

Permit Number: EPR/VP3095FS

Operator: Neal Soils

Facility: Neal Soils

Form Number: Groundwater

Reporting of groundwater results for bi-annual monitoring in November 2018

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS10	Ammoniacal Nitrogen as N (low level)	>1 mg/l (1 occasion) >0.5 mg/l (4 consecutive occasions)	Monthly	0.0701	mg/l	TM099	28/11/2018	Lab Precision: 1.3%, Bias: 0.3%, Expanded Uncertainty: 2.9%, Sampling Immeasurable
WS10	Cadmium (tot.unfilt)	>0.005 mg/l	Monthly	<0.5	ug/l	TM152	28/11/2018	Lab Precision: 3%, Bias: 1.3%, Expanded Uncertainty: 7.3%, Sampling Immeasurable
WS10	Calcium (Tot. Unfilt.)	>300 mg/l	Monthly	130	mg/l	TM152	28/11/2018	Lab Precision: 3.3%, Bias: 2.4%, Expanded Uncertainty: 9%, Sampling Immeasurable
WS10	Chloride	>300 mg/l	Monthly	66.5	mg/l	TM184	28/11/2018	Lab Precision: 1.7%, Bias: 5.5%, Expanded Uncertainty: 8.9%, Sampling Immeasurable
WS10	Conductivity @ 20 deg.C	>2000 µS/cm	Monthly	1.13	mS/cm	TM120	28/11/2018	Lab Precision: 0.7%, Bias: 3%, Expanded Uncertainty: 4.4%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS10	GRO >C5-C12	>2 mg/l	Monthly	<50	ug/l	TM245	28/11/2018	Lab Precision: 11.5%, Bias: 6%, Expanded Uncertainty: 29%, Sampling Immeasurable
WS10	Lead (diss.filt)	>0.25 mg/l	Monthly	<0.2	ug/l	TM152	28/11/2018	Lab Precision: 2.5%, Bias: 1.3%, Expanded Uncertainty: 6.4%, Sampling Immeasurable
WS10	Nickel (diss.filt)	>0.1 mg/l	Monthly	2.7	ug/l	TM152	28/11/2018	Lab Precision: 2.7%, Bias: 0.1%, Expanded Uncertainty: 5.4%, Sampling Immeasurable
WS10	Nitrate as N	>1 mg/l	Monthly	1.32	mg/l	TM184	28/11/2018	Lab Precision: N/A, Sampling Immeasurable
WS10	Nitrite as N	>1 mg/l	Monthly	0.0277	mg/l	TM184	28/11/2018	Lab Precision: 1.1%, Bias: -0.9%, Expanded Uncertainty: 3%, Sampling Immeasurable
WS10	pH	6.8 – 8.5	Monthly	7.49	pH Units	TM256	28/11/2018	Lab Precision: 0%, Bias: 0.1%, Expanded Uncertainty: 0.1%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS10	Sulphate	>300 mg/l	Monthly	116	mg/l	TM184	28/11/2018	Lab Precision: 2.2%, Bias: 4.6%, Expanded Uncertainty: 9.1%, Sampling Immeasurable
WS10	Total Aliphatics >C12-C35 (aq)	>2 mg/l	Monthly	10	ug/l	TM174	28/11/2018	Lab Precision: 8.8%, Bias: -1.7%, Expanded Uncertainty: 19.2%, Sampling Immeasurable
WS10	Total Aromatics >EC12-EC35 (aq)	>2 mg/l	Monthly	<10	ug/l	TM174	28/11/2018	Lab Precision: 8.3%, Bias: -8.4%, Expanded Uncertainty: 24.9%, Sampling Immeasurable
WS10	Total Oxidised Nitrogen as N	>2 mg/l	Monthly	1.35	mg/l	TM184	28/11/2018	Lab Precision: 2.4%, Bias: 5.5%, Expanded Uncertainty: 10.3%, Sampling Immeasurable
WS10	Zinc (tot.unfilt)	>1 mg/l	Monthly	48.9	ug/l	TM152	28/11/2018	Lab Precision: 2.7%, Bias: 2.3%, Expanded Uncertainty: 7.6%, Sampling Immeasurable
WS11	Ammoniacal Nitrogen as N (low level)	>1 mg/l (1 occasion) >0.5 mg/l (4 consecutive occasions)	Monthly	7.58	mg/l	TM099	28/11/2018	Lab Precision: 1.3%, Bias: 0.3%, Expanded Uncertainty: 2.9%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS11	Cadmium (tot.unfilt)	>0.005 mg/l	Monthly	<0.5	ug/l	TM152	28/11/2018	Lab Precision: 3%, Bias: 1.3%, Expanded Uncertainty: 7.3%, Sampling Immeasurable
WS11	Calcium (Tot. Unfilt.)	>300 mg/l	Monthly	127	mg/l	TM152	28/11/2018	Lab Precision: 3.3%, Bias: 2.4%, Expanded Uncertainty: 9%, Sampling Immeasurable
WS11	Chloride	>300 mg/l	Monthly	31.2	mg/l	TM184	28/11/2018	Lab Precision: 1.7%, Bias: 5.5%, Expanded Uncertainty: 8.9%, Sampling Immeasurable
WS11	Conductivity @ 20 deg.C	>2000 µS/cm	Monthly	0.683	mS/cm	TM120	28/11/2018	Lab Precision: 0.7%, Bias: 3%, Expanded Uncertainty: 4.4%, Sampling Immeasurable
WS11	GRO >C5-C12	>2 mg/l	Monthly	<50	ug/l	TM245	28/11/2018	Lab Precision: 11.5%, Bias: 6%, Expanded Uncertainty: 29%, Sampling Immeasurable
