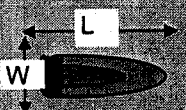
Retardation Factor*	*R*	2818.1	*(-)*
or		*or*	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	5.8E+2	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

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



6. SOURCE DATA

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

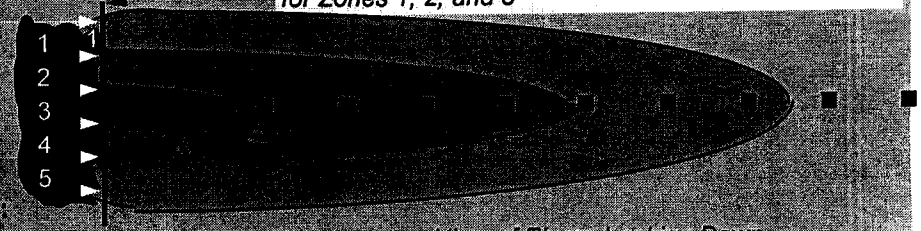
Source Zones:

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

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"

Concentration (mg/L)											
Dist. from Source (ft)	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

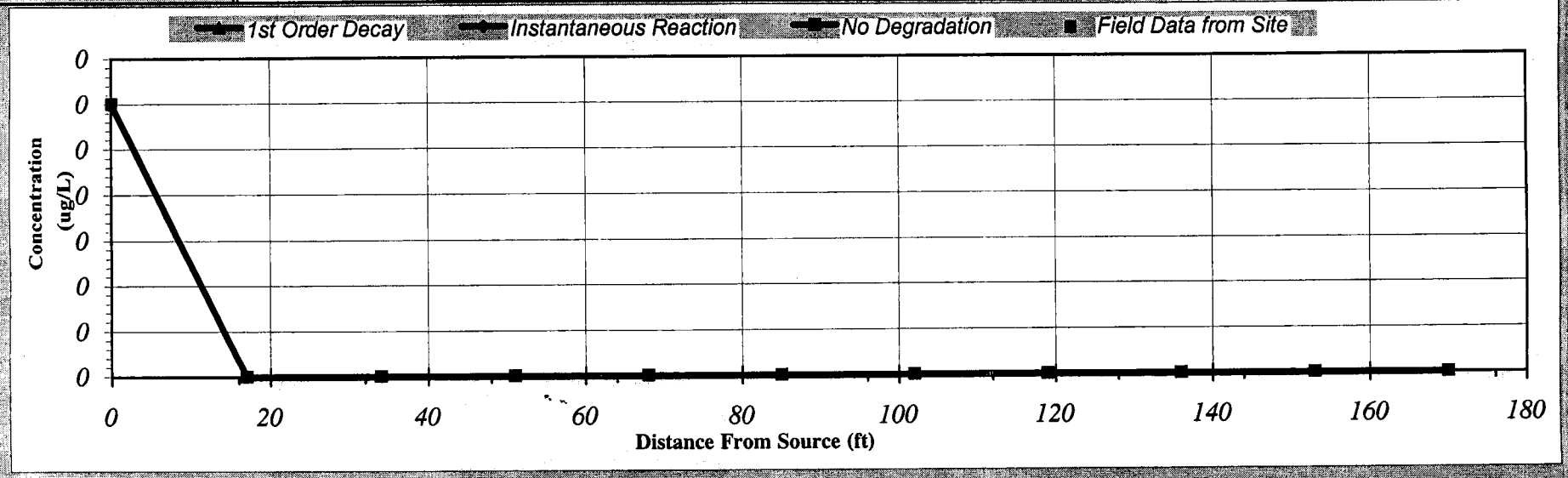
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	17	34	51	68	85	102	119	136	153	170
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 - R
Hg - CL6-4
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*	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

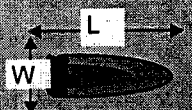
Retardation Factor*	*R*	2818.1	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	5.8E+2	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

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



6. SOURCE DATA

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

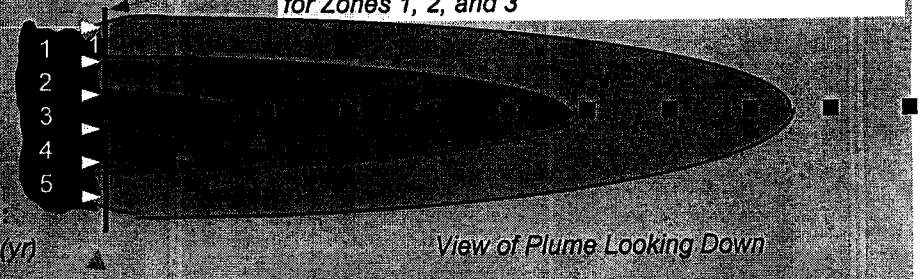
Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.45

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

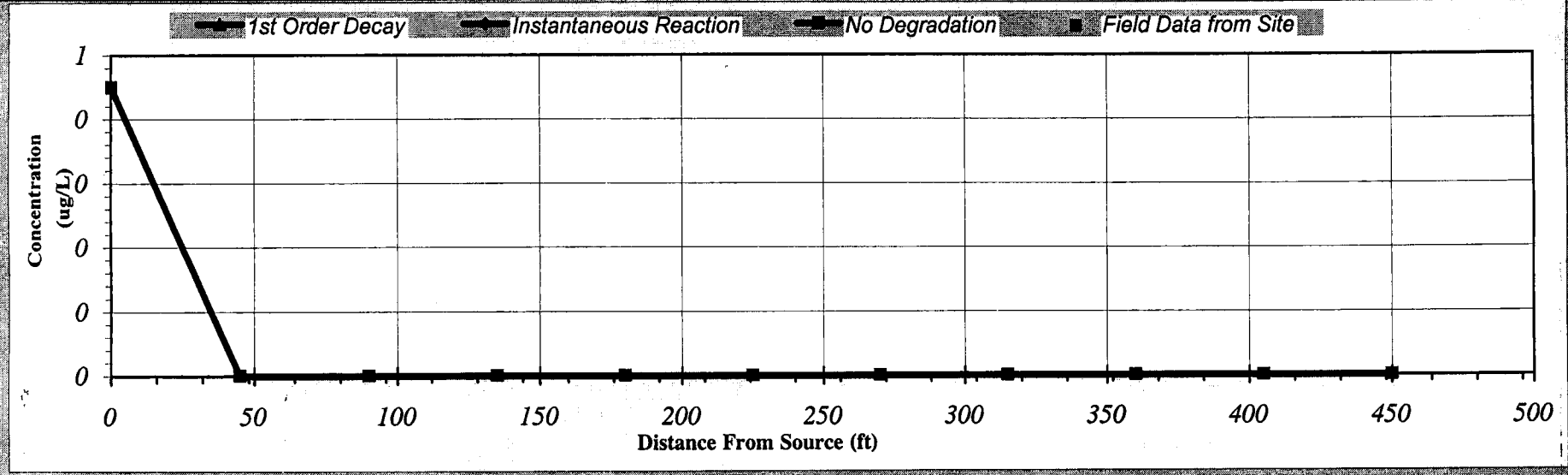
Recalculate This Sheet

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	0.450	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 - CL6-5
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	6.8	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0143	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	31.8	(ft)
Transverse Dispersivity*	alpha y	3.2	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	1930	(ft)

3. ADSORPTION

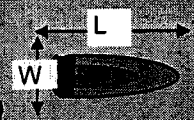
Retardation Factor*	R	2818.1	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	1930	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



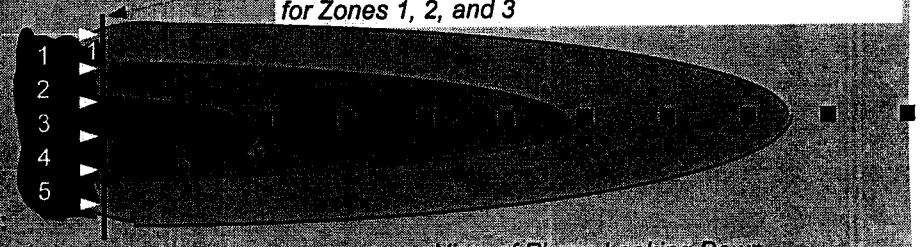
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.08

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	193	386	579	772	965	1158	1351	1544	1737	1930

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

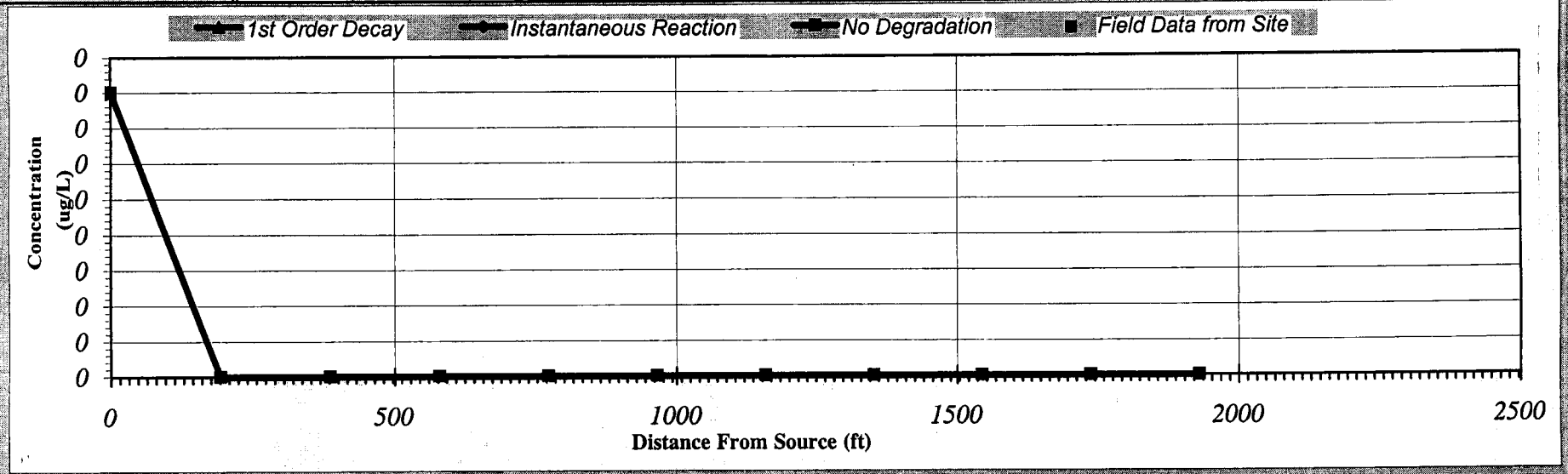
Paste Example Dataset

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	193	386	579	772	965	1158	1351	1544	1737	1930
No Degradation	0.080	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 - CL6-6
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	57.7	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.122	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

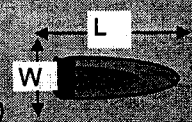
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

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

5. GENERAL

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



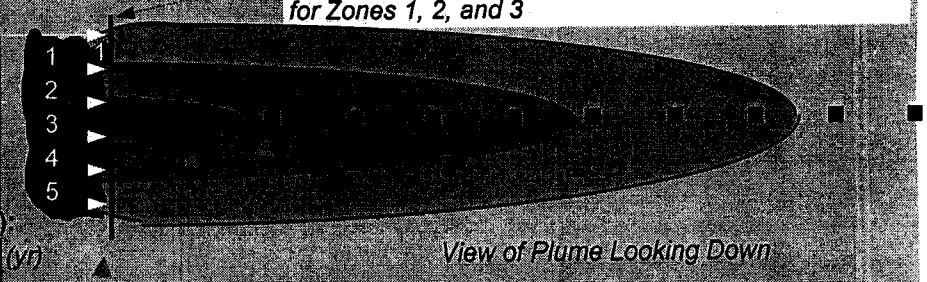
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.03

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

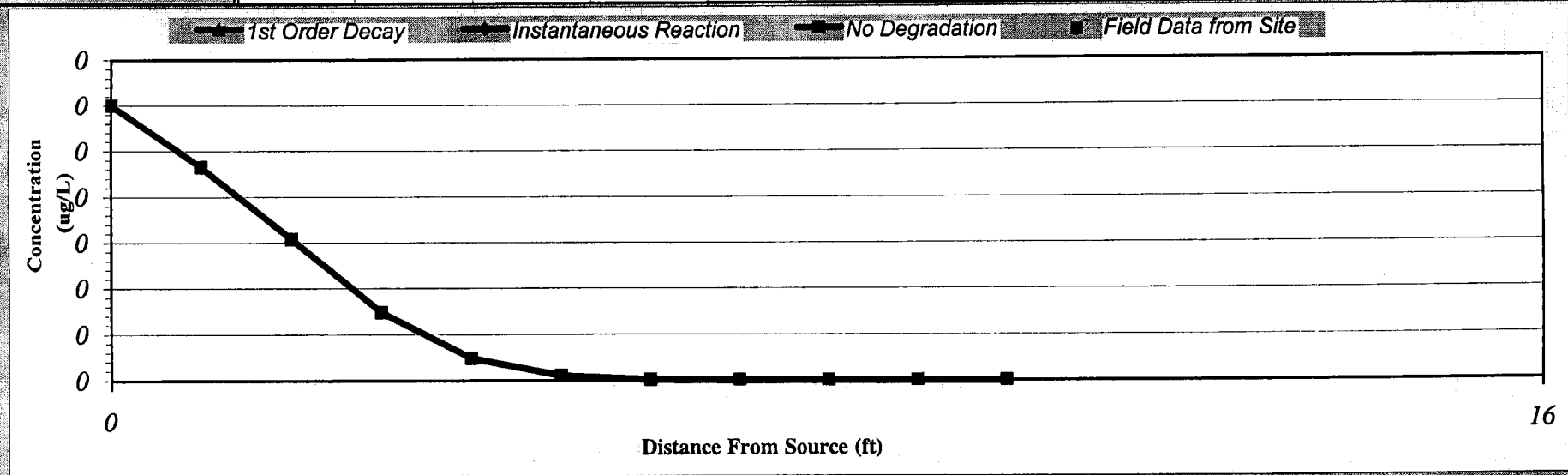
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	1	2	3	4	5	6	7	8	9	10
No Degradation	0.030	0.023	0.015	0.007	0.002	0.001	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 - CL6-8
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	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

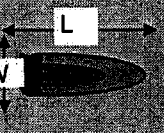
Retardation Factor*	*R*	2818.1	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	5.8E+2	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

4. BIODEGRADATION

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

5. GENERAL

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



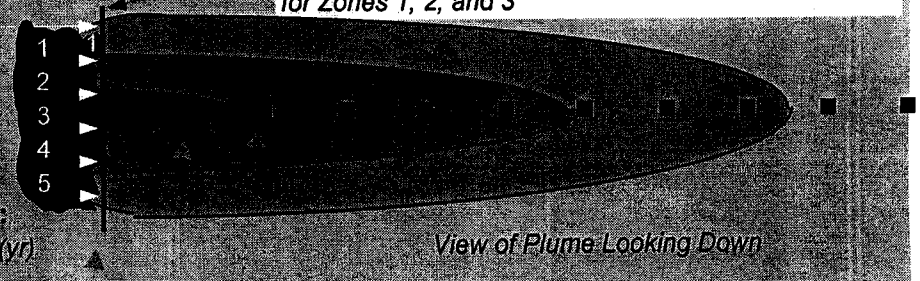
6. SOURCE DATA

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

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	0.082
4		
5		



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

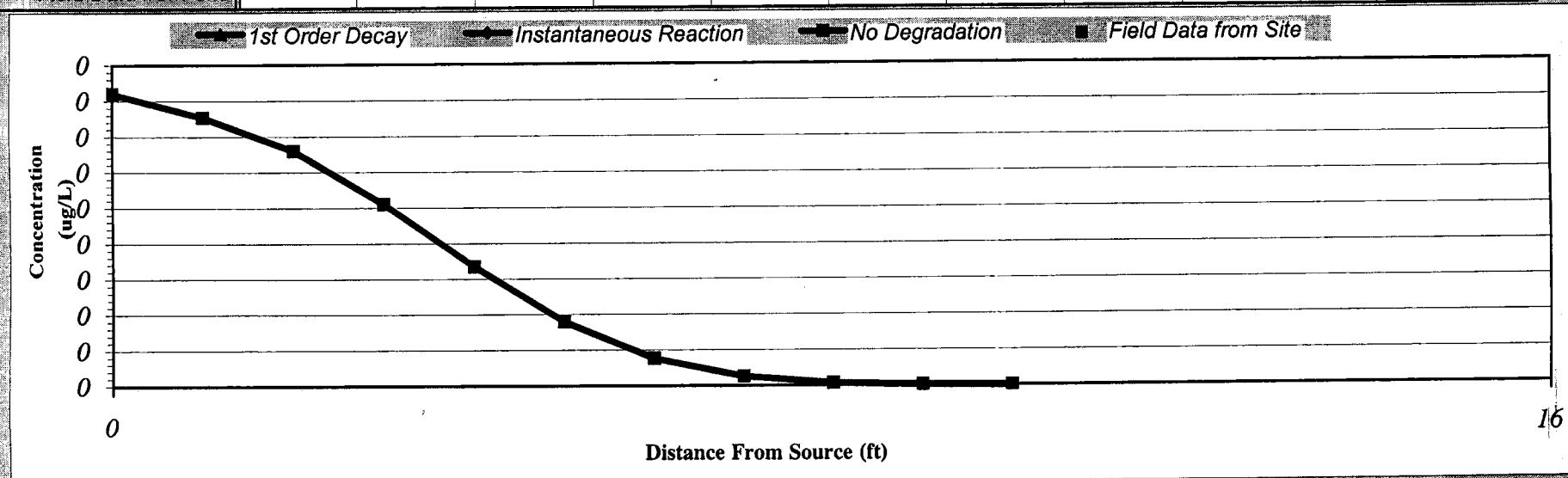
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	1	2	3	4	5	6	7	8	9	10
No Degradation	0.082	0.075	0.066	0.051	0.034	0.018	0.008	0.003	0.001	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 - CL6-9
Run Name

Data Input Instructions:

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

Variable* — Data used directly in model.

