Permit Number: EPR/VP3095FS Operator: Neal Soils

Facility: Neal Soils Form Number: Groundwater1

Reporting of groundwater results for bi-annual monitoring in May 2017

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result(1)	Test Method(2)	Sample Date and Times(3)	Uncertainty (4)
WS6	pH	7.3 ï 8.7	Bi-annually	7.46 pH Units	TM256	25/05/17 13:00	Lab: Precision 0.4%, Bias 0.9%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS6	Total Oxidised Nitrogen as N	>3.2 mg/l	Bi-annually	0.119 mg/l	TM184	25/05/17 13:00	Lab: Precision 2.3%, Bias 6.0%, Expanded Uncertainty 10.6%. Sampling: Immeasurable
WS6	Nitrite as N	>300 mg/l	Bi-annually	<0.0152 mg/l	TM184	25/05/17 13:00	Lab: Precision 1.2%, Bias 2.0%, Expanded Uncertainty 4.4%. Sampling: Immeasurable
WS6	Nitrate as N	>25.35 mg/l	Bi-annually	0.118 mg/l	TM184	25/05/17 13:00	Lab: Unknown. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS6	Ammoniacal Nitrogen as N*	>0.0614 mg/l	Bi-annually	0.0184 mg/l	TM099	25/05/17 13:00	Lab: Precision 2.4%, Bias 3.3%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS6	Chloride	>595 mg/l	Bi-annually	400 mg/l	TM184	25/05/17 13:00	Lab: Precision 3.0%, Bias 5.7%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS6	Conductivity	>7500 µS/cm	Bi-annually	2.83 mS/cm	TM120	25/05/17 13:00	Lab: Precision 1.2%, Bias 2.7%, Expanded Uncertainty 5.1%. Sampling: Immeasurable
WS6	EPH >C10-C40	>100 µg/l	Bi-annually	829 µg/l	TM174	25/05/17 13:00	Lab: Precision 7.5%, Bias -11.2%, Expanded Uncertainty 26.1%. Sampling: Immeasurable
WS6	Total PAH (16)	>20 µg/l	Bi-annually	627 µg/l	TM178	25/05/17 13:00	Lab: Unknown. Sampling: Immeasurable
WS6	Total Sulphate	>1779 mg/l	Bi-annually	663 mg/l	TM184	25/05/17 13:00	Lab: Precision 1.7%, Bias 5.3%, Expanded Uncertainty 8.7%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS6	Total Cadmium	>3.45 µg/l	Bi-annually	6.26 µg/l	TM191	25/05/17 13:00	Lab: Precision 7.4%, Bias -6.4%, Expanded Uncertainty 23.1%. Sampling: Immeasurable
WS6	Total Calcium	>354 mg/l	Bi-annually	1,330 mg/l	TM228	25/05/17 13:00	Lab: Precision 5.5%, Bias -0.8%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS6	Dissolved Nickel	>30 mg/l	Bi-annually	7.12 µg/l	TM152	25/05/17 13:00	Lab: Precision 3.6%, Bias 1.2%, Expanded Uncertainty 8.4%. Sampling: Immeasurable
WS6	Dissolved Lead	>17.5 µg/l	Bi-annually	<0.2 µg/l	TM152	25/05/17 13:00	Lab: Precision 4.0%, Bias -0.1%, Expanded Uncertainty 8.0%. Sampling: Immeasurable
WS6	Total Zinc	>2645 mg/l	Bi-annually	2,010 µg/l	TM191	25/05/17 13:00	Lab: Precision 5.9%, Bias -6.2%, Expanded Uncertainty 17.9%. Sampling: Immeasurable
WS10	pH	7.3 ï 8.7	Bi-annually	7.58 pH Units	TM256	26/05/17 08:15	Lab: Precision 0.4%, Bias 0.9%, 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]
WS10	Total Oxidised Nitrogen as N	>3.2 mg/l	Bi-annually	0.313 mg/l	TM184	26/05/17 08:15	Lab: Precision 2.3%, Bias 6.0%, Expanded Uncertainty 10.6%. Sampling: Immeasurable
