

**ALS Environmental Ltd**  
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**Mr Lloyd**  
**Caerphilly County B.C.**  
**Caerphilly County Borough**  
**Council**  
**Unit B5**  
**Tiryberth Depot**  
**Hengoed CF82 8AU**  
**Caerphilly**

05 January 2018

**Test Report: COV/1481326/2017**

Dear Mr Lloyd

Analysis of your sample(s) submitted on 13 December 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

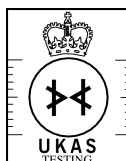
Signed: 

Name: L. Ellis

Title: Wakefield Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Rhodri Lloyd  
Caerphilly County B.C.  
Caerphilly County Borough  
Council  
Unit B5  
Tiryberth Depot  
Hengoed  
Caerphilly**

Date of Issue: **05 January 2018**

Report Number: **COV/1481326/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Trehir Landfill Site

**Job Location:** Caerphilly

Number of Samples  
included in this report **21**

Job Received: **13 December 2017**

Number of Test Results  
included in this report **489**

Analysis Commenced: **15 December 2017**

Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

ALS Environmental Ltd was responsible for sampling.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683248**

Sample **1** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **03**

Sample Description: **03**

Sample Matrix: **Land Leachate**

Sample Date/Time: **13 December 2017 12:30**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.9	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	105	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.009	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	2.95	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	25.7	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	1.10	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.014	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	56.2	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	110	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	22/12/2017	Y Cov	WAS049
pH	7.3	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1740	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	729	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	82.4	mg/l	16/12/2017	Y Cov	WAS055
Nitrogen, Total Oxidised as N	10.3	mg/l	18/12/2017	Y Cov	WAS036
Sulphate as SO4	21.5	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	4.4	mg/l	18/12/2017	N Cov	WAS052
COD (Total)	118	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	31.8	mg/l	23/12/2017	Y Cov	WAS005
Chloride as Cl, High Level	124	mg/l	19/12/2017	Y Cov	WAS036

## Analyst Comments for 16683248:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {(\*)}Ammonia analysed by colorimetric method{(\*)}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

## ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683249**

Sample **2** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **08**

Sample Description: **08**

Sample Matrix: **Land Leachate**

Sample Date/Time: **13 December 2017 10:30**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	11.2	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	92.4	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.007	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	0.011	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	2.16	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	20.6	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.581	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.024	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	37.9	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	77.5	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.05	mg/l	22/12/2017	Y Cov	WAS049
pH	7.3	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1220	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	427	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	40.6	mg/l	16/12/2017	Y Cov	WAS036
Nitrogen, Total Oxidised as N	11.9	mg/l	18/12/2017	Y Cov	WAS036
Sulphate as SO4	21.3	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	7.0	mg/l	18/12/2017	N Cov	WAS052
COD (Total)	69.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	16.8	mg/l	23/12/2017	Y Cov	WAS005
Chloride as Cl, High Level	96.2	mg/l	19/12/2017	Y Cov	WAS036

## Analyst Comments for 16683249:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {(\*)}Ammonia analysed by colorimetric method{(\*)}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

## ALS Environmental Ltd

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683250**

Sample **3** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **MHL28**

Sample Description: **MHL28**

Sample Matrix: **Land Leachate**

Sample Date/Time: **13 December 2017 11:40**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.2	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	115	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.010	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	2.74	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	26.0	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.868	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.032	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	52.5	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	95.3	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.06	mg/l	22/12/2017	Y Cov	WAS049
pH	7.5	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1650	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	692	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	72.3	mg/l	16/12/2017	Y Cov	WAS055
Nitrogen, Total Oxidised as N	8.3	mg/l	18/12/2017	Y Cov	WAS036
Sulphate as SO4	19.7	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	7.2	mg/l	18/12/2017	N Cov	WAS052
COD (Total)	94.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	24.6	mg/l	23/12/2017	Y Cov	WAS005
Chloride as Cl, High Level	111	mg/l	19/12/2017	Y Cov	WAS036

