

APPENDIX A – ATTACHMENT 1

Individual Explanatory Variable Inventory

The Individual Explanatory Variable Inventory provides the values of each explanatory variable. These variables can be attributes of the source such as well depth, or land activities in the source water assessment area such as percent urban land use. This is not the entire Potential Contaminant Source Inventory for this system’s sources. Appendix A – Attachment 2 provides all point sources identified in the source water assessment areas.

If the variable value is shown as zero, then attributes or land activities are not present in the source water assessment area. If a value is not shown, this represents either unavailable data, or in the case of “Distance to” variables land activities of that type are not present in the source water assessment area.

This attachment, used in conjunction with Appendix A – Attachment 3 Contaminant Category Scoring System, enables users to calculate how each source’s susceptibility rating was determined. As an example a surface water source rates high for nutrients. As shown below, this attachment inventories identified values for the source’s explanatory variables.

Nutrients Explanatory Variables – Source Rating = H			
Sensitivity Variable Inventory		Intensity Variable Inventory	
		% Urban Land Use, 1995	20%
		% Agricultural Land Use, 1995	55%
		STP Density	0.005

This inventory can then be compared to the scoring system found in Appendix A – Attachment 3 Contaminant Category Scoring System shown below.

Surface Water Nutrients

Nitrate

Susceptibility rating scheme for nitrates in water from surface-water-quality sites.							
Nitrate Rating: 0-2 Low, 3-6 Medium, 7-15 High							
	Sensitivity Points						Conceptual variable
Variable	No sensitivity variables for nitrate for surface water.						
	Intensity Points						Conceptual variable
Variable	0	1	2	3	4	5	
Percent Urban Land, 1995	0	>0	≥10	≥30			No
Percent Agricultural Land, 1995	0	>0	≥10	≥20	≥30	≥50	No
Sewage Treatment Plant Density (per square mile)	0	>0	≥0.01	≥0.03	≥0.04	≥0.05	No

In this example, the source received 2 points for Urban Land, 5 points for Agricultural Land, and 0 points for Sewerage Treatment Plant Density. The sensitivity and intensity points are summed giving a susceptibility score of 7. This susceptibility score was then plotted in the rating scheme (found in the header) and since 7-15 is High, a susceptibility rating of High for Nutrients was determined for this source.

Surface Water Susceptibility Models			
EPTDS: 01 Source: 004 PASSAIC RIVER Status: S Source Type: S			
Sensitivity Variable Inventory		Intensity Variable Inventory	
<i>Pathogens Explanatory Variables - Source Rating = H</i>			
All surface water sources are considered highly susceptible to Pathogens.			
<i>Nutrients Explanatory Variables – Source Rating = H</i>			
		% Urban Land Use, 1995	37.32
		% Agricultural Land Use, 1995	1.83
		STP Density	0.06
<i>Pesticides Explanatory Variables – Source Rating = L</i>			
% Soil Clay	12.2	Total Pesticide Application	119.04
		% Residential Land Use, 1995	25.49
		Distance to Agricultural Land Use, 1995	3729.5
<i>VOCs Explanatory Variables – Source Rating = M</i>			
Conceptual - % Soil Organic Matter	2.26	% Urban Land Use, 1995	37.32
		Density of KCSL, SWL, NJPDES SW/Storm, Compost Facilities	2.3619
<i>Inorganics Explanatory Variables – Source Rating = H</i>			
pH of water-quality sample	9.3	Conceptual - Distance to Agricultural Land Use, 1995	3729.5
Water Region	1	% Urban Land Use, 1995	37.32
Conceptual - Physiographic Province	NEW ENGLAND	Density of KCSL, SWL, NJPDES GW, SWRRF, SWTF200011, Class B Recycling, DPCC, UST	5.3272
Conceptual - % Soil Organic Matter	2.26	Conceptual - % Commercial/Industrial Land Use, 1995	9.39
		Conceptual - % Developed Land, 1995	32.1
		Density of NJPDES SW/Storm, Compost Facilities	0.4151
<i>Radionuclides Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radionuclides.			
<i>Radon Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radon.			
<i>DBPs Explanatory Variables – Source Rating = H</i>			
Conceptual - % Soil Organic Matter	2.26	Conceptual - Distance to Wetlands Land Use, 1995	943.7