WS10	Nitrite as N	>300 mg/l	Bi-annually	<0.0152 mg/l	TM184	26/05/17 08:15	Lab: Precision 1.2%, Bias 2.0%, Expanded Uncertainty 4.4%. Sampling: Immeasurable
WS10	Nitrate as N	>25.35 mg/l	Bi-annually	0.309 mg/l	TM184	26/05/17 08:15	Lab: Unknown. Sampling: Immeasurable
WS10	Ammoniacal Nitrogen as N*	>0.0148 mg/l	Bi-annually	0.00621 mg/l	TM099	26/05/17 08:15	Lab: Precision 2.4%, Bias 3.3%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS10	Chloride	>595 mg/l	Bi-annually	50.1 mg/l	TM184	26/05/17 08:15	Lab: Precision 3.0%, Bias 5.7%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS10	Conductivity	>7500 µS/cm	Bi-annually	0.89 mS/cm	TM120	26/05/17 08:15	Lab: Precision 1.2%, Bias 2.7%, Expanded Uncertainty 5.1%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS10	EPH >C10-C40	>100 µg/l	Bi-annually	<46 µg/l	TM174	26/05/17 08:15	Lab: Precision 7.5%, Bias -11.2%, Expanded Uncertainty 26.1%. Sampling: Immeasurable
WS10	Total PAH (16)	>20 µg/l	Bi-annually	<0.344 µg/l	TM178	26/05/17 08:15	Lab: Unknown. Sampling: Immeasurable
WS10	Total Sulphate	>269 mg/l	Bi-annually	58.9 mg/l	TM184	26/05/17 08:15	Lab: Precision 1.7%, Bias 5.3%, Expanded Uncertainty 8.7%. Sampling: Immeasurable
WS10	Total Cadmium	>3.45 µg/l	Bi-annually	<0.5 µg/l	TM191	26/05/17 08:15	Lab: Precision 7.4%, Bias -6.4%, Expanded Uncertainty 23.1%. Sampling: Immeasurable
WS10	Total Calcium	>354 mg/l	Bi-annually	82.9 mg/l	TM228	26/05/17 08:15	Lab: Precision 5.5%, Bias -0.8%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS10	Dissolved Nickel	>30 mg/l	Bi-annually	1.69 µg/l	TM152	26/05/17 08:15	Lab: Precision 3.6%, Bias 1.2%, Expanded Uncertainty 8.4%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS10	Dissolved Lead	>17.5 µg/l	Bi-annually	<0.2 µg/l	TM152	26/05/17 08:15	Lab: Precision 4.0%, Bias -0.1%, Expanded Uncertainty 8.0%. Sampling: Immeasurable
WS10	Total Zinc	>2645 mg/l	Bi-annually	36.8 µg/l	TM191	26/05/17 08:15	Lab: Precision 5.9%, Bias -6.2%, Expanded Uncertainty 17.9%. Sampling: Immeasurable
WS11	pH	7.3 ï 8.7	Bi-annually	7.8 pH Units	TM256	26/05/17 08:30	Lab: Precision 0.4%, Bias 0.9%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS11	Total Oxidised Nitrogen as N	>3.2 mg/l	Bi-annually	0.479 mg/l	TM184	26/05/17 08:30	Lab: Precision 2.3%, Bias 6.0%, Expanded Uncertainty 10.6%. Sampling: Immeasurable
WS11	Nitrite as N	>300 mg/l	Bi-annually	<0.0152 mg/l	TM184	26/05/17 08:30	Lab: Precision 1.2%, Bias 2.0%, Expanded Uncertainty 4.4%. Sampling: Immeasurable
WS11	Nitrate as N	>25.35 mg/l	Bi-annually	0.474 mg/l	TM184	26/05/17 08:30	Lab: Unknown. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS11	Ammoniacal Nitrogen as N*	>0.0148 mg/l	Bi-annually	0.0191 mg/l	TM099	26/05/17 08:30	Lab: Precision 2.4%, Bias 3.3%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS11	Chloride	>595 mg/l	Bi-annually	29 mg/l	TM184	26/05/17 08:30	Lab: Precision 3.0%, Bias 5.7%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS11	Conductivity	>7500 µS/cm	Bi-annually	0.715 mS/cm	TM120	26/05/17 08:30	Lab: Precision 1.2%, Bias 2.7%, Expanded Uncertainty 5.1%. Sampling: Immeasurable