## Analyst Comments for 16683250:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {(\*)}Ammonia analysed by colorimetric method{(\*)}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

## ALS Environmental Ltd

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**



# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683251**

Sample **4** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **N2**

Sample Description: **N2**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 10:40**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	10.6	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	21.0	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.005	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	0.30	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	10.0	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.034	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.023	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	1.23	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	5.17	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.02	mg/l	22/12/2017	Y Cov	WAS049
pH	6.7	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	188	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	78.5	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	8.8	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	1.5	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	9.6	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	2.7	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	<11.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	0.7	mg/l	23/12/2017	Y Cov	WAS005
Water Level to top of Casing	3.90	m	15/12/2017	N Cov	COM05

## Analyst Comments for 16683251:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

## ALS Environmental Ltd

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683252**

Sample **5** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **N8**

Sample Description: **N8**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 11:00**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	10.5	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	71.3	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	1.81	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	45.2	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	1.18	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.008	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	2.81	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	13.8	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	22/12/2017	Y Cov	WAS049
pH	7.3	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	847	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	120	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	203	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	34.1	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	6.7	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	29.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	1.7	mg/l	23/12/2017	Y Cov	WAS005
Water Level to top of Casing	5.0	m	15/12/2017	N Cov	COM05

## Analyst Comments for 16683252:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

## ALS Environmental Ltd

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683253**

Sample **6** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **NBH2**

Sample Description: **NBH2**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 12:20**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	12.6	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	129	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.010	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	0.020	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	20.2	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	0.017	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	41.7	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	1.88	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.043	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	59.4	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	98.3	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.262	mg/l	22/12/2017	Y Cov	WAS049
pH	7.1	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2060	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	1080	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	98.8	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	127	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	18/12/2017	N Cov	WAS036
Sulphate, total as SO4 by I.C.	9.15	mg/l	21/12/2017	Y Cov	CON27
Dissolved Oxygen, Fixed	<0.5	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	151	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	18.4	mg/l	23/12/2017	Y Cov	WAS005
Water Level to top of Casing	6.5	m	15/12/2017	N Cov	COM05

## Analyst Comments for 16683253:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {\*/}Sulphate analysed by ion chromatography due to interference with turbidmetric determination{\*/}

This issue replaces all previous issues

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Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

**ALS Environmental Ltd**

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683254**

Sample **7** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **NBH4**

Sample Description: **NBH4**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 11:55**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	12.8	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	94.6	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.006	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	12.9	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	25.9	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	7.93	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.046	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	5.03	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	10.2	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.05	mg/l	22/12/2017	Y Cov	WAS049
pH	6.6	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	633	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	276	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	14.0	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	92.0	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	5.9	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	44.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	3.4	mg/l	23/12/2017	Y Cov	WAS005
Water Level to top of Casing	12.90	m	15/12/2017	N Cov	COM05

## Analyst Comments for 16683254:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

## ALS Environmental Ltd

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**



# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683255**

Sample **8** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **NBH5**

Sample Description: **NBH5**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 10:35**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	11.5	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	82.4	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	17.4	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	1.07	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.005	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	7.58	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	12.4	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.06	mg/l	22/12/2017	Y Cov	WAS049
pH	6.5	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	569	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	255	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	0.75	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	19.0	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	3.9	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	41.6	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	1.7	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	24.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	5.3	mg/l	23/12/2017	Y Cov	WAS005
Water Level to top of Casing	5.86	m	15/12/2017	N Cov	COM05

## Analyst Comments for 16683255:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683256**

Sample **9** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **NBH6**

Sample Description: **NBH6**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 12:00**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	10.4	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	18.8	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	1.80	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	8.9	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.164	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.006	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	1.09	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	6.51	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	22/12/2017	Y Cov	WAS049
pH	6.7	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	183	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	74.6	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	13.6	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	9.3	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	5.6	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	23.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	0.7	mg/l	23/12/2017	Y Cov	WAS005
Water Level to top of Casing	8.50	m	15/12/2017	N Cov	COM05

