

**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**

12 July 2017

**Test Report: COV/1403742/2017**

Dear Mr Lloyd

Analysis of your sample(s) submitted on 28 June 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: P. Patel

Title: Inorganic Team Leader



# Report Summary



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

Date of Issue: **12 July 2017**

Report Number: **COV/1403742/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Trehir Landfill Site

**Job Location:** Caerphilly

Number of Samples  
included in this report **17**

Job Received: **28 June 2017**

Number of Test Results  
included in this report **400**

Analysis Commenced: **28 June 2017**

Signed:

Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

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/1403742/2017**

Issue **1**

Laboratory Number: **16185935**

Sample **1** of **17**

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

Sample Point Description: **08**

Sample Description: **08**

Sample Matrix: **Land Leachate**

Sample Date/Time: **28 June 2017 10:00**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.5	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	69.3	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.005	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	1.01	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	22.3	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	0.631	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.012	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	51.9	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	111	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	7.7	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1610	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	550	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	62.1	mg/l	28/06/2017	Y Cov	WAS055
Nitrogen, Total Oxidised as N	20.1	mg/l	28/06/2017	Y Cov	WAS036
Sulphate as SO4	17.2	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	4.7	mg/l	29/06/2017	N Cov	WAS052
COD (Total)	90.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	28.1	mg/l	29/06/2017	Y Cov	WAS005
Chloride as Cl, High Level	142	mg/l	29/06/2017	Y Cov	WAS036

## Analyst Comments for 16185935:

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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).

## ALS Environmental Ltd

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

Signed: 

Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185936**

Sample **2** of **17**

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

Sample Point Description: **MHL28**

Sample Description: **MHL28**

Sample Matrix: **Land Leachate**

Sample Date/Time: **28 June 2017 10:25**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	12.5	Deg C	07/07/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	109	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.017	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	4.46	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	47.4	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	1.68	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.026	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	135	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	295	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	0.02	mg/l	11/07/2017	Y Cov	WAS049
pH	7.7	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	4010	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	1590	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	198	mg/l	28/06/2017	Y Cov	WAS055
Nitrogen, Total Oxidised as N	25.7	mg/l	28/06/2017	Y Cov	WAS036
Sulphate as SO4	<4.4	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	1.8	mg/l	29/06/2017	N Cov	WAS052
COD (Total)	285	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	78.0	mg/l	29/06/2017	Y Cov	WAS005
Chloride as Cl, High Level	345	mg/l	29/06/2017	Y Cov	WAS036

## Analyst Comments for 16185936:

This sample has been analysed for Sodium Total as Na 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

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Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

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Signed: 

Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185937**

Sample **3** of **17**

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

Sample Point Description: **N2**

Sample Description: **N2**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 10:00**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	11.7	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	19.7	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	0.87	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	9.6	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	0.108	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	<0.003	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	0.98	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	4.69	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	6.7	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	186	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	71.4	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	12.5	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	1.0	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	12.4	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	3.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	<11.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	0.8	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	8.64	m	28/06/2017	N Cov	COM05

**Analyst Comments for 16185937:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

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Signed:



Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185938**

Sample **4** of **17**

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

Sample Point Description: **N5**

Sample Description: **N5**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 12:50**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	12.1	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	103	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.005	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	0.012	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	13.3	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	0.012	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	61.2	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	1.17	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.040	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	8.96	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	52.7	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	0.05	mg/l	11/07/2017	Y Cov	WAS049
pH	7.0	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1390	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	464	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	2.81	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	223	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	15.1	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	192	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	13.8	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	7.36	m	28/06/2017	N Cov	COM05

**Analyst Comments for 16185938:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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).

**ALS Environmental Ltd**

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Signed:



Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185939**

Sample **5** of **17**

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

Sample Point Description: **N6**

Sample Description: **N6**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 12:30**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	15.2	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	66.6	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	5.32	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	41.0	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	6.48	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.023	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	22.5	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	48.0	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	6.8	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1020	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	459	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	24.0	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	62.3	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	17.1	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	26.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	7.8	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	10.00	m	07/07/2017	N Cov	COM05

**Analyst Comments for 16185939:**

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

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Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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:



Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185940**

Sample **6** of **17**

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

Sample Point Description: **N8**

Sample Description: **N8**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 13:50**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	12.1	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	68.2	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.003	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	4.07	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	0.008	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	43.5	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	1.17	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.012	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	2.64	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	13.0	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	11/07/2017	Y Cov	WAS049
pH	7.2	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	852	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	123	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	195	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	44.1	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	6.0	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	43.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	1.7	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	4.59	m	28/06/2017	N Cov	COM05

**Analyst Comments for 16185940:**

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

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Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

