

Permit Number: EPR/PP3993VS

Operator: Atlantic Recycling

Facility: Atlantic Recycling

Form Number: Groundwater1

Reporting of groundwater monitoring for the period from June to November 2016

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS1	pH	6.1 ñ 8.52	Bi-annually	7.65 pH Units	TM256	14/11/16	Lab: Precision 0.4%, Bias 0.8%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS1	Total Oxidised Nitrogen as N	>0.89 mg/l	Bi-annually	<0.1 mg/l	TM184	14/11/16	Lab: Precision 0.4%, Bias 0.8%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS1	Nitrite as N	>0.084 mg/l	Bi-annually	<0.0152 mg/l	TM184	14/11/16	Lab: Precision 2.2%, Bias 0.3%, Expanded Uncertainty 4.8%. Sampling: Immeasurable
WS1	Nitrate as N	>2.2 mg/l	Bi-annually	<0.0677 mg/l	TM184	14/11/16	Lab: Unknown. Sampling: Immeasurable
WS1	Ammoniacal Nitrogen as N*	>0.012 mg/l	Bi-annually	0.0019 mg/l	TM099	14/11/16	Lab: Precision 2.3%, Bias 2.0%, Expanded Uncertainty 6.6%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS1	Chloride	>4564.4 mg/l	Bi-annually	56.2 mg/l	TM184	14/11/16	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS1	Conductivity	>2400 µS/cm	Bi-annually	0.656 mS/cm	TM120	14/11/16	Lab: Precision 1.3%, Bias 3.1%, Expanded Uncertainty 5.7%. Sampling: Immeasurable
WS1	BOD	>19 mg/l	Bi-annually	5.3 mg/l	TM045	14/11/16	Lab: Precision 1.3%, Bias 3.1%, Expanded Uncertainty 5.7%. Sampling: Immeasurable
WS1	Dissolved Oxygen	>7.1 mg/l	Bi-annually	0.51 mg/l	TM187	14/11/16	Lab: Unknown. Sampling: Immeasurable
WS1	EPH >C10-C40	>100 µg/l	Bi-annually	<46 µg/l	TM172	14/11/16	Lab: Unknown. Sampling: Immeasurable
WS1	Total PAH (16)	>0.01 µg/l	Bi-annually	<0.344 µg/l	TM178	14/11/16	Lab: Unknown. Sampling: Immeasurable
WS1	Orthophosphate	>10.57 mg/l	Bi-annually	0.275 mg/l	TM184	14/11/16	Lab: Precision 1.6%, Bias 2.7%, Expanded Uncertainty 6.0%. Sampling: Immeasurable
WS1	Total Sulphate	>167.2 mg/l	Bi-annually	38.1 mg/l	TM184	14/11/16	Lab: Precision 2.7%, Bias 2.2%, Expanded