## Analyst Comments for 16683256:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683257**

Sample **10** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **W1**

Sample Description: **W1**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 09:45**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	6.2	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	23.0	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	0.65	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	7.9	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.067	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.003	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	4.75	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	45.6	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	22/12/2017	Y Cov	WAS049
pH	7.6	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	426	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	64.2	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	85.8	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	0.9	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	25.5	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	12.1	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	14.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	3.2	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683257:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683258**

Sample **11** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **W2**

Sample Description: **W2**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 09:50**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	6.2	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	22.6	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	0.57	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	8.0	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.057	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	<0.003	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	4.79	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	43.4	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	22/12/2017	Y Cov	WAS049
pH	7.5	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	429	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	67.3	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	85.1	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	1.2	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	24.9	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	11.3	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	20.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	3.2	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683258:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**



# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683259**

Sample **12** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **W3**

Sample Description: **W3**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 09:55**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	6.2	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	22.2	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	0.49	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	10.5	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.043	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	<0.003	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	5.16	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	29.0	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	22/12/2017	Y Cov	WAS049
pH	7.4	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	338	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	71.2	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	54.5	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	1.7	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	23.2	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	11.0	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	12.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	2.5	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683259:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683260**

Sample **13** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **W5**

Sample Description: **W5**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 11:30**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	9.2	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	8.12	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	6.6	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.057	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.003	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	1.15	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	6.33	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	22/12/2017	Y Cov	WAS049
pH	7.2	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	137	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	20.0	mg/l	04/01/2018	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	14.6	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	4.1	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	5.8	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	6.5	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	<11.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	1.4	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683260:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683261**

Sample **14** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **Groundwater Sump**

Sample Description: **Sump**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 11:30**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	10.2	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	90.4	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	0.84	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	51.8	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	1.48	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.016	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	8.72	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	33.1	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.116	mg/l	22/12/2017	Y Cov	WAS049
pH	7.2	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1010	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	215	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	1.46	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	202	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	3.1	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	37.6	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	3.6	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	18.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	4.4	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683261:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683262**

Sample **15** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **Land Drain 1**

Sample Description: **Land Drain 1a**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 10:10**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.5	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	113	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.005	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	2.15	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	25.7	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.842	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.013	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	52.2	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	94.5	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	22/12/2017	Y Cov	WAS049
pH	7.5	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1670	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	694	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	71.2	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	113	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	10.1	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	20.6	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	7.2	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	84.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	25.0	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683262:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**



# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683263**

Sample **16** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **Land Drain 1b**

Sample Description: **Land Drain 1b**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 10:15**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	9.7	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	67.8	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	0.69	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	14.3	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.223	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.008	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	23.5	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	53.4	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	22/12/2017	Y Cov	WAS049
pH	7.0	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	769	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	210	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	8.60	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	77.1	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	12.2	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	23.2	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	7.9	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	48.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	9.2	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683263:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16683264**

Sample **17** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **Land Drain 2**

Sample Description: **Land Drain 2**

Sample Matrix: **Ground Water**

Sample Date/Time: **13 December 2017 10:25**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	7.5	Deg C	15/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	22/12/2017	Y Cov	WAS049
Calcium , Total as Ca	82.1	mg/l	22/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	22/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	22/12/2017	Y Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	22/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	22/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	21.9	mg/l	22/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.067	mg/l	22/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.006	mg/l	22/12/2017	Y Cov	WAS049
Potassium , Total as K	17.9	mg/l	22/12/2017	Y Cov	WAS049
Sodium , Total as Na	56.1	mg/l	22/12/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	22/12/2017	Y Cov	WAS049
pH	7.8	pH units	27/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	824	uS/cm	27/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	282	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	18/12/2017	N Cov	WAS036
Chloride as Cl	79.6	mg/l	18/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	14.0	mg/l	18/12/2017	N Cov	WAS036
Sulphate as SO4	33.0	mg/l	18/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	10.4	mg/l	18/12/2017	Y Cov	WAS052
COD (Total)	18.0	mg/l	19/12/2017	Y Cov	WAS040
TOC (Filtered)	5.1	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16683264:

This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16702888**

Sample **18** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **N5**

Sample Description: **N5**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 December 2017 14:10**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	10.3	Deg C	21/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	27/12/2017	Y Cov	WAS049
Calcium , Total as Ca	107	mg/l	27/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	27/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	27/12/2017	Y Cov	WAS049
Iron , Total as Fe	4.23	mg/l	27/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	27/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	63.0	mg/l	27/12/2017	Y Cov	WAS049
Manganese , Total as Mn	0.929	mg/l	27/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.027	mg/l	27/12/2017	Y Cov	WAS049
Potassium , Total as K	10.1	mg/l	27/12/2017	Y Cov	WAS049
Sodium , Total as Na	55.6	mg/l	27/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	27/12/2017	Y Cov	WAS049
pH	7.1	pH units	23/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1180	uS/cm	23/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	423	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	2.03	mg/l	22/12/2017	N Cov	WAS036
Chloride as Cl	176	mg/l	22/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	22/12/2017	N Cov	WAS036
Sulphate as SO4	11.1	mg/l	22/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	2.7	mg/l	22/12/2017	Y Cov	WAS052
COD (Total)	49.0	mg/l	27/12/2017	Y Cov	WAS040
TOC (Filtered)	11.5	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16702888:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16702889**

Sample **19** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **N6**

Sample Description: **N6**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 December 2017 13:21**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	13.1	Deg C	21/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	27/12/2017	Y Cov	WAS049
Calcium , Total as Ca	68.2	mg/l	27/12/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	27/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	27/12/2017	Y Cov	WAS049
Iron , Total as Fe	3.31	mg/l	27/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	27/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	41.2	mg/l	27/12/2017	Y Cov	WAS049
Manganese , Total as Mn	6.80	mg/l	27/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.021	mg/l	27/12/2017	Y Cov	WAS049
Potassium , Total as K	20.7	mg/l	27/12/2017	Y Cov	WAS049
Sodium , Total as Na	48.8	mg/l	27/12/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	27/12/2017	Y Cov	WAS049
pH	6.9	pH units	23/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	974	uS/cm	23/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	468	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	17.4	mg/l	22/12/2017	N Cov	WAS036
Chloride as Cl	63.0	mg/l	22/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	22/12/2017	N Cov	WAS036
Sulphate as SO4	14.8	mg/l	22/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	22/12/2017	Y Cov	WAS052
COD (Total)	39.0	mg/l	27/12/2017	Y Cov	WAS040
TOC (Filtered)	7.2	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16702889:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**



# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16702890**

Sample **20** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **NBH1**

Sample Description: **NBH1**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 December 2017 12:24**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	13.8	Deg C	21/12/2017	N Cov	FIELD
Cadmium , Total as Cd	0.0006	mg/l	27/12/2017	Y Cov	WAS049
Calcium , Total as Ca	125	mg/l	27/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.021	mg/l	27/12/2017	Y Cov	WAS049
Copper, Total as Cu	0.021	mg/l	27/12/2017	Y Cov	WAS049
Iron , Total as Fe	43.9	mg/l	27/12/2017	Y Cov	WAS049
Lead , Total as Pb	0.034	mg/l	27/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	41.1	mg/l	27/12/2017	Y Cov	WAS049
Manganese , Total as Mn	3.01	mg/l	27/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.070	mg/l	27/12/2017	Y Cov	WAS049
Potassium , Total as K	45.6	mg/l	27/12/2017	Y Cov	WAS049
Sodium , Total as Na	105	mg/l	27/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.133	mg/l	27/12/2017	Y Cov	WAS049
pH	7.3	pH units	23/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1810	uS/cm	23/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	793	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	35.0	mg/l	22/12/2017	N Cov	WAS036
Chloride as Cl	230	mg/l	22/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	22/12/2017	N Cov	WAS036
Sulphate as SO4	13.2	mg/l	22/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	22/12/2017	Y Cov	WAS052
COD (Total)	738	mg/l	27/12/2017	Y Cov	WAS040
TOC (Filtered)	36.0	mg/l	27/12/2017	Y Cov	WAS005