WS11	Lead (diss.filt)	>0.25 mg/l	Monthly	<0.2	ug/l	TM152	28/11/2018	Lab Precision: 2.5%, Bias: 1.3%, Expanded Uncertainty: 6.4%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS11	Nickel (diss.filt)	>0.1 mg/l	Monthly	3	ug/l	TM152	28/11/2018	Lab Precision: 2.7%, Bias: 0.1%, Expanded Uncertainty: 5.4%, Sampling Immeasurable
WS11	Nitrate as N	>1 mg/l	Monthly	0.783	mg/l	TM184	28/11/2018	Lab Precision: N/A, Sampling Immeasurable
WS11	Nitrite as N	>1 mg/l	Monthly	<0.0152	mg/l	TM184	28/11/2018	Lab Precision: 1.1%, Bias: -0.9%, Expanded Uncertainty: 3%, Sampling Immeasurable
WS11	pH	6.8 – 8.5	Monthly	7.43	pH Units	TM256	28/11/2018	Lab Precision: 0%, Bias: 0.1%, Expanded Uncertainty: 0.1%, Sampling Immeasurable
WS11	Sulphate	>300 mg/l	Monthly	29.8	mg/l	TM184	28/11/2018	Lab Precision: 2.2%, Bias: 4.6%, Expanded Uncertainty: 9.1%, Sampling Immeasurable
WS11	Total Aliphatics >C12-C35 (aq)	>2 mg/l	Monthly	28	ug/l	TM174	28/11/2018	Lab Precision: 8.8%, Bias: -1.7%, Expanded Uncertainty: 19.2%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS11	Total Aromatics >EC12-EC35 (aq)	>2 mg/l	Monthly	314	ug/l	TM174	28/11/2018	Lab Precision: 8.3%, Bias: -8.4%, Expanded Uncertainty: 24.9%, Sampling Immeasurable
WS11	Total Oxidised Nitrogen as N	>2 mg/l	Monthly	0.797	mg/l	TM184	28/11/2018	Lab Precision: 2.4%, Bias: 5.5%, Expanded Uncertainty: 10.3%, Sampling Immeasurable
WS11	Zinc (tot.unfilt)	>1 mg/l	Monthly	175	ug/l	TM152	28/11/2018	Lab Precision: 2.7%, Bias: 2.3%, Expanded Uncertainty: 7.6%, Sampling Immeasurable
WS12	Ammoniacal Nitrogen as N (low level)	>1 mg/l (1 occasion) >0.5 mg/l (4 consecutive occasions)	Monthly	7.23	mg/l	TM099	27/11/2018	Lab Precision: 1.3%, Bias: 0.3%, Expanded Uncertainty: 2.9%, Sampling Immeasurable
WS12	Cadmium (tot.unfilt)	>0.005 mg/l	Monthly	0.606	ug/l	TM152	27/11/2018	Lab Precision: 3%, Bias: 1.3%, Expanded Uncertainty: 7.3%, Sampling Immeasurable
WS12	Calcium (Tot. Unfilt.)	>300 mg/l	Monthly	360	mg/l	TM152	27/11/2018	Lab Precision: 3.3%, Bias: 2.4%, Expanded Uncertainty: 9%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS12	Chloride	>300 mg/l	Monthly	53	mg/l	TM184	27/11/2018	Lab Precision: 1.7%, Bias: 5.5%, Expanded Uncertainty: 8.9%, Sampling Immeasurable
WS12	Conductivity @ 20 deg.C	>2000 µS/cm	Monthly	1.76	mS/cm	TM120	27/11/2018	Lab Precision: 0.7%, Bias: 3%, Expanded Uncertainty: 4.4%, Sampling Immeasurable
WS12	GRO >C5-C12	>2 mg/l	Monthly	<50	ug/l	TM245	27/11/2018	Lab Precision: 11.5%, Bias: 6%, Expanded Uncertainty: 29%, Sampling Immeasurable
WS12	Lead (diss.filt)	>0.25 mg/l	Monthly	<0.2	ug/l	TM152	27/11/2018	Lab Precision: 2.5%, Bias: 1.3%, Expanded Uncertainty: 6.4%, Sampling Immeasurable
WS12	Nickel (diss.filt)	>0.1 mg/l	Monthly	7.03	ug/l	TM152	27/11/2018	Lab Precision: 2.7%, Bias: 0.1%, Expanded Uncertainty: 5.4%, Sampling Immeasurable
WS12	Nitrate as N	>1 mg/l	Monthly	0.136	mg/l	TM184	27/11/2018	Lab Precision: N/A, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS12	Nitrite as N	>1 mg/l	Monthly	<0.0152	mg/l	TM184	27/11/2018	Lab Precision: 1.1%, Bias: -0.9%, Expanded Uncertainty: 3%, Sampling Immeasurable
WS12	pH	6.8 – 8.5	Monthly	7.18	pH Units	TM256	27/11/2018	Lab Precision: 0%, Bias: 0.1%, Expanded Uncertainty: 0.1%, Sampling Immeasurable
WS12	Sulphate	>300 mg/l	Monthly	574	mg/l	TM184	27/11/2018	Lab Precision: 2.2%, Bias: 4.6%, Expanded Uncertainty: 9.1%, Sampling Immeasurable
WS12	Total Aliphatics >C12-C35 (aq)	>2 mg/l	Monthly	<10	ug/l	TM174	27/11/2018	Lab Precision: 8.8%, Bias: -1.7%, Expanded Uncertainty: 19.2%, Sampling Immeasurable
WS12	Total Aromatics >EC12-EC35 (aq)	>2 mg/l	Monthly	<10	ug/l	TM174	27/11/2018	Lab Precision: 8.3%, Bias: -8.4%, Expanded Uncertainty: 24.9%, Sampling Immeasurable