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
							Uncertainty 7.7%. Sampling: Immeasurable
WS1	Total Cadmium	>0.0004 mg/l	Bi-annually	<0.5 µg/l	TM191	14/11/16	Lab: Precision 5.3%, Bias -3.5%, Expanded Uncertainty 14.1%. Sampling: Immeasurable
WS1	Total Calcium	>187.3 mg/l	Bi-annually	100 mg/l	TM228	14/11/16	Lab: Precision 5.2%, Bias -1.9%, Expanded Uncertainty 12.2%. Sampling: Immeasurable
WS1	Dissolved Nickel	>0.028 mg/l	Bi-annually	2.66 µg/l	TM152	14/11/16	Lab: Precision 4.6%, Bias 1.2%, Expanded Uncertainty 10.4%. Sampling: Immeasurable
WS1	Dissolved Lead	>0.013 mg/l	Bi-annually	0.146 µg/l	TM152	14/11/16	Lab: Precision 4.1%, Bias -1.3%, Expanded Uncertainty 9.4%. Sampling: Immeasurable
WS1	Total Zinc	>2531 mg/l	Bi-annually	42.5 µg/l	TM191	14/11/16	Lab: Precision 5.7%, Bias -2%, Expanded Uncertainty 13.1%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS2	pH	6.1 ñ 8.52	Bi-annually	7.83 pH Units	TM256	15/11/16	Lab: Precision 0.4%, Bias 0.8%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS2	Total Oxidised Nitrogen as N	>0.89 mg/l	Bi-annually	0.198 mg/l	TM184	15/11/16	Lab: Precision 3.2%, Bias 3.0%, Expanded Uncertainty 9.4%. Sampling: Immeasurable
WS2	Nitrite as N	>0.084 mg/l	Bi-annually	<0.0152 mg/l	TM184	15/11/16	Lab: Precision 2.2%, Bias 0.3%, Expanded Uncertainty 4.8%. Sampling: Immeasurable
WS2	Nitrate as N	>29.7 mg/l	Bi-annually	0.192 mg/l	TM184	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS2	Ammoniacal Nitrogen as N*	>0.012 mg/l	Bi-annually	0.00068 mg/l	TM099	15/11/16	Lab: Precision 2.3%, Bias 2.0%, Expanded Uncertainty 6.6%. Sampling: Immeasurable
WS2	Chloride	>4564.4 mg/l	Bi-annually	34.7 mg/l	TM184	15/11/16	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS2	Conductivity	>2400 µS/cm	Bi-annually	0.688 mS/cm	TM120	15/11/16	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS2	BOD	>19 mg/l	Bi-annually	<1 mg/l	TM045	15/11/16	Lab: Precision 8.9%, Bias 3.6%, Expanded Uncertainty 21.4%. Sampling: Immeasurable
WS2	Dissolved Oxygen	>7.1 mg/l	Bi-annually	2.38 mg/l	TM187	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS2	EPH >C10-C40	>100 µg/l	Bi-annually	<46 µg/l	TM172	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS2	Total PAH (16)	>0.01 µg/l	Bi-annually	<0.344 µg/l	TM178	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS2	Orthophosphate	>10.57 mg/l	Bi-annually	0.0317 mg/l	TM184	15/11/16	Lab: Precision 1.6%, Bias 2.7%, Expanded Uncertainty 6.0%. Sampling: Immeasurable
WS2	Total Sulphate	>167.2 mg/l	Bi-annually	54.4 mg/l	TM184	15/11/16	Lab: Precision 2.7%, Bias 2.2%, Expanded Uncertainty 7.7%. Sampling: Immeasurable
WS2	Total Cadmium	>0.0004 mg/l	Bi-annually	<0.5 µg/l	TM191	15/11/16	Lab: Precision 5.3%, Bias -3.5%, Expanded

