# Appendix 5

# Deposited Dust Monitoring Results (January 2016 to February 2017)

(Total No. of pages including blank pages = 50)

Note: This Appendix is only available on the digital version of this document



#### ENVIRONMENTAL ASSESSMENT

DA 344-11-2001 Modification 1 Report No. 949/05

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ALS Laboratory Group



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

REPORT TO: Walker Quarry

REPORT ON: Walker Quarry

24005496

Dust and Water Results

Dust - Typically 30 days +/- 2 days

Water - In conjunction with dust or on request

REPORT NO:

PERIOD OF EXPOSURE:

SAMPLED BY: ALS Staff

REPORTED BY: Natalie McMillan

REPORT DATE: 15-January-2016



Accreditation # 15784 Site # 11436

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## WALKER QUARRY

MonthJan-16Date Replaced15/12/2015Date Collected13/01/2016

#### DUST DEPOSITION RESULTS

(g/m²/month)

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

No. of days exposed: 29



#### WALKER QUARRY

Month Jan-16 Date Replaced Date Collected

15/12/2015 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	



# 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 8	& L. Stapleton
General Comments/ Observations		Not Discharging	Not Discharging
Time	24 Hr		
Temperature	°C		
рН	pH Unit		
Electrical Conductivity	µS/cm		
Total Suspended Solids	mg/L		
Sulphur Sulphate (SO4 )	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: 2

24005496

DUST

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

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	LABOR	TORY
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Sulfate (mg/l)	ED014G		Х
Electrical Conductivity uS/cm	CBM-E006	Х	
pH value	CBM-E005	Х	
Total Oil & Grease	EP020		Х
Total Suspended Solids (mg/l)	CBM-E008	Х	

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 Laboratory Group



#### 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

Natalie McMillan **REPORTED BY:** 

**REPORT DATE:** 17-February-2016



15784 Accreditation # 11436

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## WALKER QUARRY

MonthFeb-16Date Replaced13/01/2016Date Collected12/02/2016

#### DUST DEPOSITION RESULTS

(g/m²/month)

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

No. of days exposed: 30



## WALKER QUARRY

Month Feb-16 Date Replaced Date Collected

13/01/2016 12/02/2016

#### DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS		
62	Clear, insects, organic matter, fine brown dust & coarse brown/black/grey dust		
i n-4 i	Clear, insects, organic matter, fine brown dust & coarse brown/white dust		



# ALS WATER ANALYSIS AND TESTING REPORT

	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		
рН	pH Unit		
Electrical Conductivity	µS/cm		
Total Suspended Solids	mg/L		
Sulphur Sulphate (SO4 )	mg/L		
Oil & Grease	mg/L		

# WALKER QUARRY



# 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	Х

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	LABOR	ATORY
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Sulfate (mg/l)	ED014G		Х
Electrical Conductivity uS/cm	CBM-E006	Х	
pH value	CBM-E005	Х	
Total Oil & Grease	EP020		Х
Total Suspended Solids (mg/l)	CBM-E008	Х	

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 Laboratory Group



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

24005552

Dust - Typically 30 days +/- 2 days

**REPORT TO:** Walker Quarry

REPORT ON: Walker Quarry Dust Results

REPORT NO:

PERIOD OF EXPOSURE:

SAMPLED BY: ALS Staff

**REPORTED BY:** Natalie McMillan

REPORT DATE: 22-March-2016



ation # 15784 11436

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# WALKER QUARRY

MonthMaDate Replaced12Date Collected15

Mar-16 12/02/2016 15/03/2016

32

#### DUST DEPOSITION RESULTS

(g/m²/month)

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

No. of days exposed:



#### WALKER QUARRY

Month Mar-16 Date Replaced Date Collected

12/02/2016 15/03/2016

#### DUST GAUGE OBSERVATION

GAL	JGE	ANALYSIS OBSERVATIONS	
DG	DG#2 Clear, insects, organic matter, fine brown/grey dust & coarse brown/grey dust		
DG	6#4	Clear, insects, fine brown/grey dust & coarse brown/grey dust	



# 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	х

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

#### WATER

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

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 Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



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

**REPORT TO:** Walker Quarries

**REPORT ON:** 

Walker Quarries **Dust & Water Results** 

Water - Monthly

Dust - Typically 30 days +/- 2 days

24005588

**REPORT NO:** 

PERIOD OF EXPOSURE:

SAMPLED BY: ALS Staff

Natalie McMillan **REPORTED BY:** 

**REPORT DATE:** 21-April-2016



Accreditation # 15784 11436

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# WALKER QUARRY

MonthApr-16Date Replaced15/03/2016Date Collected13/04/2016

## DUST DEPOSITION RESULTS

(g/m²/month)