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

1. HYDROGEOLOGY

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

4. BIODEGRADATION

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

5. GENERAL

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

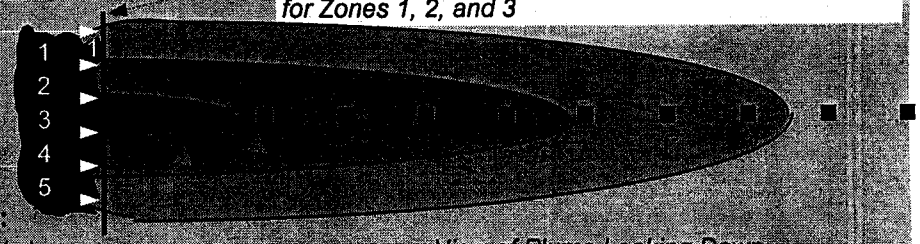
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

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	0.027
4		
5		



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

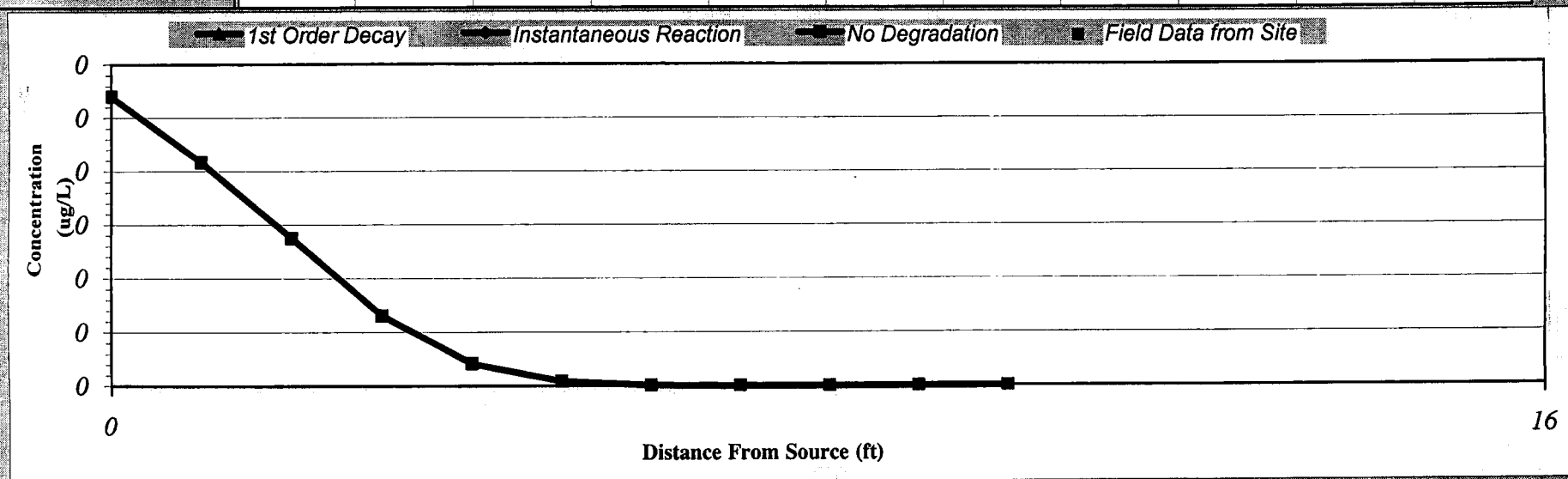
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	1	2	3	4	5	6	7	8	9	10
No Degradation	0.027	0.021	0.014	0.007	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
Hg - MW-1B1-02
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	6.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0137	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	36.3	(ft)
Transverse Dispersivity*	alpha y	3.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	2750	(ft)

3. ADSORPTION

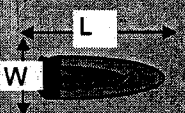
Retardation Factor*	R	2818.1	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	2750	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

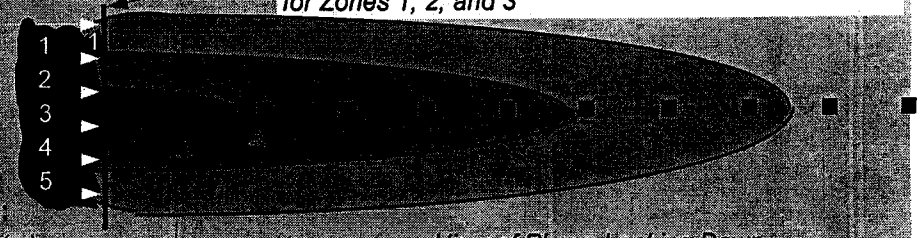
Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.075

Source 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

Dist. from Source (ft)	0	275	550	825	1100	1375	1650	1925	2200	2475	2750
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

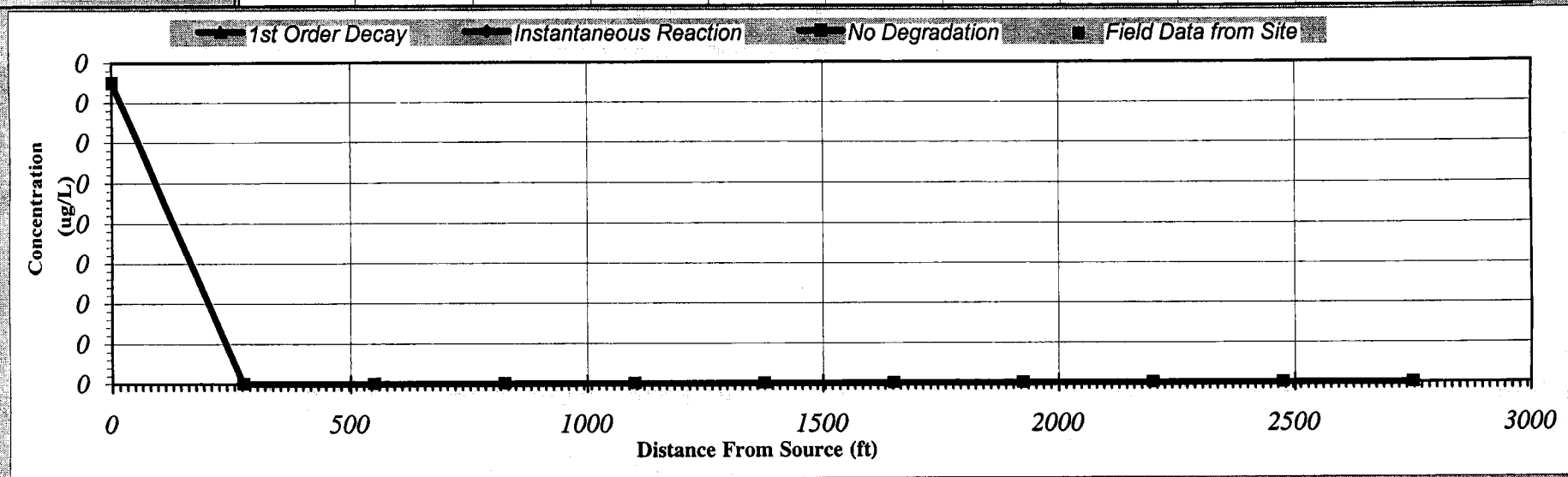
Recalculate This Sheet

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	275	550	825	1100	1375	1650	1925	2200	2475	2750
No Degradation	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - MW-1B1-03
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	5.9	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0133	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	R	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*	2740	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

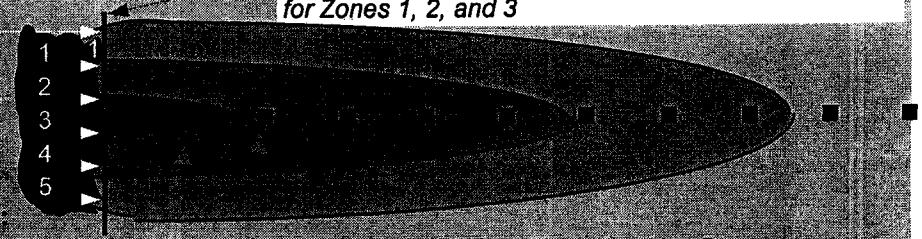
Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.043

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)	Concentration (mg/L)
0	
274	
548	
822	
1096	
1370	
1644	
1918	
2192	
2466	
2740	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

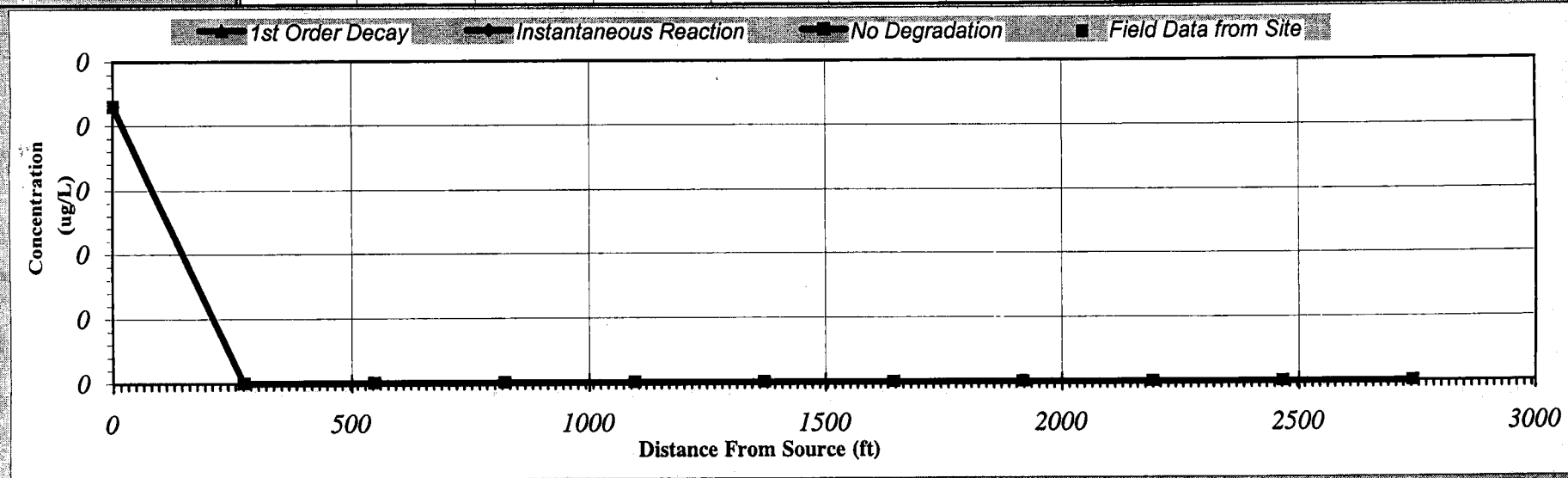
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	274	548	822	1096	1370	1644	1918	2192	2466	2740
No Degradation	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

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

Data Input Instructions:

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

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

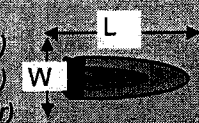
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

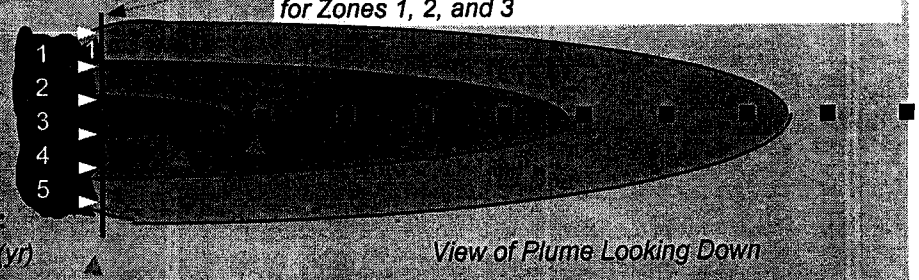
Source Zones:

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

Source Halflife (see Help):

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

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



View of Plume Looking Down

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

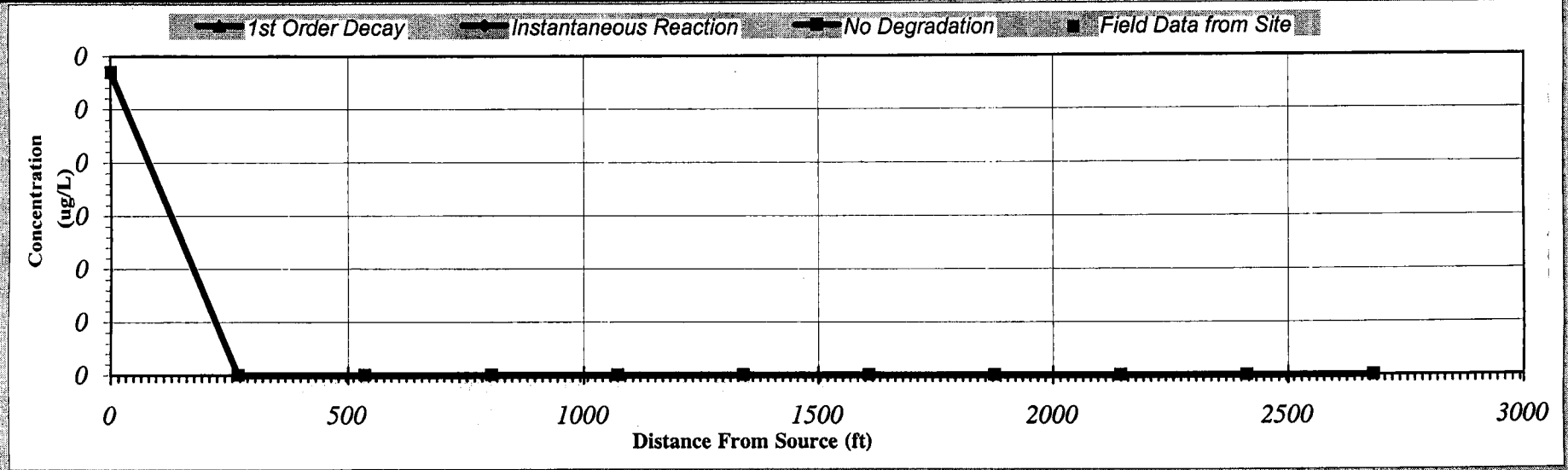
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	268	536	804	1072	1340	1608	1876	2144	2412	2680
No Degradation	0.057	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - MWB-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* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

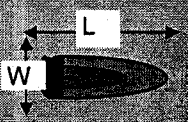
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	1220	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



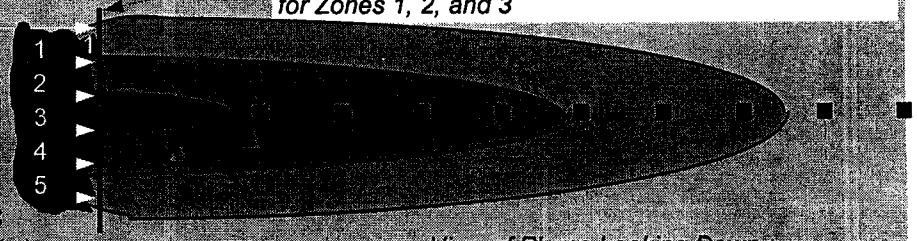
6. SOURCE DATA

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	122	244	366	488	610	732	854	976	1098	1220

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

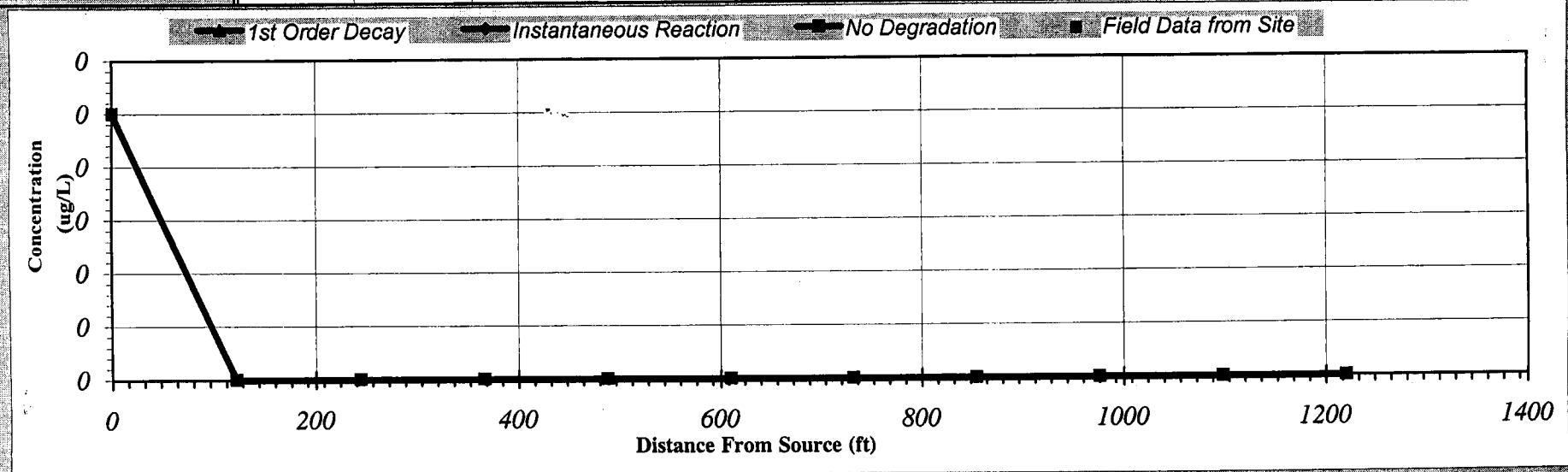
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	122	244	366	488	610	732	854	976	1098	1220
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 - R
Hg - MWB-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* ▸ Data used directly in model.
20 ▸ Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

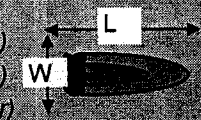
Retardation Factor*	R	2818.1	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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



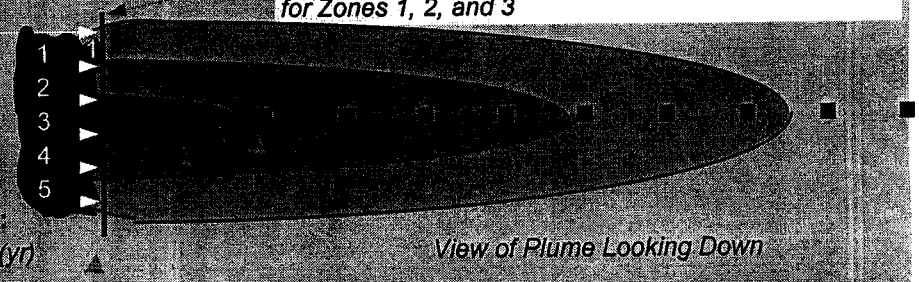
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.29

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	135	270	405	540	675	810	945	1080	1215	1350

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

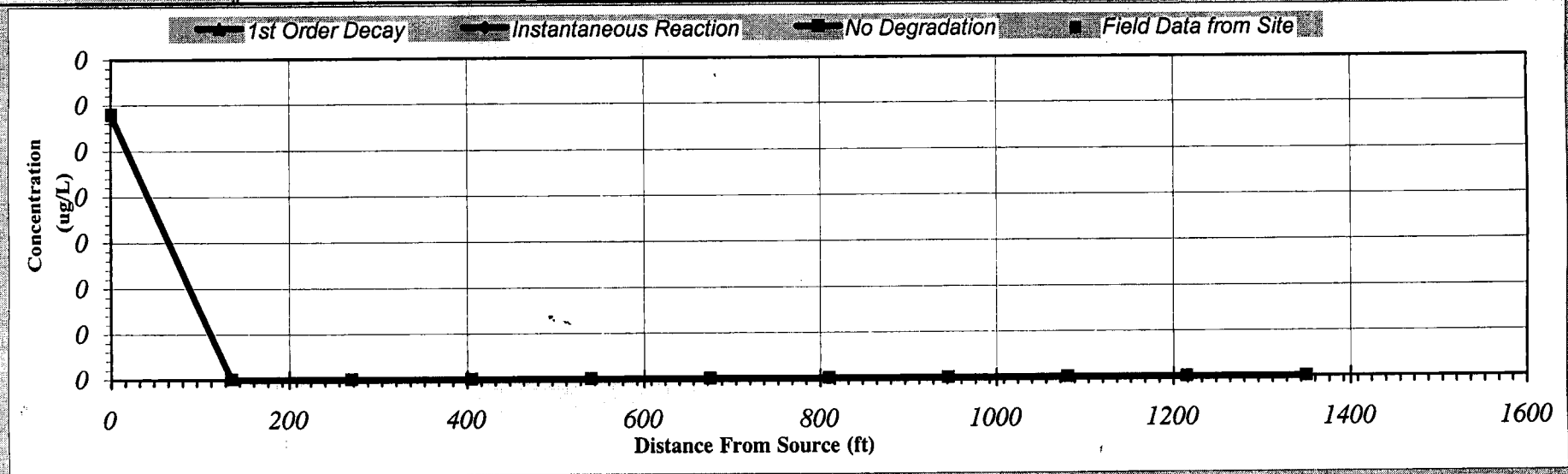
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	135	270	405	540	675	810	945	1080	1215	1350
No Degradation	0.290	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - MWB-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*	16.7	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	1.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0354	*(ft/ft)*
Porosity	*n*	0.35	*(-)*