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Signed: 

Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185941**

Sample **7** of **17**

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

Sample Point Description: **NBH1**

Sample Description: **NBH1**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 11:45**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	15.2	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0120	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	215	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.108	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	0.194	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	291	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	0.229	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	47.0	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	7.91	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.178	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	52.8	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	116	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	0.939	mg/l	11/07/2017	Y Cov	WAS049
pH	7.4	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2620	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	1320	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	82.9	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	278	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	15.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	20.1	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	3240	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	50.0	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	3.60	m	28/06/2017	N Cov	COM05

**Analyst Comments for 16185941:**

This sample has been analysed for Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. The reporting limit has been raised for metals due to interference with the internal standard

This issue replaces all previous issues

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

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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).

**ALS Environmental Ltd**

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Signed: 

Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185942**

Sample **8** of **17**

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

Sample Point Description: **NBH2**

Sample Description: **NBH2**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 11:20**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.9	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0060	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	138	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.020	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	0.123	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	43.5	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	0.147	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	38.2	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	2.51	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.057	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	33.6	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	67.4	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	1.95	mg/l	11/07/2017	Y Cov	WAS049
pH	7.0	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2140	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	1080	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	90.3	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	164	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	<4.4	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	598	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	26.7	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	3.46	m	28/06/2017	N Cov	COM05

**Analyst Comments for 16185942:**

This sample has been analysed for Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. The reporting limit has been raised for metals due to interference with the internal standard

This issue replaces all previous issues

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

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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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Name: **P. Patel**

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Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185943**

Sample **9** of **17**

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

Sample Point Description: **NBH3**

Sample Description: **NBH3**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 11:08**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.2	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	124	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.008	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	0.015	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	109	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	0.014	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	24.6	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	1.76	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.026	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	20.1	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	32.7	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	0.05	mg/l	11/07/2017	Y Cov	WAS049
pH	6.8	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1430	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	705	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	26.9	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	60.7	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	4.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	26.4	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	2.2	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	246	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	10.2	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	6.85	m	28/06/2017	N Cov	COM05

**Analyst Comments for 16185943:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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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Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185944**

Sample **10** of **17**

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

Sample Point Description: **NBH5**

Sample Description: **NBH5**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 10:20**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	10.9	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	64.0	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	9.31	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	16.6	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	1.23	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.006	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	6.08	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	10.4	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	0.129	mg/l	11/07/2017	Y Cov	WAS049
pH	6.5	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	507	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	184	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	0.58	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	17.2	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	6.1	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	50.3	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	2.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	18.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	4.2	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	6.21	m	28/06/2017	N Cov	COM05

**Analyst Comments for 16185944:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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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# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185945**

Sample **11** of **17**

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

Sample Point Description: **NBH6**

Sample Description: **NBH6**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 10:08**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	12.1	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	0.0298	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	43.5	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.102	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	0.605	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	124	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	0.461	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	23.2	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	4.23	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.473	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	<3.60	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	<6.00	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	1.06	mg/l	11/07/2017	Y Cov	WAS049
pH	6.7	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	255	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	126	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	0.91	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	13.0	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	16.6	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	<0.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	3310	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	1.4	mg/l	29/06/2017	Y Cov	WAS005
Water Level to top of Casing	18.78	m	28/06/2017	N Cov	COM05

## Analyst Comments for 16185945:

This sample has been analysed for Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. The reporting limit has been raised for metals due to interference with the internal standard

This issue replaces all previous issues

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

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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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Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185946**

Sample **12** of **17**

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

Sample Point Description: **W1**

Sample Description: **W1**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 09:20**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.4	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	44.1	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	0.37	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	22.8	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	0.028	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	<0.003	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	8.55	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	17.2	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	8.2	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	478	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	148	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	17.9	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	90.9	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	9.8	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	<11.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	1.5	mg/l	29/06/2017	Y Cov	WAS005

**Analyst Comments for 16185946:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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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Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185947**

Sample **13** of **17**

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

Sample Point Description: **W2**

Sample Description: **W2**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 09:25**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.7	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	43.7	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	0.33	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	22.7	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	0.029	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	<0.003	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	8.54	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	16.9	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	8.2	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	473	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	147	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	20.8	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	92.3	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	9.0	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	<11.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	1.4	mg/l	29/06/2017	Y Cov	WAS005

**Analyst Comments for 16185947:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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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Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185948**

Sample **14** of **17**

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

Sample Point Description: **W3**

Sample Description: **W3**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 09:30**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	14.3	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	45.2	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	0.33	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	23.3	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	0.023	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	<0.003	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	8.80	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	17.8	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	8.2	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	475	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	148	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	19.2	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	93.5	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	9.2	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	<11.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	1.4	mg/l	29/06/2017	Y Cov	WAS005

## Analyst Comments for 16185948:

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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).