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

No. of days exposed: 29



#### WALKER QUARRY

MonthApr-16Date Replaced15/03/2016Date Collected13/04/2016

4/2016

#### 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



# WALKER QUARRY

MonthApr-16Date Replaced30/03/2016Date Collected13/04/2016

## DUST DEPOSITION RESULTS

(g/m²/month)

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

No. of days exposed: 14



#### WALKER QUARRY

Month Apr-16 Date Replaced Date Collected

30/03/2016 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



# 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. McM	illan & D. Shawcross
General Comments/ Observations		Clear, Mod Flow	Clear, High Flow
Time	24 Hr	9:05	14:10
Temperature	°C	18.3	19.0
рН	pH Unit	8.92	8.99
Electrical Conductivity	µS/cm	1176	1168
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO4 )	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	Х

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

#### WATER

TEST METH		LABOR	ATORY
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	Х	
pH value	CBM-E005	Х	
Total Suspended Solids (mg/l)	CBM-E008	Х	
Total Oil & Grease	EP020		Х
Manganese	EG020F		Х
Iron	EG020F		Х
Sulfate (mg/l)	ED014G		Х

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 Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



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

REPORT TO: Walker Quarries

REPORT ON:

Dust & Water Results

Walker Quarries

Natalie McMillan

24005621

REPORT NO:

PERIOD OF EXPOSURE:

Dust - Typically 30 days +/- 2 days Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY:

REPORT DATE: 17-May-2016



Accreditation # 15784

11436

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## 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>	INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	<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



### WALKER QUARRY

MonthApDate Replaced15/Date Collected11/

Apr-16 15/03/2016 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



# ALS WATER ANALYSIS AND TESTING REPORT

	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
рН	pH Unit	8.83	8.90
Electrical Conductivity	µS/cm	1229	1217
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO4 )	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

# WALKER QUARRY



# 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	х

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	LABOR	ATORY
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	Х	
pH value	CBM-E005	Х	
Total Suspended Solids (mg/l)	CBM-E008	Х	
Total Oil & Grease	EP020		Х
Manganese	EG020F		Х
Iron	EG020F		Х
Sulfate (mg/l)	ED014G		Х

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 Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



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

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries

Dust & Water Results

Dust - Typically 30 days +/- 2 days

24005657

REPORT NO:

PERIOD OF EXPOSURE:

SAMPLED BY:

REPORTED BY:

Natalie McMillan

17-June-2016

ALS Staff

Water - Monthly

REPORT DATE:

Accre Site #

Accreditation # 15784 Site # 11436

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DA 344-11-2001 Modification 1 Report No. 949/05

# ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



# WALKER QUARRY

MonthJun-16Date Replaced11/05/2016Date Collected9/06/2016

#### DUST DEPOSITION RESULTS

(g/m²/month)

GAUGE NO.	INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	<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





### WALKER QUARRY

MonthJDate Replaced1Date Collected9

Jun-16 11/05/2016 9/06/2016

#### DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS	
	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	



DA 344-11-2001 Modification 1 Report No. 949/05

# 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		[	). Shawcross & N. McMil	lan
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	
рН	pH Unit	8.63	8.65	
Electrical Conducti∨ity	µS/cm	1209	1226	
Total Dissolved Solids				150
Total Suspended Solids	mg/L	<5	<5	
Sulphur Sulphate (SO4 )	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	х

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	Х	
pH value	CBM-E005	Х	
Total Dissoved Solids	CBM-E007	Х	
Total Suspended Solids (mg/l)	CBM-E008	Х	
Total Oil & Grease	EP020		Х
Manganese	EG020F		Х
Iron	EG020F		Х
Sulfate (mg/l)	ED014G		Х

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 Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



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

**REPORT TO:** Walker Quarries

REPORT ON: Walker Quarries

Dust & Water Results

24005689

REPORT NO:

PERIOD OF EXPOSURE:

Dust - Typically 30 days +/- 2 days Water - Monthly

SAMPLED BY: ALS Staff

REPORTED BY:

Natalie McMillan

REPORT DATE: 15-July-2016



on # 15784 11436

1143

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## WALKER QUARRY

MonthJul-16Date Replaced9/06/2016Date Collected7/07/2016

#### DUST DEPOSITION RESULTS

(g/m²/month)

<u>GAUGE NO.</u>	_INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	<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