2. DISPERSION

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

3. ADSORPTION

Retardation Factor*	*R*	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*	1240	*(ft)*
Modeled Area Width*	1500	*(ft)*
Simulation Time*	100	*(yr)*

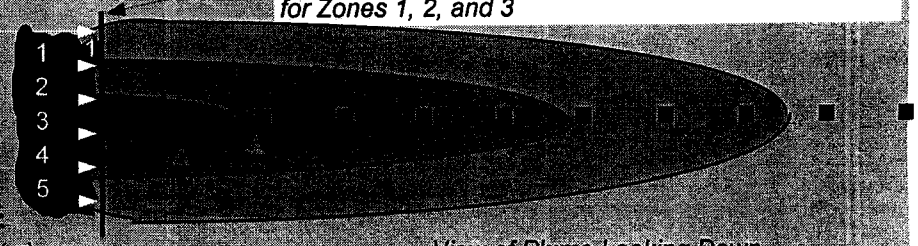
6. SOURCE DATA

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

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.15

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



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	*(yr)*

Inst. React. — 1st Order

Soluble Mass — infinite *(Kg)*

In Source NAPL Soil

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

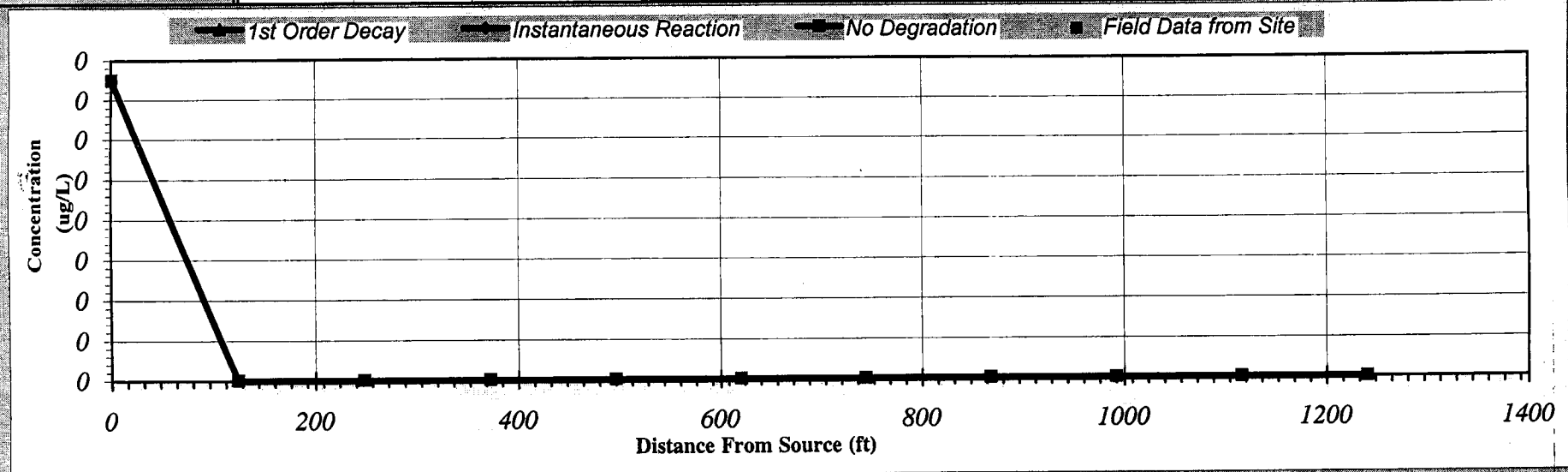
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	124	248	372	496	620	744	868	992	1116	1240
No Degradation	0.150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - MWB-5
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	14.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0305	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	27.9	(ft)
Transverse Dispersivity*	alpha y	2.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1380	(ft)

3. ADSORPTION

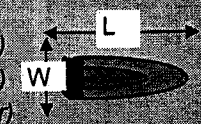
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	1380	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



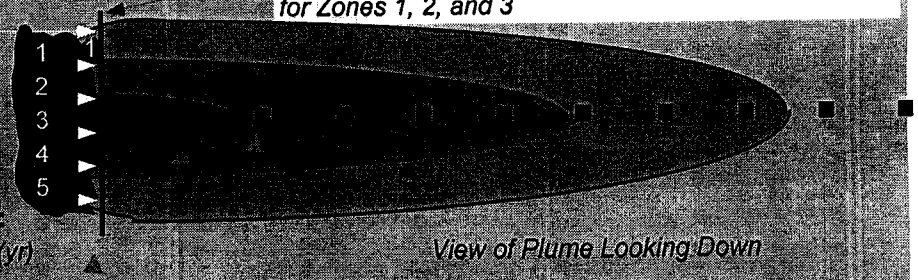
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.088

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	138	276	414	552	690	828	966	1104	1242	1380

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

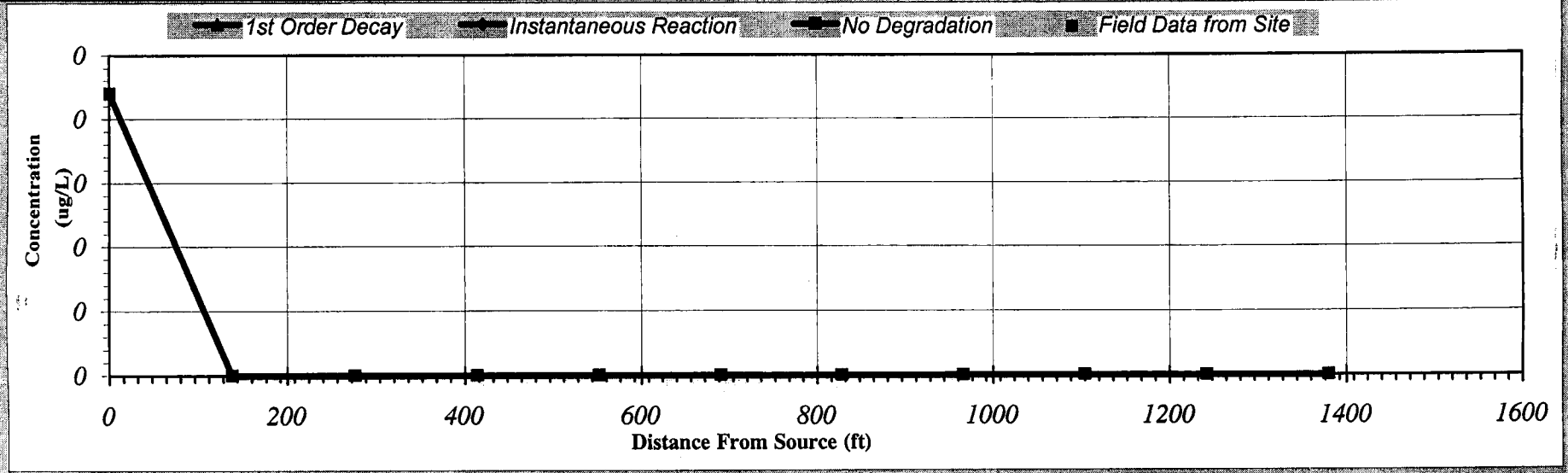
Paste Example Dataset

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	138	276	414	552	690	828	966	1104	1242	1380
No Degradation	0.088	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate 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 - MWB-6
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	16.3	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0344	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	27.5	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1320	(ft)

3. ADSORPTION

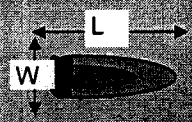
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

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

5. GENERAL

Modeled Area Length*	1320	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



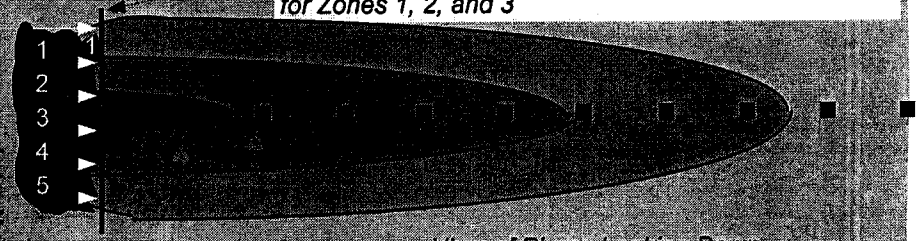
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.23

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	132	264	396	528	660	792	924	1056	1188	1320

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

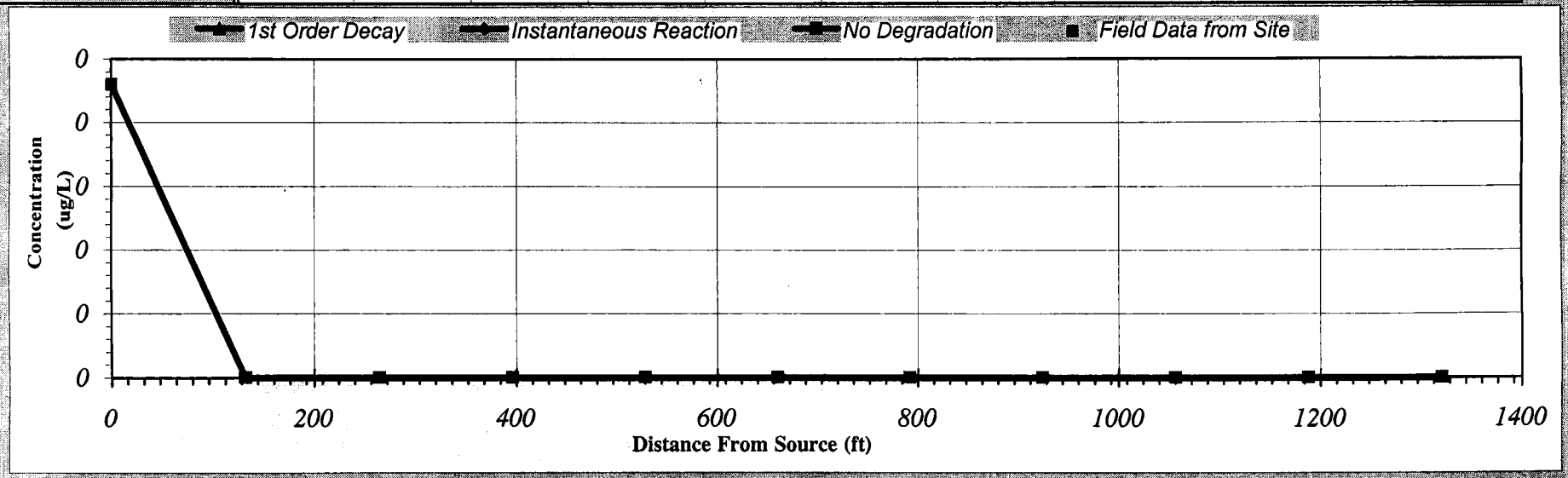
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	132	264	396	528	660	792	924	1056	1188	1320
No Degradation	0.230	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - MW-40
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	12.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0262	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

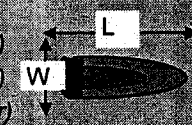
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

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

5. GENERAL

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



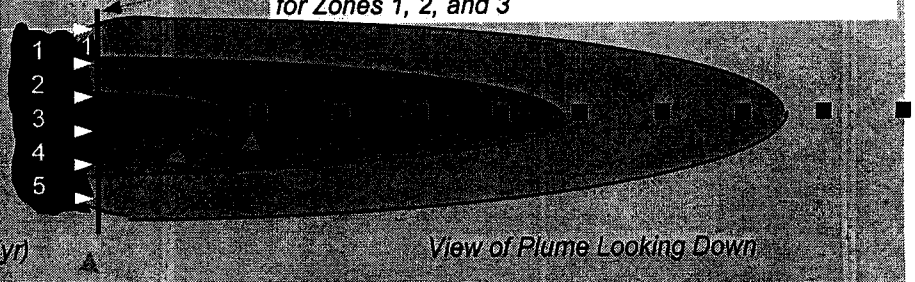
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	0.11

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	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

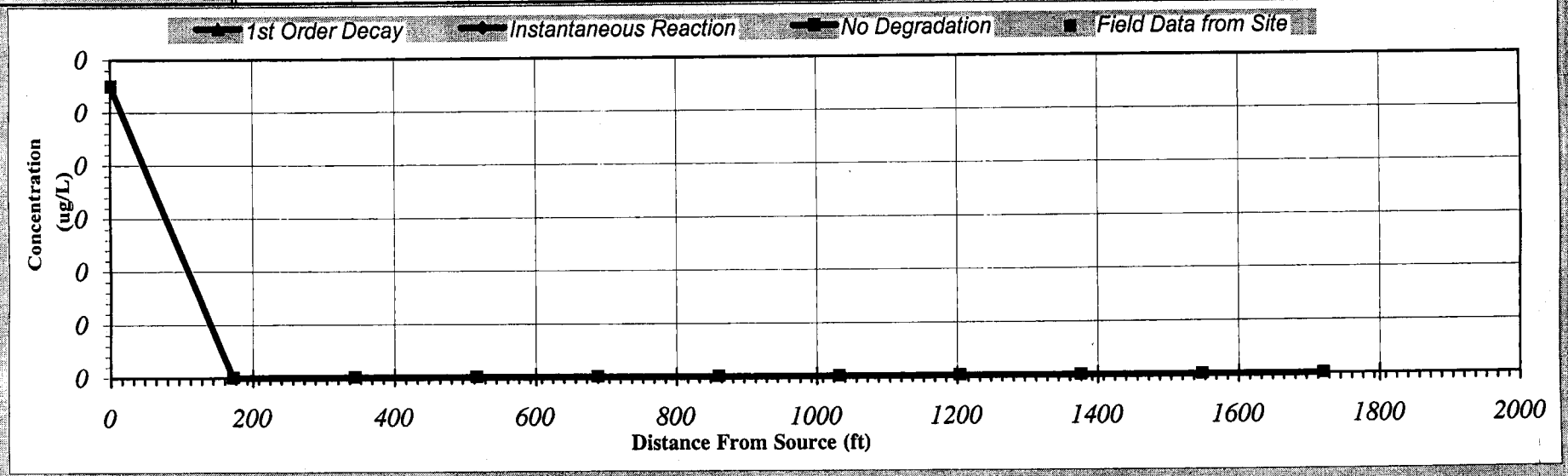
Recalculate This Sheet

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	0.110	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 - R
Hg - 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	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

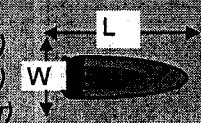
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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



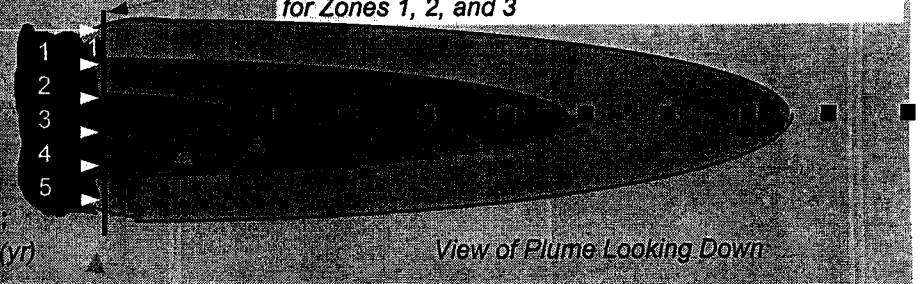
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

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

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

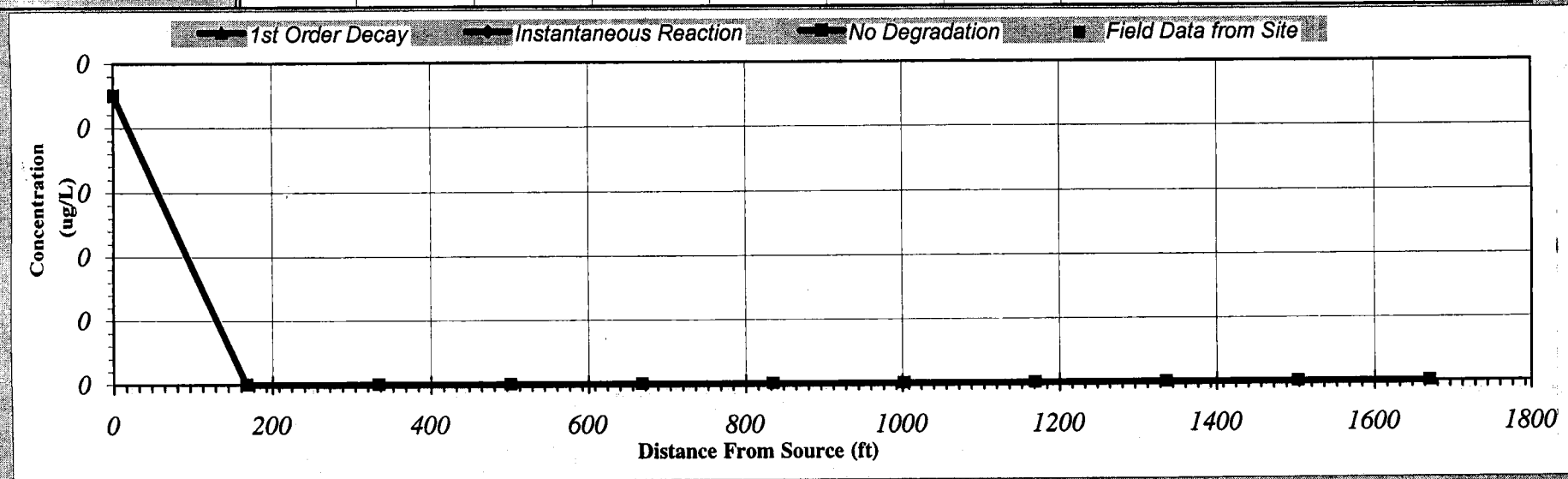
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	167	334	501	668	835	1002	1169	1336	1503	1670
No Degradation	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - MW-49
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	15.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0328	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	26.7	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1230	(ft)

3. ADSORPTION

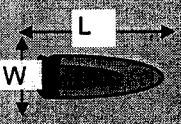
Retardation Factor*	R	2818.1	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.8E+2	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	1230	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

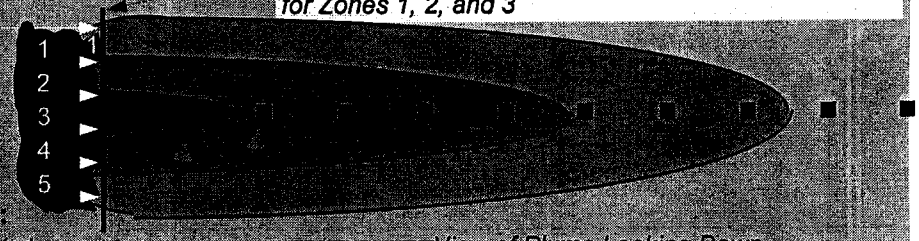
Width* (ft)	Conc. (ug/L)*
1000	0.25

Source Halflife (see Help): Infinite | Infinite (yr)

Inst. React. or 1st Order

Soluble Mass in Source NAPL Soil: infinite (Kg)

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



View of Plume Looking Down

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

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	0	123	246	369	492	615	738	861	984	1107	1230
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