## Analyst Comments for 16702890:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

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Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

# Certificate of Analysis



Report Number: **COV/1481326/2017**

Issue **1**

Laboratory Number: **16702891**

Sample **21** of **21**

Sample Source: **Caerphilly County B.C.**

Sample Point Description: **NBH3**

Sample Description: **NBH3**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 December 2017 13:12**

Sample Received: **13 December 2017**

Analysis Complete: **05 January 2018**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	13.2	Deg C	21/12/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	27/12/2017	Y Cov	WAS049
Calcium , Total as Ca	154	mg/l	27/12/2017	Y Cov	WAS049
Chromium , Total as Cr	0.004	mg/l	27/12/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	27/12/2017	Y Cov	WAS049
Iron , Total as Fe	9.47	mg/l	27/12/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	27/12/2017	Y Cov	WAS049
Magnesium, Total as Mg	25.4	mg/l	27/12/2017	Y Cov	WAS049
Manganese , Total as Mn	1.63	mg/l	27/12/2017	Y Cov	WAS049
Nickel, Total as Ni	0.026	mg/l	27/12/2017	Y Cov	WAS049
Potassium , Total as K	21.9	mg/l	27/12/2017	Y Cov	WAS049
Sodium , Total as Na	31.9	mg/l	27/12/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	27/12/2017	Y Cov	WAS049
pH	6.8	pH units	23/12/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1110	uS/cm	23/12/2017	Y Cov	WAS039
Alkalinity as CaCO3	571	mg/l	31/12/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	12.8	mg/l	22/12/2017	N Cov	WAS036
Chloride as Cl	41.8	mg/l	22/12/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	2.8	mg/l	22/12/2017	N Cov	WAS036
Sulphate as SO4	23.6	mg/l	22/12/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	4.0	mg/l	22/12/2017	Y Cov	WAS052
COD (Total)	53.0	mg/l	27/12/2017	Y Cov	WAS040
TOC (Filtered)	7.0	mg/l	23/12/2017	Y Cov	WAS005

## Analyst Comments for 16702891:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH4 9EP), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Signed: *L. Ellis*

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

**ANALYST COMMENTS FOR REPORT COV/1481326/2017**
**Issue 1**

This issue replaces  
all previous issues

**Date of Issue: 05 January 2018**

Sample No	Analysis Comments
16683248	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}Ammonia analysed by colorimetric method{/}
16683249	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}Ammonia analysed by colorimetric method{/}
16683250	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}Ammonia analysed by colorimetric method{/}
16683251	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683252	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683253	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised. {/}Sulphate analysed by ion chromatography due to interference with turbidmetric determination{/}
16683254	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683255	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683256	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683257	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683258	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683259	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683260	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683261	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683262	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683263	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16683264	This sample has been analysed for pH, Dissolved Oxygen, Fixed, TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
16702888	
16702889	
16702890	
16702891	

Signed: 

Name: **L. Ellis**

Date: **05 January 2018**

Title: **Wakefield Operations Manager**

## DETERMINAND COMMENTS FOR REPORT COV/1481326/2017

Date of Issue: 05 January 2018

## ISSUE 1

This issue replaces  
all previous issues

Sample No	Description	Determinand	Comments

Signed:



Name: L. Ellis

Date: 05 January 2018

Title: Wakefield Operations Manager