



APPENDIX 3

Atlantic RBCA Version 3

ATLANTIC CANADA TIER I

RISK-BASED SCREENING LEVEL (RBSL) TABLE

ATLANTIC PARTNERSHIP IN RBCA IMPLEMENTATION

September, 2015

TABLE 4a - TIER I RISK BASED SCREENING LEVELS FOR SOIL (mg/kg)

Land Use	Groundwater Use	Soil Type	Compound of Concern						
			Benzene	Toluene	Ethyl-benzene	Xylene	Modified TPH (TPH-BTEX)		
							Gasoline	Diesel/No. 2 Fuel Oil	No. 6 Oil/Lube Oil
Agricultural	Potable	Coarse Grained	0.042	0.35	0.043	0.73	74	270	1,100
		Fine Grained	0.094	0.74	0.089	1.5	1,900	4,700	10,000
	Non-Potable	Coarse Grained	0.099	77	30	8.8	74	270	1,100
		Fine Grained	2.3	10,000	9,300	210	2,100	8,600	10,000
Residential	Potable	Coarse Grained	0.042	0.35	0.043	0.73	74	270	1,100
		Fine Grained	0.094	0.74	0.089	1.5	1,900	4,700	10,000
	Non-Potable	Coarse Grained	0.099	77	30	8.8	74	270	1,100
		Fine Grained	2.3	10,000	9,300	210	2,100	8,600	10,000
Commercial	Potable	Coarse Grained	0.042	0.35	0.043	0.73	870	1,800	10,000
		Fine Grained	0.094	0.74	0.089	1.5	1900	4,700	10,000
	Non-Potable	Coarse Grained	2.5	10,000	10,000	110	870	4,000	10,000
		Fine Grained	33	10,000	10,000	10,000	10,000	10,000	10,000
Industrial	Potable	Coarse Grained	0.042	0.35	0.043	0.73	870	1,800	10,000
		Fine Grained	0.094	0.74	0.089	1.5	1,900	4,700	10,000
	Non-Potable	Coarse Grained	2.5	10,000	10,000	110	870	4,000	10,000
		Fine Grained	33	10,000	10,000	10,000	10,000	10,000	10,000
Residual Saturation (RES)		Coarse Grained	890	450	240	340	TBD	TBD	TBD
		Fine Grained	1000	480	250	360	TBD	TBD	TBD

Notes:

1. Upper Concentration Limit (UCL) of 10,000 mg/kg is applied to any calculated soil concentration that is >RES or exceeds 10,000 mg/kg.
2. RES values for TPH to be determined (TBD).
3. The numbers in this table are based on the protection of human health. While these concentrations may not be physically realistic in the environment, it remains that the models indicate that chemicals present in the soil at concentrations below these values do not present a potential concern for human health if exposure occurs through the specified pathway.
4. Concentrations >RES are considered an indicator of the potential presence of free product. If site concentrations are >RES, the presence of free product must be specifically addressed by the Site Professional.

To apply the RBSL values in the Tier I Soil and Groundwater Tables, the following mandatory criteria must be satisfied.

- a. Non-aqueous phase liquids must not be present in groundwater.
- b. Potable water must be free of objectionable taste and odour.
- c. Soils must not contain liquid and/or free petroleum product.
- d. Residual hydrocarbons must not create objectionable odours or explosive conditions in indoor or outdoor air.
- e. Surface soils must not be stained.
- f. The site characteristics and exposure scenarios must be compatible with the Atlantic RBCA default values.

Updated January 2015

TABLE 4b - TIER I RISK BASED SCREENING LEVELS FOR GROUNDWATER (mg/L)

Receptor	Groundwater Use	Soil Type	Compound of Concern						
			Benzene	Toluene	Ethyl-benzene	Xylene	Modified TPH (TPH-BTEX)		
							Gasoline	Diesel/No. 2 Fuel Oil	No. 6 Oil/Lube Oil
Agricultural	Potable	Coarse Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	2.6	20	20	20	20	20	20
		Fine Grained	13	20	20	20	20	20	20
Residential	Potable	Coarse Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	2.6	20	20	20	20	20	20
		Fine Grained	13	20	20	20	20	20	20
Commercial	Potable	Coarse Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	20	20	20	20	20	20	20
		Fine Grained	20	20	20	20	20	20	20
Industrial	Potable	Coarse Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	20	20	20	20	20	20	20
		Fine Grained	20	20	20	20	20	20	20
Solubility (SOL)			1,780	515	150	160	TBD	TBD	TBD