WS11	EPH >C10-C40	>100 µg/l	Bi-annually	102 µg/l	TM174	26/05/17 08:30	Lab: Precision 7.5%, Bias -11.2%, Expanded Uncertainty 26.1%. Sampling: Immeasurable
WS11	Total PAH (16)	>20 µg/l	Bi-annually	<0.344 µg/l	TM178	26/05/17 08:30	Lab: Unknown. Sampling: Immeasurable
WS11	Total Sulphate	>269 mg/l	Bi-annually	35.1 mg/l	TM184	26/05/17 08:30	Lab: Precision 1.7%, Bias 5.3%, Expanded Uncertainty 8.7%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS11	Total Cadmium	>3.45 µg/l	Bi-annually	<0.5 µg/l	TM191	26/05/17 08:30	Lab: Precision 7.4%, Bias -6.4%, Expanded Uncertainty 23.1%. Sampling: Immeasurable
WS11	Total Calcium	>354 mg/l	Bi-annually	304 mg/l	TM228	26/05/17 08:30	Lab: Precision 5.5%, Bias -0.8%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS11	Dissolved Nickel	>30 mg/l	Bi-annually	2.87 µg/l	TM152	26/05/17 08:30	Lab: Precision 3.6%, Bias 1.2%, Expanded Uncertainty 8.4%. Sampling: Immeasurable
WS11	Dissolved Lead	>17.5 µg/l	Bi-annually	<0.2 µg/l	TM152	26/05/17 08:30	Lab: Precision 4.0%, Bias -0.1%, Expanded Uncertainty 8.0%. Sampling: Immeasurable
WS11	Total Zinc	>2645 mg/l	Bi-annually	213 µg/l	TM191	26/05/17 08:30	Lab: Precision 5.9%, Bias -6.2%, Expanded Uncertainty 17.9%. Sampling: Immeasurable
WS12	pH	8.6 ï 9.2	Bi-annually	7.45 pH Units	TM256	26/05/17 09:00	Lab: Precision 0.4%, Bias 0.9%, 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]
WS12	Total Oxidised Nitrogen as N	>3.2 mg/l	Bi-annually	0.939 mg/l	TM184	26/05/17 09:00	Lab: Precision 2.3%, Bias 6.0%, Expanded Uncertainty 10.6%. Sampling: Immeasurable
WS12	Nitrite as N	>300 mg/l	Bi-annually	<0.0152 mg/l	TM184	26/05/17 09:00	Lab: Precision 1.2%, Bias 2.0%, Expanded Uncertainty 4.4%. Sampling: Immeasurable
WS12	Nitrate as N	>25.35 mg/l	Bi-annually	0.925 mg/l	TM184	26/05/17 09:00	Lab: Unknown. Sampling: Immeasurable
WS12	Ammoniacal Nitrogen as N*	>0.0614 mg/l	Bi-annually	0.00190 mg/l	TM099	26/05/17 09:00	Lab: Precision 2.4%, Bias 3.3%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS12	Chloride	>595 mg/l	Bi-annually	42.6 mg/l	TM184	26/05/17 09:00	Lab: Precision 3.0%, Bias 5.7%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS12	Conductivity	>7500 µS/cm	Bi-annually	1.12 mS/cm	TM120	26/05/17 09:00	Lab: Precision 1.2%, Bias 2.7%, Expanded Uncertainty 5.1%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS12	EPH >C10-C40	>100 µg/l	Bi-annually	<46 µg/l	TM174	26/05/17 09:00	Lab: Precision 7.5%, Bias -11.2%, Expanded Uncertainty 26.1%. Sampling: Immeasurable
WS12	Total PAH (16)	>20 µg/l	Bi-annually	<0.344 µg/l	TM178	26/05/17 09:00	Lab: Unknown. Sampling: Immeasurable
