ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ALS WATER
ANALYSIS AND TESTING REPORT

REPORT TO:	Donelda Campbell
REPORT ON:	BMCC Blaxland WMF Quarterly Monitoring Results
REPORT NO:	24005761
SAMPLED BY:	
REPORTED BY:	Almudena Bryce
REPORT DATE:	09-November-2016

Accreditation # 15784
Site # 11436

Accredited for compliance with ISO/IEC 17025.

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ALS

ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1624270							
Date of Sample		26/10/2016	26/10/2016	26/10/2016	26/10/2016	26/10/2016	26/10/2016	26/10/2016	26/10/2016
Site Name		**S1**	**S3**	**S22**	**Effluent**	**Cripple Creek Inlet**	**Cripple Creek Outlet**	**Leachate Water**	**Leachate Dam 2**
Other Sample Id		**Cripple Crk D/S**	**Cripple Crk U/S**	**Effluent Pond Near Oulet**	**EPA Point 1**			**EPA Piont 1**	
General Comments/ Observations		**Clear, Low flow**	**Clear, Low flow**	**Cloudy, Mod level**	**No discharge**	**Slightly cloudy, Low flow**	**Clear, Low flow**	**Clear, Low level**	**Slightly cloudy, Low level**
Temperature	°c	**15.3**	**15.8**	**15.7**		**18.0**	**17.6**	**21.1**	**23.9**
pH	pH Units	**6.42**	**4.81**	**6.67**		**5.65**	**6.81**		
Electrical Conductivity	µS/cm	**202**	**144**	**263**		**182**	**190**	**1578**	**3850**
Total Suspended Solids	mg/L	**<5**	**5**	**13**					
Ammonia as N by Discrete Analyser									
Ammonia as N	mg/L	**0.21**	**0.03**	**0.03**		0.07	0.03		
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	3	2	18					
Chemical Oxygen Demand (Spectrophotometric)									
Chemical Oxygen Demand	mg/L	**<10**	<10	62					
Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	mg/L	**<2**	<2	4					

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

	Units								
ALS Sydney Report No.		ES1624270							
Date of Sample									
Site Name		**BORE 2**	**BORE 4**	**BORE 6**	**BORE 7**	**BORE 8**	**BORE 9**	**BORE 10**	**BORE 11**
Other Sample Id		**EPA BH2**	**EPA BH4**	**EPA BH6**	**EPA BH7**				**EPA BH11**
General Comments/ Observations		**Slightly cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**
Temperature	°C	17.7	19.3	16.7	18	16.1	15.2	15.1	15.2
pH	pH Units	4.93	5.66	5.7	5.83	5.80	5.66	5.43	4.57
Electrical Conductivity	µS/cm	706	306	326	206	670	497	267	89
Total Dissolved Solids	mg/L	376	210	175	115	375	290	180	62
Standing Water Level	m	4.18	11.80	3.02	5.99	3.3	3.0	3.49	1.67
Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	mg/L	33	41	4	32	56	33	6	2
Total Alkalinity as CaCO3	mg/L	33	41	4	32	56	33	6	2
Sulfate (Turbidimetric) as SO4									
Sulfate as SO4 - Turbidimetric	mg/L	62	7	5	2	80	49	23	11
Chloride by Discrete Analyser									
Chloride	mg/L	121	42	53	25	61	52	41	12
Dissolved Major Cations									
Calcium	mg/L	1	2	<1	<1	11	6	4	<1
Magnesium	mg/L	5	8	2	5	14	12	3	1
Sodium	mg/L	81	22	39	15	52	52	30	12
Potassium	mg/L	14	1	<1	<1	50	32	9	3
Ammonia as N by Discrete Analyser									
Ammonia as N	mg/L	8.26	0.31	0.44	0.16	4.57	1.31	1.82	0.03
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	14	2	4	2	11	13	9	3

ALS GAS
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

Location	Site Reference	CH_4 Reading % v/v
Landfill	G1	0.0000
Landfill	G2	0.0000
Landfill	G3	0.0000
Landfill	G4	0.0000
Landfill	G5	0.0000
Landfill	G6	0.0000
Landfill	G7	0.0000
Landfill	G8	0.0000
Landfill	G9	NS
Landfill	G10	0.0000
Landfill	G11	0.0000
Landfill	G12	0.0000
Landfill	G13	0.0000
Landfill	G14	0.0000
Landfill	G15	0.0000
Landfill	G16	0.0000
Landfill	G17	0.0000
Landfill	G18	0.0000
Landfill	G19	0.0000
Landfill	G20	0.0000
Landfill	G21	0.0000
Landfill	G22	0.0000
Landfill	G23	0.0000
Landfill	G24	0.0000
Landfill	G25	0.0000

ALS GAS
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

Location	Site Reference	CH_4 Reading % v/v
Landfill	G26	0.0000
Landfill	G27	0.0000
Landfill	G28	0.0000
Landfill	G29	0.0000
Landfill	G30	0.0000
Landfill	G31	0.0000
Landfill	G32	0.0000
Landfill	G33	0.0000
Landfill	G34	0.0000
Landfill	G35	0.0000
Landfill	G36	0.0000
Landfill	G37	0.0000
Landfill	G38	0.0000
Landfill	G39	0.0000
Landfill	G40	0.0000
Landfill	G41	0.0000
Landfill	G42	0.0000
Landfill	G43	NS
Landfill	G44	NS
Landfill	G45	NS
Landfill	G46	NS
Landfill	G47	NS
Landfill	G48	NS
Landfill	G49	NS
Landfill	G50	NS

ALS GAS
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

Location	Building Reference	CH_4 Reading % v/v
Toilets	Right Side	0.0000
	Left Side	0.0000
Weigh Bridge Building	Meal Room	0.0000
	Toilet	0.0000
	Toilet Drain	0.0000
	South Wall	0.0000
	North Wall	0.0000
Lunch Room	Centre	0.0000
Main Office	Centre	0.0000
Change rooms	Centre	0.0000
Manager's Office	Centre	0.0000
Storage Shed	Right Wall	0.0000
	Back Wall	0.0000
	Left Wall	0.0000
	Centre	0.0000

ALS AIRBORNE DUST
ANALYSIS AND TESTING REPORT

ALS
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

Report No. 24005761

DUST DEPOSITION RESULTS
(g/m²/month)