Notes:

1. Upper Concentration Limit (UCL) of 20 mg/L is applied to any calculated concentration that is >SOL or exceeds 20 mg/L.
2. SOL values for TPH to be determined (TBD).
3. The numbers in this table are based on the protection of human health. While these concentrations may not be physically realistic in the environment, it remains that the models indicate that chemicals present in the groundwater at concentrations below these values do not present a potential concern for human health if exposure occurs through the specified pathway.
4. Concentrations >SOL are considered an indicator of the potential presence of free product. If site concentrations are >SOL, the presence of free product must be specifically addressed by the Site Professional.

To apply the RBSL values in the Tier I Soil and Groundwater Tables, the following mandatory criteria must be satisfied.

- a. Non-aqueous phase liquids must not be present in groundwater.
- b. Potable water must be free of objectionable taste and odour.
- c. Soils must not contain liquid and/or free petroleum product.
- d. Residual hydrocarbons must not create objectionable odours or explosive conditions in indoor or outdoor air.
- e. Surface soils must not be stained.
- f. The site characteristics and exposure scenarios must be compatible with the Atlantic RBCA default values.

Updated September 2015



APPENDIX 4

Atlantic RBCA Version 3

ATLANTIC CANADA TIER II

PATHWAY-SPECIFIC SCREENING LEVEL (PSSL) TABLE

ATLANTIC PARTNERSHIP IN RBCA IMPLEMENTATION

September, 2015

TABLE 5a - TIER II PATHWAY SPECIFIC SCREENING LEVELS FOR SOIL (mg/kg)

Receptor	Groundwater Use	Soil Type	Exposure Pathway	Compound of Concern						
				Benzene	Toluene	Ethyl-benzene	Xylene	Modified TPH (TPH-BTEX)		
								Gasoline	Diesel/No. 2 Fuel Oil	No. 6 Oil/Lube Oil
Agricultural	Potable	Coarse Grained	Indoor Air *	0.099	77	30	8.8	74	270	1,100
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	0.042	0.35	0.043	0.73	940	1,800	15,000
		Fine Grained	Indoor Air *	2.3	>RES	>RES	210	2,100	10,000	60,000
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	0.094	0.74	0.089	1.5	1,900	4700	>RES
	Non-Potable	Coarse Grained	Indoor Air *	0.099	77	30	8.8	74	270	1,100
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	2.3	>RES	>RES	210	2,100	10,000	60,000
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
Residential	Potable	Coarse Grained	Indoor Air *	0.099	77	30	8.8	74	270	1,100
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	0.042	0.35	0.043	0.73	940	1,800	15,000
		Fine Grained	Indoor Air *	2.3	>RES	>RES	210	2,100	10,000	60,000
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	0.094	0.74	0.089	1.5	1900	4700	>RES
	Non-Potable	Coarse Grained	Indoor Air *	0.099	77	30	8.8	74	270	1,100
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	2.3	>RES	>RES	210	2,100	10,000	60,000
			Soil Ingestion	66	20,000	9,300	140,000	15,000	8,600	14,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
Residual Saturation		Coarse Grained		890	450	240	340	TBD	TBD	TBD
		Fine Grained		1000	480	250	360	TBD	TBD	TBD

Notes:

- * 10 X Adjustment Factor (AF) has been applied.
- RES values for TPH to be determined (TBD).
- The numbers in this table are based on the protection of human health. While these concentrations may not be physically realistic in the environment, it remains that the models indicate that chemicals present in the soil at concentrations below these values do not present a potential concern for human health if exposure occurs through the specified pathway.
- Concentrations >RES are considered an indicator of the potential presence of free product. If site concentrations are >RES, the presence of free product must be specifically addressed by the Site Professional.

To apply the PSSL values in the Tier II Soil and Groundwater Tables, the following mandatory criteria must be satisfied.

- Non-aqueous phase liquids must not be present in groundwater.
- Potable water must be free of objectionable taste and odour.
- Soils must not contain liquid and/or free petroleum product.
- Residual hydrocarbons must not create objectionable odours or explosive conditions in indoor or outdoor air.
- Surface soils must not be stained.
- The site characteristics and exposure scenarios must be compatible with the Atlantic RBCA default values.

