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Site Photographs

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PCB Mass Loading Evaluation
WCGS-N

Slab remaining from demolition of building along Beech St.

Cover in the southwest area of concern for surface concentrations.
Area looks like it was filled with stockpiled soil.

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PCB Mass Loading Evaluation
WCGS-N

Surface area of concern in the southwest corner of the site that does not look like it is completely filled with imported material.

Type of vegetation associated with southwest corner area of concern and associated silt fencing.

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PCB Mass Loading Evaluation
WCGS-N

Impervious surface associated with temporary S. Madison Street in area of concern.

Area of concern associated with surface concentrations that appears to be covered with imported fill.

PCB Mass Loading
Wilmington Coal Gas Site - North
SIRB ID: DE-1377
Wilmington, Delaware

BrightFields, Inc.

Overland Flow Calculations

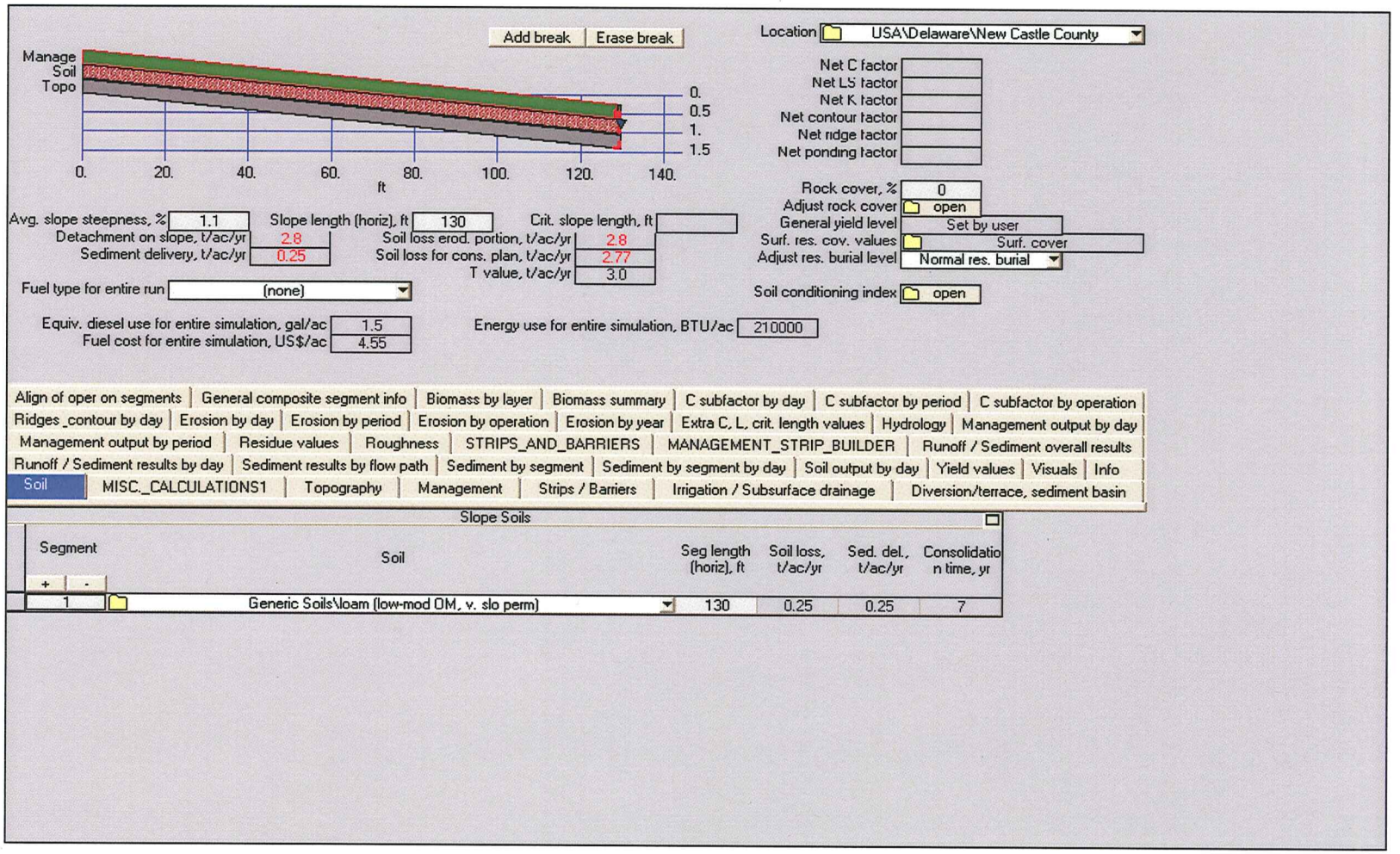
PCB Loading Calculations from the Universal Soil Loss Equation
Wilmington Coal Gas Site - Northern Parcel (Area 1)
Wilmington, DE
DE-1046 1090