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
							Uncertainty 14.1%. Sampling: Immeasurable
WS2	Total Calcium	>187.3 mg/l	Bi-annually	68.6 mg/l	TM228	15/11/16	Lab: Precision 5.2%, Bias -1.9%, Expanded Uncertainty 12.2%. Sampling: Immeasurable
WS2	Dissolved Nickel	>0.028 mg/l	Bi-annually	1.46 > g/l	TM152	15/11/16	Lab: Precision 4.6%, Bias 1.2%, Expanded Uncertainty 10.4%. Sampling: Immeasurable
WS2	Dissolved Lead	>0.013 mg/l	Bi-annually	<0.1 > g/l	TM152	15/11/16	Lab: Precision 4.1%, Bias -1.3%, Expanded Uncertainty 9.4%. Sampling: Immeasurable
WS2	Total Zinc	>2531 mg/l	Bi-annually	12 µg/l	TM191	15/11/16	Lab: Precision 5.7%, Bias -2%, Expanded Uncertainty 13.1%. Sampling: Immeasurable
WS3	pH	6.1 ñ 8.52	Bi-annually	7.49 pH Units	TM256	15/11/16	Lab: Precision 0.4%, Bias 0.8%, Expanded Uncertainty 1.7%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS3	Total Oxidised Nitrogen as N	>0.89 mg/l	Bi-annually	0.38 mg/l	TM184	15/11/16	Lab: Precision 3.2%, Bias 3.0%, Expanded Uncertainty 9.4%. Sampling: Immeasurable
WS3	Nitrite as N	>0.084 mg/l	Bi-annually	0.0183 mg/l	TM184	15/11/16	Lab: Precision 2.2%, Bias 0.3%, Expanded Uncertainty 4.8%. Sampling: Immeasurable
WS3	Nitrate as N	>29.7 mg/l	Bi-annually	0.362 mg/l	TM184	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS3	Ammoniacal Nitrogen as N*	>0.012 mg/l	Bi-annually	0.00081 mg/l	TM099	15/11/16	Lab: Precision 2.3%, Bias 2.0%, Expanded Uncertainty 6.6%. Sampling: Immeasurable
WS3	Chloride	>4564.4 mg/l	Bi-annually	52.2 mg/l	TM184	15/11/16	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS3	Conductivity	>2400 μ S/cm	Bi-annually	1.21 mS/cm	TM120	15/11/16	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS3	BOD	>19 mg/l	Bi-annually	2.42 mg/l	TM045	15/11/16	Lab: Precision 8.9%, Bias 3.6%, Expanded Uncertainty 21.4%. Sampling: Immeasurable
WS3	Dissolved Oxygen	>7.1 mg/l	Bi-annually	0.41 mg/l	TM187	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS3	EPH >C10 ñ C40	>100 µg/l	Bi-annually	<46 µg/l	TM172	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS3	Total PAH (16)	>0.01 µg/l	Bi-annually	4.28 µg/l	TM178	15/11/16	Lab: Unknown. Sampling: Immeasurable
WS3	Orthophosphate	>10.57 mg/l	Bi-annually	<0.02 mg/l	TM184	15/11/16	Lab: Precision 1.6%, Bias 2.7%, Expanded Uncertainty 6.0%. Sampling: Immeasurable
WS3	Total Sulphate	>167.2 mg/l	Bi-annually	368 mg/l	TM184	15/11/16	Lab: Precision 2.7%, Bias 2.2%, Expanded Uncertainty 7.7%. Sampling: Immeasurable
WS3	Total Cadmium	>0.0004 mg/l	Bi-annually	<0.5 µg/l	TM191	15/11/16	Lab: Precision 5.3%, Bias -3.5%, Expanded Uncertainty 14.1%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS3	Total Calcium	>187.3 mg/l	Bi-annually	296 mg/l	TM228	15/11/16	Lab: Precision 5.2%, Bias -1.9%, Expanded Uncertainty 12.2%. Sampling: Immeasurable
WS3	Dissolved Nickel	>0.028 mg/l	Bi-annually	3.23 µg/l	TM152	15/11/16	Lab: Precision 4.6%, Bias 1.2%, Expanded Uncertainty 10.4%. Sampling: Immeasurable