GAUGE NO.	Month	INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	INCOMBUSTIBLE MATTE
#1	July	0.7	0.2	0.5
#2	July	0.5	0.2	0.3
#1	August	0.6	0.3	0.3
#2	August	0.5	0.3	0.2
#1	September	0.7	0.4	0.3
#2	September	0.8	0.3	0.5

* Result Calculated
NS - No Sample
Analysed in accordance with AS3580.10.1

ALS
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

Report No. 24005761

DEPOSITIONAL DUST GAUGE OBSERVATIONS

GAUGE	EXPOSURE DATE	COLLECTION DATE	DAYS EXPOSED	ANALYSIS OBSERVATIONS
#1	6/06/2016	7/07/2016	31	Water clear, organic matter, fine brown dust & coarse brown/black dust
#2	6/06/2016	7/07/2016	31	Water clear, insects, organic matter, fine brown dust & coarse brown/black dust
#1	7/07/2016	8/08/2016	32	Water clear, organic matter, fine brown dust & coarse brown/black dust
#2	7/07/2016	8/08/2016	32	Water clear, organic matter, fine brown/green dust & coarse brown/black dust
#1	8/08/2016	6/09/2016	29	Water clear, insects, organic matter, fine brown dust & coarse brown dust
#2	8/08/2016	6/09/2016	29	Water clear, organic matter, fine brown dust & coarse brown dust

Analysed in accordance with AS3580.10.1

ALS WATER
ANALYSIS AND TESTING REPORT

METHODS OF ANALYSIS

Tests for results issued in this report have been carried out at the following NATA accredited laboratories in accordance with the methods as detailed below-

ACIRL Report No 24005761

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
pH value	CBM-E005	X	
Electrical Conductivity	CBM - E006	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Dissolved Solid (mg/l)	CBM-E007	X	
Alkalinity by PC Titrator	ED037P		X
Sulfate (Turbidimetric) as SO4 2- by DA	ED041G		X
Chloride by Discrete Analyser	ED041G		X
Dissolved Major Cations	ED093F		X
Ammonia as N by Discrete Analyser	EK055G		X
Total Organic Carbon (TOC)	EP005		X
Chemical Oxygen Demand (Spectrophotometric)	EP026SP		X
Biochemical Oxygen Demand (BOD)	EP030		X

In accordance with “Standard Methods for the Examination of Water & Wastewater” APHA, AWWA, and Water & Wastewater Examination Manual (V. Dean Adams)

Preservation procedures in accordance with AS/NZS 5667/1 when sampled by ACIRL staff unless otherwise stated.

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

METHODS OF ANALYSIS

Tests for results issued in this report have been carried out at the following NATA accredited laboratories in accordance with the methods as detailed below:-

TEST	METHOD	LABORATORY
		ACIRL Lithgow NATA Accreditation #11436
Dust (Deposited matter gravimetric method)	3580.10.1	X

ACIRL Report No: 24005761

In accordance with "Methods for sampling and analysis of ambient air.
Method 10.1: Determination of particulate matter- Deposited matter-Gravimetric method"
Standards Australia, 2003

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ALS WATER
ANALYSIS AND TESTING REPORT

REPORT TO: Donelda Campbell

REPORT ON: BMCC
Blaxland WMF
Quarterly Monitoring Results

REPORT NO: 24005879

SAMPLED BY:

REPORTED BY: Almudena Bryce

REPORT DATE: 21-December-2016

NATA
WORLD RECOGNISED ACCREDITATION

Accreditation # 15784
Site # 11436

Accredited for compliance with ISO/IEC 17025.

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ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1624270							
Date of Sample		12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016
Site Name		**S1**	**S3**	**S22**	**Effluent**	**Cripple Creek Inlet**	**Cripple Creek Outlet**	**Leachate Water**	**Leachate Dam 2**
Other Sample Id		**Cripple Crk D/S**	**Cripple Crk U/S**	**Effluent Pond Near Oulet**	**EPA Point 1**			**EPA Piont 1**	
General Comments/ Observations		**Clear, Low flow**	**Clear, Low flow**	**Cloudy, Low level**	**No discharge**	**Clear, Low flow**	**Slightly Cloudy, Low flow**	**Cloudy, Mod Level**	**Cloudy, Mod Level**
Temperature	°c	**20.1**	**23.6**	**28.7**		**23.2**	**26.4**	**28.8**	**32.8**
pH	pH Units	**6.22**	**4.57**	**6.88**		**5.87**	**6.45**		
Electrical Conductivity	µS/cm	**185**	**150**	**282**		**186**	**220**	**1695**	**5030**
Total Suspended Solids	mg/L	**<5**	**<5**	**36**					
Ammonia as N by Discrete Analyser									
Ammonia as N	mg/L	0.12	0.02	0.83		0.02	<0.01		
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	4	2	13					
Chemical Oxygen Demand (Spectrophotometric)									
Chemical Oxygen Demand	mg/L	<10	<10	37					
Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	mg/L	<2	<2	<2					

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

	Units								
ALS Sydney Report No.		ES1624270							
Date of Sample		12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016
Site Name		**BORE 2**	**BORE 4**	**BORE 6**	**BORE 7**	**BORE 8**	**BORE 9**	**BORE 10**	**BORE 11**
Other Sample Id		**EPA BH2**	**EPA BH4**	**EPA BH6**	**EPA BH7**				**EPA BH11**
General Comments/ Observations		**Clear**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**
Temperature	°C	19.3	20.0	18.9	18.5	17.7	16.5	16.8	17.1
pH	pH Units	5.05	5.83	5.85	5.15	5.99	5.66	5.26	4.70
Electrical Conductivity	µS/cm	702	298	289	132	597	679	255	89.8
Total Dissolved Solids	mg/L	358	186	124	90	275	335	420	54
Standing Water Level	m	4.44	11.98	3.17	6.70	3.27	3.5	3.95	2.65
Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	mg/L	15	25	<1	11	48	37	3	1
Total Alkalinity as CaCO3	mg/L	15	25	<1	11	48	37	3	1
Sulfate (Turbidimetric) as SO4									
Sulfate as SO4 - Turbidimetric	mg/L	78	9	4	2	79	110	32	13
Chloride by Discrete Analyser									
Chloride	mg/L	127	54	57	32	74	92	52	12
Dissolved Major Cations									
Calcium	mg/L	<1	1	<1	1	9	10	2	<1
Magnesium	mg/L	4	6	<1	5	12	17	2	1
Sodium	mg/L	72	17	30	11	41	55	26	9
Potassium	mg/L	13	<1	<1	<1	38	33	5	2
Ammonia as N by Discrete Analyser									
Ammonia as N	mg/L	8.88	0.04	0.32	0.51	3.13	1.62	6.45	0.01
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	14	3	2	2	19	13	61	4