Surface PCB Concentration | 0.1 | mg/kg

Symbol	Factor	Value	Units
R	Rainfall/Runoff Erosivity Index	170	10^2 ft-tonf in/acre hr
K	Soil Erodibility	0.365	0.01 tonf acre hr/ac ft-ton in
	Estimated Slope Length	128	Feet
	Estimated Elevation Difference	1.4	Feet
	Slope	1.1	Percent
	Erodeable Area	0.25	Acres
LS	Topographic Factor	1.040	Dimensionless
C	Cover and Management Factor	0.332	Dimensionless
P	Support Practice Factor	0.09	Dimensionless
	Average Annual Soil Loss	0.25	ton/ac/yr

PCB Loading via Overland Flow | 0.006 | **grams/year - PCBs**

WCGS-North Overland Flow Calculations (Area 1)



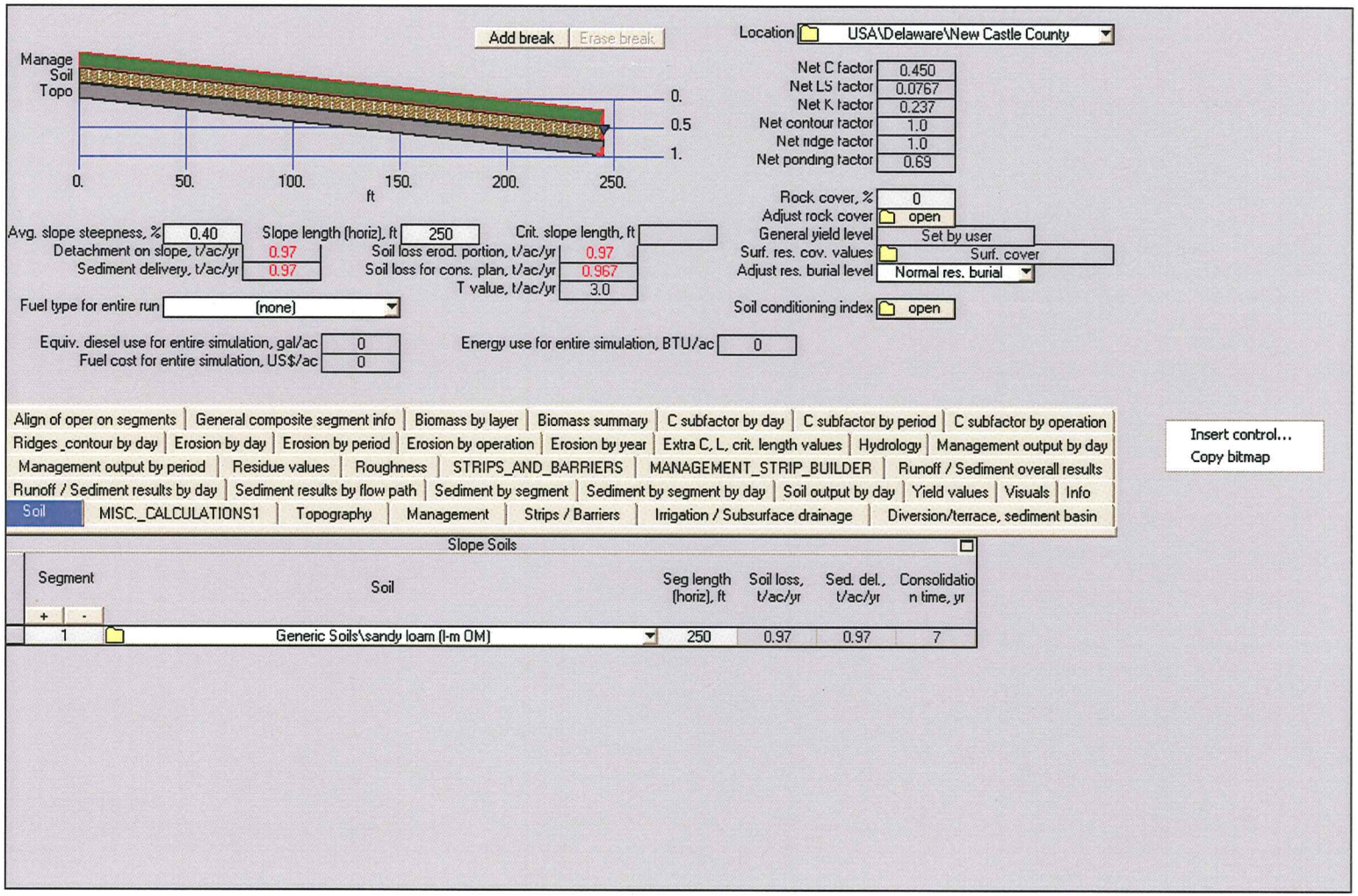
PCB Loading Calculations from the Universal Soil Loss Equation
Wilmington Coal Gas Site - Northern Parcel (Area 2)
Wilmington, DE
DE-1046 1090