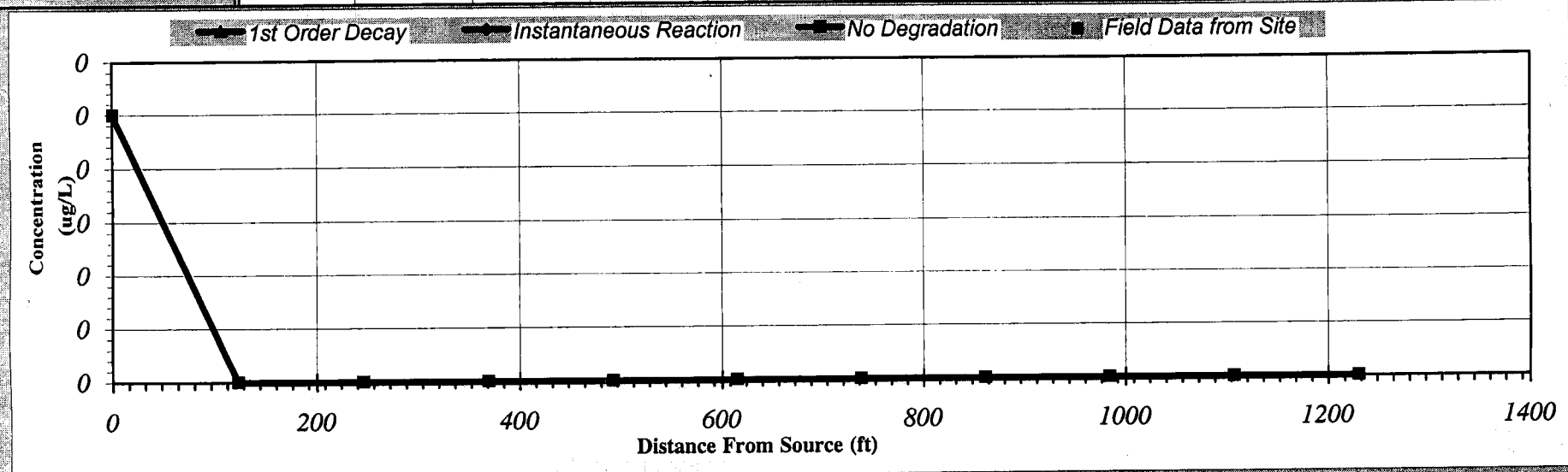
Recalculate This Sheet

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	123	246	369	492	615	738	861	984	1107	1230
No Degradation	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Hg - SW1-1
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*	
	Data used directly in model.
20	*Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	5.8	*(ft/yr)*
or		*or*	
Hydraulic Conductivity	*K*	1.6E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0123	*(ft/ft)*
Porosity	*n*	0.35	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	38.5	*(ft)*
Transverse Dispersivity*	*alpha y*	3.9	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		*or*	
Estimated Plume Length	*Lp*	3258	*(ft)*

3. ADSORPTION

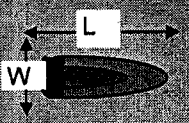
Retardation Factor*	*R*	2818.1	*(-)*
or		***or***	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	5.8E+2	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

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*	3258	*(ft)*
Modeled Area Width*	1500	*(ft)*
Simulation Time*	100	*(yr)*



6. SOURCE DATA

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

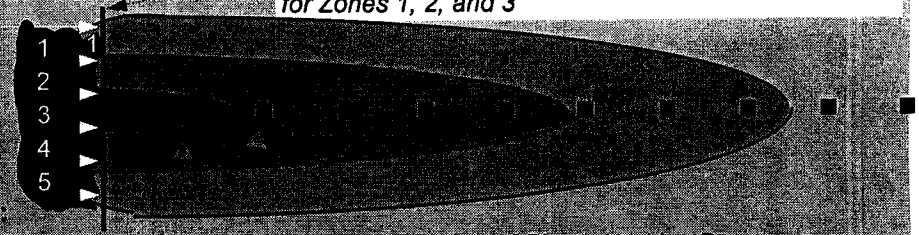
Source Zones:

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

Source Halflife (see Help):

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

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



View of Plume Looking Down

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	326	652	977	1303	1629	1955	2281	2606	2932	3258

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

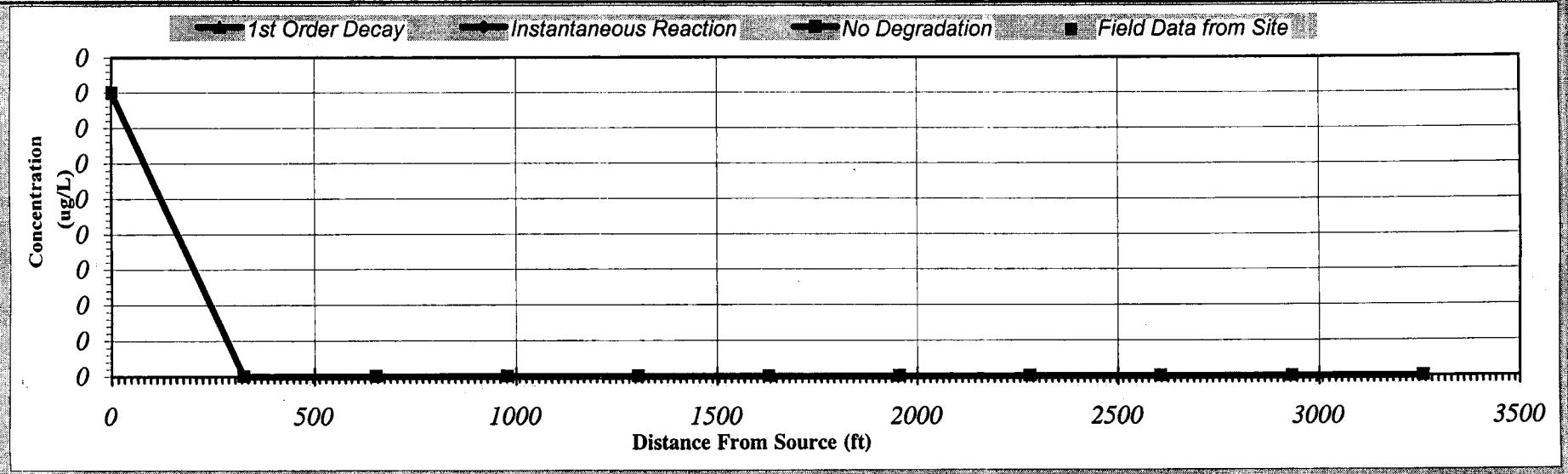
Paste Example Dataset

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	326	652	977	1303	1629	1955	2281	2606	2932	3258
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 Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
MC - SW1-8
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	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	
Transverse Dispersivity*	alpha y	
Vertical Dispersivity*	alpha z	
or		
Estimated Plume Length	Lp	

3. ADSORPTION

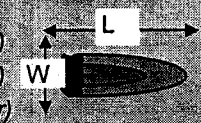
Retardation Factor*	R	
or		
Soil Bulk Density	rho	
Partition Coefficient	Koc	1
FractionOrganicCarbon	foc	6

4. BIODEGRADATION

1st Order Decay Coeff*	lambda		
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

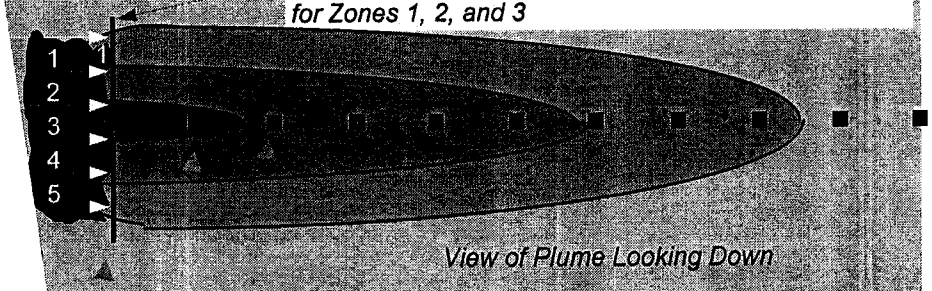
Modeled Area Length*	1670	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



6. SOU

Sat.Zone* 10 (ft)

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"

Add'l Modeling for chlorinated Solvents (3 chemicals)

RISON

	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

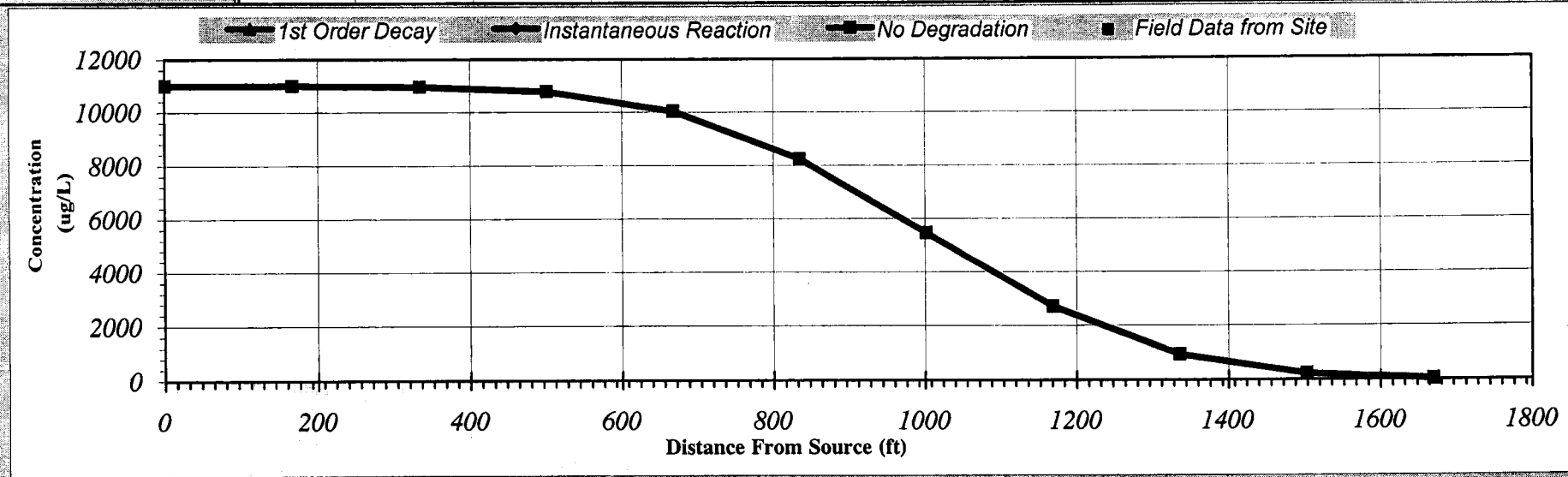
Recalculate This Sheet

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	11000.000	10996.202	10963.318	10768.432	10030.080	8240.119	5461.600	2698.950	939.494	222.005	34.790
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate
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
MC - SW1-8
Run Name

Data Input Instructions:

115 ↑ or 0.02

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

Variable* ▸ Data used directly in model.

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

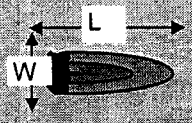
Retardation Factor*	*R*	1.2	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	1.0E+1	*(L/kg)*
FractionOrganicCarbon	*foc*	4.6E-3	*(-)*

4. BIODEGRADATION

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

5. GENERAL

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



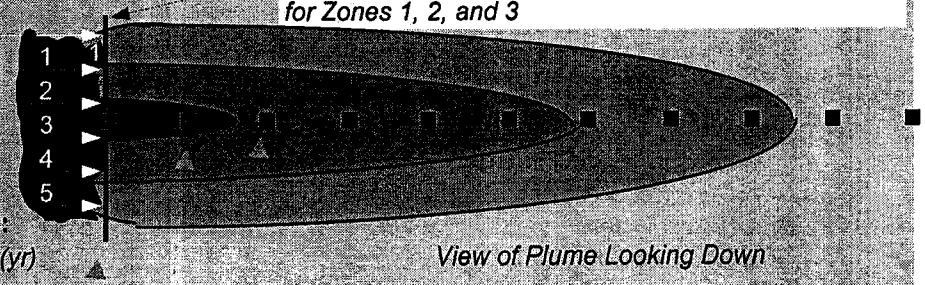
6. SOURCE DATA

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

Source Zones:

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

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 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	125	250	375	500	625	750	875	1000	1125	1250

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

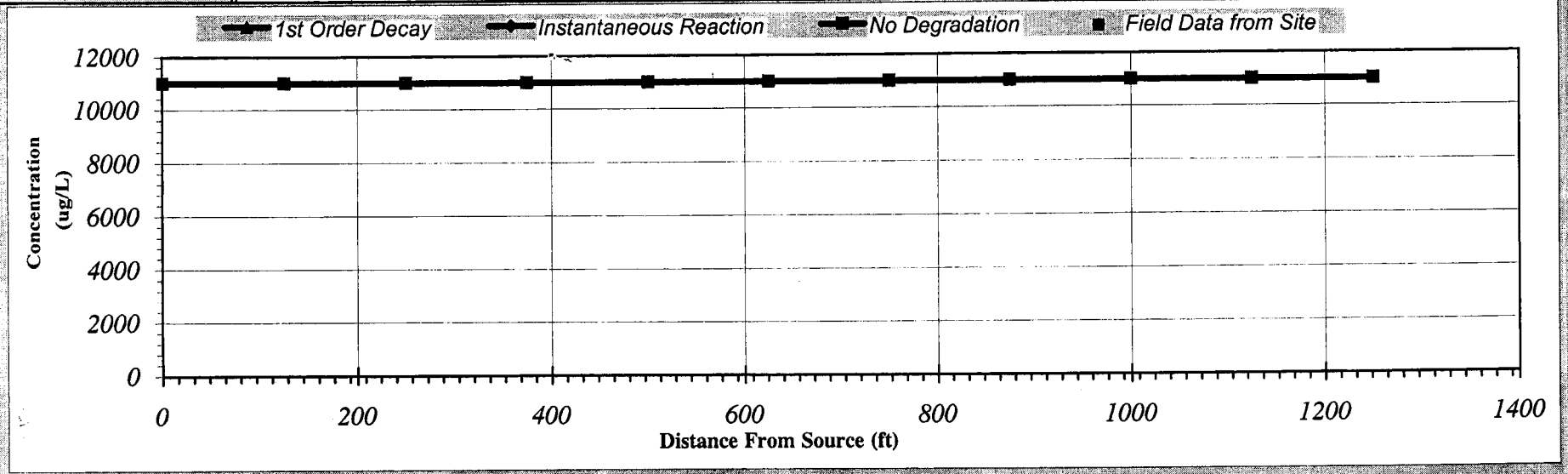
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	125	250	375	500	625	750	875	1000	1125	1250
No Degradation	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000	11000.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate 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
1,2-DCA - MWB-1
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	17.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0361	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

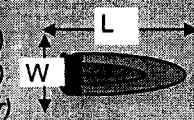
Retardation Factor*	R	2.1	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.8E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

Modeled Area Length*	1220	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



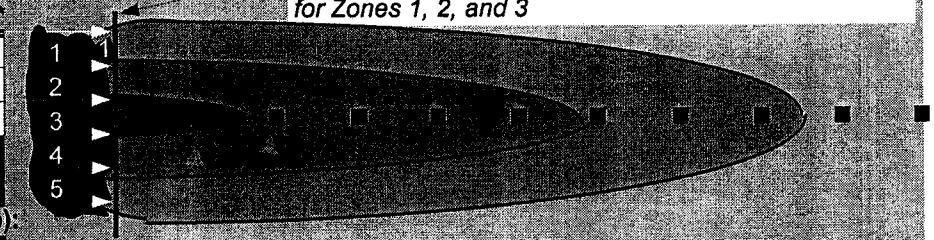
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	890

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	122	244	366	488	610	732	854	976	1098	1220

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

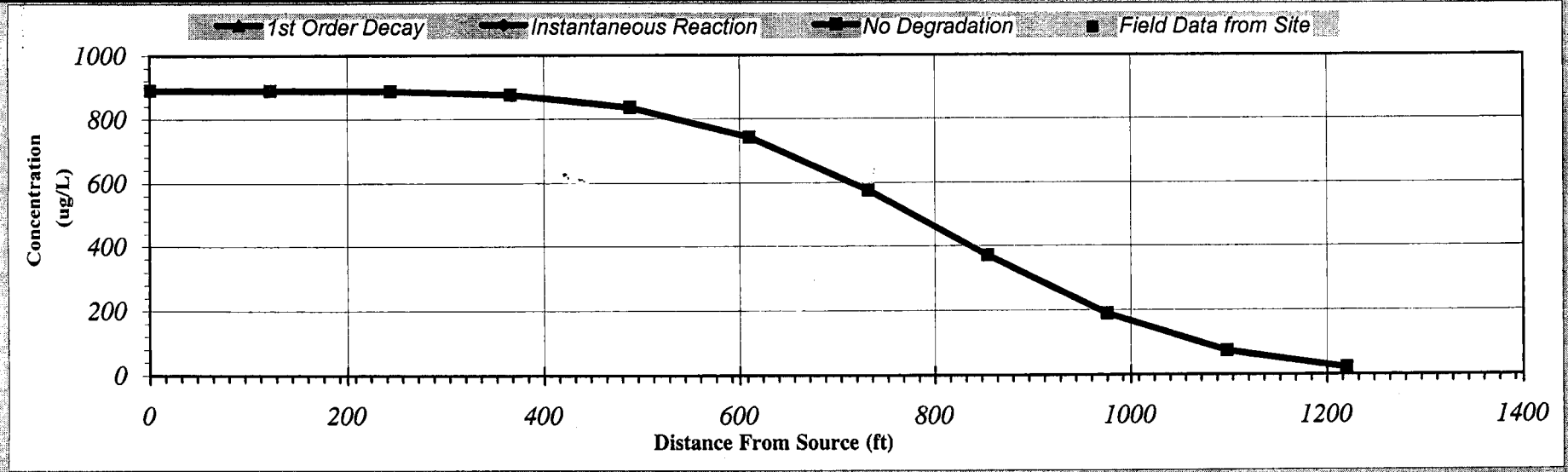
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	122	244	366	488	610	732	854	976	1098	1220
No Degradation	890.000	889.593	887.162	875.602	836.332	741.019	575.680	370.650	188.889	73.700	21.522
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
1,2-DCA - MWB-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* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

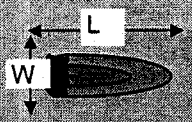
Retardation Factor*	R	2.2	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	3.8E+1	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

Modeled Area Length*	1550	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



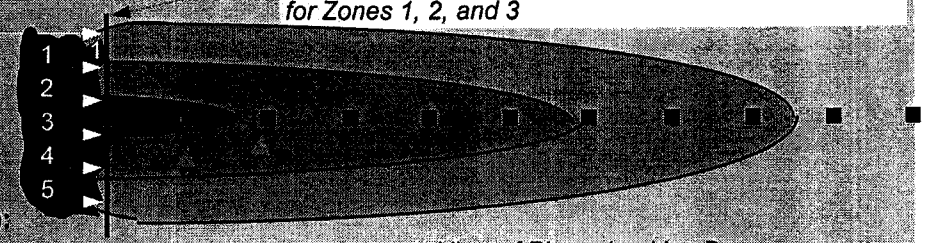
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	890

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	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