WS12	Total Oxidised Nitrogen as N	>2 mg/l	Monthly	0.144	mg/l	TM184	27/11/2018	Lab Precision: 2.4%, Bias: 5.5%, Expanded Uncertainty: 10.3%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS12	Zinc (tot.unfilt)	>1 mg/l	Monthly	49.1	ug/l	TM152	27/11/2018	Lab Precision: 2.7%, Bias: 2.3%, Expanded Uncertainty: 7.6%, Sampling Immeasurable
WS14	Ammoniacal Nitrogen as N (low level)	>1 mg/l (1 occasion) >0.5 mg/l (4 consecutive occasions)	Monthly	1.7	mg/l	TM099	28/11/2018	Lab Precision: 1.3%, Bias: 0.3%, Expanded Uncertainty: 2.9%, Sampling Immeasurable
WS14	Cadmium (tot.unfilt)	>0.005 mg/l	Monthly	<0.5	ug/l	TM152	28/11/2018	Lab Precision: 3%, Bias: 1.3%, Expanded Uncertainty: 7.3%, Sampling Immeasurable
WS14	Calcium (Tot. Unfilt.)	>300 mg/l	Monthly	365	mg/l	TM152	28/11/2018	Lab Precision: 3.3%, Bias: 2.4%, Expanded Uncertainty: 9%, Sampling Immeasurable
WS14	Chloride	>300 mg/l	Monthly	136	mg/l	TM184	28/11/2018	Lab Precision: 1.7%, Bias: 5.5%, Expanded Uncertainty: 8.9%, Sampling Immeasurable
WS14	Lead (diss.filt)	>0.25 mg/l	Monthly	<0.2	ug/l	TM152	28/11/2018	Lab Precision: 2.5%, Bias: 1.3%, Expanded Uncertainty: 6.4%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS14	Nickel (diss.filt)	>0.1 mg/l	Monthly	5.33	ug/l	TM152	28/11/2018	Lab Precision: 2.7%, Bias: 0.1%, Expanded Uncertainty: 5.4%, Sampling Immeasurable
WS14	Nitrate as N	>1 mg/l	Monthly	<0.0677	mg/l	TM184	28/11/2018	Lab Precision: N/A, Sampling Immeasurable
WS14	Nitrite as N	>1 mg/l	Monthly	0.0259	mg/l	TM184	28/11/2018	Lab Precision: 1.1%, Bias: -0.9%, Expanded Uncertainty: 3%, Sampling Immeasurable
WS14	pH	6.8 – 8.5	Monthly	7.93	pH Units	TM256	28/11/2018	Lab Precision: 0%, Bias: 0.1%, Expanded Uncertainty: 0.1%, Sampling Immeasurable
WS14	Sulphate	>300 mg/l	Monthly	560	mg/l	TM184	28/11/2018	Lab Precision: 2.2%, Bias: 4.6%, Expanded Uncertainty: 9.1%, Sampling Immeasurable
WS14	Total Oxidised Nitrogen as N	>2 mg/l	Monthly	<0.1	mg/l	TM184	28/11/2018	Lab Precision: 2.4%, Bias: 5.5%, Expanded Uncertainty: 10.3%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS14	Zinc (tot.unfilt)	>1 mg/l	Monthly	22.1	ug/l	TM152	28/11/2018	Lab Precision: 2.7%, Bias: 2.3%, Expanded Uncertainty: 7.6%, Sampling Immeasurable
WS15	Ammoniacal Nitrogen as N (low level)	>1 mg/l (1 occasion) >0.5 mg/l (4 consecutive occasions)	Monthly	0.796	mg/l	TM099	26/11/2018	Lab Precision: 1.3%, Bias: 0.3%, Expanded Uncertainty: 2.9%, Sampling Immeasurable
WS15	Cadmium (tot.unfilt)	>0.005 mg/l	Monthly	<0.5	ug/l	TM152	26/11/2018	Lab Precision: 3%, Bias: 1.3%, Expanded Uncertainty: 7.3%, Sampling Immeasurable
WS15	Calcium (Tot. Unfilt.)	>300 mg/l	Monthly	206	mg/l	TM152	26/11/2018	Lab Precision: 3.3%, Bias: 2.4%, Expanded Uncertainty: 9%, Sampling Immeasurable
WS15	Chloride	>300 mg/l	Monthly	217	mg/l	TM184	26/11/2018	Lab Precision: 1.7%, Bias: 5.5%, Expanded Uncertainty: 8.9%, Sampling Immeasurable
WS15	Conductivity @ 20 deg.C	>2000 µS/cm	Monthly	1.86	mS/cm	TM120	26/11/2018	Lab Precision: 0.7%, Bias: 3%, Expanded Uncertainty: 4.4%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS15	GRO >C5-C12	>2 mg/l	Monthly	<50	ug/l	TM245	26/11/2018	Lab Precision: 11.5%, Bias: 6%, Expanded Uncertainty: 29%, Sampling Immeasurable
WS15	Lead (diss.filt)	>0.25 mg/l	Monthly	<0.2	ug/l	TM152	26/11/2018	Lab Precision: 2.5%, Bias: 1.3%, Expanded Uncertainty: 6.4%, Sampling Immeasurable
WS15	Nickel (diss.filt)	>0.1 mg/l	Monthly	4.35	ug/l	TM152	26/11/2018	Lab Precision: 2.7%, Bias: 0.1%, Expanded Uncertainty: 5.4%, Sampling Immeasurable
WS15	Nitrate as N	>1 mg/l	Monthly	0.255	mg/l	TM184	26/11/2018	Lab Precision: N/A, Sampling Immeasurable
WS15	Nitrite as N	>1 mg/l	Monthly	0.0164	mg/l	TM184	26/11/2018	Lab Precision: 1.1%, Bias: -0.9%, Expanded Uncertainty: 3%, Sampling Immeasurable
WS15	pH	6.8 – 8.5	Monthly	7.43	pH Units	TM256	26/11/2018	Lab Precision: 0%, Bias: 0.1%, Expanded Uncertainty: 0.1%, Sampling Immeasurable