Updated September 2015

TABLE 5a - TIER II PATHWAY SPECIFIC SCREENING LEVELS FOR SOIL (mg/kg)

Receptor	Groundwater Use	Soil Type	Exposure Pathway	Compound of Concern						
				Benzene	Toluene	Ethyl-benzene	Xylene	Modified TPH (TPH-BTEX)		
								Gasoline	Diesel/No. 2 Fuel Oil	No. 6 Oil/Lube Oil
Commercial	Potable	Coarse Grained	Indoor Air *	2.5	>RES	>RES	110	870	4,000	23,000
			Soil Ingestion	360	31,000	14,000	210,000	22,000	13,000	21,000
			Soil Leaching	0.042	0.35	0.043	0.73	940	1,800	15,000
		Fine Grained	Indoor Air *	33	>RES	>RES	>RES	78,000	>RES	>RES
			Soil Ingestion	360	31,000	14,000	210,000	22,000	13,000	21,000
			Soil Leaching	0.094	0.74	0.089	1.5	1900	4,700	>RES
	Non-Potable	Coarse Grained	Indoor Air *	2.5	>RES	>RES	110	870	4,000	23000
			Soil Ingestion	360	31,000	14,000	210,000	22,000	13,000	21,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	33	>RES	>RES	>RES	78,000	>RES	>RES
			Soil Ingestion	360	31,000	14,000	210,000	22,000	13,000	21,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
Industrial	Potable	Coarse Grained	Indoor Air *	2.5	>RES	>RES	110	870	4,000	23,000
			Soil Ingestion	360	110,000	49,000	730,000	77,000	47,000	74,000
			Soil Leaching	0.042	0.35	0.043	0.73	940	1,800	15,000
		Fine Grained	Indoor Air *	33	>RES	>RES	>RES	78,000	>RES	>RES
			Soil Ingestion	360	110,000	49,000	730,000	77,000	47,000	74,000
			Soil Leaching	0.094	0.74	0.089	1.5	1900	4,700	>RES
	Non-Potable	Coarse Grained	Indoor Air *	2.5	>RES	>RES	110	870	4,000	23,000
			Soil Ingestion	360	110,000	49,000	730,000	77,000	47,000	74,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	33	>RES	>RES	>RES	78,000	>RES	>RES
			Soil Ingestion	360	110,000	49,000	730,000	77,000	47,000	74,000
			Soil Leaching	Not Applicable for Non-Potable Scenarios						
Residual Saturation		Coarse Grained		890	450	240	340	TBD	TBD	TBD
		Fine Grained		1000	480	250	360	TBD	TBD	TBD

Notes:

- * 10 X Adjustment Factor (AF) has been applied.
- RES values for TPH to be determined (TBD).
- The numbers in this table are based on the protection of human health. While these concentrations may not be physically realistic in the environment, it remains that the models indicate that chemicals present in the soil at concentrations below these values do not present a potential concern for human health if exposure occurs through the specified pathway.
- Concentrations >RES are considered an indicator of the potential presence of free product. If site concentrations are >RES, the presence of free product must be specifically addressed by the Site Professional.

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- Soils must not contain liquid and/or free petroleum product.
- Residual hydrocarbons must not create objectionable odours or explosive conditions in indoor or outdoor air.
- Surface soils must not be stained
- The site characteristics and exposure scenarios must be compatible with the Atlantic RBCA default values.

TABLE 5b - TIER II PATHWAY SPECIFIC SCREENING LEVELS FOR GROUNDWATER (mg/L)

Receptor	Groundwater Use	Soil Type	Exposure Pathway	Compound of Concern						
				Benzene	Toluene	Ethyl-benzene	Xylene	Modified TPH (TPH-BTEX)		
								Gasoline	Diesel/ No. 2 Fuel Oil	No. 6 Oil/ Lube Oil
Agricultural	Potable	Coarse Grained	Indoor Air *	2.6	>SOL	>SOL	68	34	200	1,100
			Ingestion	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	Indoor Air *	13	>SOL	>SOL	330	2,100	30,000	>SOL
			Ingestion	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	Indoor Air *	2.6	>SOL	>SOL	68	34	200	1100
			Ingestion	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	13	>SOL	>SOL	330	2,100	30,000	>SOL
			Ingestion	Not Applicable for Non-Potable Scenarios						
Residential	Potable	Coarse Grained	Indoor Air *	2.6	>SOL	>SOL	68	34	200	1100
			Ingestion	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	Indoor Air *	13	>SOL	>SOL	330	2,100	300,000	>SOL
			Ingestion	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	Indoor Air *	2.6	>SOL	>SOL	68	34	200	1,100
			Ingestion	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	13	>SOL	>SOL	330	2,100	30,000	>SOL
			Ingestion	Not Applicable for Non-Potable Scenarios						
Solubility'				1780	515	150	160	TBD	TBD	TBD