WS12	Total Sulphate	>269 mg/l	Bi-annually	119 mg/l	TM184	26/05/17 09:00	Lab: Precision 1.7%, Bias 5.3%, Expanded Uncertainty 8.7%. Sampling: Immeasurable
WS12	Total Cadmium	>3.45 µg/l	Bi-annually	<0.5 µg/l	TM191	26/05/17 09:00	Lab: Precision 7.4%, Bias -6.4%, Expanded Uncertainty 23.1%. Sampling: Immeasurable
WS12	Total Calcium	>354 mg/l	Bi-annually	195 mg/l	TM228	26/05/17 09:00	Lab: Precision 5.5%, Bias -0.8%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS12	Dissolved Nickel	>30 mg/l	Bi-annually	4.43 µg/l	TM152	26/05/17 09:00	Lab: Precision 3.6%, Bias 1.2%, Expanded Uncertainty 8.4%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS12	Dissolved Lead	>17.5 µg/l	Bi-annually	<0.2 µg/l	TM152	26/05/17 09:00	Lab: Precision 4.0%, Bias -0.1%, Expanded Uncertainty 8.0%. Sampling: Immeasurable
WS12	Total Zinc	>2645 mg/l	Bi-annually	170 µg/l	TM191	26/05/17 09:00	Lab: Precision 5.9%, Bias -6.2%, Expanded Uncertainty 17.9%. Sampling: Immeasurable
WS14	pH	7.3 ï 8.7	Bi-annually	7.9 pH Units	TM256	26/05/17 09:30	Lab: Precision 0.4%, Bias 0.9%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS14	Total Oxidised Nitrogen as N	>3.2 mg/l	Bi-annually	0.611 mg/l	TM184	26/05/17 09:30	Lab: Precision 2.3%, Bias 6.0%, Expanded Uncertainty 10.6%. Sampling: Immeasurable
WS14	Nitrite as N	>300 mg/l	Bi-annually	<0.0152 mg/l	TM184	26/05/17 09:30	Lab: Precision 1.2%, Bias 2.0%, Expanded Uncertainty 4.4%. Sampling: Immeasurable
WS14	Nitrate as N	>25.35 mg/l	Bi-annually	0.604 mg/l	TM184	26/05/17 09:30	Lab: Unknown. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS14	Ammoniacal Nitrogen as N*	>0.0148 mg/l	Bi-annually	0.0335 mg/l	TM099	26/05/17 09:30	Lab: Precision 2.4%, Bias 3.3%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS14	Chloride	>595 mg/l	Bi-annually	56.5 mg/l	TM184	26/05/17 09:30	Lab: Precision 3.0%, Bias 5.7%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS14	Conductivity	>7500 µS/cm	Bi-annually	1.49 mS/cm	TM120	26/05/17 09:30	Lab: Precision 1.2%, Bias 2.7%, Expanded Uncertainty 5.1%. Sampling: Immeasurable
WS14	EPH >C10-C40	>100 µg/l	Bi-annually	283 µg/l	TM174	26/05/17 09:30	Lab: Precision 7.5%, Bias -11.2%, Expanded Uncertainty 26.1%. Sampling: Immeasurable
WS14	Total PAH (16)	>20 µg/l	Bi-annually	30.6 µg/l	TM178	26/05/17 09:30	Lab: Unknown. Sampling: Immeasurable
WS14	Total Sulphate	>269 mg/l	Bi-annually	233 mg/l	TM184	26/05/17 09:30	Lab: Precision 1.7%, Bias 5.3%, Expanded Uncertainty 8.7%. Sampling: Immeasurable
WS14	Total Cadmium	>3.45 µg/l	Bi-annually	0.814 µg/l	TM191	26/05/17 09:30	Lab: Precision 7.4%, Bias -6.4%, Expanded Uncertainty 23.1%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS14	Total Calcium	>354 mg/l	Bi-annually	262 mg/l	TM228	26/05/17 09:30	Lab: Precision 5.5%, Bias -0.8%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS14	Dissolved Nickel	>30 mg/l	Bi-annually	4.13 µg/l	TM152	26/05/17 09:30	Lab: Precision 3.6%, Bias 1.2%, Expanded Uncertainty 8.4%. Sampling: Immeasurable