DA 344-11-2001 Modification 1 Report No. 949/05

# ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



### WALKER QUARRY

MonthJul-16Date Replaced9/06/2016Date Collected7/07/2016

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	



# ALS WATER ANALYSIS AND TESTING REPORT



# WALKER QUARRY

	Units		
ALS Sydney Report No.		ES16	14871
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/ Obser∨ations		Clear, Mod Flow	Clear, High Flow
Time	24 Hr	9:25	11:20
Temperature	°C	8.6	8.8
рН	pH Unit	8.72	8.84
Electrical Conducti∨ity	µS/cm	1170	1122
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO4 )	mg/L	208	206
Di	ssolved	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	х

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	LABOR	ATORY
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	Х	
pH value	CBM-E005	Х	
Total Dissoved Solids	CBM-E007	Х	
Total Suspended Solids (mg/l)	CBM-E008	Х	
Total Oil & Grease	EP020		Х
Manganese	EG020F		Х
Iron	EG020F		Х
Sulfate (mg/l)	ED014G		Х

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 Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



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

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries

Dust & Water Results

Dust - Typically 30 days +/- 2 days

24005723

ALS Staff

REPORT NO:

PERIOD OF EXPOSURE:

SAMPLED BY:

REPORTED BY:

Natalie McMillan

12-August-2016

Water - Monthly

REPORT DATE:



Accreditation # 15784 Site # 11436

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DA 344-11-2001 Modification 1 Report No. 949/05

# ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



### WALKER QUARRY

MonthAug-16Date Replaced7/07/2016Date Collected8/08/2016

#### DUST DEPOSITION RESULTS

(g/m²/month)

GAUGE NO.	_INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	<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

MonthAugDate Replaced7/0Date Collected8/0

Aug-16 7/07/2016 8/08/2016

#### DUST GAUGE OBSERVATION

GAUGE	ANALYSIS OBSERVATIONS
	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
	Clear, insects, organic matter, fine brown dust & coarse brown/black dust

Analysed in accordance with AS3580.10.1



### ENVIRONMENTAL ASSESSMENT

DA 344-11-2001 Modification 1 Report No. 949/05

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Rolling 12 Insoluble         Rolling 12 months         Rolling 12 months		มนรา บล	nge No T	มนรเ ษสเ	z ovi agu	มนรเ ษสเ	ige No 3	มนรเ ษส	uge No 4
			Rolling 12		Rolling 12		Rolling 12		Rolling 12
I         Solids         Average         Solids         Sol	Date	Insoluble	months	Insoluble	months	Insoluble	months	Insoluble	months
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Collected	Solids	Average	Solids	Average	Solids	Average	Solids	Average
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Jul-15		00'0	2.9	2.48		00.0	1.5	1.69
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Aug-15		00.0	3.8	2.69		00.00	0.5	1.53
000       0.3       266         000       3.7       266         000       3.7       266         000       0.00       0.0         3.7       2.66       0.00         0.00       0.3       2.67         0.00       0.00       0.3       2.67         0.00       0.00       1.1       2.58       0.00         1.1       2.58       0.00       0.00       1.3         0.00       0.00       0.66       2.31       1.3       0.0         1.8       1.79       0.00       0.61       1.4       1.6         0.7       0.00       0.6       2.31       1.3       0.00         1.13       1.13       0.00       0.65       5.3       0.00         0.7       0.00       0.6       1.4       1.6       1.4         1.13       1.13       0.00       0.5       5.3       1.1         1.2       0.00       0.00       0.5       5.3       1.1         1.2       0.00       0.00       0.5       5.3       1.3         1.2       0.00       0.00       0.5       5.3       1.4 <td>Sep-15</td> <td></td> <td>00.0</td> <td>1.3</td> <td>2.72</td> <td></td> <td>0.00</td> <td>2.2</td> <td>1.60</td>	Sep-15		00.0	1.3	2.72		0.00	2.2	1.60
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Oct-15		00.0	0.3	2.66		0.00	0.6	1.53
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Nov-15		00.0	3.7	2.67		00.00	1.3	1.53
000       1.1       258         000       1.1       258         000       0.6       2.31         000       0.6       2.31         000       0.7       1.96         1       1.96       1.14         1       0.000       0.7         1       1.79       0.00         0.6       1.79         1       1.79         1       1.79         1       1.79         0.00       0.7         1.13       1.13         0.7       0.00         0.7       0.00         1.13       1.3         0.7       0.00         0.7       0.00         0.7       0.00         1.13       1.3         0.3       1.3         0.3       0.00         0.19.5       1.95	Dec-15		00.0	0.0	2.60		0.00	0.8	1.53
0.00       0.6       2.31         0.00       0.7       1.96       0.00         0.00       0.7       1.96       0.00         1.17       0.00       0.3       1.4         1.18       1.79       0.00       0.6         1.18       1.79       0.00       0.6         1.13       0.00       0.6       0.6         1.13       1.3       0.00       0.6         1.13       0.00       0.6       0.6         1.13       0.00       0.6       0.6         1.13       0.00       0.6       0.6	Jan-16		00.0	<u>+</u> -	2.58		0.00	8.3	1.95
0.00         0.7         1.96           0.00         0.9         1.79           1         0.00         0.9           1         0.00         0.9           1         0.00         0.9           1         1.65         1.1           0.7         1.83         1.73           0.7         0.00         0.6           1.3         1.3         0.00           1.3         1.3         0.00           1.3         1.3         0.00	Feb-16		00.0	0.6	2.31		00.00	14.4	3.03
1         0.00         0.9         1.79           1         0.00         0.4         1.79         0.00           0.7         0.00         0.4         1.85         1.1           0.7         0.00         5.4         1.83         1.3         0.00           1.2         0.00         5.4         1.83         1.3         0.00         0.5           1.2         0.00         5.4         1.83         1.3         0.00         0.5	Mar-16		00.0	0.7	1.96		00.00	1.6	2.98
1         0.00         0.4         1.65         1.1         0.00         0.5           0.7         0.00         5.4         1.83         1.3         0.00         0.5           1.2         0.00         4.6         1.98         0.3         0.00         0         0	Apr-16		00.0	0.0	1.79		0.00	5.3	3.26
0.7         0.00         5.4         1.83         1.3         0.00         0           1.2         0.00         4.6         1.98         0.3         0.00         19.5	May-16	<del>.                                    </del>	00.0	0.4	1.65	1.1	0.00	0.5	3.24
1.2 0.00 4.6 1.98 0.3 0.00 19.5	Jun-16	0.7	00.0	5.4	1.83	1.3	00.00	0	3.08
	Jul-16	1.2	00.0	4.6	1.98	0.3	0.00	19.5	4.58