Surface Water Susceptibility Models			
EPTDS: 01 Source: 016 POINT VIEW RESERVIOR/PEQUANNOC Status: E Source Type: S			
Sensitivity Variable Inventory		Intensity Variable Inventory	
<i>Pathogens Explanatory Variables - Source Rating = H</i>			
All surface water sources are considered highly susceptible to Pathogens.			
<i>Nutrients Explanatory Variables – Source Rating = H</i>			
		% Urban Land Use, 1995	16.21
		% Agricultural Land Use, 1995	1.44
		STP Density	0.05
<i>Pesticides Explanatory Variables – Source Rating = L</i>			
% Soil Clay	8.56	Total Pesticide Application	2.2
		% Residential Land Use, 1995	12.59
		Distance to Agricultural Land Use, 1995	8895.82
<i>VOCs Explanatory Variables – Source Rating = M</i>			
Conceptual - % Soil Organic Matter	1.8	% Urban Land Use, 1995	16.21
		Density of KCSL, SWL, NJPDES SW/Storm, Compost Facilities	1.6228
<i>Inorganics Explanatory Variables – Source Rating = H</i>			
pH of water-quality sample	8.8	Conceptual - Distance to Agricultural Land Use, 1995	8895.82
Water Region	1	% Urban Land Use, 1995	16.21
Conceptual - Physiographic Province	NEW ENGLAND	Density of KCSL, SWL, NJPDES GW, SWRRF, SWTF200011, Class B Recycling, DPCC, UST	3.4937
Conceptual - % Soil Organic Matter	1.8	Conceptual - % Commercial/Industrial Land Use, 1995	2.46
		Conceptual - % Developed Land, 1995	17.2
		Density of NJPDES SW/Storm, Compost Facilities	0.3279
<i>Radionuclides Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radionuclides.			
<i>Radon Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radon.			
<i>DBPs Explanatory Variables – Source Rating = H</i>			
Conceptual - % Soil Organic Matter	1.8	Conceptual - Distance to Wetlands Land Use, 1995	208.03

Surface Water Susceptibility Models			
EPTDS: 01 Source: 017 WANAQUE SOUTH PUMP STATION Status: P Source Type: S			
Sensitivity Variable Inventory		Intensity Variable Inventory	
<i>Pathogens Explanatory Variables - Source Rating = H</i>			
All surface water sources are considered highly susceptible to Pathogens.			
<i>Nutrients Explanatory Variables – Source Rating = H</i>			
		% Urban Land Use, 1995	43.7
		% Agricultural Land Use, 1995	2.6
		STP Density	0.07
<i>Pesticides Explanatory Variables – Source Rating = M</i>			
% Soil Clay	14.79	Total Pesticide Application	116.71
		% Residential Land Use, 1995	29.7
		Distance to Agricultural Land Use, 1995	3413.11
<i>VOCs Explanatory Variables – Source Rating = M</i>			
Conceptual - % Soil Organic Matter	2.91	% Urban Land Use, 1995	43.7
		Density of KCSL, SWL, NJPDES SW/Storm, Compost Facilities	2.675
<i>Inorganics Explanatory Variables – Source Rating = H</i>			
pH of water-quality sample	8.8	Conceptual - Distance to Agricultural Land Use, 1995	3413.11
Water Region	1	% Urban Land Use, 1995	43.7
Conceptual - Physiographic Province	PIEDMONT	Density of KCSL, SWL, NJPDES GW, SWRRF, SWTF200011, Class B Recycling, DPCC, UST	5.9836
Conceptual - % Soil Organic Matter	2.91	Conceptual - % Commercial/Industrial Land Use, 1995	11.1
		Conceptual - % Developed Land, 1995	46.3
		Density of NJPDES SW/Storm, Compost Facilities	0.462
<i>Radionuclides Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radionuclides.			
<i>Radon Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radon.			
<i>DBPs Explanatory Variables – Source Rating = H</i>			
Conceptual - % Soil Organic Matter	2.91	Conceptual - Distance to Wetlands Land Use, 1995	768.47

Surface Water Susceptibility Models			
EPTDS: 01 Source: 017 WANAQUE SOUTH PUMP STATION Status: P Source Type: S			
Sensitivity Variable Inventory		Intensity Variable Inventory	
<i>Pathogens Explanatory Variables - Source Rating = H</i>			
All surface water sources are considered highly susceptible to Pathogens.			
<i>Nutrients Explanatory Variables – Source Rating = H</i>			
		% Urban Land Use, 1995	16.21
		% Agricultural Land Use, 1995	1.44
		STP Density	0.05
<i>Pesticides Explanatory Variables – Source Rating = L</i>			
% Soil Clay	8.56	Total Pesticide Application	2.2
		% Residential Land Use, 1995	12.59
		Distance to Agricultural Land Use, 1995	8895.82
<i>VOCs Explanatory Variables – Source Rating = M</i>			
Conceptual - % Soil Organic Matter	1.8	% Urban Land Use, 1995	16.21
		Density of KCSL, SWL, NJPDES SW/Storm, Compost Facilities	1.6228
<i>Inorganics Explanatory Variables – Source Rating = H</i>			
pH of water-quality sample	8.8	Conceptual - Distance to Agricultural Land Use, 1995	8895.82
Water Region	1	% Urban Land Use, 1995	16.21
Conceptual - Physiographic Province	NEW ENGLAND	Density of KCSL, SWL, NJPDES GW, SWRRF, SWTF200011, Class B Recycling, DPCC, UST	3.4937
Conceptual - % Soil Organic Matter	1.8	Conceptual - % Commercial/Industrial Land Use, 1995	2.46
		Conceptual - % Developed Land, 1995	17.2
		Density of NJPDES SW/Storm, Compost Facilities	0.3279
<i>Radionuclides Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radionuclides.			
<i>Radon Explanatory Variables – Source Rating = L</i>			
All surface water sources are considered low susceptibility to Radon.			
<i>DBPs Explanatory Variables – Source Rating = H</i>			
Conceptual - % Soil Organic Matter	1.8	Conceptual - Distance to Wetlands Land Use, 1995	208.03