ALS GAS
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

Location	Site Reference	CH_4 Reading % v/v
Landfill	G1	0.0020
Landfill	G2	0.0000
Landfill	G3	0.0000
Landfill	G4	0.0000
Landfill	G5	0.0000
Landfill	G6	0.0000
Landfill	G7	0.0000
Landfill	G8	0.0000
Landfill	G9	0.0000
Landfill	G10	0.0000
Landfill	G11	0.0010
Landfill	G12	0.0000
Landfill	G13	0.0000
Landfill	G14	0.0110
Landfill	G15	0.0110
Landfill	G16	0.0300
Landfill	G17	0.0060
Landfill	G18	0.0150
Landfill	G19	0.0000
Landfill	G20	0.0060
Landfill	G21	0.0000
Landfill	G22	0.0020
Landfill	G23	0.0000
Landfill	G24	0.0030
Landfill	G25	0.0030

ALS GAS
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

Sample Date: 12/12/2016

Location	Site Reference	CH_4 Reading % v/v
Landfill	G26	0.0000
Landfill	G27	0.0150
Landfill	G28	0.0010
Landfill	G29	0.0150
Landfill	G30	0.0000
Landfill	G31	0.0012
Landfill	G32	0.0000
Landfill	G33	0.0000
Landfill	G34	0.0010
Landfill	G35	0.0010
Landfill	G36	0.0000
Landfill	G37	0.0000
Landfill	G38	0.0000
Landfill	G39	0.0000
Landfill	G40	0.0000
Landfill	G41	0.0000
Landfill	G42	0.0010
Landfill	G43	NS
Landfill	G44	NS
Landfill	G45	NS
Landfill	G46	NS
Landfill	G47	NS
Landfill	G48	NS
Landfill	G49	NS
Landfill	G50	NS

ALS GAS
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

Sample Date: 12/12/2016

Location	Building Reference	CH_4 Reading % v/v
Toilets	Right Side	0.0000
	Left Side	0.0000
Weigh Bridge Building	Meal Room	0.0000
	Toilet	0.0000
	Toilet Drain	0.0000
	South Wall	0.0000
	North Wall	0.0000
Lunch Room	Centre	0.0010
Main Office	Centre	0.0010
Change rooms	Centre	0.0010
Manager's Office	Centre	0.0010
Storage Shed	Right Wall	0.0010
	Back Wall	0.0010
	Left Wall	0.0010
	Centre	0.0010

ALS AIRBORNE DUST
ANALYSIS AND TESTING REPORT

ALS
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

Report No. 24005879

DUST DEPOSITION RESULTS
(g/m²/month)

GAUGE NO.	Month	INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	INCOMBUSTIBLE MATTEI
#1	October	1.3	0.4	0.9
#2	October	1.5	0.7	0.8
#1	November	0.7	0.3	0.4
#2	November	1.2	0.4	0.8
#1	December	1.5	0.5	1.0
#2	December	1.9	0.7	1.2

* Result Calculated
NS - No Sample
Analysed in accordance with AS3580.10.1

ALS
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

Report No. 24005879

DEPOSITIONAL DUST GAUGE OBSERVATIONS

GAUGE	EXPOSURE DATE	COLLECTION DATE	DAYS EXPOSED	ANALYSIS OBSERVATIONS
#1	6/09/2016	5/10/2016	29	Clear, insects, fine brown dust & coarse brown dust
#2	6/09/2016	5/10/2016	29	Clear, organic matter, fine brown dust & coarse brown/black dust
#1	5/10/2016	3/11/2016	29	Clear, insects, organic matter, fine brown dust & coarse brown dust
#2	5/10/2016	3/11/2016	29	Clear, organic matter, fine brown dust & coarse brown dust
#1	3/11/2016	2/12/2016	29	Clear, insects, fine brown dust & coarse brown dust
#2	3/11/2016	2/12/2016	29	Clear, insects, organic matter, fine brown dust & coarse brown dust

Analysed in accordance with AS3580.10.1

ALS WATER
ANALYSIS AND TESTING REPORT

METHODS OF ANALYSIS

Tests for results issued in this report have been carried out at the following NATA accredited laboratories in accordance with the methods as detailed below-

ACIRL Report No 24005879

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
pH value	CBM-E005	X	
Electrical Conductivity	CBM - E006	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Dissolved Solid (mg/l)	CBM-E007	X	
Alkalinity by PC Titrator	ED037P		X
Sulfate (Turbidimetric) as SO4 2- by DA	ED041G		X
Chloride by Discrete Analyser	ED041G		X
Dissolved Major Cations	ED093F		X
Ammonia as N by Discrete Analyser	EK055G		X
Total Organic Carbon (TOC)	EP005		X
Chemical Oxygen Demand (Spectrophotometric)	EP026SP		X
Biochemical Oxygen Demand (BOD)	EP030		X

In accordance with “Standard Methods for the Examination of Water & Wastewater” APHA, AWWA, and Water & Wastewater Examination Manual (V. Dean Adams)

Preservation procedures in accordance with AS/NZS 5667/1 when sampled by ACIRL staff unless otherwise stated.

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

METHODS OF ANALYSIS

Tests for results issued in this report have been carried out at the following NATA accredited laboratories in accordance with the methods as detailed below:-

TEST	METHOD	LABORATORY
		ACIRL Lithgow NATA Accreditation #11436
Dust (Deposited matter gravimetric method)	3580.10.1	X

ACIRL Report No: 24005879

In accordance with "Methods for sampling and analysis of ambient air.
Method 10.1: Determination of particulate matter- Deposited matter-Gravimetric method"
Standards Australia, 2003

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ALS WATER
ANALYSIS AND TESTING REPORT

REPORT TO:	Donelda Campbell
REPORT ON:	BMCC Blaxland WMF Quarterly Monitoring Results
REPORT NO:	24005634
SAMPLED BY:	D. Shawcross & M. Dean
REPORTED BY:	Natalie McMillan
REPORT DATE:	30-June-2016

NATA WORLD RECOGNISED ACCREDITATION

Accreditation # 15784
Site # 11436

Accredited for compliance with ISO/IEC 17025.