Surface PCB Concentration | 0.38 | mg/kg

Symbol	Factor	Value	Units
R	Rainfall/Runoff Erosivity Index	170	10^2 ft-tonf in/acre hr
K	Soil Erodibility	0.237	0.01 tonf acre hr/ac ft-ton in
	Estimated Slope Length	246	Feet
	Estimated Elevation Difference	1	Feet
	Slope	0.4	Percent
	Erodeable Area	0.14	Acres
LS	Topographic Factor	0.077	Dimensionless
C	Cover and Management Factor	0.45	Dimensionless
P	Support Practice Factor	0.57	Dimensionless
	Average Annual Soil Loss	1.0	ton/ac/yr

PCB Loading via Overland Flow | 0.047 | **grams/year - PCBs**

WCGS-North Overland Flow Calculations (Area 2)



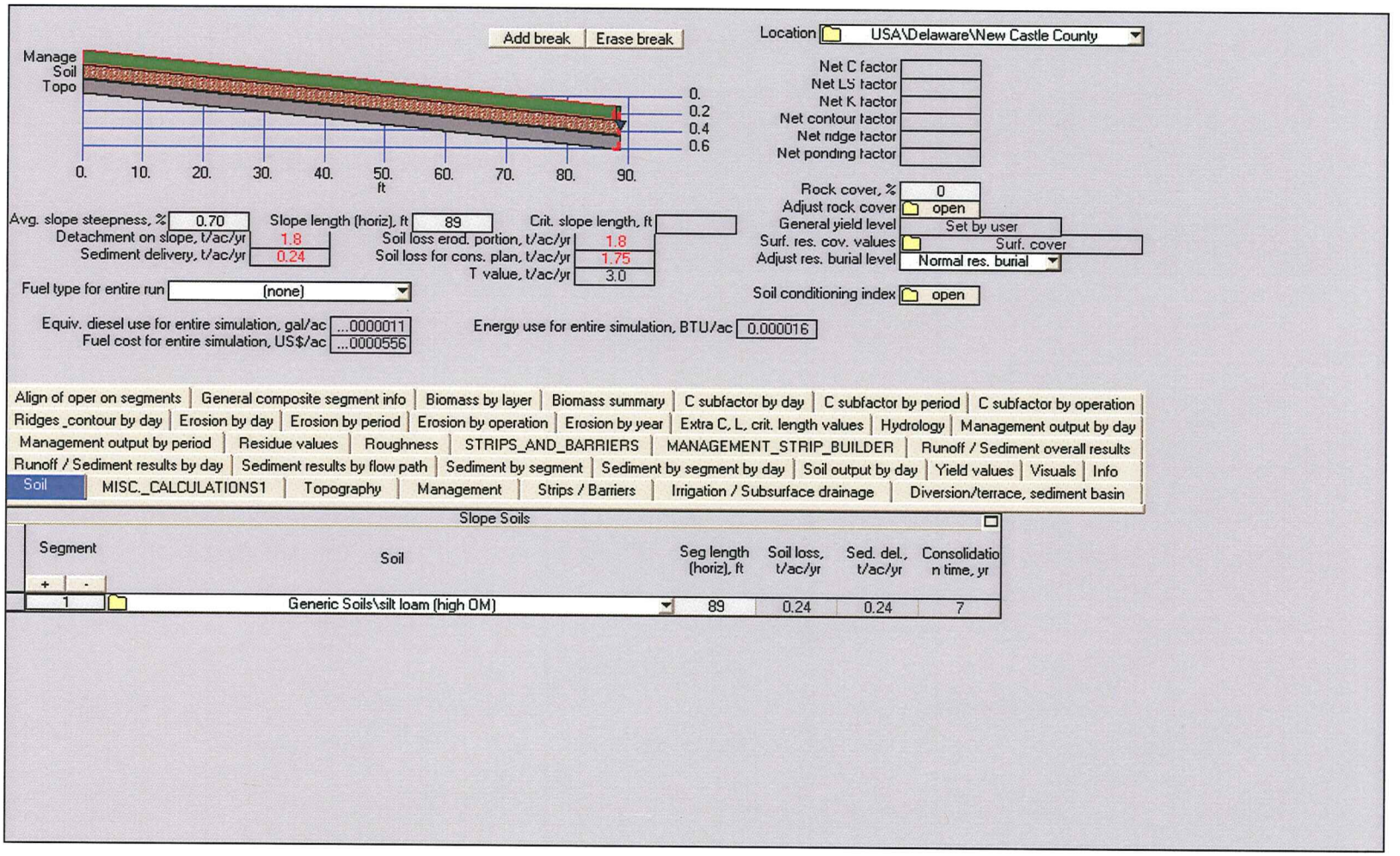
PCB Loading Calculations from the Universal Soil Loss Equation
Wilmington Coal Gas Site - Northern Parcel (Area 3)
Wilmington, DE
DE-1046 1090

Surface PCB Concentration | 1.3 | mg/kg

Symbol	Factor	Value	Units
R	Rainfall/Runoff Erosivity Index	170	10^2 ft-tonf in/acre hr
K	Soil Erodibility	0.276	0.01 tonf acre hr/ac ft-ton in
	Estimated Slope Length	89	Feet
	Estimated Elevation Difference	0.6	Feet
	Slope	0.7	Percent
	Erodeable Area	0.34	Acres
LS	Topographic Factor	0.107	Dimensionless
C	Cover and Management Factor	0.45	Dimensionless
P	Support Practice Factor	0.13	Dimensionless
	Average Annual Soil Loss	0.24	ton/ac/yr

PCB Loading via Overland Flow | 0.096 | **grams/year - PCBs**

WCGS-North Overland Flow Calculations (Area 3)