WS3	Dissolved Lead	>0.013 mg/l	Bi-annually	0.159 µg/l	TM152	15/11/16	Lab: Precision 4.1%, Bias -1.3%, Expanded Uncertainty 9.4%. Sampling: Immeasurable
WS3	Total Zinc	>2531 mg/l	Bi-annually	114 µg/l	TM191	15/11/16	Lab: Precision 5.7%, Bias -2%, Expanded Uncertainty 13.1%. Sampling: Immeasurable
WS4	pH	6.1 ñ 8.52	Bi-annually	7.29 pH Units	TM256	14/11/16	Lab: Precision 0.4%, Bias 0.8%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS4	Total Oxidised Nitrogen as N	>0.89 mg/l	Bi-annually	<0.1 mg/l	TM184	14/11/16	Lab: Precision 0.4%, Bias 0.8%, Expanded Uncertainty 1.7%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS4	Nitrite as N	>0.084 mg/l	Bi-annually	<0.0152 mg/l	TM184	14/11/16	Lab: Precision 2.2%, Bias 0.3%, Expanded Uncertainty 4.8%. Sampling: Immeasurable
WS4	Nitrate as N	>2.2 mg/l	Bi-annually	<0.0677 mg/l	TM184	14/11/16	Lab: Unknown. Sampling: Immeasurable
WS4	Ammoniacal Nitrogen as N*	>0.012 mg/l	Bi-annually	0.032 mg/l	TM099	14/11/16	Lab: Precision 2.3%, Bias 2.0%, Expanded Uncertainty 6.6%. Sampling: Immeasurable
WS4	Chloride	>4564.4 mg/l	Bi-annually	523 mg/l	TM184	14/11/16	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS4	Conductivity	>2400 μ S/cm	Bi-annually	2.98 mS/cm	TM120	14/11/16	Lab: Precision 1.3%, Bias 3.1%, Expanded Uncertainty 5.7%. Sampling: Immeasurable
WS4	BOD	>19 mg/l	Bi-annually	4.92 mg/l	TM045	14/11/16	Lab: Precision 1.3%, Bias 3.1%, Expanded Uncertainty 5.7%. Sampling: Immeasurable
WS4	Dissolved Oxygen	>7.1 mg/l	Bi-annually	<0.3 mg/l	TM187	14/11/16	Lab: Unknown. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS4	EPH >C10 ñ C40	>100 µg/l	Bi-annually	<46 µg/l	TM172	14/11/16	Lab: Unknown. Sampling: Immeasurable
WS4	Total PAH (16)	>0.01 µg/l	Bi-annually	0.565 µg/l	TM178	14/11/16	Lab: Unknown. Sampling: Immeasurable
WS4	Orthophosphate	>10.57 mg/l	Bi-annually	4.07 mg/l	TM184	14/11/16	Lab: Precision 1.6%, Bias 2.7%, Expanded Uncertainty 6.0%. Sampling: Immeasurable
WS4	Total Sulphate	>167.2 mg/l	Bi-annually	200 mg/l	TM184	14/11/16	Lab: Precision 2.7%, Bias 2.2%, Expanded Uncertainty 7.7%. Sampling: Immeasurable
WS4	Total Cadmium	>0.0004 mg/l	Bi-annually	<0.5 µg/l	TM191	14/11/16	Lab: Precision 5.3%, Bias -3.5%, Expanded Uncertainty 14.1%. Sampling: Immeasurable
WS4	Total Calcium	>187.3 mg/l	Bi-annually	134 mg/l	TM228	14/11/16	Lab: Precision 5.2%, Bias -1.9%, Expanded Uncertainty 12.2%. Sampling: Immeasurable
WS4	Dissolved Nickel	>0.028 mg/l	Bi-annually	2.53 µg/l	TM152	14/11/16	Lab: Precision 4.6%, Bias 1.2%, Expanded Uncertainty 10.4%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS4	Dissolved Lead	>0.013 mg/l	Bi-annually	0.448 µg/l	TM152	14/11/16	Lab: Precision 4.1%, Bias -1.3%, Expanded Uncertainty 9.4%. Sampling: Immeasurable
WS4	Total Zinc	>2531 mg/l	Bi-annually	35.7 µg/l	TM191	14/11/16	Lab: Precision 5.7%, Bias -2%, Expanded Uncertainty 13.1%. Sampling: Immeasurable
WS5	pH	6.1 ñ 8.52	Bi-annually	7.48 pH Units	TM256	16/11/2016	Lab: Precision 0.4%, Bias 0.8%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS5	Total Oxidised Nitrogen as N	>0.89 mg/l	Bi-annually	<0.1 mg/l	TM184	16/11/2016	Lab: Precision 3.2%, Bias 3.0%, Expanded Uncertainty 9.4%. Sampling: Immeasurable