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ALS
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1613522							
Date of Sample		21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
Site Name		**Effluent Water**	**Leachate Water**	**Leachate Dam 2**	**Cripple Creek Inlet**	**Cripple Creek Outlet**	**S1**	**S3**	**S22**
General Comments/ Observations		**Low Flow, Cloudy**	**Mod Level, Cloudy**	**Low Level, Cloudy**	**Mod Flow, Clear**	**Mod Flow, Clear**	**Mod Flow, Clear**	**Mod Flow, Clear**	**High Level Discharge, Cloudy**
Temperature	°C	**13.1**	**15.2**	**14.9**	**14.2**	**14.2**	**14.0**	**14.1**	**13.1**
pH	pH Units	**6.59**	**----**	**----**	**6.37**	**7.71**	**6.62**	**6.60**	**6.72**
Electrical Conductivity	µS/cm	**----**	**4640**	**4720**	**114**	**141**	**168**	**100**	**172**
Total Suspended Solids	mg/L	**18**	**----**	**----**	**----**	**----**	**8**	**<5**	**22**
Ammonia as N by Discrete Analyser									
Ammonia as N	mg/L	**----**	**----**	**----**	0.01	0.04	0.17	<0.01	0.76
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	15	----	----	----	----	5	6	16
Chemical Oxygen Demand (Spectrophotometric)									
Chemical Oxygen Demand	mg/L	**----**	----	----	----	----	21	15	39
Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	mg/L	**----**	----	----	----	----	<2	<2	4

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

	Units								
ALS Sydney Report No.		ES1613522							
Date of Sample		21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
Site Name		**BORE 2**	**BORE 4**	**BORE 6**	**BORE 7**	**BORE 8**	**BORE 9**	**BORE 10**	**BORE 11**
General Comments/ Observations		**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**
Temperature	°C	20.3	19.4	17.8	18.8	17.8	18.0	15.7	16.9
pH	pH Units	4.92	5.85	5.82	6.01	5.80	5.60	6.16	4.73
Electrical Conductivity	µS/cm	570	338	302	198	623	576	1052	97
Total Dissolved Solids	mg/L	275	95	60	60	260	250	650	10
Water Height	m	4.02	11.73	2.45	5.67	3.12	1.98	1.37	0.70
Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	mg/L	13	14	5	10	60	58	125	1
Total Alkalinity as CaCO3	mg/L	13	14	5	10	60	58	125	1
Sulfate (Turbidimetric) as SO4									
Sulfate as SO4 - Turbidimetric	mg/L	68	11	6	2	69	53	114	11
Chloride by Discrete Analyser									
Chloride	mg/L	82	50	51	28	64	70	84	14
Dissolved Major Cations									
Calcium	mg/L	1	4	2	1	10	9	69	<1
Magnesium	mg/L	3	7	2	5	13	11	27	1
Sodium	mg/L	77	26	40	15	44	50	60	13
Potassium	mg/L	10	2	<1	<1	52	40	41	2
Ammonia as N by Discrete Analyser									
Ammonia as N	mg/L	4.92	0.3	0.6	0.28	3.59	3.62	0.2	0.01
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	7	3	3	2	13	11	12	3

ALS GAS
ANALYSIS AND TESTING REPORT

BMCC
BLAXLAND WMF

Location	Site Reference	CH_4 Reading % v/v
Landfill	G1	0.0000
Landfill	G2	0.0000
Landfill	G3	0.0000
Landfill	G4	0.0000
Landfill	G5	0.0000
Landfill	G6	0.0000
Landfill	G7	0.0000
Landfill	G8	0.0000
Landfill	G9	NS
Landfill	G10	0.0000
Landfill	G11	0.0000
Landfill	G12	0.0000
Landfill	G13	0.0000
Landfill	G14	0.0000
Landfill	G15	0.0000
Landfill	G16	0.0000
Landfill	G17	0.0000
Landfill	G18	0.0000
Landfill	G19	0.0000
Landfill	G20	0.0000
Landfill	G21	0.0000
Landfill	G22	0.0000
Landfill	G23	0.0000
Landfill	G24	0.0000
Landfill	G25	0.0000

ALS GAS
ANALYSIS AND TESTING REPORT

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BLAXLAND WMF

Location	Site Reference	CH_4 Reading % v/v
Landfill	G26	0.0000
Landfill	G27	0.0000
Landfill	G28	0.0000
Landfill	G29	0.0000
Landfill	G30	0.0000
Landfill	G31	0.0000
Landfill	G32	0.0000
Landfill	G33	0.0000
Landfill	G34	0.0000
Landfill	G35	0.0000
Landfill	G36	0.0000
Landfill	G37	0.0000
Landfill	G38	0.0000
Landfill	G39	0.0000
Landfill	G40	0.0000
Landfill	G41	0.0000
Landfill	G42	0.0000
Landfill	G43	NS
Landfill	G44	NS
Landfill	G45	NS
Landfill	G46	NS
Landfill	G47	NS
Landfill	G48	NS
Landfill	G49	NS
Landfill	G50	NS

ALS GAS
ANALYSIS AND TESTING REPORT

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Location	Building Reference	CH_4 Reading % v/v
Toilets	Right Side	0.0000
	Left Side	0.0000
Weigh Bridge Building	Meal Room	0.0000
	Toilet	0.0000
	Toilet Drain	0.0000
	South Wall	0.0000
	North Wall	0.0000
Lunch Room	Centre	0.0000
Main Office	Centre	0.0000
Change rooms	Centre	0.0000
Manager's Office	Centre	0.0000
Storage Shed	Right Wall	0.0000
	Back Wall	0.0000
	Left Wall	0.0000
	Centre	0.0000

ALS AIRBORNE DUST
ANALYSIS AND TESTING REPORT

ALS
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

Report No. 24005634

DUST DEPOSITION RESULTS
(g/m²/month)

GAUGE NO.	Month	INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	INCOMBUSTIBLE MATTEF
#1	**Apr-16**	1.5	0.8	0.7
#1	**May-16**	0.5	0.3	0.2
#1	**Jun-16**	3.0	1.2	1.8
#2	**Jun-16**	2.7	0.7	2.0

* Result Calculated
NS - No Sample
Analysed in accordance with AS3580.10.1

DEPOSITIONAL DUST GAUGE OBSERVATIONS

GAUGE	EXPOSURE DATE	COLLECTION DATE	DAYS EXPOSED	ANALYSIS OBSERVATIONS
#1	7/03/2016	4/04/2016	28	Water clear, insects, organic matter, fine brown/green dust & coarse black dust
#1	4/04/2016	8/05/2016	34	Water clear, insects, fine brown/green dust & coarse black/green dust
#1	8/05/2016	6/06/2016	29	Water clear, insects, fine brown/green dust & coarse black/green dust
#2	8/05/2016	6/06/2016	29	Water clear, insects, organic matter, fine grey/green dust & coarse black/green dust

