

Appendix 5

Deposited Dust Monitoring Results (January 2016 to February 2017)

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**ALS AIRBORNE DUST AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarry

REPORT ON: Walker Quarry
Dust and Water Results

REPORT NO: 24005496

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - In conjunction with dust or on request

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 15-January-2016



Accreditation # 15784
Site # 11436

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Jan-16
Date Replaced 15/12/2015
Date Collected 13/01/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
62	1.1	0.3	0.8
64	8.3	2.7	5.6

No. of days exposed: 29

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Jan-16
Date Replaced 15/12/2015
Date Collected 13/01/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
62	Clear, insects, fine brown dust & coarse black/red dust
64	Slightly cloudy, insects, fine green & coarse green dust

Analysed in accordance with AS3580.10.1

ALS WATER ANALYSIS AND TESTING REPORT

WALKER QUARRY

	Units		
ALS Sydney Report No.			
Date of Sample		13/01/2016	
Site Reference		Dam 1	Dam 2
Sampled by		N. McMillan & L. Stapleton	
General Comments/ Observations		Not Discharging	Not Discharging
Time	24 Hr		
Temperature	°C		
pH	pH Unit		
Electrical Conductivity	µS/cm		
Total Suspended Solids	mg/L		
Sulphur Sulphate (SO ₄)	mg/L		
Oil & Grease	mg/L		

ALS AIRBORNE DUST AND 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: 24005496

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Sulfate (mg/l)	ED014G		X
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Oil & Grease	EP020		X
Total Suspended Solids (mg/l)	CBM-E008	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 AND WATER
ANALYSIS AND TESTING REPORT

REPORT TO: Walker Quarry

REPORT ON: Walker Quarry
Dust and Water Results

REPORT NO: 24005524

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - In conjunction with dust or on request

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 17-February-2016



Accreditation # 15784
Site # 11436

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Feb-16
Date Replaced 13/01/2016
Date Collected 12/02/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
62	0.6	0.4	0.2
64	14.4	1.5	12.9

No. of days exposed: 30

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Feb-16
Date Replaced 13/01/2016
Date Collected 12/02/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
62	Clear, insects, organic matter, fine brown dust & coarse brown/black/grey dust
64	Clear, insects, organic matter, fine brown dust & coarse brown/white dust

Analysed in accordance with AS3580.10.1

ALS WATER ANALYSIS AND TESTING REPORT

WALKER QUARRY

	Units		
ALS Sydney Report No.			
Date of Sample		12/01/2016	
Site Reference		Dam 1	Dam 2
Sampled by		N. McMillan & L. Stapleton	
General Comments/ Observations		Not Discharging	Not Discharging
Time	24 Hr		
Temperature	°C		
pH	pH Unit		
Electrical Conductivity	µS/cm		
Total Suspended Solids	mg/L		
Sulphur Sulphate (SO ₄)	mg/L		
Oil & Grease	mg/L		

ALS AIRBORNE DUST AND 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: 24005524

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Sulfate (mg/l)	ED014G		X
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Oil & Grease	EP020		X
Total Suspended Solids (mg/l)	CBM-E008	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 AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarry

REPORT ON: Walker Quarry
Dust Results

REPORT NO: 24005552

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 22-March-2016



Accreditation # 15784
Site # 11436

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month	Mar-16
Date Replaced	12/02/2016
Date Collected	15/03/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#2	0.7	0.4	0.3
DG#4	1.6	0.5	1.1

No. of days exposed: 32

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Mar-16
Date Replaced 12/02/2016
Date Collected 15/03/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#2	Clear, insects, organic matter, fine brown/grey dust & coarse brown/grey dust
DG#4	Clear, insects, fine brown/grey dust & coarse brown/grey dust

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST AND 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: 24005552

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Sulfate (mg/l)	ED014G		X
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Oil & Grease	EP020		X
Total Suspended Solids (mg/l)	CBM-E008	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 AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries
Dust & Water Results

REPORT NO: 24005588

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 21-April-2016



Accreditation # 15784
Site # 11436

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Apr-16
Date Replaced 15/03/2016
Date Collected 13/04/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#2	0.9	0.4	0.5
DG#4	5.3	0.7	4.6

No. of days exposed: 29

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Apr-16
Date Replaced 15/03/2016
Date Collected 13/04/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#2	Clear, insects, organic matter, fine brown dust & coarse brown/black/grey dust
DG#4	Clear, insects, organic matter, fine brown/grey dust & coarse brown/grey dust

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Apr-16
Date Replaced 30/03/2016
Date Collected 13/04/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#1	0.8	0.2	0.6
DG#3	1.5	0.3	1.2