WS5	Nitrite as N	>0.084 mg/l	Bi-annually	<0.0152 mg/l	TM184	16/11/2016	Lab: Precision 2.2%, Bias 0.3%, Expanded Uncertainty 4.8%. Sampling: Immeasurable
WS5	Nitrate as N	>29.7 mg/l	Bi-annually	<0.0677 mg/l	TM184	16/11/2016	Lab: Unknown. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS5	Ammoniacal Nitrogen as N*	>0.012 mg/l	Bi-annually	0.013 mg/l	TM099	16/11/2016	Lab: Precision 2.3%, Bias 2.0%, Expanded Uncertainty 6.6%. Sampling: Immeasurable
WS5	Chloride	>4564.4 mg/l	Bi-annually	458 mg/l	TM184	16/11/2016	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS5	Conductivity	>2400 µS/cm	Bi-annually	2.7 mS/cm	TM120	16/11/2016	Lab: Precision 2.8%, Bias 2.6%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS5	BOD	>19 mg/l	Bi-annually	<5 mg/l	TM045	16/11/2016	Lab: Precision 8.9%, Bias 3.6%, Expanded Uncertainty 21.4%. Sampling: Immeasurable
WS5	Dissolved Oxygen	>7.1 mg/l	Bi-annually	1.43 mg/l	TM187	16/11/2016	Lab: Unknown. Sampling: Immeasurable
WS5	EPH >C10 ñ C40	>100 µg/l	Bi-annually	<46 µg/l	TM172 / TM245	16/11/2016	Lab: Unknown. Sampling: Immeasurable
WS5	Total PAH (16)	>0.01 µg/l	Bi-annually	1.32 µg/l	TM178	16/11/2016	Lab: Unknown. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS5	Orthophosphate	>10.57 mg/l	Bi-annually	0.137 mg/l	TM184	16/11/2016	Lab: Precision 1.6%, Bias 2.7%, Expanded Uncertainty 6.0%. Sampling: Immeasurable
WS5	Total Sulphate	>260 mg/l	Bi-annually	148 mg/l	TM184	16/11/2016	Lab: Precision 2.7%, Bias 2.2%, Expanded Uncertainty 7.7%. Sampling: Immeasurable
WS5	Total Cadmium	>0.0004 mg/l	Bi-annually	0.637 µg/l	TM191	16/11/2016	Lab: Precision 5.3%, Bias -3.5%, Expanded Uncertainty 14.1%. Sampling: Immeasurable
WS5	Total Calcium	>187.3 mg/l	Bi-annually	394 mg/l	TM228	16/11/2016	Lab: Precision 5.2%, Bias -1.9%, Expanded Uncertainty 12.2%. Sampling: Immeasurable
WS5	Dissolved Nickel	>0.028 mg/l	Bi-annually	8.29 µg/l	TM152	16/11/2016	Lab: Precision 4.6%, Bias 1.2%, Expanded Uncertainty 10.4%. Sampling: Immeasurable
WS5	Dissolved Lead	>0.013 mg/l	Bi-annually	0.264 µg/l	TM152	16/11/2016	Lab: Precision 4.1%, Bias -1.3%, Expanded Uncertainty 9.4%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Test Method ⁽²⁾	Sample Date and Times ⁽³⁾	Uncertainty ⁽⁴⁾
WS5	Total Zinc	>2531 mg/l	Bi-annually	346 µg/l	TM191	16/11/2016	Lab: Precision 5.7%, Bias -2%, Expanded Uncertainty 13.1%. Sampling: Immeasurable

*Total ammoniacal nitrogen converted to unionised ammonia using water temperature and pH.

- [1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum - maximum' measured values.
- [2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
- [3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
- [4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.



Signed è
(Authorised to sign as representative of Operator)

Date: 9 December 2016

Permit Number EPR/PP3993VS