Monitoring Point	Substance / Parameter	Trigger level	Reference Period	Result ⁽¹⁾	Unit	Test Method ⁽²⁾	Sample Date and Time ⁽³⁾	Uncertainty ⁽⁴⁾
WS15	Sulphate	>300 mg/l	Monthly	282	mg/l	TM184	26/11/2018	Lab Precision: 2.2%, Bias: 4.6%, Expanded Uncertainty: 9.1%, Sampling Immeasurable
WS15	Total Aliphatics >C12-C35 (aq)	>2 mg/l	Monthly	<10	ug/l	TM174	26/11/2018	Lab Precision: 8.8%, Bias: -1.7%, Expanded Uncertainty: 19.2%, Sampling Immeasurable
WS15	Total Aromatics >EC12-EC35 (aq)	>2 mg/l	Monthly	<10	ug/l	TM174	26/11/2018	Lab Precision: 8.3%, Bias: -8.4%, Expanded Uncertainty: 24.9%, Sampling Immeasurable
WS15	Total Oxidised Nitrogen as N	>2 mg/l	Monthly	0.272	mg/l	TM184	26/11/2018	Lab Precision: 2.4%, Bias: 5.5%, Expanded Uncertainty: 10.3%, Sampling Immeasurable
WS15	Zinc (tot.unfilt)	>1 mg/l	Monthly	26.4	ug/l	TM152	26/11/2018	Lab Precision: 2.7%, Bias: 2.3%, Expanded Uncertainty: 7.6%, 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.....

Date: January 2019

(Authorised to sign as representative of Operator)

Permit Number EPR/VP3095FS