No. of days exposed: 14

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Apr-16
Date Replaced 30/03/2016
Date Collected 13/04/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#1	Clear, insects, organic matter, fine grey/green dust & coarse brown/green dust
DG#3	Clear, insects, organic matter, fine brown/grey dust & coarse brown dust

Analysed in accordance with AS3580.10.1

ALS WATER ANALYSIS AND TESTING REPORT

WALKER QUARRY

	Units		
ALS Sydney Report No.		ES1608062	
Date of Sample		13/04/2016	
Site Reference		Cox's U/S	Cox's D/S
Site Reference		SD3	SD4
Sampled by		J. Takahira, N. McMillan & D. Shawcross	
General Comments/ Observations		Clear, Mod Flow	Clear, High Flow
Time	24 Hr	9:05	14:10
Temperature	°C	18.3	19.0
pH	pH Unit	8.92	8.99
Electrical Conductivity	µS/cm	1176	1168
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO ₄)	mg/L	123	122
Dissolved Metals by ICP-MS			
Manganese	mg/L	0.009	0.010
Iron	mg/L	<0.05	<0.05
Oil & Grease	mg/L	<5	<5

ALS AIRBORNE DUST AND 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: 24005588

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Oil & Grease	EP020		X
Manganese	EG020F		X
Iron	EG020F		X
Sulfate (mg/l)	ED014G		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 AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries
Dust & Water Results

REPORT NO: 24005621

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 17-May-2016



Accreditation # 15784
Site # 11436

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Apr-16
Date Replaced 15/03/2016
Date Collected 13/04/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#1	1.0	0.2	0.8
DG#2	0.4	0.3	0.1
DG#3	1.1	0.4	0.7
DG#4	0.5	0.2	0.3

No. of days exposed: 29

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

WALKER QUARRY

Month Apr-16
Date Replaced 15/03/2016
Date Collected 11/05/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#1	Slightly cloudy, insects, organic matter, fine brown dust & coarse brown/black/green dust
DG#2	Slightly cloudy, insects, organic matter, fine brown dust & coarse brown/black dust
DG#3	Slightly cloudy, insects, organic matter, fine brown dust & coarse brown/black dust
DG#4	Slightly cloudy, insects, fine brown/grey dust & coarse brown/black dust

Analysed in accordance with AS3580.10.1

ALS WATER ANALYSIS AND TESTING REPORT

WALKER QUARRY

	Units		
ALS Sydney Report No.		ES1610189	
Date of Sample		11/05/2016	
Site Reference		Cox's U/S	Cox's D/S
Site Reference		SD3	SD4
Sampled by		J. Takahira & D. Shawcross	
General Comments/ Observations		Clear, Mod Flow	Clear, Mod Flow
Time	24 Hr	10:35	11:50
Temperature	°C	12.9	14.2
pH	pH Unit	8.83	8.90
Electrical Conductivity	µS/cm	1229	1217
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO ₄)	mg/L	121	121
Dissolved Metals by ICP-MS			
Manganese	mg/L	0.026	0.007
Iron	mg/L	<0.05	<0.05
Oil & Grease	mg/L	<5	<5

ALS AIRBORNE DUST AND 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: 24005621

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Oil & Grease	EP020		X
Manganese	EG020F		X
Iron	EG020F		X
Sulfate (mg/l)	ED014G		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 AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries
Dust & Water Results

REPORT NO: 24005657

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 17-June-2016



Accreditation # 15784
Site # 11436

Accredited for compliance with ISO/IEC 17025.

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



WALKER QUARRY

Month Jun-16
Date Replaced 11/05/2016
Date Collected 9/06/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#1	0.7	0.3	0.4
DG#2	5.4	3.7	1.7
DG#3	1.3	0.4	0.9
DG#4	Broken Bottle and Funnel		

No. of days exposed: 29

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

**ALS AIRBORNE DUST
ANALYSIS AND TESTING REPORT****WALKER QUARRY**

Month Jun-16
Date Replaced 11/05/2016
Date Collected 9/06/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#1	Clear, insects, organic matter, fine brown/grey dust & coarse brown dust
DG#2	Slightly cloudy, insects, organic matter, fine brown dust & coarse brown/black dust
DG#3	Clear, insects, organic matter, fine brown/grey dust & coarse brown/black dust
DG#4	Broken Bottle and Funnel