## ALS Environmental Ltd

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Signed:



Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185949**

Sample **15** of **17**

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

Sample Point Description: **W5**

Sample Description: **W5**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 10:47**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	13.9	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	7.00	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	0.24	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	5.5	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	0.058	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	<0.003	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	1.02	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	6.09	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	7.6	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	121	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	23.4	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	<0.41	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	15.3	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	1.9	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	7.3	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	8.8	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	<11.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	2.0	mg/l	29/06/2017	Y Cov	WAS005

**Analyst Comments for 16185949:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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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Name: **P. Patel**

Date: **12 July 2017**

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# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185950**

Sample **16** of **17**

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

Sample Point Description: **Land Drain 1**

Sample Description: **Land Drain 1a**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 09:45**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	13.6	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	83.4	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	0.010	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	1.84	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	32.6	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	1.09	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.016	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	86.9	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	192	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	7.6	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2690	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	1010	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	145	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	228	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	25.6	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	11.3	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	4.2	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	188	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	50.5	mg/l	29/06/2017	Y Cov	WAS005

**Analyst Comments for 16185950:**

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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: 

Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1403742/2017**

Issue **1**

Laboratory Number: **16185951**

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

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

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

Sample Description: **Land Drain 1b**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 June 2017 09:40**

Sample Received: **28 June 2017**

Analysis Complete: **12 July 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Field Temperature	15.0	Deg C	28/06/2017	N Cov	FIELD
Cadmium , Total as Cd	<0.0006	mg/l	11/07/2017	Y Cov	WAS049
Calcium , Total as Ca	47.9	mg/l	11/07/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	11/07/2017	Y Cov	WAS049
Copper, Total as Cu	<0.009	mg/l	11/07/2017	Y Cov	WAS049
Iron , Total as Fe	0.27	mg/l	11/07/2017	Y Cov	WAS049
Lead , Total as Pb	<0.006	mg/l	11/07/2017	Y Cov	WAS049
Magnesium, Total as Mg	11.6	mg/l	11/07/2017	Y Cov	WAS049
Manganese , Total as Mn	0.424	mg/l	11/07/2017	Y Cov	WAS049
Nickel, Total as Ni	0.006	mg/l	11/07/2017	Y Cov	WAS049
Potassium , Total as K	17.3	mg/l	11/07/2017	Y Cov	WAS049
Sodium , Total as Na	38.9	mg/l	11/07/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	11/07/2017	Y Cov	WAS049
pH	7.2	pH units	29/06/2017	Y Cov	WAS039
Conductivity- Electrical 20C	612	uS/cm	29/06/2017	Y Cov	WAS039
Alkalinity as CaCO3	160	mg/l	29/06/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	6.53	mg/l	28/06/2017	N Cov	WAS036
Chloride as Cl	54.7	mg/l	28/06/2017	N Cov	WAS036
Nitrogen, Total Oxidised as N	14.7	mg/l	28/06/2017	N Cov	WAS036
Sulphate as SO4	21.6	mg/l	28/06/2017	N Cov	WAS036
Dissolved Oxygen, Fixed	5.5	mg/l	29/06/2017	Y Cov	WAS052
COD (Total)	18.0	mg/l	04/07/2017	Y Cov	WAS040
TOC (Filtered)	8.2	mg/l	29/06/2017	Y Cov	WAS005

## Analyst Comments for 16185951:

This sample has been analysed for Sodium Total as Na 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: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), 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:



Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

**ANALYST COMMENTS FOR REPORT**

**COV/1403742/2017**

**Issue 1**

**Date of Issue: 12 July 2017**

Sample No	Analysis Comments
16185935	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {(*)}Ammonia analysed by colorimetric method{(*)}
16185936	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {(*)}Ammonia analysed by colorimetric method{(*)}
16185937	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185938	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185939	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185940	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185941	This sample has been analysed for Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. The reporting limit has been raised for metals due to interference with the internal standard
16185942	This sample has been analysed for Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. The reporting limit has been raised for metals due to interference with the internal standard
16185943	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185944	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185945	This sample has been analysed for Magnesium, Total as Mg, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. The reporting limit has been raised for metals due to interference with the internal standard
16185946	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185947	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185948	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185949	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185950	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.
16185951	This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

Signed:



Name: **P. Patel**

Date: **12 July 2017**

Title: **Inorganic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/1403742/2017

ISSUE 1

Date of Issue : 12 July 2017

Sample No	Description	Determinand	Comments

Signed: 

Name: P. Patel

Date: 12 July 2017

Title: Inorganic Team Leader