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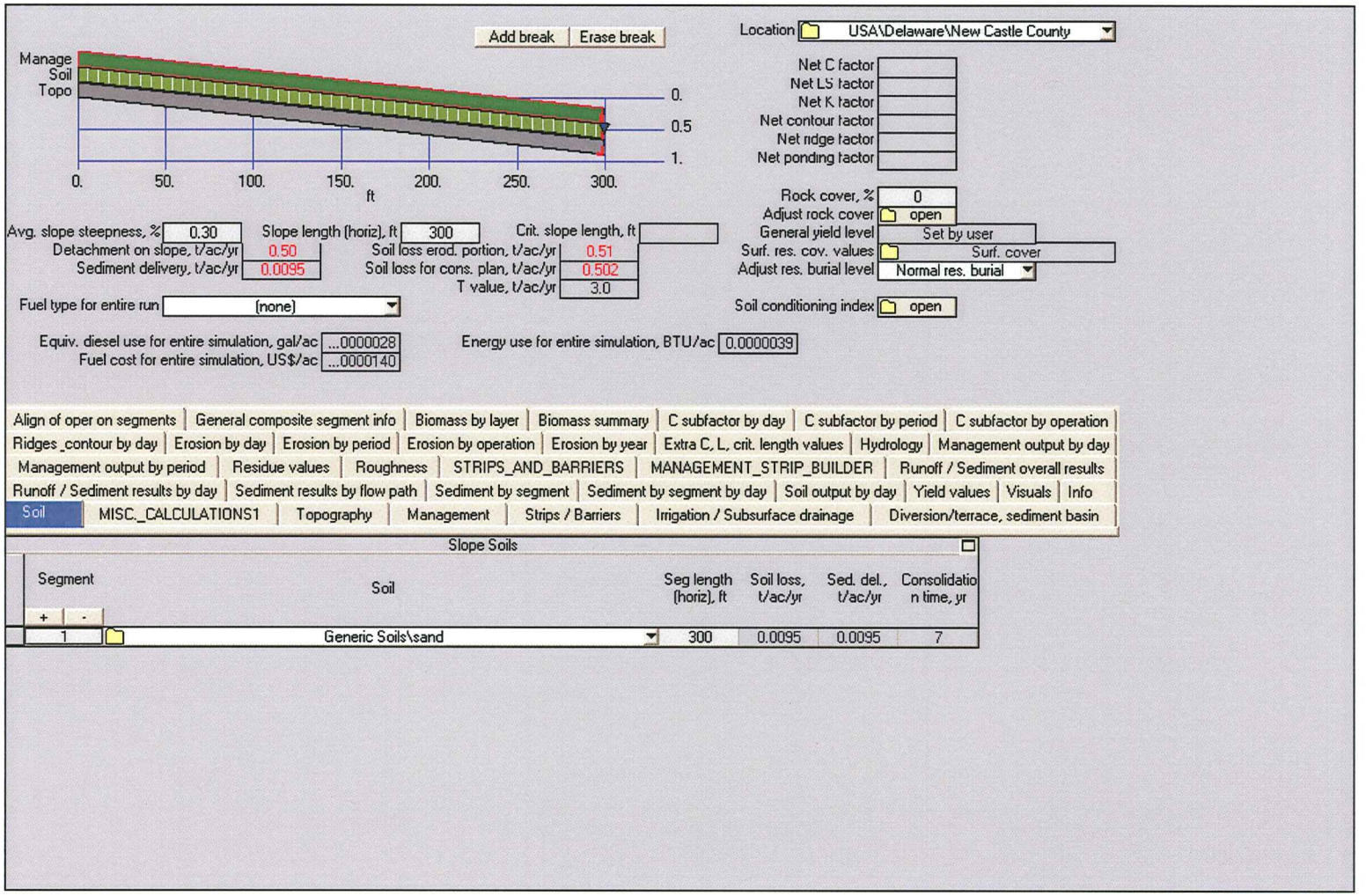
PCB Loading Calculations from the Universal Soil Loss Equation
Wilmington Coal Gas Site - Northern Parcel (Area 4)
Wilmington, DE
DE-1046 1090