Analysed in accordance with AS3580.10.1

ALS WATER
ANALYSIS AND TESTING REPORT

METHODS OF ANALYSIS

Tests for results issued in this report have been carried out at the following NATA accredited laboratories in accordance with the methods as detailed below-

ACIRL Report No 24005634

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
pH value	CBM-E005	X	
Electrical Conductivity	CBM - E006	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Dissolved Solid (mg/l)	CBM-E007	X	
Alkalinity by PC Titrator	ED037P		X
Sulfate (Turbidimetric) as SO4 2- by DA	ED041G		X
Chloride by Discrete Analyser	ED041G		X
Dissolved Major Cations	ED093F		X
Ammonia as N by Discrete Analyser	EK055G		X
Total Organic Carbon (TOC)	EP005		X
Chemical Oxygen Demand (Spectrophotometric)	EP026SP		X
Biochemical Oxygen Demand (BOD)	EP030		X

In accordance with “Standard Methods for the Examination of Water & Wastewater” APHA, AWWA, and Water & Wastewater Examination Manual (V. Dean Adams)

Preservation procedures in accordance with AS/NZS 5667/1 when sampled by ACIRL staff unless otherwise stated.

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

METHODS OF ANALYSIS

Tests for results issued in this report have been carried out at the following NATA accredited laboratories in accordance with the methods as detailed below:-

TEST	METHOD	LABORATORY
		ACIRL Lithgow NATA Accreditation #11436
Dust (Deposited matter gravimetric method)	3580.10.1	X

ACIRL Report No: 24005554

In accordance with "Methods for sampling and analysis of ambient air.
Method 10.1: Determination of particulate matter- Deposited matter-Gravimetric method"
Standards Australia, 2003

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ALS WATER
ANALYSIS AND TESTING REPORT

REPORT TO:	Donelda Campbell
REPORT ON:	BMCC Blaxland WMF Annual Monitoring Results
REPORT NO:	24005554
SAMPLED BY:	L. Stapleton & S. McMillan
REPORTED BY:	Natalie McMillan
REPORT DATE:	11-May-2016

Accreditation # 15784
Site # 11436

Accredited for compliance with ISO/IEC 17025.

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A Campbell Brothers Limited Company

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**Effluent Water**	**Leachate Water**	**Leachate Dam 2**	**Cripple Creek Inlet**	**Cripple Creek Outlet**	**S1**	**S3**	**S22**
General Comments/ Observations		**Not Discharging**	**Cloudy, Mod Level**	**Cloudy, Mod Level**	**Clear, Mod Flow**	**Clear, Low Flow**	**Clear, Low Flow**	**Clear, Low Flow**	**Clear, Mod level**
pH	pH Units	**----**	**6.90**	**8.11**	**6.19**	**7.03**	**6.53**	**5.33**	**8.54**
Electrical Conductivity	µS/cm	**----**	**1615**	**4160**	**175**	**176**	**223**	**139**	**278**
Total Suspended Solids	mg/L	**----**	**233**	**60**			**18**	**37**	**23**
Total Dissolved Solids	mg/L	----	**662**	**2140**					
Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	mg/L	----	<1	<1	----	----	----	----	----
Carbonate Alkalinity as CaCO3	mg/L	----	<1	<1	----	----	----	----	----
Bicarbonate Alkalinity as CaCO3	mg/L	----	388	1180	----	----	----	----	----
Total Alkalinity as CaCO3	mg/L	----	388	1180	----	----	----	----	----
Sulfate (Turbidimetric) as SO4 2									
Sulfate as SO4 - Turbidimetric	mg/L	----	5	22	----	----	----	----	----
Chloride by Discrete Analyser									
Chloride	mg/L	----	207	421	----	----	----	----	----
Dissolved Major Cations									
Calcium	mg/L	----	33	108	----	----	----	----	----
Magnesium	mg/L	----	15	34	----	----	----	----	----
Sodium	mg/L	----	127	340	----	----	----	----	----
Potassium	mg/L	----	74	270	----	----	----	----	----
Total Metals by ICP-MS									
Aluminium	mg/L	----	0.06	0.56	----	----	----	----	----
Arsenic	mg/L	----	0.016	0.169	----	----	----	----	----
Barium	mg/L	----	0.087	0.262	----	----	----	----	----
Cadmium	mg/L	----	<0.0001	<0.0001	----	----	----	----	----
Chromium	mg/L	----	0.005	0.082	----	----	----	----	----
Cobalt	mg/L	----	0.003	0.014	----	----	----	----	----
Copper	mg/L	----	0.002	0.024	----	----	----	----	----
Lead	mg/L	----	<0.001	0.012	----	----	----	----	----
Manganese	mg/L	----	0.236	0.609	----	----	----	----	----
Zinc	mg/L	----	0.021	0.054	----	----	----	----	----
Total Recoverable Mercury									
Mercury	mg/L	----	<0.0001	<0.0001	----	----	----	----	----