Analysed in accordance with AS3580.10.1

ALS WATER ANALYSIS AND TESTING REPORT



WALKER QUARRY

	Units			
ALS Sydney Report No.				
Date of Sample		9/06/2016		
Site Reference		Cox's U/S	Cox's D/S	Discharging Dam
Site Reference		SD3	SD4	----
Sampled by		D. Shawcross & N. McMillan		
General Comments/ Observations		Clear, High Flow	Clear, High Flow	Cloudy, High Level, Not Discharging
Time	24 Hr	9:45	8:30	9:35
Temperature	°C	15.0	14.7	----
pH	pH Unit	8.63	8.65	----
Electrical Conductivity	µS/cm	1209	1226	----
Total Dissolved Solids		----	----	150
Total Suspended Solids	mg/L	<5	<5	----
Sulphur Sulphate (SO ₄)	mg/L	139	139	----
Dissolved Metals by ICP-MS				
Manganese	mg/L	0.007	0.005	----
Iron	mg/L	<0.05	<0.05	----
Oil & Grease	mg/L	<5	<5	----

ALS AIRBORNE DUST AND 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: 24005657

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Dissolved Solids	CBM-E007	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Oil & Grease	EP020		X
Manganese	EG020F		X
Iron	EG020F		X
Sulfate (mg/l)	ED014G		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 AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries
Dust & Water Results

REPORT NO: 24005689

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 15-July-2016



Accreditation # 15784
Site # 11436

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



WALKER QUARRY

Month Jul-16
Date Replaced 9/06/2016
Date Collected 7/07/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#1	1.2	0.4	0.8
DG#2	4.6	3.2	1.4
DG#3	0.3	0.2	0.1
DG#4	19.5	4.4	15.1

No. of days exposed: 28

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST
ANALYSIS AND TESTING REPORT



WALKER QUARRY

Month Jul-16
Date Replaced 9/06/2016
Date Collected 7/07/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#1	Clear, insects, fine brown/grey dust & coarse brown/black/grey dust
DG#2	Slightly cloudy, insects, organic matter, fine brown dust & coarse brown/black dust
DG#3	Clear, insects, organic matter, fine brown/grey dust & coarse brown/black dust
DG#4	Slightly cloudy, insects, organic matter, fine brown dust & coarse brown/black/grey/green dust

Analysed in accordance with AS3580.10.1

ALS WATER ANALYSIS AND TESTING REPORT



WALKER QUARRY

	Units		
ALS Sydney Report No.		ES1614871	
Date of Sample		7/07/2016	
Site Reference		Cox's U/S	Cox's D/S
Site Reference		SD3	SD4
Sampled by		J. Takahira & S. McMillan	
General Comments/ Observations		Clear, Mod Flow	Clear, High Flow
Time	24 Hr	9:25	11:20
Temperature	°C	8.6	8.8
pH	pH Unit	8.72	8.84
Electrical Conductivity	µS/cm	1170	1122
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO ₄)	mg/L	208	206
Dissolved Metals by ICP-MS			
Manganese	mg/L	0.008	0.005
Iron	mg/L	<0.05	<0.05
Oil & Grease	mg/L	<5	<5

ALS AIRBORNE DUST AND 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: 24005689

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Dissolved Solids	CBM-E007	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Oil & Grease	EP020		X
Manganese	EG020F		X
Iron	EG020F		X
Sulfate (mg/l)	ED014G		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 AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries
Dust & Water Results

REPORT NO: 24005723

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 12-August-2016



Accreditation # 15784
Site # 11436

Accredited for compliance with ISO/IEC 17025.

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



WALKER QUARRY

Month Aug-16
Date Replaced 7/07/2016
Date Collected 8/08/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#1	0.4	0.3	0.1
DG#2	3.2	2.3	0.9
DG#3	1.0	0.2	0.8
DG#4	0.7	0.3	0.4

No. of days exposed: 32

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

**ALS AIRBORNE DUST
ANALYSIS AND TESTING REPORT****WALKER QUARRY**

Month Aug-16
Date Replaced 7/07/2016
Date Collected 8/08/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#1	Clear, insects, organic matter, fine brown/grey dust & coarse brown/black/green dust
DG#2	Slightly cloudy, insects, organic matter, fine brown dust & coarse brown/black dust
DG#3	Clear, organic matter, fine grey dust & coarse brown/black dust
DG#4	Clear, insects, organic matter, fine brown dust & coarse brown/black dust