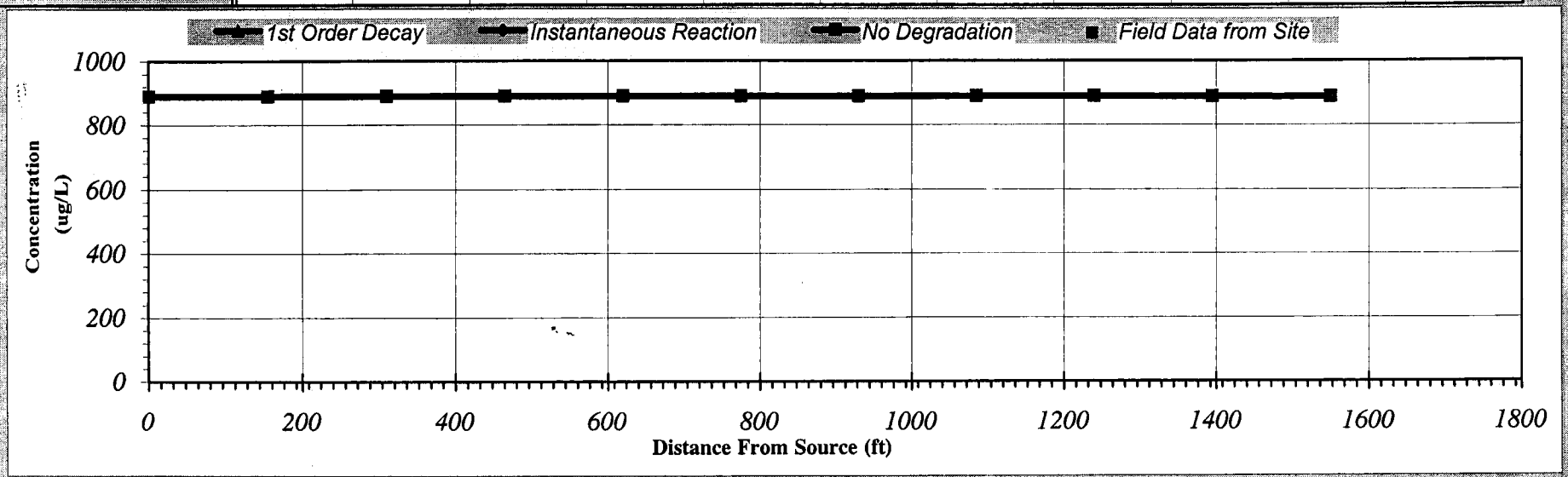
Recalculate This Sheet

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) 0	155	310	465	620	775	930	1085	1240	1395	1550
No Degradation	890.000	890.000	890.000	890.000	890.000	889.999	889.996	889.980	889.900	889.571	888.401
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
1,1-DCA - MWB-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* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

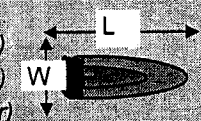
Retardation Factor*	R	2.6	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.3E+1	(L/kg)
FractionOrganicCarbon	foc	6.0E-3	(-)

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



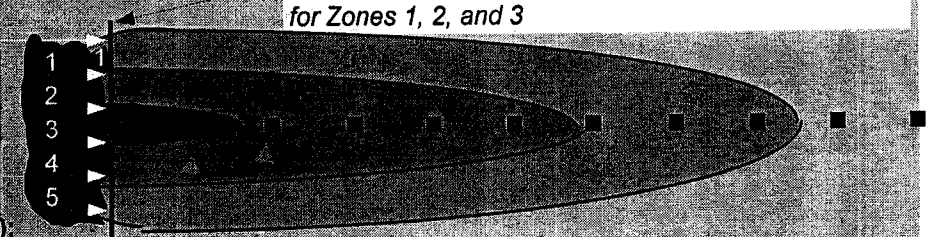
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	770

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	135	270	405	540	675	810	945	1080	1215	1350

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

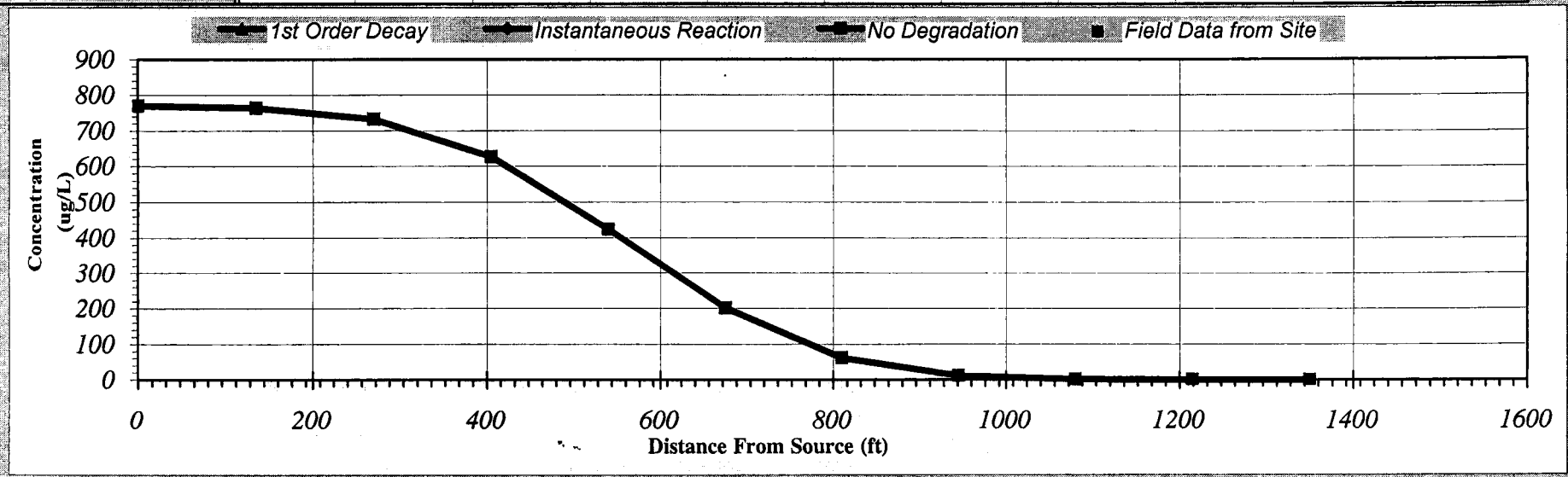
Paste Example Dataset

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

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

Distance from Source (ft)

TYPE OF MODEL	0	135	270	405	540	675	810	945	1080	1215	1350
No Degradation	770.000	764.051	732.444	626.658	424.035	201.711	61.949	11.648	1.299	0.084	0.003
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
1,1-DCA - MWB-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* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

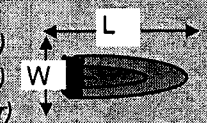
Retardation Factor*	R	2.6	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	5.3E+1	(L/kg)
FractionOrganicCarbon	foc	6.3E-3	(-)

4. BIODEGRADATION

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

5. GENERAL

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



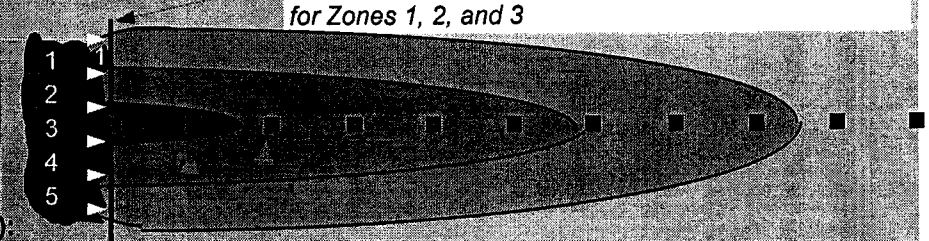
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	770

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	147	294	441	588	735	882	1029	1176	1323	1470

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

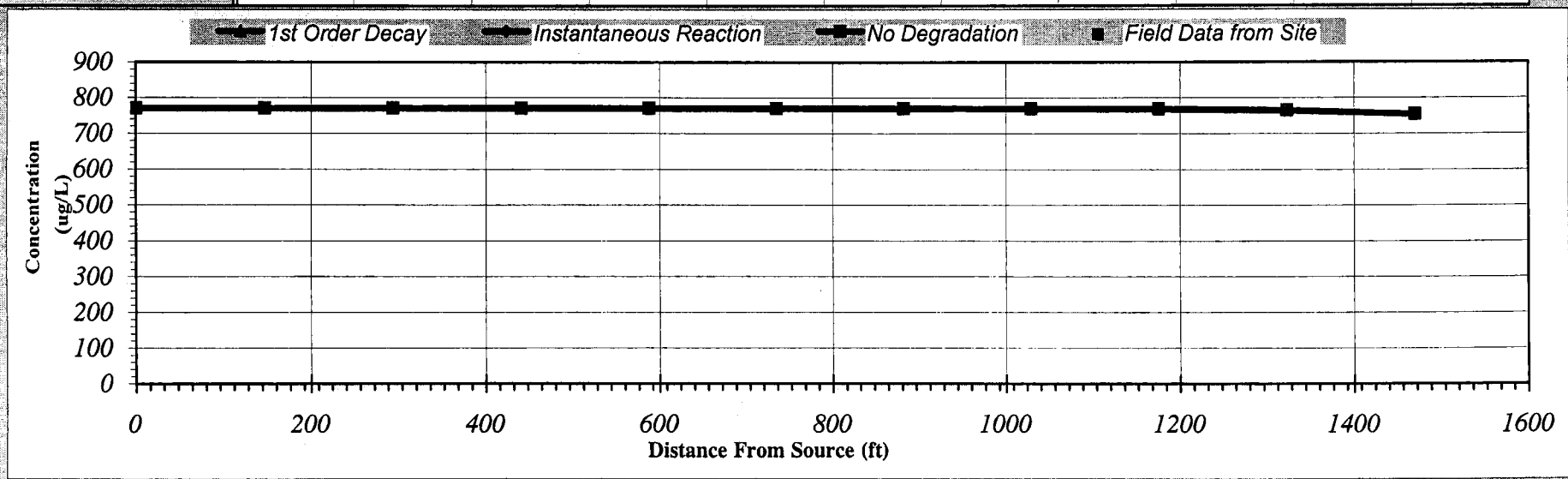
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	147	294	441	588	735	882	1029	1176	1323	1470
No Degradation	770.000	770.000	770.000	770.000	769.998	769.984	769.913	769.589	768.352	764.371	753.556
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
Se - MW-49
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	55.3	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0282	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	29.0	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	1510	(ft)

3. ADSORPTION

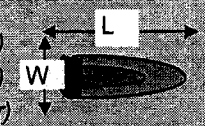
Retardation Factor*	R	21.9	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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)



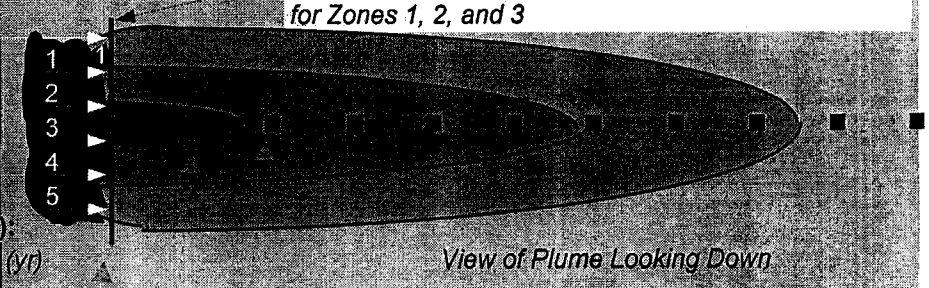
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	5.3

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	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

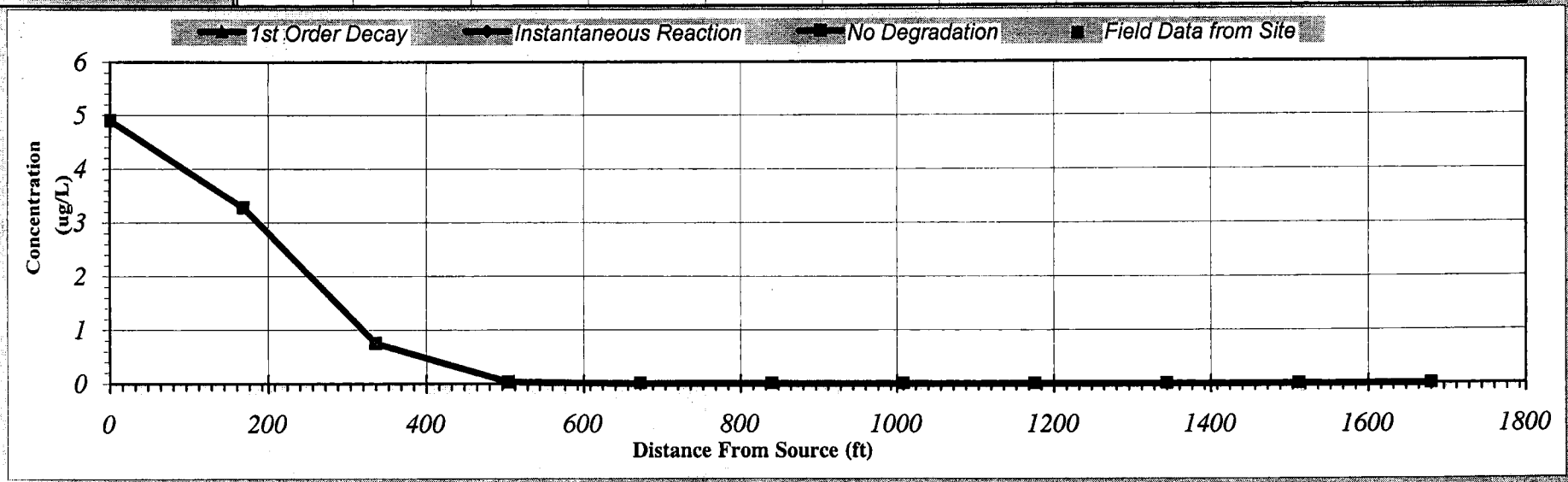
Recalculate This Sheet

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	168	336	504	672	840	1008	1176	1344	1512	1680
No Degradation	4.900	3.283	0.751	0.032	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

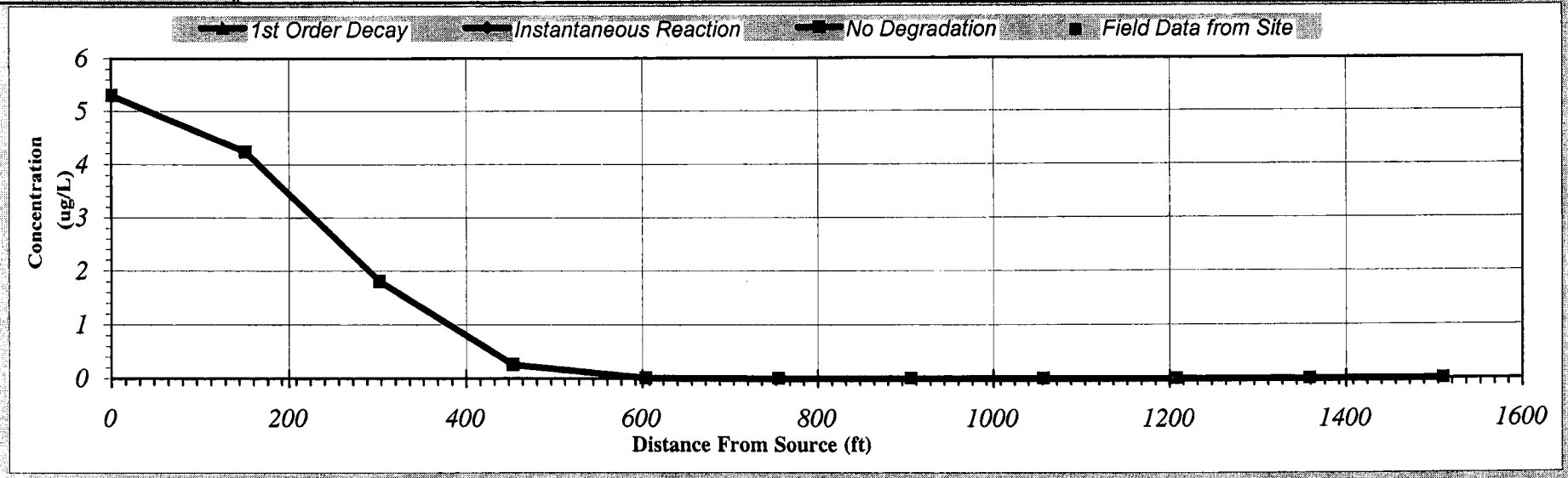
Time:
100 Years

Return to Input

Recalculate This Sheet

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	5.300	4.237	1.809	0.258	0.010	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
Se - MWB-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	59.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0302	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

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

3. ADSORPTION

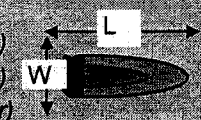
Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

4. BIODEGRADATION

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

5. GENERAL

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



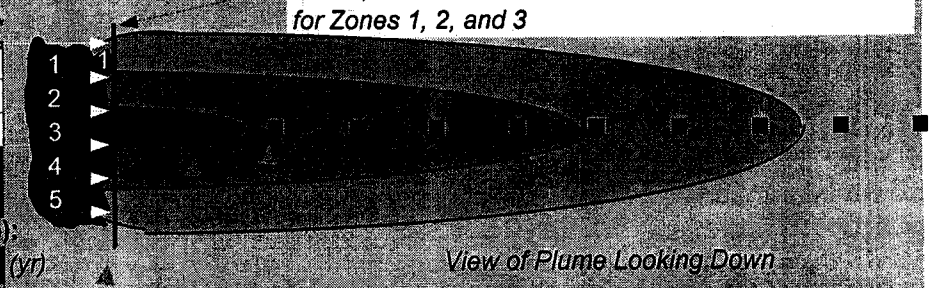
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

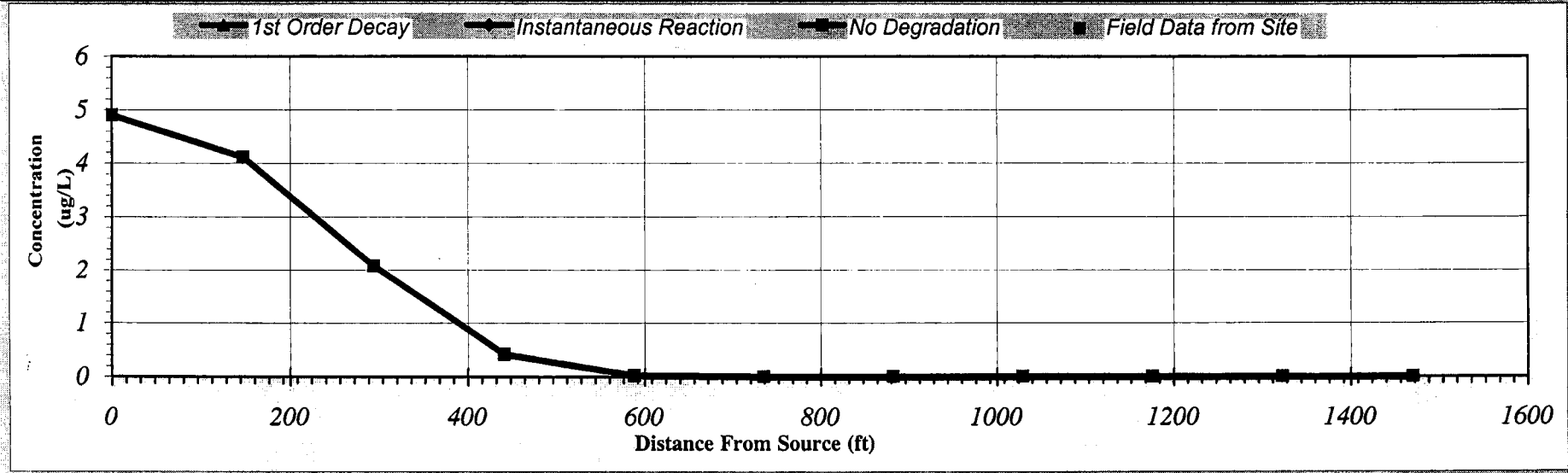
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	147	294	441	588	735	882	1029	1176	1323	1470
No Degradation	4.900	4.113	2.082	0.418	0.026	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Next Timestep