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**Effluent Water**	**Leachate Water**	**Leachate Dam 2**	**Cripple Creek Inlet**	**Cripple Creek Outlet**	**S1**	**S3**	**S22**
Total Hexavalent Chromium									
Hexavalent Chromium	mg/L	----	<0.01	<0.01	----	----	----	----	----
Fluoride									
Fluoride	mg/L	----	<0.1	0.2	----	----	----	----	----
Ammonia as N									
Ammonia as N	mg/L	----	69.1	214	0.07	0.02	0.48	0.03	0.41
Nitrite as N									
Nitrite as N	mg/L	----	1.88	60.9	----	----	----	----	----
Nitrate as N	mg/L	----	<0.10	<0.01	----	----	----	----	----
Nitrite plus Nitrate as N (NOx)									
Nitrite + Nitrate as N	mg/L	----	1.91	56.2	----	----	----	----	----
Total Phosphorus									
Total Phosphorus as P	mg/L	----	1.84	4.99	----	----	----	----	----
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	----	45	169	----	----	6	6	25
Chemical Oxygen Demand (Spectrophotometric)									
Chemical Oxygen Demand	mg/L	----	----	----	----	----	18	18	74
Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	mg/L	----	----	----	----	----	<2	<2	<2
Total Phenol by Discrete Analyser									
Phenols (Total)	mg/L	----	<0.05	<0.05	----	----	----	----	----
Organochlorine Pesticides (OC)									
alpha-BHC	µg/L	----	<0.5	<0.5	----	----	----	----	----
Hexachlorobenzene (HCB)	µg/L	----	<0.5	<0.5	----	----	----	----	----
beta-BHC	µg/L	----	<0.5	<0.5	----	----	----	----	----
gamma-BHC	µg/L	----	<0.5	<0.5	----	----	----	----	----
delta-BHC	µg/L	----	<0.5	<0.5	----	----	----	----	----
Heptachlor	µg/L	----	<0.5	<0.5	----	----	----	----	----
Aldrin	µg/L	----	<0.5	<0.5	----	----	----	----	----
Heptachlor epoxide	µg/L	----	<0.5	<0.5	----	----	----	----	----
trans-Chlordane	µg/L	----	<0.5	<0.5	----	----	----	----	----
alpha-Endosulfan	µg/L	----	<0.5	<0.5	----	----	----	----	----
cis-Chlordane	µg/L	----	<0.5	<0.5	----	----	----	----	----
Dieldrin	µg/L	----	<0.5	<0.5	----	----	----	----	----
4.4`-DDE	µg/L	----	<0.5	<0.5	----	----	----	----	----
Endrin	µg/L	----	<0.5	<0.5	----	----	----	----	----
beta-Endosulfan	µg/L	----	<0.5	<0.5	----	----	----	----	----
4.4`-DDD	µg/L	----	<0.5	<0.5	----	----	----	----	----
Endrin aldehyde	µg/L	----	<0.5	<0.5	----	----	----	----	----
Endosulfan sulfate	µg/L	----	<0.5	<0.5	----	----	----	----	----
4.4`-DDT	µg/L	----	<2.0	<2.0	----	----	----	----	----
Endrin ketone	µg/L	----	<0.5	<0.5	----	----	----	----	----
Methoxychlor	µg/L	----	<2.0	<2.0	----	----	----	----	----
Total Chlordane (sum)	µg/L	----	<0.5	<0.5	----	----	----	----	----
Sum of DDD + DDE + DDT	µg/L	----	<0.5	<0.5	----	----	----	----	----
Sum of Aldrin + Dieldrin	µg/L	----	<0.5	<0.5	----	----	----	----	----

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**Effluent Water**	**Leachate Water**	**Leachate Dam 2**	**Cripple Creek Inlet**	**Cripple Creek Outlet**	**S1**	**S3**	**S22**
Organophosphorus Pesticides (OP)									
Dichlorvos	µg/L	----	<0.5	<0.5	----	----	----	----	----
Demeton-S-methyl	µg/L	----	<0.5	<0.5	----	----	----	----	----
Monocrotophos	µg/L	----	<2.0	<2.0	----	----	----	----	----
Dimethoate	µg/L	----	<0.5	<0.5	----	----	----	----	----
Diazinon	µg/L	----	<0.5	<0.5	----	----	----	----	----
Chlorpyrifos-methyl	µg/L	----	<0.5	<0.5	----	----	----	----	----
Parathion-methyl	µg/L	----	<2.0	<2.0	----	----	----	----	----
Malathion	µg/L	----	<0.5	<0.5	----	----	----	----	----
Fenthion	µg/L	----	<0.5	<0.5	----	----	----	----	----
Chlorpyrifos	µg/L	----	<0.5	<0.5	----	----	----	----	----
Parathion	µg/L	----	<2.0	<2.0	----	----	----	----	----
Pirimphos-ethyl	µg/L	----	<0.5	<0.5	----	----	----	----	----
Chlorfenvinphos	µg/L	----	<0.5	<0.5	----	----	----	----	----
Bromophos-ethyl	µg/L	----	<0.5	<0.5	----	----	----	----	----
Fenamiphos	µg/L	----	<0.5	<0.5	----	----	----	----	----
Prothiofos	µg/L	----	<0.5	<0.5	----	----	----	----	----
Ethion	µg/L	----	<0.5	<0.5	----	----	----	----	----
Carbophenothion	µg/L	----	<0.5	<0.5	----	----	----	----	----
Azinphos Methyl	µg/L	----	<0.5	<0.5	----	----	----	----	----
Organochlorine Pesticide Surrogate									
Dibromo-DDE	%	----	62.3	62.8	----	----	----	----	----
Organophosphorus Pesticide Surrogate									
DEF	%	----	68.8	60.3	----	----	----	----	----
Polynuclear Aromatic Hydrocarbons									
Naphthalene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Acenaphthylene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Acenaphthene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Fluorene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Phenanthrene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Anthracene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Fluoranthene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Pyrene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Benz(a)anthracene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Chrysene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Benzo(b+j)fluoranthene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Benzo(k)fluoranthene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Benzo(a)pyrene	µg/L	----	<0.5	<0.5	----	----	----	----	----
Indeno(1.2.3.cd)pyrene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Dibenz(a.h)anthracene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Benzo(g.h.i)perylene	µg/L	----	<1.0	<1.0	----	----	----	----	----
Sum of polycyclic aromatic hydrocarbons	µg/L	----	<0.5	<0.5	----	----	----	----	----
Benzo(a)pyrene TEQ (zero)	µg/L	----	<0.5	<0.5	----	----	----	----	----