Surface PCB Concentration | 1.3 | mg/kg

Symbol	Factor	Value	Units
R	Rainfall/Runoff Erosivity Index	170	10^2 ft-tonf in/acre hr
K	Soil Erodibility	0.148	0.01 tonf acre hr/ac ft-ton in
	Estimated Slope Length	300	Feet
	Estimated Elevation Difference	0.8	Feet
	Slope	0.3	Percent
	Erodeable Area	0.17	Acres
LS	Topographic Factor	0.066	Dimensionless
C	Cover and Management Factor	0.45	Dimensionless
P	Support Practice Factor	0.019	Dimensionless
	Average Annual Soil Loss	0.0095	ton/ac/yr

0.002 **grams/year - PCBs**

WCGS-North Overland Flow Calculations (Area 4)



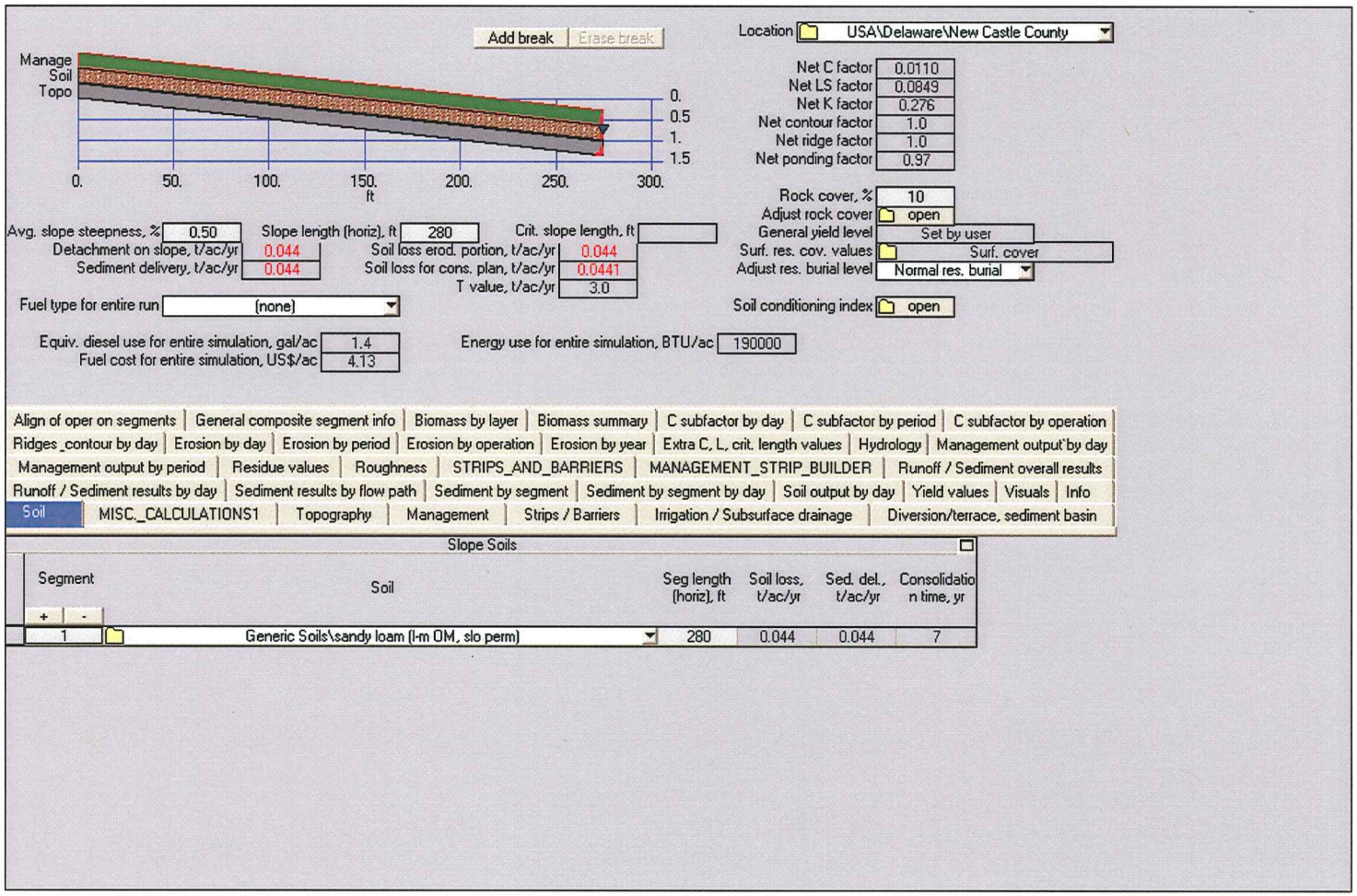
PCB Loading Calculations from the Universal Soil Loss Equation
Wilmington Coal Gas Site - Northern Parcel (Area 5)
Wilmington, DE
DE-1046 1090