Prev Timestep

Time:

100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Run Name: *Painesville - L*
Se - SW1-3

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	46.3	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	6.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0236	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	28.5	(ft)
Transverse Dispersivity*	alpha y	2.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	1450	(ft)

3. ADSORPTION

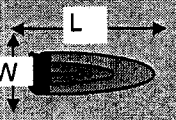
Retardation Factor*	R	21.9	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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*	1450	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)



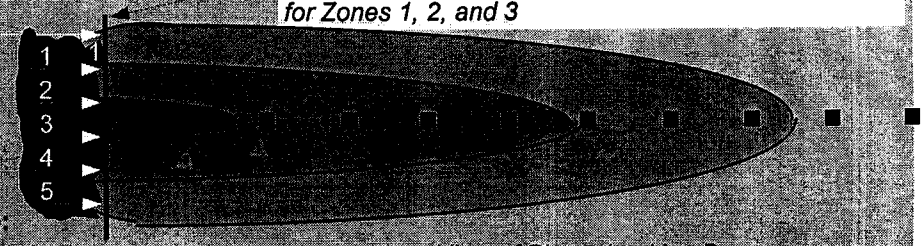
6. SOURCE DATA

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	4.9



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)

Inst. React. ↑ 1st Order

Soluble Mass infinite (Kg)
In Source NAPL, Soil

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

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	
145	
290	
435	
580	
725	
870	
1015	
1160	
1305	
1450	

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
Se - CL6-3
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	3.6	(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	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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)

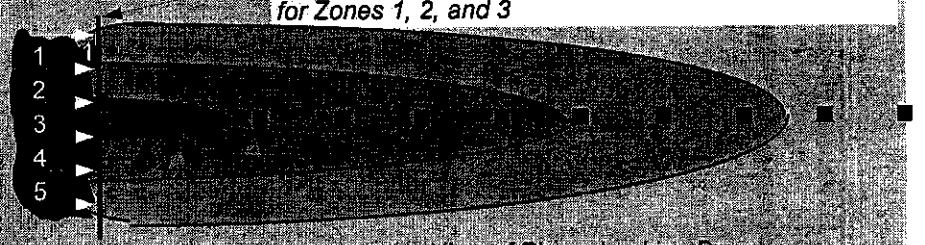
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	89.4

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	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

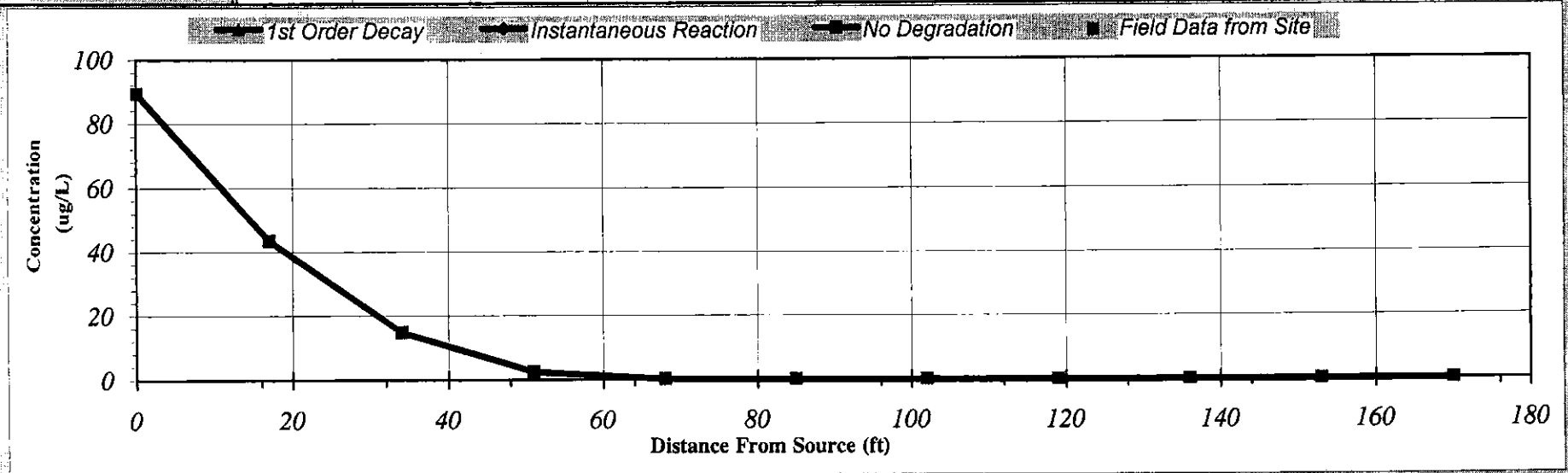
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	17	34	51	68	85	102	119	136	153	170
No Degradation	89.400	43.568	14.854	2.525	0.199	0.007	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
Se - 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

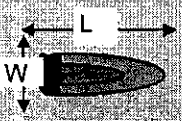
Retardation Factor*	*R*	21.9	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	4.3E+0	*(L/kg)*
FractionOrganicCarbon	*foc*	1.0E+0	*(-)*

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)*



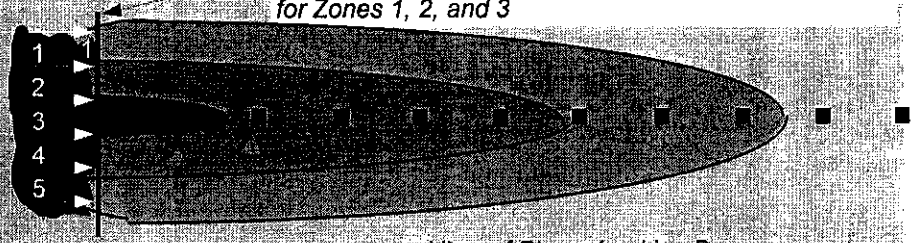
6. SOURCE DATA

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	23



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	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

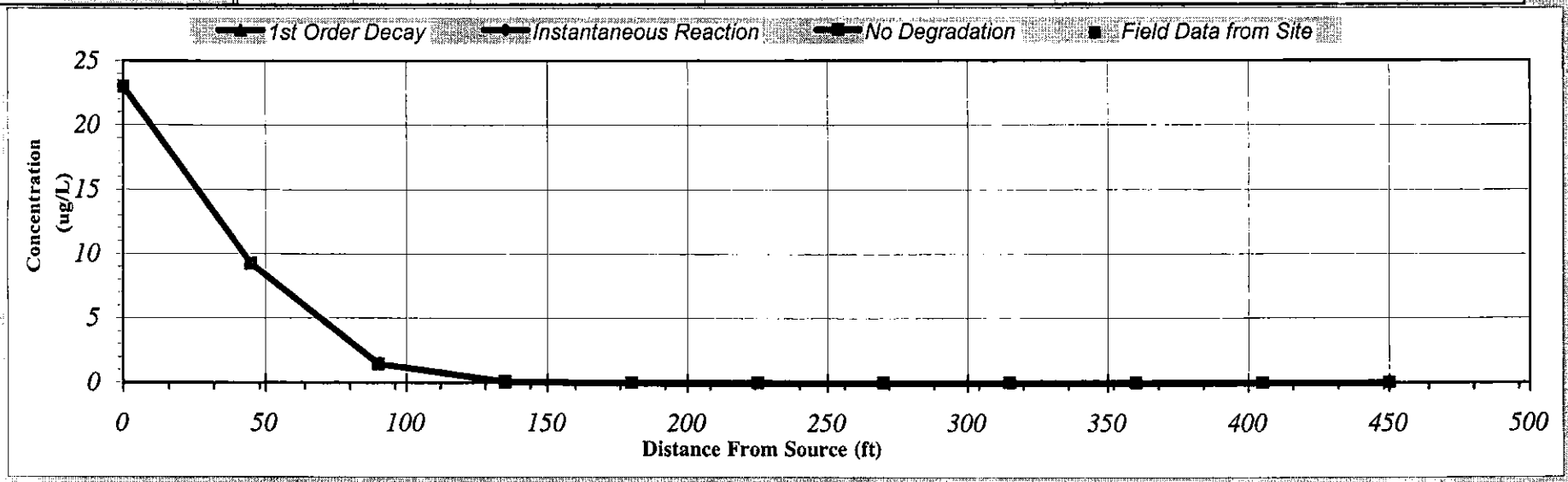
Recalculate This Sheet

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	23.000	9.255	1.458	0.058	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
Se - CL6-8
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

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

2. DISPERSION

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

3. ADSORPTION

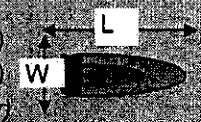
Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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)



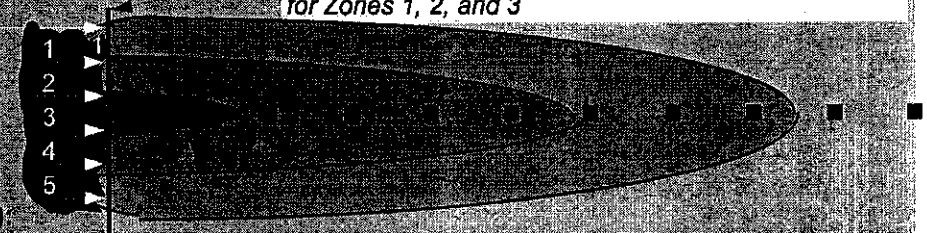
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	51.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	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

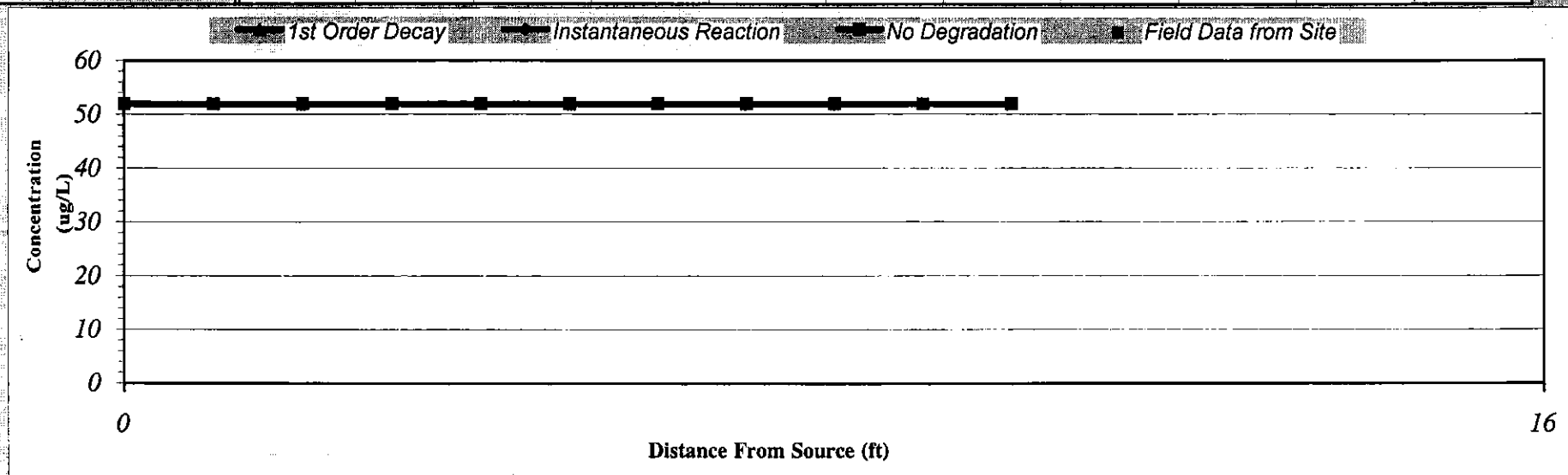
Recalculate This Sheet

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	51.900	51.900	51.900	51.900	51.900	51.900	51.900	51.900	51.900	51.900	51.900
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
Se - MW-49
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	15.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0328	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	26.7	(ft)
Transverse Dispersivity*	alpha y	2.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1230	(ft)

3. ADSORPTION

Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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*	1230	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

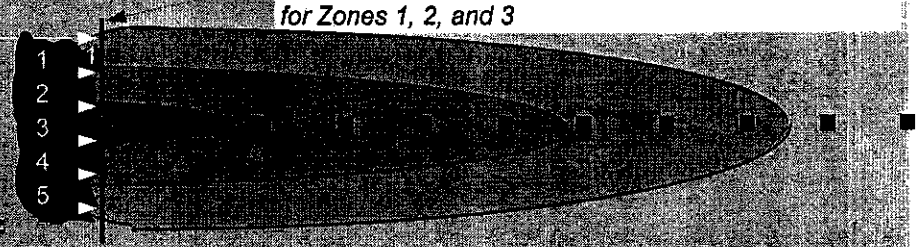
6. SOURCE DATA

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	5.3



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	123	246	369	492	615	738	861	984	1107	1230

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

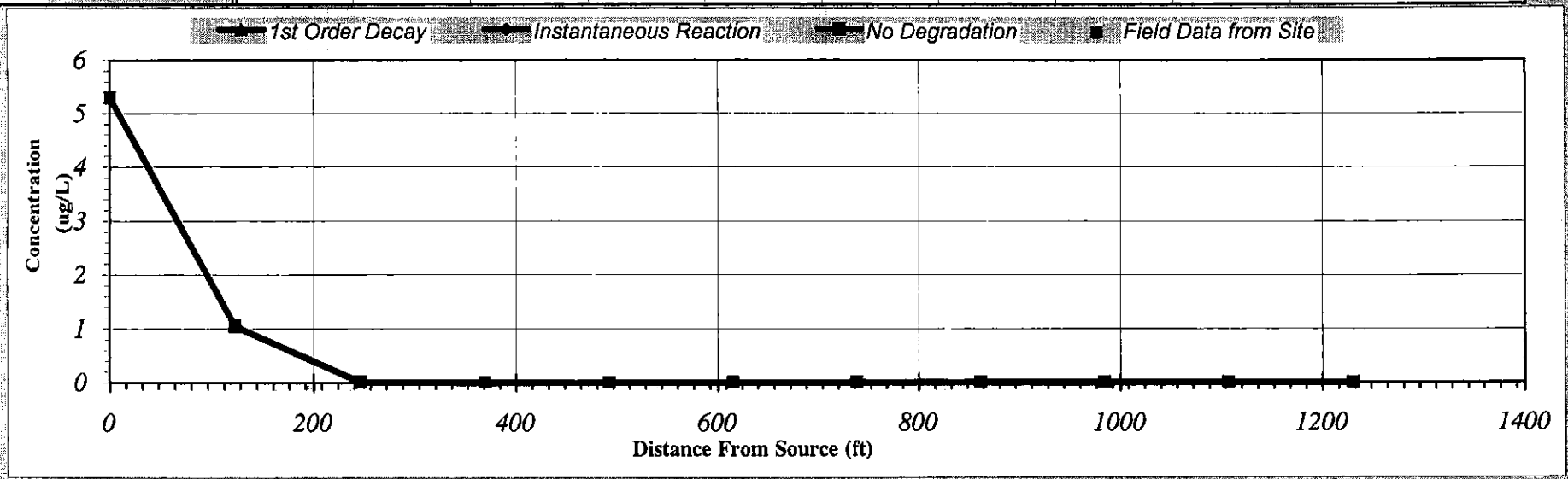
Recalculate This Sheet

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	123	246	369	492	615	738	861	984	1107	1230
No Degradation	5.300	1.051	0.012	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
Se - MWB-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	14.4	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	I	0.0305	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	27.9	(ft)
Transverse Dispersivity*	alpha y	2.8	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1380	(ft)

3. ADSORPTION

Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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*	1380	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

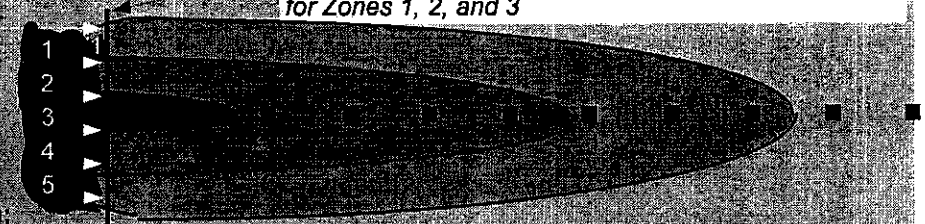
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	138	276	414	552	690	828	966	1104	1242	1380

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

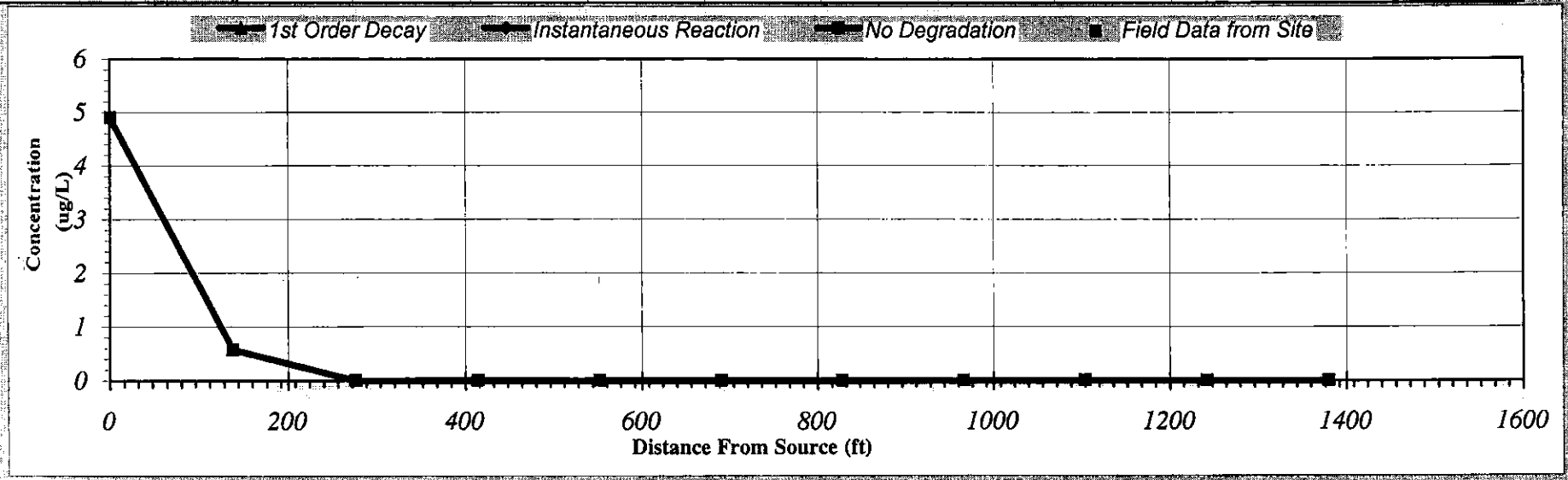
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft)										
	0	138	276	414	552	690	828	966	1104	1242	1380
No Degradation	4.900	0.576	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Next Timestep
Animation Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Painesville - R
Se - SW1-3
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	0.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.00122	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	36.0	(ft)
Transverse Dispersivity*	alpha y	3.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	2690	(ft)

3. ADSORPTION

Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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*	2690	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

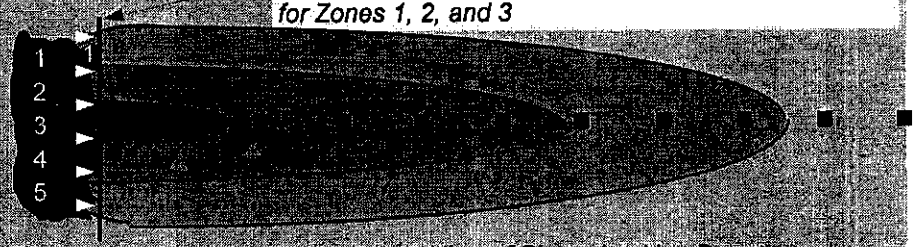
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	269	538	807	1076	1345	1614	1883	2152	2421	2690

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

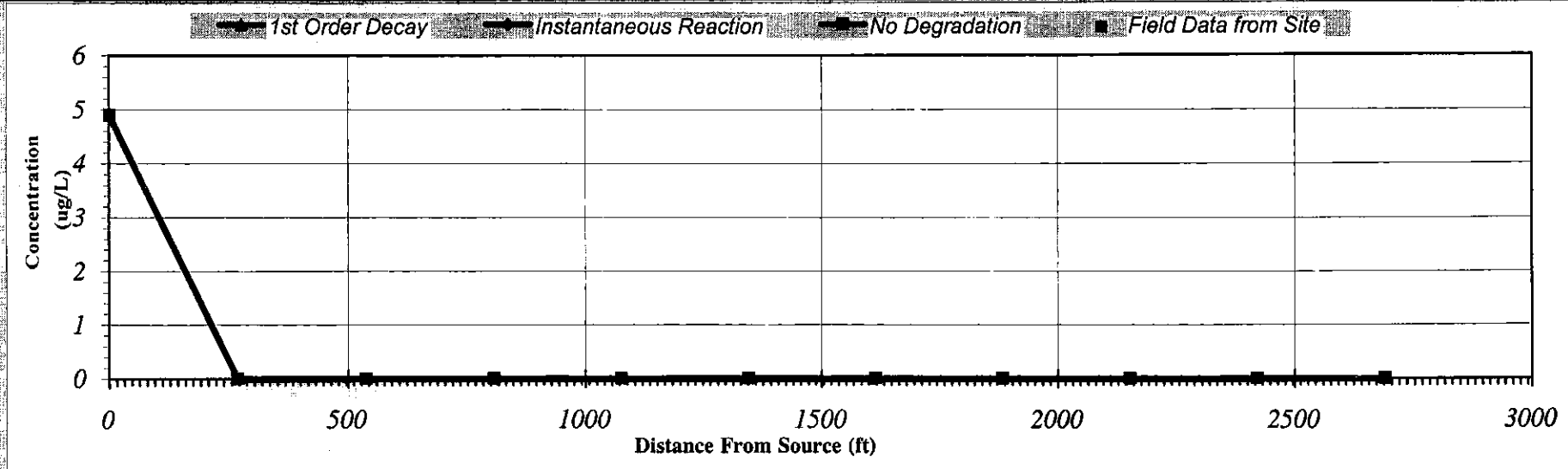
Recalculate This Sheet

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	269	538	807	1076	1345	1614	1883	2152	2421	2690
No Degradation	4.900	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
Se - SW1-5
Run Name

Data Input Instructions:

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

Variable* — Data used directly in model.