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**Effluent Water**	**Leachate Water**	**Leachate Dam 2**	**Cripple Creek Inlet**	**Cripple Creek Outlet**	**S1**	**S3**	**S22**
Phenolic Compound Surrogates									
Phenol-d6	%	----	27.1	29.4	----	----	----	----	----
2-Chlorophenol-D4	%	----	53.2	54.6	----	----	----	----	----
2.4.6-Tribromophenol	%	----	69.5	87.6	----	----	----	----	----
PAH Surrogates									
2-Fluorobiphenyl	%	----	78.1	79	----	----	----	----	----
Anthracene-d10	%	----	74	95.1	----	----	----	----	----
4-Terphenyl-d14	%	----	61.4	66.8	----	----	----	----	----
Total Petroleum Hydrocarbons									
C6 - C9 Fraction	µg/L	----	<20	<20	----	----	----	----	----
C10 - C14 Fraction	µg/L	----	<50	<50	----	----	----	----	----
C15 - C28 Fraction	µg/L	----	360	1880	----	----	----	----	----
C29 - C36 Fraction	µg/L	----	410	250	----	----	----	----	----
C10 - C36 Fraction (sum)	µg/L	----	770	2130	----	----	----	----	----
Total Recoverable Hydrocarbons									
C6 - C10 Fraction	µg/L	----	<20	<20	----	----	----	----	----
C6 - C10 Fraction minus BTEX (F1)	µg/L	----	<20	<20	----	----	----	----	----
>C10 - C16 Fraction	µg/L	----	<100	<100	----	----	----	----	----
>C16 - C34 Fraction	µg/L	----	700	1860	----	----	----	----	----
>C34 - C40 Fraction	µg/L	----	<100	180	----	----	----	----	----
>C10 - C40 Fraction (sum)	µg/L	----	700	2040	----	----	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	----	<100	<100	----	----	----	----	----
BTEXN									
Benzene	µg/L	----	<1	<1	----	----	----	----	----
Toluene	µg/L	----	<2	<2	----	----	----	----	----
Ethylbenzene	µg/L	----	<2	<2	----	----	----	----	----
meta- & para-Xylene	µg/L	----	<2	<2	----	----	----	----	----
ortho-Xylene	µg/L	----	<2	<2	----	----	----	----	----
Total Xylenes	µg/L	----	<2	<2	----	----	----	----	----
Sum of BTEX	µg/L	----	<1	<1	----	----	----	----	----
Naphthalene	µg/L	----	<5	<5	----	----	----	----	----
TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	%	----	109	105	----	----	----	----	----
Toluene-D8	%	----	112	114	----	----	----	----	----
4-Bromofluorobenzene	%	----	94.4	93.8	----	----	----	----	----

ALS WATER
ANALYSIS AND TESTING REPORT

BMCC
Blaxland WMF

	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	20/04/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**BORE 2**	**BORE 4**	**BORE 6**	**BORE 7**	**BORE 8**	**BORE 9**	**BORE 10**	**BORE 11**
General Comments/ Observations		**Slightly Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**	**Cloudy**
pH	pH Units	**5.00**	**5.95**	**5.70**	**5.98**	**6.20**	**5.79**	**5.64**	**4.75**
Electrical Conductivity	µS/cm	**657**	**290**	**338**	**199**	**613**	**428**	**292**	**112**
Total Dissolved Solids	mg/L	**340**	**164**	**178**	**114**	**325**	**220**	**175**	**90**
Water Height	m	**4.32**	**12.06**	**3.20**	**5.53**	**3.44**	**3.12**	**3.19**	**1.14**
Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	mg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	mg/L	13	21	22	8	60	33	10	3
Total Alkalinity as CaCO3	mg/L	13	21	22	8	60	33	10	3
Sulfate (Turbidimetric) as SO4 2									
Sulfate as SO4 - Turbidimetric	mg/L	67	10	7	3	60	50	34	12
Chloride by Discrete Analyser									
Chloride	mg/L	117	50	55	30	60	45	43	16
Dissolved Major Cations									
Calcium	mg/L	1	2	1	1	7	5	4	<1
Magnesium	mg/L	4	6	3	5	9	6	3	1
Sodium	mg/L	77	19	43	12	46	33	30	12
Potassium	mg/L	11	1	1	<1	38	29	8	2
Total Metals by ICP-MS									
Aluminium	mg/L	1.45	1.97	1.25	0.42	24	9.75	24	19.7
Arsenic	mg/L	0.004	0.001	0.01	0.001	0.003	0.002	0.005	0.002
Barium	mg/L	0.05	0.04	0.024	0.03	0.1	0.045	0.07	0.056
Cadmium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	0.0003	0.0001	0.0002	0.0002
Chromium	mg/L	0.003	0.005	0.003	<0.001	0.023	0.01	0.028	0.022
Cobalt	mg/L	0.003	0.014	0.003	0.01	0.008	0.002	0.005	0.002
Copper	mg/L	0.016	0.015	0.011	0.008	0.011	0.005	0.015	0.006
Lead	mg/L	0.035	0.017	0.01	0.006	0.036	0.012	0.066	0.023
Manganese	mg/L	0.201	1.48	0.221	1.7	0.329	0.064	0.084	0.018
Zinc	mg/L	0.045	0.105	0.043	0.12	0.865	0.062	0.08	0.032
Total Recoverable Mercury									
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

ALS WATER
ANALYSIS AND TESTING REPORT

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	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	20/04/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**BORE 2**	**BORE 4**	**BORE 6**	**BORE 7**	**BORE 8**	**BORE 9**	**BORE 10**	**BORE 11**
Total Hexavalent Chromium									
Hexavalent Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride									
Fluoride	mg/L	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ammonia as N									
Ammonia as N	mg/L	5.63	0.32	0.58	0.31	7	3.87	3.01	<0.01
Nitrite as N									
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01
Nitrate as N	mg/L	<0.01	0.01	0.01	0.08	0.04	<0.01	<0.01	0.02
Nitrite plus Nitrate as N (NOx)									
Nitrite + Nitrate as N	mg/L	<0.01	0.01	0.01	0.08	0.04	<0.01	<0.01	0.02
Total Organic Carbon (TOC)									
Total Organic Carbon	mg/L	12	2	2	1	16	11	8	3
Total Phenol by Discrete Analyser									
Phenols (Total)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05
Organochlorine Pesticides (OC)									
alpha-BHC	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
alpha-Endosulfan	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDE	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDD	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDT	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Endrin ketone	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Chlordane (sum)	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of DDD + DDE + DDT	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of Aldrin + Dieldrin	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	20/04/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**BORE 2**	**BORE 4**	**BORE 6**	**BORE 7**	**BORE 8**	**BORE 9**	**BORE 10**	**BORE 11**
Organophosphorus Pesticides (OP)									
Dichlorvos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dimethoate	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Malathion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Pirimphos-ethyl	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Organochlorine Pesticide Surrogate									
Dibromo-DDE	%	90.6	120	74.5	96.2	101	106	100	100
Organophosphorus Pesticide Surrogate									
DEF	%	84.4	71.3	85	66.1	81.8	78.8	66	65.3
Polynuclear Aromatic Hydrocarbons									
Naphthalene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sum of polycyclic aromatic hydrocarbons	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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	Units								
ALS Sydney Report No.		ES1605399 & ES168604							
Date of Sample		9/03/2016	9/03/2016	20/04/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016	9/03/2016
Site Name		**BORE 2**	**BORE 4**	**BORE 6**	**BORE 7**	**BORE 8**	**BORE 9**	**BORE 10**	**BORE 11**
Phenolic Compound Surrogates									
Phenol-d6	%	34.6	30.3	31.2	27.8	38.2	32.9	26.3	30.7
2-Chlorophenol-D4	%	58.4	54.9	66.5	54.9	65.4	61.7	50	55.7
2.4.6-Tribromophenol	%	89.6	78	47.2	69.7	88	68.4	62	60.6
PAH Surrogates									
2-Fluorobiphenyl	%	81.8	93	60.5	68.3	87.4	75.7	69.9	76.1
Anthracene-d10	%	82	83.2	85.8	105	90.9	100	95.9	103
4-Terphenyl-d14	%	71.6	76.4	72.2	68.3	80.1	77.5	70.8	71
Total Petroleum Hydrocarbons									
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C10 - C14 Fraction	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28 Fraction	µg/L	240	<100	130	<100	<100	<100	<100	<100
C29 - C36 Fraction	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
C10 - C36 Fraction (sum)	µg/L	240	<50	130	<50	<50	<50	<50	<50
Total Recoverable Hydrocarbons									
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
C6 - C10 Fraction minus BTEX (F1)	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
>C10 - C16 Fraction	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
>C16 - C34 Fraction	µg/L	210	<100	150	<100	<100	<100	<100	<100
>C34 - C40 Fraction	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	µg/L	210	<100	150	<100	<100	<100	<100	<100
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
BTEXN									
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
Ethylbenzene	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
meta- & para-Xylene	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
ortho-Xylene	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
Total Xylenes	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	µg/L	<5	<5	<5	<5	<5	<5	<5	<5
TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	%	111	123	84.9	113	107	117	120	125
Toluene-D8	%	106	106	92.8	112	102	109	108	108
4-Bromofluorobenzene	%	91.6	98.1	92.3	98.4	88.7	95.7	93.7	98.2