Surface PCB Concentration | 0.14 | mg/kg

Symbol	Factor	Value	Units
R	Rainfall/Runoff Erosivity Index	170	10^2 ft-tonf in/acre hr
K	Soil Erodibility	0.276	0.01 tonf acre hr/ac ft-ton in
	Estimated Slope Length	275	Feet
	Estimated Elevation Difference	1.4	Feet
	Slope	0.5	Percent
	Erodeable Area	0.14	Acres
LS	Topographic Factor	0.085	Dimensionless
C	Cover and Management Factor	0.011	Dimensionless
P	Support Practice Factor	1	Dimensionless
	Average Annual Soil Loss	0.044	ton/ac/yr

PCB Loading via Overland Flow | 0.001 | **grams/year - PCBs**

WCGS-North Overland Flow Calculations (Area 5)



PCB Mass Loading
Wilmington Coal Gas Site - North
SIRB ID: DE-1377
Wilmington, Delaware

BrightFields, Inc.

Groundwater Transport Calculations

PCB Loading Calculations - Groundwater Discharge to Surface Water
Wilmington Coal Gas Site - Northern Parcel
Wilmington, DE
DE-1046

TABLE A
Groundwater Discharge Calculations

Location	Hydraulic Conductivity (K) (ft/day)	Horizontal Gradient (i) (ft/ft)	Cross-sectional Area (A) (ft2)	Groundwater Discharge*	
				Liters/day	Gallons/ day
Area A (GP03)					
Minimum	4.2	0.0083	200	200	52
Maximum	38	0.021	280	6,300	1,700
Area B (North Section minus Area A)					
Minimum	4.2	0.0083	1,500	1,500	390
Maximum	38	0.021	2,100	47,500	12,500
Area C (EX09)					
Minimum	4.2	0.0083	475	470	120
Maximum	38	0.021	665	15,000	4,000
TOTAL					
Minimum	4.2	0.0083	2,200	2,200	560
Maximum	38	0.021	3,000	69,000	18,000

* - Groundwater Discharge (Q) = KiA

TABLE B
Potential Groundwater PCB Concentration Calculation

Location	Maximum Soil PCB (µg/kg)	f_{OC} (fraction of organic carbon)		Pore Water PCB (µg/L)	
				Minimum	Maximum
GP03	10,000	0.01	0.05	2.2	11
North Section	468	0.01	0.05	0.10	0.51
EX09	100	0.01	0.05	0.022	0.11

TABLE C
Estimated Mass Loadings of PCBs in Groundwater to Surface Water

LOCATION	Subsurface Soil Concentration/ Converted to Pore Water Concentration (µg/L)	Estimated PCB Mass Loading (g/yr)	
		Minimum	Maximum
GP03	11.0	0.79	25.3
North Section	0.51	0.28	8.9
EX09	0.11	0.019	0.60
TOTAL		1.1	34.8