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	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

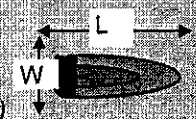
Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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



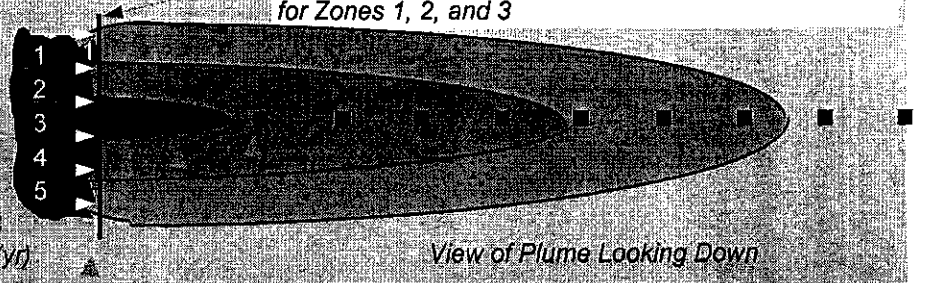
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	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

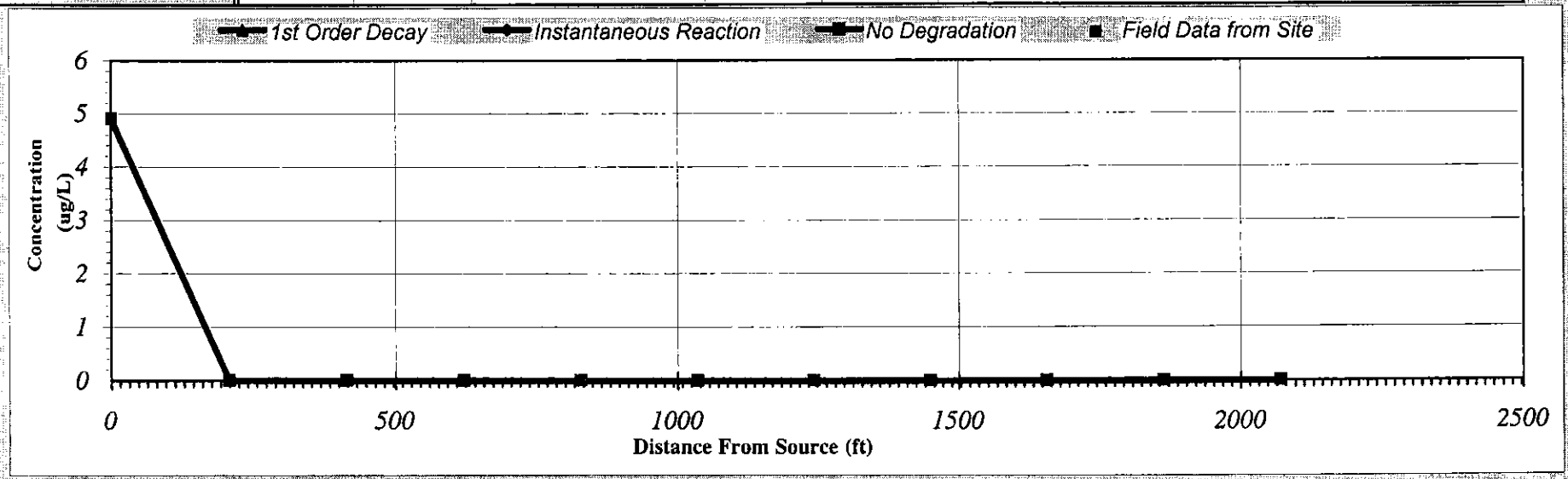
Recalculate This Sheet

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	4.900	0.004	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
Se - SW1-7
Run Name

Data Input Instructions:

115 ↑ or 0.02

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

Variable* → Data used directly in model.

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	17.3	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-04	(cm/sec)
Hydraulic Gradient	i	0.0117	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	38.9	(ft)
Transverse Dispersivity*	alpha y	3.9	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	3350	(ft)

3. ADSORPTION

Retardation Factor*	R	21.9	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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*	3350	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

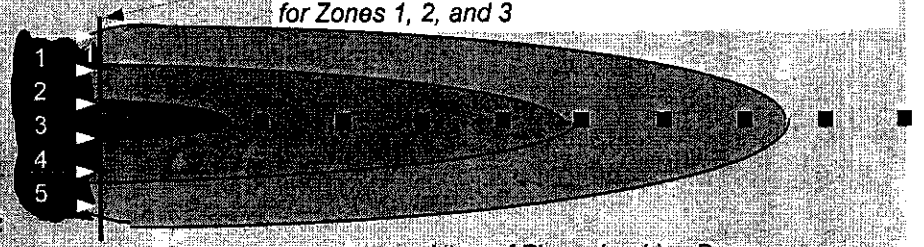
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	335	670	1005	1340	1675	2010	2345	2680	3015	3350

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

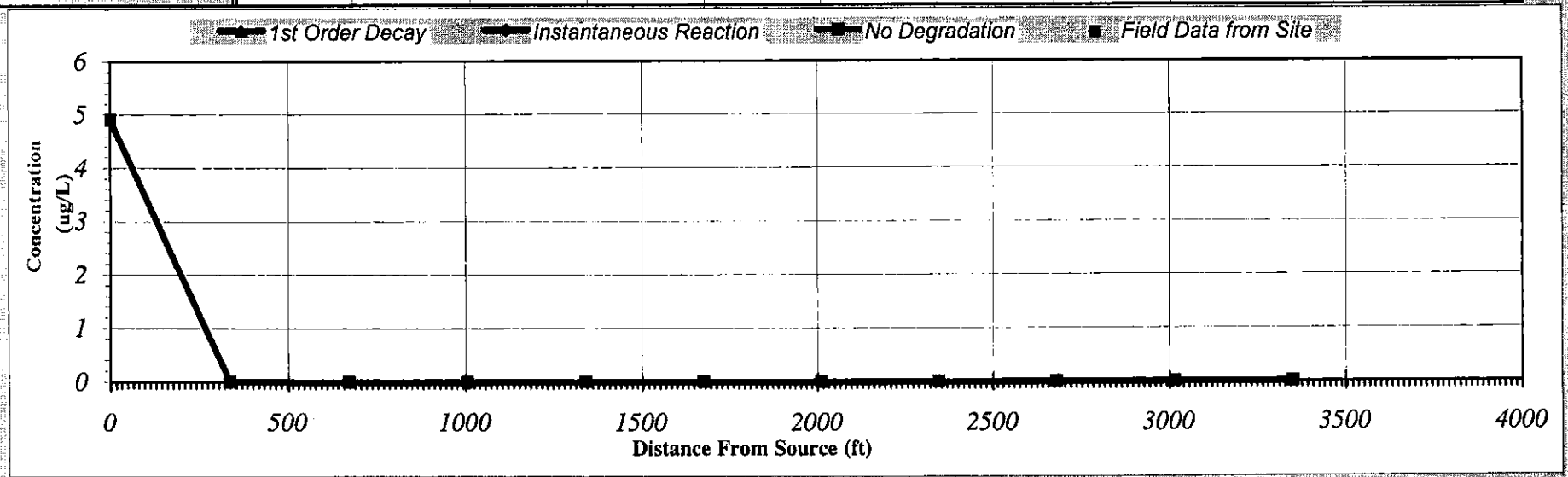
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	335	670	1005	1340	1675	2010	2345	2680	3015	3350
No Degradation	4.900	0.003	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
Se - SW4-1
Run Name

Data Input Instructions:

115 — 1. Enter value directly ... or
or — 2. Calculate by filling in grey cells below. (To restore formulas, 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	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	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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)

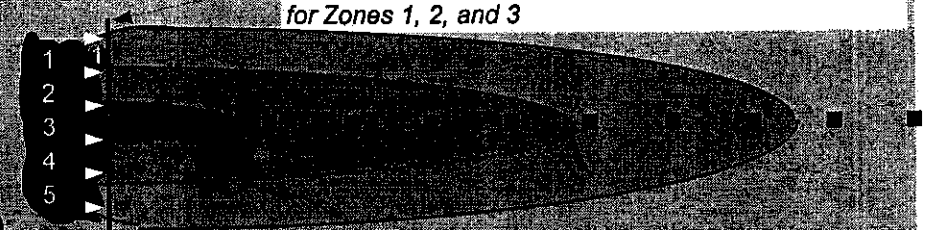
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

Soluble Mass: infinite (Kg)

In Source NAPL Soil

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	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

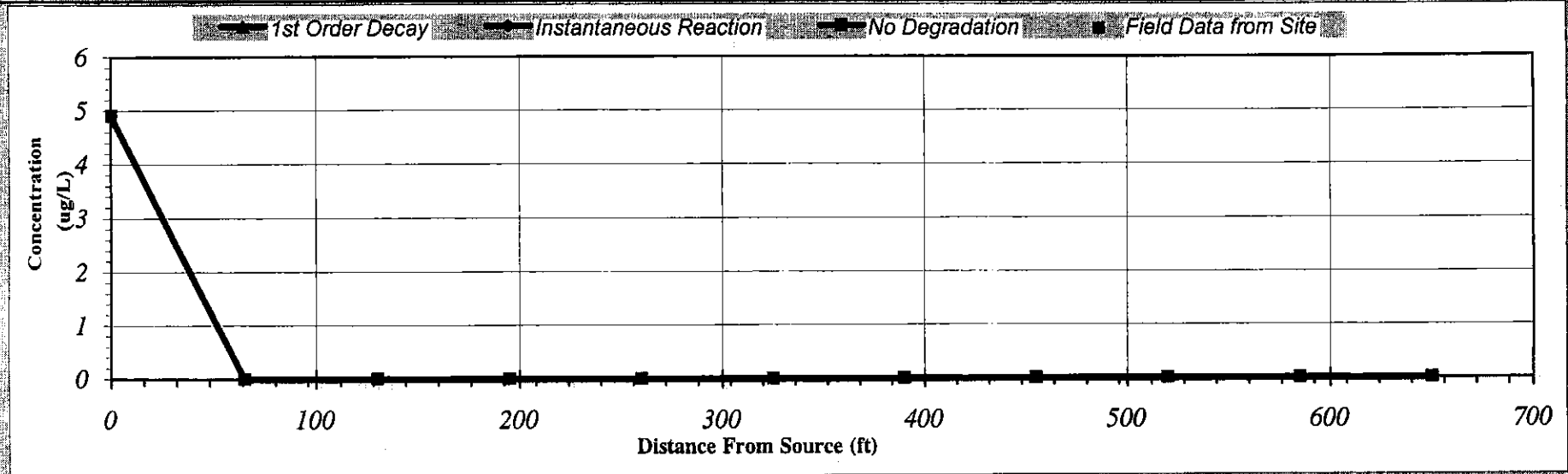
Recalculate This Sheet

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	4.900	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
Se - 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*	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*	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*	21.9	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	4.3E+0	*(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)*

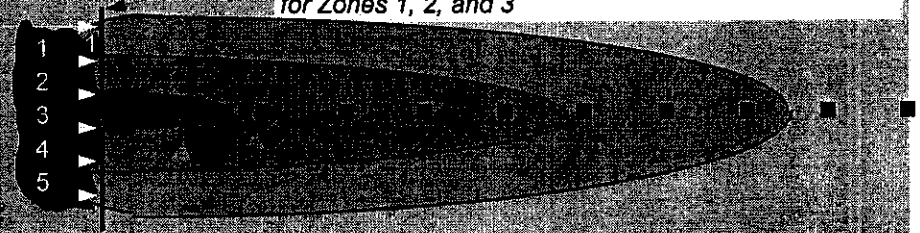
Source Zones

Width* (ft)	Conc. (ug/L)*
1000	213

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	89	178	267	356	445	534	623	712	801	890
Concentration (mg/L)											

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

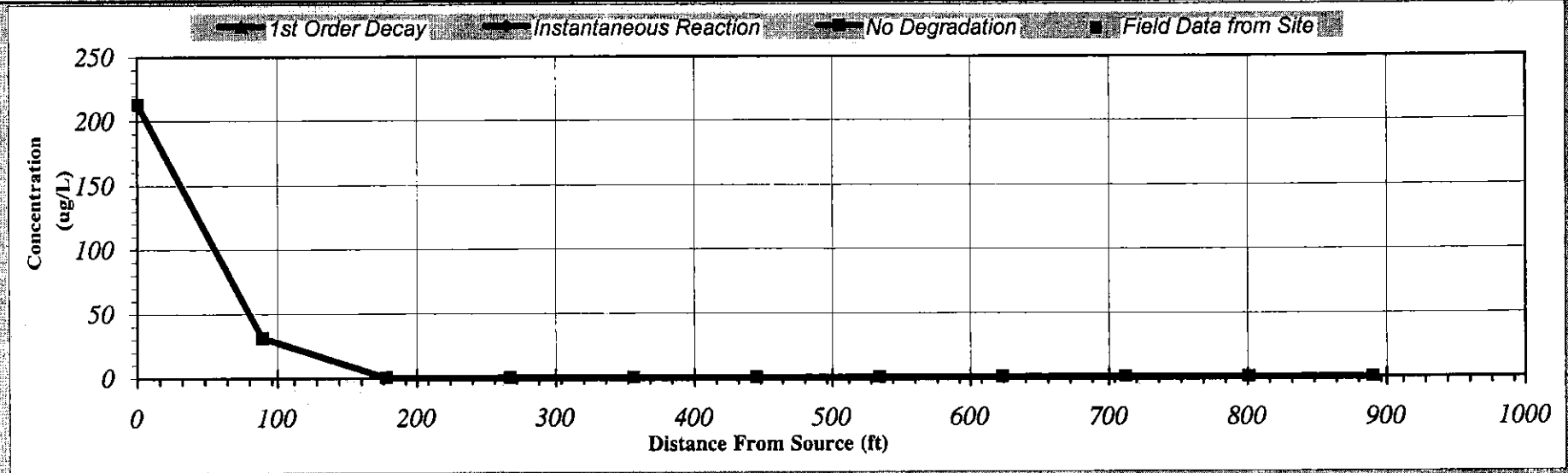
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	89	178	267	356	445	534	623	712	80	890
No Degradation	213.000	31.288	0.241	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
Se - SW4-6
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	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	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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)

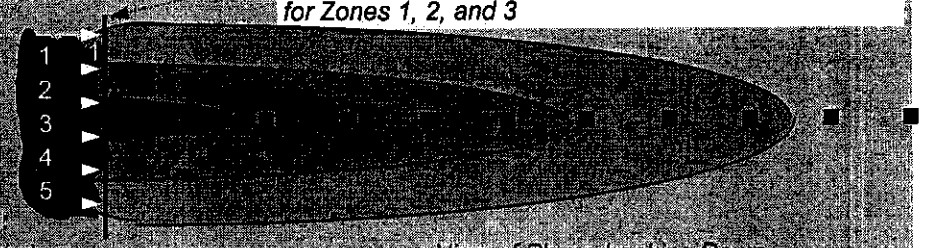
6. SOURCE DATA

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	4.9



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

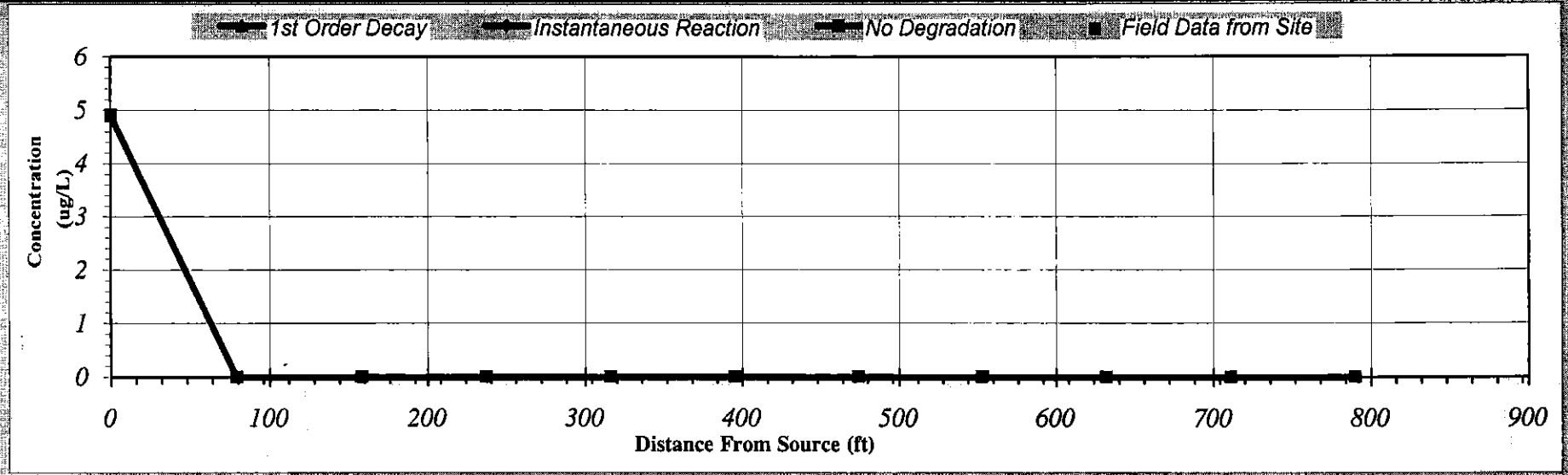
Recalculate This Sheet

Paste Example Dataset

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

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

TYPE OF MODEL	Distance from Source (ft) 0	79	158	237	316	395	474	553	632	711	790
No Degradation	4.900	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
Se - SW4-8
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	0.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.5E-04	(cm/sec)
Hydraulic Gradient	i	0.0014	(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	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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)