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Location	Site Reference	CH_4 Reading % v/v
Landfill	G1	0.0054
Landfill	G2	0.0053
Landfill	G3	0.0057
Landfill	G4	0.0053
Landfill	G5	0.0047
Landfill	G6	0.0048
Landfill	G7	0.0045
Landfill	G8	0.0047
Landfill	G9	NS
Landfill	G10	0.0012
Landfill	G11	0.0012
Landfill	G12	0.0014
Landfill	G13	0.0011
Landfill	G14	0.0005
Landfill	G15	0.0005
Landfill	G16	0.0004
Landfill	G17	0.0005
Landfill	G18	0.0023
Landfill	G19	0.0066
Landfill	G20	0.0117
Landfill	G21	0.0025
Landfill	G22	0.0056
Landfill	G23	0.0065
Landfill	G24	0.0094
Landfill	G25	0.0108

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Location	Site Reference	CH_4 Reading % v/v
Landfill	G26	0.0010
Landfill	G27	0.0010
Landfill	G28	0.0010
Landfill	G29	0.0010
Landfill	G30	0.0010
Landfill	G31	0.0010
Landfill	G32	0.0010
Landfill	G33	0.0010
Landfill	G34	0.0010
Landfill	G35	0.0010
Landfill	G36	0.0010
Landfill	G37	0.0010
Landfill	G38	0.0010
Landfill	G39	0.0010
Landfill	G40	0.0010
Landfill	G41	0.0010
Landfill	G42	0.0010
Landfill	G43	NS
Landfill	G44	NS
Landfill	G45	NS
Landfill	G46	NS
Landfill	G47	NS
Landfill	G48	NS
Landfill	G49	NS
Landfill	G50	NS

ALS GAS
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Location	Building Reference	CH_4 Reading % v/v
Toilets	Right Side	0.0010
	Left Side	0.0010
Weigh Bridge Building	Meal Room	0.0010
	Toilet	0.0010
	Toilet Drain	0.0010
	South Wall	0.0010
	North Wall	0.0010
Lunch Room	Centre	0.0010
Main Office	Centre	0.0010
Change rooms	Centre	0.0010
Manager's Office	Centre	0.0010
Storage Shed	Right Wall	0.0010
	Back Wall	0.0010
	Left Wall	0.0010
	Centre	0.0010

ALS WATER
ANALYSIS AND TESTING REPORT

METHODS OF ANALYSIS

Tests for results issued in this report have been carried out at the following NATA accredited laboratories in accordance with the methods as detailed below-

ACIRL Report No 24005554

WATER

TEST	METHOD	LABORATORY	
		LITHGOW	SYDNEY
pH value	CBM-E005	X	
Electrical Conductivity	CBM-E006	X	
Total Suspended Solids	CBM-E008	X	
Total Dissolved Solids	CBM-E007	X	
Alkalinity by PC Titrator	ED037P		X
Sulfate (Turbidimetric) as SO4 2	ED041G		X
Chloride by Discrete Analyser	ED045G		X
Dissolved Major Cations	ED093F		X
Total Metals by ICP-MS	EG020T		X
Total Recoverable Mercury by FIMS	EG035T		X
Total Hexavalent Chromium	EG050T		X
Fluoride	EK040P		X
Ammonia as N	EK055G		X
Nitrite as N	EK057G		X
Nitrate as N	EK058G		X
Nitrite plus Nitrate as N (NOx)	EK059G		X
Total Phosphorus as P	EK067G		X
Total Organic Carbon (TOC)	EP005		X
Chemical Oxygen Demand (Spectrophotometric)	EP026SP		X
Biochemical Oxygen Demand (BOD)	EP030		X
Total Phenol by Discrete Analyser	EP035G		X
Organochlorine Pesticides (OC)	EP068A		X
Organophosphorus Pesticides (OP)	EP068B		X
Polynuclear Aromatic Hydrocarbons	EP075(SIM)B		X
Total Petroleum Hydrocarbons	EP080/071		X
Total Recoverable Hydrocarbons	EP080/071		X
BTEXN	EP080		X
Organochlorine Pesticide Surrogate	EP068S/T		X
Phenolic Compound Surrogates	EP075(SIM)S		X
PAH Surrogates	EP075S(SIM)T		
TPH(V)/BTEX Surrogates	EP080S		X

In accordance with “Standard Methods for the Examination of Water & Wastewater” APHA, AWWA, and Water & Wastewater Examination Manual (V. Dean Adams)

Preservation procedures in accordance with AS/NZS 5667/1 when sampled by ACIRL staff unless otherwise stated.