Notes:

1. * 10 X Adjustment Factor (AF) has been applied.
2. SOL values for TPH to be determined (TBD).
3. The numbers in this table are based on the protection of human health. While these concentrations may not be physically realistic in the environment, it remains that the models indicate that chemicals present in the groundwater at concentrations below these values do not present a potential concern for human health if exposure occurs through the specified pathway.
4. Concentrations >SOL are considered an indicator of the potential presence of free product. If site concentrations are >SOL, the presence of free product must be specifically addressed by the Site Professional.

To apply the PSSL values in the Tier II Soil and Groundwater Tables, the following mandatory criteria must be satisfied.

- a. Non-aqueous phase liquids must not be present in groundwater.
- b. Potable water must be free of objectionable taste and odour.
- c. Soils must not contain liquid and/or free petroleum product.
- d. Residual hydrocarbons must not create objectionable odours or explosive conditions in indoor or outdoor air.
- e. Surface soils must not be stained.
- f. The site characteristics and exposure scenarios must be compatible with the Atlantic RBCA default values.

Updated January 2015

TABLE 5b - TIER II PATHWAY SPECIFIC SCREENING LEVELS FOR GROUNDWATER (mg/L)

Receptor	Groundwater Use	Soil Type	Exposure Pathway	Compound of Concern						
				Benzene	Toluene	Ethyl-benzene	Xylene	Modified TPH (TPH-BTEX)		
								Gasoline	Diesel/ No. 2 Fuel Oil	No. 6 Oil/ Lube Oil
Commercial	Potable	Coarse Grained	Indoor Air *	30	>SOL	>SOL	390	3,700	39,000	>SOL
			Ingestion	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	Indoor Air *	150	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
			Ingestion	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	Indoor Air *	30	>SOL	>SOL	390	3,700	39,000	>SOL
			Ingestion	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	150	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
			Ingestion	Not Applicable for Non-Potable Scenarios						
Industrial	Potable	Coarse Grained	Indoor Air *	30	>SOL	>SOL	390	3,700	39,000	>SOL
			Ingestion	150	0.024	0.0016	0.02	4.4	3.2	7.8
		Fine Grained	Indoor Air *	140	>SOL	>SOL	>160	>SOL	>SOL	>SOL
			Ingestion	0.005	0.024	0.0016	0.02	4.4	3.2	7.8
	Non-Potable	Coarse Grained	Indoor Air *	30	>SOL	>SOL	390	3,700	39,000	>SOL
			Ingestion	Not Applicable for Non-Potable Scenarios						
		Fine Grained	Indoor Air *	150	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
			Ingestion	Not Applicable for Non-Potable Scenarios						
Solubility'				1780	515	150	160	TBD	TBD	TBD

Notes:

1. * 10 X Adjustment Factor (AF) has been applied.
2. SOL values for TPH to be determined (TBD).
3. The numbers in this table are based on the protection of human health. While these concentrations may not be physically realistic in the environment, it remains that the models indicate that chemicals present in the groundwater at concentrations below these values do not present a potential concern for human health if exposure occurs through the specified pathway.
4. Concentrations >SOL are considered an indicator of the potential presence of free product. If site concentrations are >SOL, the presence of free product must be specifically addressed by the Site Professional.

To apply the PSSL values in the Tier II Soil and Groundwater Tables, the following mandatory criteria must be satisfied.

- a. Non-aqueous phase liquids must not be present in groundwater.
- b. Potable water must be free of objectionable taste and odour.
- c. Soils must not contain liquid and/or free petroleum product.
- d. Residual hydrocarbons must not create objectionable odours or explosive conditions in indoor or outdoor air.
- e. Surface soils must not be stained.
- f. The site characteristics and exposure scenarios must be compatible with the Atlantic RBCA default values.

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