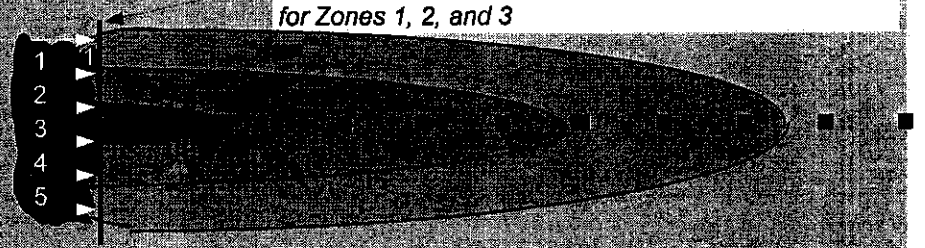
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

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

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

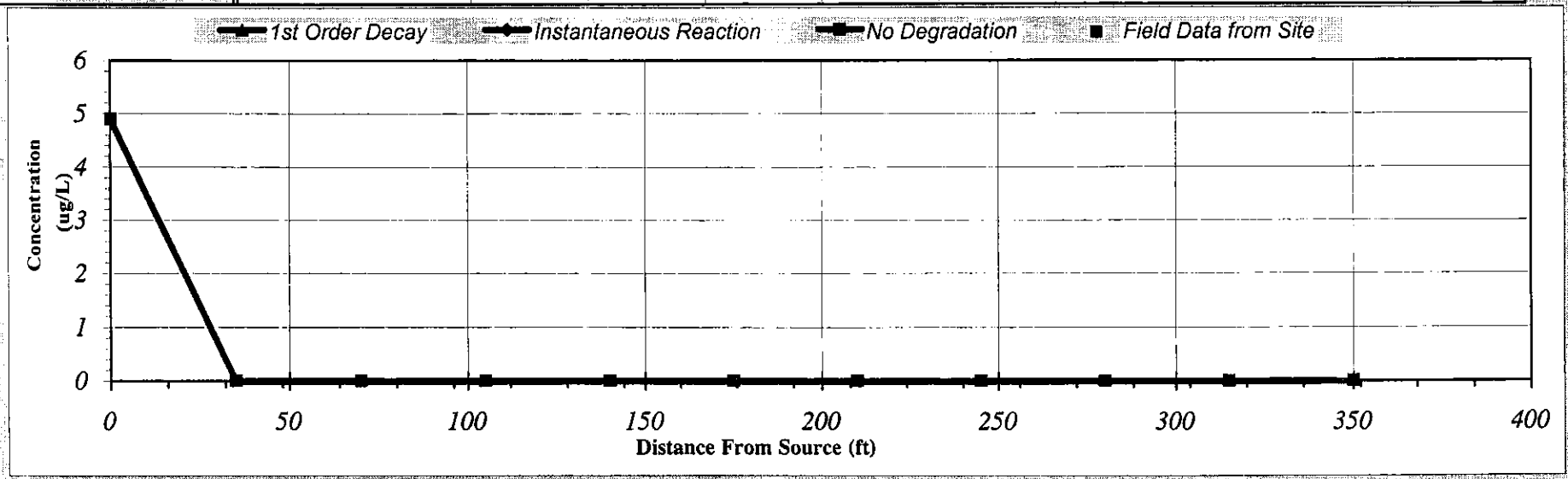
Recalculate This Sheet

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	4.900	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 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
Se - SW4-9
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	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	6.5	(ft)
Transverse Dispersivity*	alpha y	0.7	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	90	(ft)

3. ADSORPTION

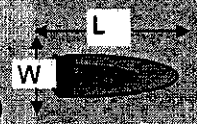
Retardation Factor*	R	21.9	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(L/kg)
FractionOrganicCarbon	foc	1.0E+0	(-)

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



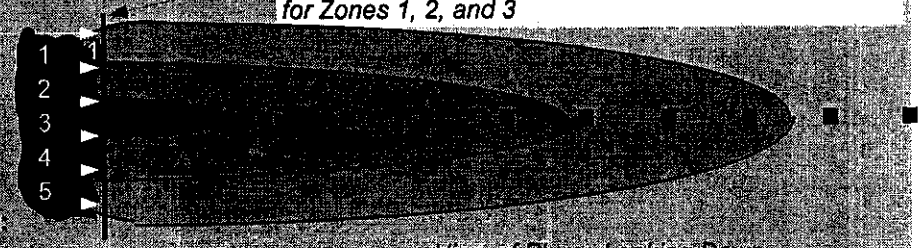
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	24.5

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



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)

Inst. React. ↑ 1st Order

Soluble Mass infinite (Kg)

In Source NAPL Soil

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	9	18	27	36	45	54	63	72	81	90

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

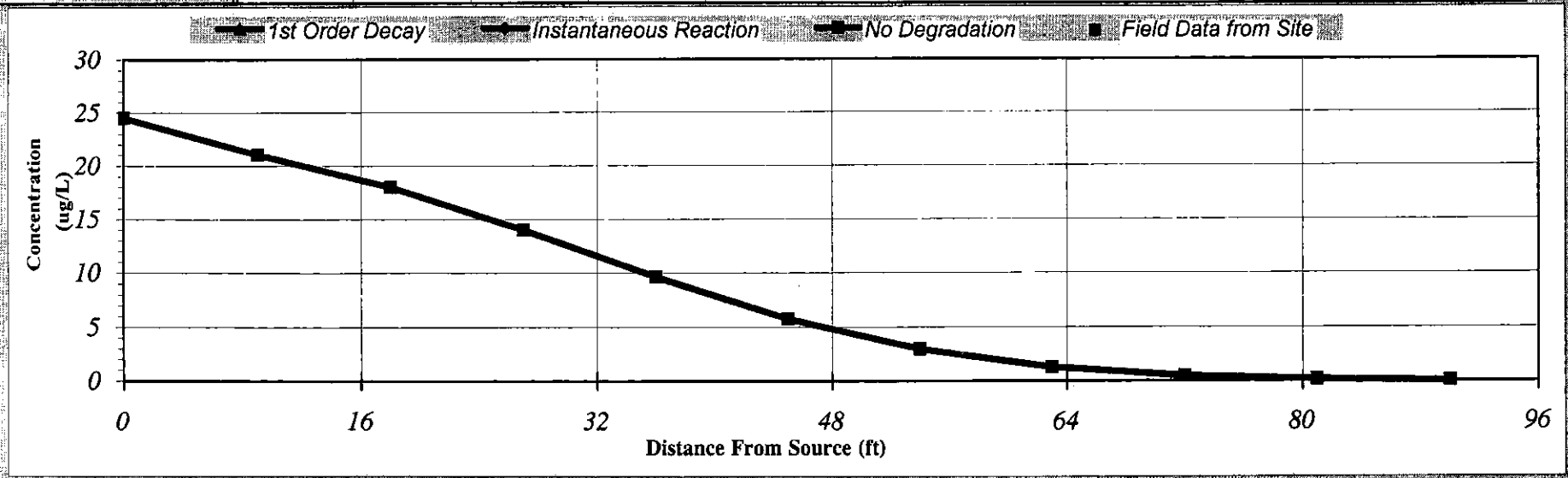
Paste Example Dataset

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	9	18	27	36	45	54	63	72	81	90
No Degradation	24.500	21.062	18.017	13.996	9.642	5.778	2.967	1.291	0.472	0.144	0.037
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
Se - SW5-1
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	175.6	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0594	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	6.0	(ft)
Transverse Dispersivity*	alpha y	0.6	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	80	(ft)

3. ADSORPTION

Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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*	80	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

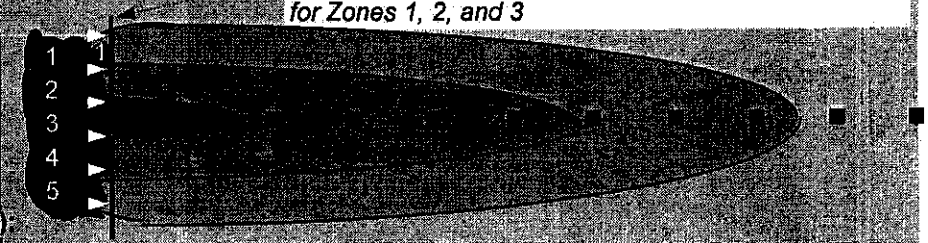
6. SOURCE DATA

Source Thickness In Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	8	16	24	32	40	48	56	64	72	80

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

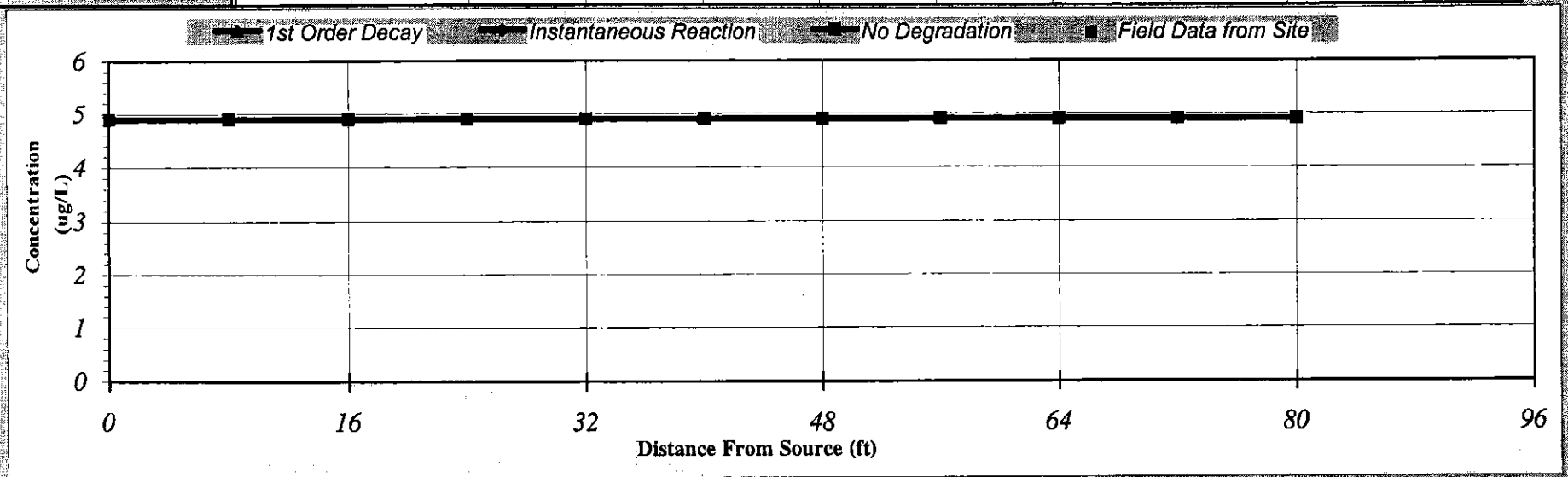
Paste Example Dataset

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	8	16	24	32	40	48	56	64	72	80
No Degradation	4.900	4.900	4.900	4.900	4.900	4.900	4.900	4.900	4.900	4.900	4.900
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
Se - ASR-MW1
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	10.2	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0216	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	31.0	(ft)
Transverse Dispersivity*	alpha y	3.1	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1800	(ft)

3. ADSORPTION

Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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*	1800	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

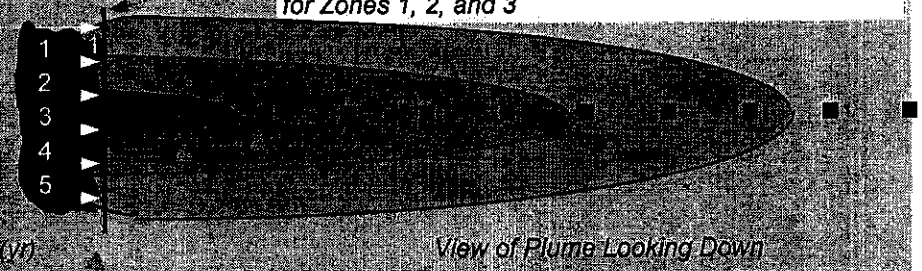
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones

Width** (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help)

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	180	360	540	720	900	1080	1260	1440	1620	1800

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

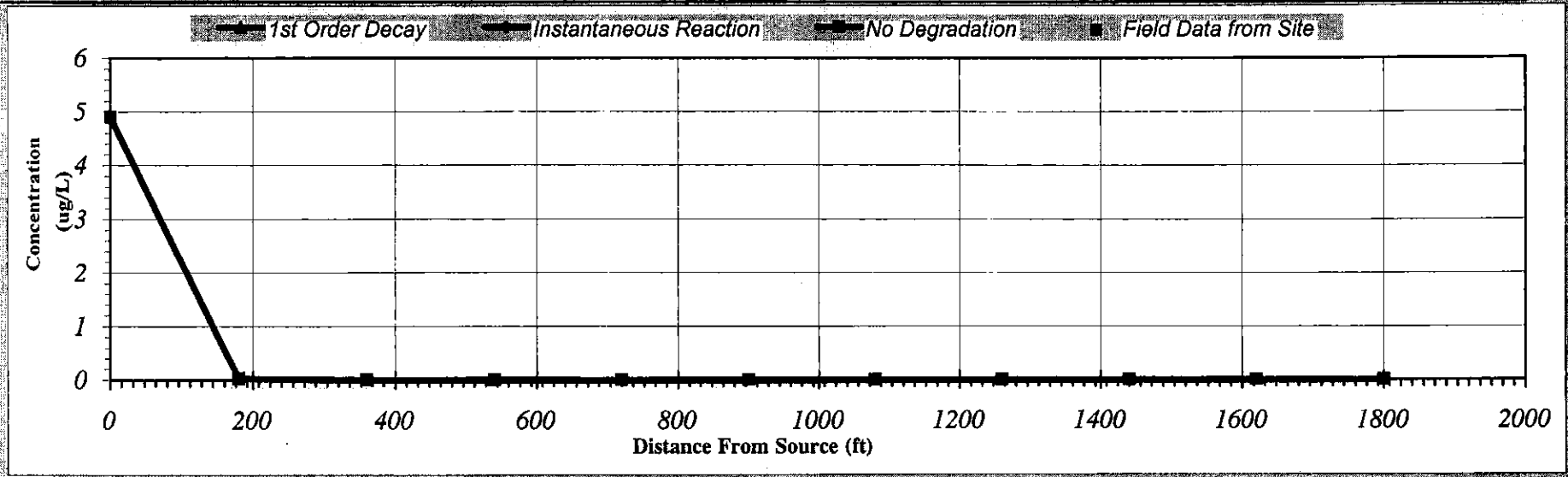
Recalculate This Sheet

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	180	360	540	720	900	1080	1260	1440	1620	1800
No Degradation	4.900	0.032	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
Se - ASR-MW4
Run Name

Data Input Instructions:

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

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

1. HYDROGEOLOGY

Seepage Velocity*	Vs	12.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.6E-04	(cm/sec)
Hydraulic Gradient	i	0.0256	(ft/ft)
Porosity	n	0.35	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.5	(ft)
Transverse Dispersivity*	alpha y	3.1	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	1730	(ft)

3. ADSORPTION

Retardation Factor*	R	21.9	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	4.3E+0	(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*	1730	(ft)
Modeled Area Width*	1500	(ft)
Simulation Time*	100	(yr)

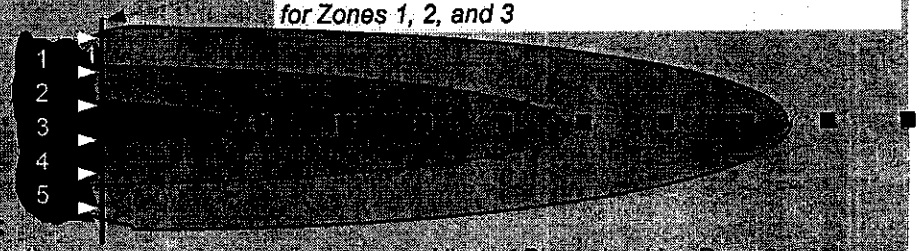
6. SOURCE DATA

Source Thickness in Sat Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (ug/L)*
1000	4.9

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



View of Plume Looking Down

Source Halflife (see Help):

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

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

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	173	346	519	692	865	1038	1211	1384	1557	1730

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

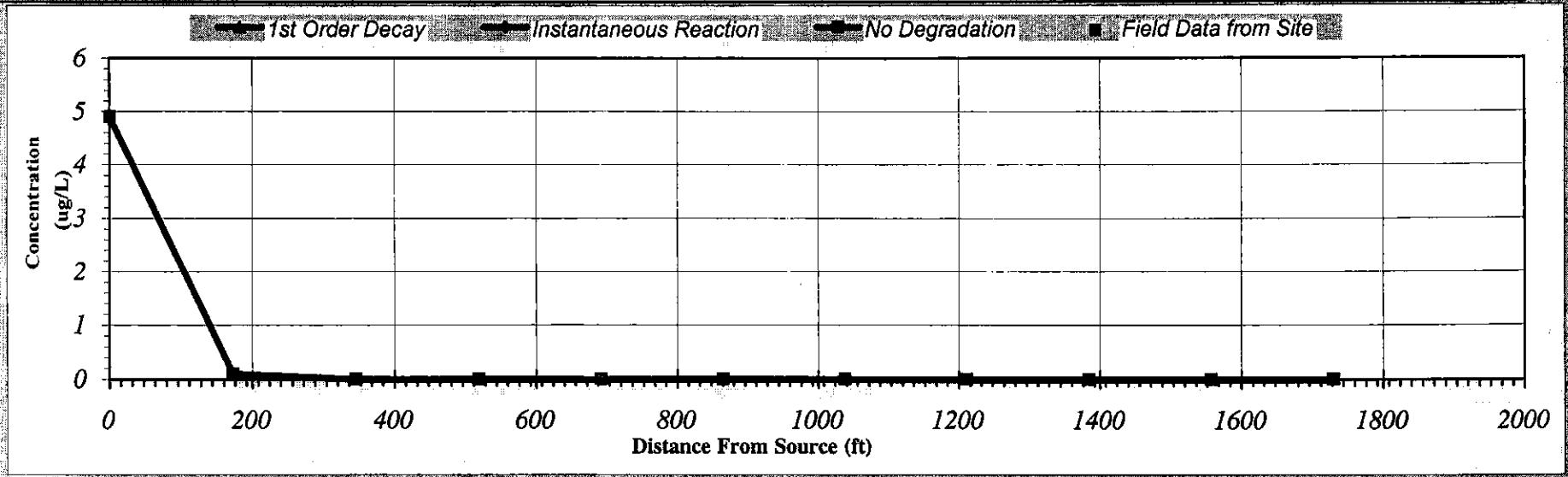
Recalculate This Sheet

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	173	346	519	692	865	1038	1211	1384	1557	1730
No Degradation	4.900	0.105	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