Analysed in accordance with AS3580.10.1



ALS AIRBORNE DUST

Date Collected	Dust Gauge No 1		Dust Gauge No 2		Dust Gauge No 3		Dust Gauge No 4	
	Insoluble Solids	Rolling 12 months Average	Insoluble Solids	Rolling 12 months Average	Insoluble Solids	Rolling 12 months Average	Insoluble Solids	Rolling 12 months Average
Jul-15		0.00	2.9	2.48		0.00	1.5	1.69
Aug-15		0.00	3.8	2.69		0.00	0.5	1.53
Sep-15		0.00	1.3	2.72		0.00	2.2	1.60
Oct-15		0.00	0.3	2.66		0.00	0.6	1.53
Nov-15		0.00	3.7	2.67		0.00	1.3	1.53
Dec-15		0.00	0.9	2.60		0.00	0.8	1.53
Jan-16		0.00	1.1	2.58		0.00	8.3	1.95
Feb-16		0.00	0.6	2.31		0.00	14.4	3.03
Mar-16		0.00	0.7	1.96		0.00	1.6	2.98
Apr-16		0.00	0.9	1.79		0.00	5.3	3.26
May-16	1	0.00	0.4	1.65	1.1	0.00	0.5	3.24
Jun-16	0.7	0.00	5.4	1.83	1.3	0.00	0	3.08
Jul-16	1.2	0.00	4.6	1.98	0.3	0.00	19.5	4.58

ALS WATER ANALYSIS AND TESTING REPORT



WALKER QUARRY

	Units		
ALS Sydney Report No.		ES1617405	
Date of Sample		8/08/2016	
Site Reference		Cox's U/S	Cox's D/S
Site Reference		SD3	SD4
Sampled by		D. Shawcross & S. McMillan	
General Comments/ Observations		Clear, High Flow	Clear, High Flow
Time	24 Hr	9:00	9:50
Temperature	°C	9.2	8.7
pH	pH Unit	8.24	8.41
Electrical Conductivity	µS/cm	840	803
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO ₄)	mg/L	149	141
Dissolved Metals by ICP-MS			
Manganese	mg/L	0.031	0.019
Iron	mg/L	0.12	0.13
Oil & Grease	mg/L	<5	<5

ALS AIRBORNE DUST AND 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: 24005723

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Dissolved Solids	CBM-E007	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Oil & Grease	EP020		X
Manganese	EG020F		X
Iron	EG020F		X
Sulfate (mg/l)	ED014G		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 AND WATER
ANALYSIS AND TESTING REPORT**

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries
Dust & Water Results

REPORT NO: 24005804

PERIOD OF EXPOSURE: Dust - Typically 30 days +/- 2 days
Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY: A. Bryce

REPORT DATE: 17-October-2016



Accreditation # 15784
Site # 11436

Accredited for compliance with ISO/IEC 17025.

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ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



WALKER QUARRY

Month Oct-16
Date Replaced 9/09/2016
Date Collected 7/10/2016

DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	<u>INSOLUBLE SOLIDS</u>	<u>*COMBUSTIBLE MATTER</u>	<u>**ASH</u>
DG#1	0.5	0.5	<0.1
DG#2	0.8	0.8	<0.1
DG#3	1.4	0.9	0.5
DG#4	0.4	0.3	0.1

No. of days exposed: 28

* Result Calculated

** Incombustible Matter

Analysed in accordance with AS3580.10.1

ALS AIRBORNE DUST
ANALYSIS AND TESTING REPORT



WALKER QUARRY

Month Oct-16
Date Replaced 8/08/2016
Date Collected 9/09/2016

DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
DG#1	Clear, insects, organic matter, fine brown dust & coarse brown dust
DG#2	Clear, organic matter, fine brown/green dust & coarse brown/black dust
DG#3	Clear, organic matter, fine brown/green dust & coarse brown/green dust
DG#4	Clear, insects, organic matter, fine brown/green dust & coarse brown/black dust

Analysed in accordance with AS3580.10.1

ALS WATER ANALYSIS AND TESTING REPORT



WALKER QUARRY

	Units		
ALS Sydney Report No.		ES1622738	
Date of Sample		7/10/2016	
Site Reference		Cox's U/S	Cox's D/S
Site Reference		SD3	SD4
Sampled by		J. Thurtell & D. Shawcross	
General Comments/ Observations		Clear, High Flow	Clear, High Flow
Time	24 Hr	9:50	10:25
Temperature	°C	13.9	13.5
pH	pH Unit	7.50	8.14
Electrical Conductivity	µS/cm	614	513
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO ₄)	mg/L	111	91
Dissolved Metals by ICP-MS			
Manganese	mg/L	0.061	0.019
Iron	mg/L	0.12	0.13
Oil & Grease	mg/L	<5	<5

ALS AIRBORNE DUST AND 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: 24005804

DUST

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

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

WATER

TEST	METHOD	LABORATORY	
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	X	
pH value	CBM-E005	X	
Total Dissolved Solids	CBM-E007	X	
Total Suspended Solids (mg/l)	CBM-E008	X	
Total Oil & Grease	EP020		X
Manganese	EG020F		X
Iron	EG020F		X
Sulfate (mg/l)	ED014G		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.

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