WS14	Dissolved Lead	>17.5 µg/l	Bi-annually	1.18 µg/l	TM152	26/05/17 09:30	Lab: Precision 4.0%, Bias -0.1%, Expanded Uncertainty 8.0%. Sampling: Immeasurable
WS14	Total Zinc	>2645 mg/l	Bi-annually	261 µg/l	TM191	26/05/17 09:30	Lab: Precision 5.9%, Bias -6.2%, Expanded Uncertainty 17.9%. Sampling: Immeasurable
WS15	pH	7.3 ï 8.7	Bi-annually	7.41 pH Units	TM256	26/05/17 10:30	Lab: Precision 0.4%, Bias 0.9%, Expanded Uncertainty 1.7%. Sampling: Immeasurable
WS15	Total Oxidised Nitrogen as N	>3.2 mg/l	Bi-annually	<0.1 mg/l	TM184	26/05/17 10:30	Lab: Precision 2.3%, Bias 6.0%, Expanded Uncertainty 10.6%. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS15	Nitrite as N	>300 mg/l	Bi-annually	<0.0152 mg/l	TM184	26/05/17 10:30	Lab: Precision 1.2%, Bias 2.0%, Expanded Uncertainty 4.4%. Sampling: Immeasurable
WS15	Nitrate as N	>25.35 mg/l	Bi-annually	<0.0677 mg/l	TM184	26/05/17 10:30	Lab: Unknown. Sampling: Immeasurable
WS15	Ammoniacal Nitrogen as N*	>0.0148 mg/l	Bi-annually	0.00693 mg/l	TM099	26/05/17 10:30	Lab: Precision 2.4%, Bias 3.3%, Expanded Uncertainty 8.2%. Sampling: Immeasurable
WS15	Chloride	>595 mg/l	Bi-annually	123 mg/l	TM184	26/05/17 10:30	Lab: Precision 3.0%, Bias 5.7%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS15	Conductivity	>7500 µS/cm	Bi-annually	1.53 mS/cm	TM120	26/05/17 10:30	Lab: Precision 1.2%, Bias 2.7%, Expanded Uncertainty 5.1%. Sampling: Immeasurable
WS15	EPH >C10-C40	>100 µg/l	Bi-annually	<46 µg/l	TM174	26/05/17 10:30	Lab: Precision 7.5%, Bias -11.2%, Expanded Uncertainty 26.1%. Sampling: Immeasurable
WS15	Total PAH (16)	>20 µg/l	Bi-annually	<0.344 µg/l	TM178	26/05/17 10:30	Lab: Unknown. Sampling: Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result[1]	Test Method[2]	Sample Date and Times[3]	Uncertainty [4]
WS15	Total Sulphate	>269 mg/l	Bi-annually	220 mg/l	TM184	26/05/17 10:30	Lab: Precision 1.7%, Bias 5.3%, Expanded Uncertainty 8.7%. Sampling: Immeasurable
WS15	Total Cadmium	>3.45 µg/l	Bi-annually	<0.5 µg/l	TM191	26/05/17 10:30	Lab: Precision 7.4%, Bias -6.4%, Expanded Uncertainty 23.1%. Sampling: Immeasurable
WS15	Total Calcium	>354 mg/l	Bi-annually	169 mg/l	TM228	26/05/17 10:30	Lab: Precision 5.5%, Bias -0.8%, Expanded Uncertainty 11.8%. Sampling: Immeasurable
WS15	Dissolved Nickel	>30 mg/l	Bi-annually	3.82 µg/l	TM152	26/05/17 10:30	Lab: Precision 3.6%, Bias 1.2%, Expanded Uncertainty 8.4%. Sampling: Immeasurable
WS15	Dissolved Lead	>17.5 µg/l	Bi-annually	<0.2 µg/l	TM152	26/05/17 10:30	Lab: Precision 4.0%, Bias -0.1%, Expanded Uncertainty 8.0%. Sampling: Immeasurable
WS15	Total Zinc	>2645 mg/l	Bi-annually	19.7 µg/l	TM191	26/05/17 10:30	Lab: Precision 5.9%, Bias -6.2%, Expanded Uncertainty 17.9%. 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.



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