**ALS AIRBORNE DUST** 



# ALS WATER ANALYSIS AND TESTING REPORT



# WALKER QUARRY

	Units		
ALS Sydney Report No.		ES16	17405
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/ Obser∨ations		Clear, High Flow	Clear, High Flow
Time	24 Hr	9:00	9:50
Temperature	°C	9.2	8.7
рН	pH Unit	8.24	8.41
Electrical Conducti∨ity	µS/cm	840	803
Total Suspended Solids	mg/L	<5	<5
Sulphur Sulphate (SO4 )	mg/L	149	141
Di	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	х

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	LABOR	ATORY
		ACIRL Lithgow NATA Accreditation #11436	ALS Sydney NATA Accreditation # 825
Electrical Conductivity uS/cm	CBM-E006	Х	
pH value	CBM-E005	Х	
Total Dissoved Solids	CBM-E007	Х	
Total Suspended Solids (mg/l)	CBM-E008	Х	
Total Oil & Grease	EP020		Х
Manganese	EG020F		Х
Iron	EG020F		Х
Sulfate (mg/l)	ED014G		Х

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 Laboratory Group



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

REPORT TO: Walker Quarries

REPORT ON: Walker Quarries

**REPORT NO:** 24005804

PERIOD OF EXPOSURE:

SAMPLED BY:

REPORTED BY:

A. Bryce

ALS Staff

Water - Monthly

**Dust & Water Results** 

Dust - Typically 30 days +/- 2 days

REPORT DATE: 17-October-2016



Accreditation # 15784 Site # 11436

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DA 344-11-2001 Modification 1 Report No. 949/05

# ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



### WALKER QUARRY

MonthOct-16Date Replaced9/09/2016Date Collected7/10/2016

DUST	<b>DEPOSITION RESULTS</b>	5
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(g/m²/month)

GAUGE NO.	_INSOLUBLE SOLIDS	*COMBUSTIBLE MATTER	<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 Date Collected

8/08/2016 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



DA 344-11-2001 Modification 1 Report No. 949/05

# 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/ Obser∨ations		Clear, High Flow	Clear, High Flow		
Time	24 Hr	9:50	10:25		
Temperature	°C	13.9	13.5		
рН	pH Unit	7.50	8.14		
Electrical Conducti∨ity	µS/cm	614	513		
Total Suspended Solids	mg/L	<5	<5		
Sulphur Sulphate (SO4 )	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	х	

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	Х	
pH value	CBM-E005	Х	
Total Dissoved Solids	CBM-E007	Х	
Total Suspended Solids (mg/l)	CBM-E008	Х	
Total Oil & Grease	EP020		Х
Manganese	EG020F		Х
Iron	EG020F		Х
Sulfate (mg/l)	ED014G		Х

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.



#### ENVIRONMENTAL ASSESSMENT

DA 344-11-2001 Modification 1 Report No. 949/05

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