

# 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



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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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**ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT**

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**WALKER QUARRY**

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

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**DUST GAUGE OBSERVATION**

| <b>GAUGE</b> | <b>ANALYSIS OBSERVATIONS</b>                             |
|--------------|--|
| 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

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## 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/<br>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 <sub>4</sub> ) | 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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

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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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**ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT**

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**WALKER QUARRY**

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

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**DUST GAUGE OBSERVATION**

| <b>GAUGE</b> | <b>ANALYSIS OBSERVATIONS</b>   |
|--------------|--|
| 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

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## 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/<br>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 <sub>4</sub> ) | 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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



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Site # 11436

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT

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WALKER QUARRY

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

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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

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## 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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



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Site # 11436

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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**ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT**

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**WALKER QUARRY**

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

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**DUST GAUGE OBSERVATION**

| <b>GAUGE</b> | <b>ANALYSIS OBSERVATIONS</b>   |
|--------------|--|
| 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

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

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### WALKER QUARRY

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

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#### 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

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## 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/<br>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 <sub>4</sub> ) | 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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

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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT

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### WALKER QUARRY

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

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#### 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

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## 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/<br>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 <sub>4</sub> ) | mg/L    | 121                        | 121             |
| <b>Dissolved Metals by ICP-MS</b>   |         |                            |                 |
| 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT



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WALKER QUARRY

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

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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  |

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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/<br>Observations |         | Clear, High Flow           | Clear, High Flow | Cloudy, High Level,<br>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 (SO4 )           | mg/L    | 139                        | 139              | ----                                   |
| <b>Dissolved Metals by ICP-MS</b> |         |                            |                  |  |
| 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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



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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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**ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT**



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**WALKER QUARRY**

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

---

**DUST GAUGE OBSERVATION**

| <b>GAUGE</b> | <b>ANALYSIS OBSERVATIONS</b>   |
|--------------|--|
| 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

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## 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/<br>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 <sub>4</sub> ) | mg/L    | 208                       | 206              |
| <b>Dissolved Metals by ICP-MS</b>   |         |                           |                  |
| 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT



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WALKER QUARRY

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

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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            |

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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 |
| 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/<br>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 <sub>4</sub> ) | mg/L    | 149                        | 141              |
| <b>Dissolved Metals by ICP-MS</b>   |         |                            |                  |
| 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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

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## ALS AIRBORNE DUST ANALYSIS AND TESTING REPORT



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### WALKER QUARRY

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

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### DUST DEPOSITION RESULTS

(g/m<sup>2</sup>/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

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ALS AIRBORNE DUST  
ANALYSIS AND TESTING REPORT



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WALKER QUARRY

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

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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

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## ALS WATER ANALYSIS AND TESTING REPORT



### WALKER QUARRY

|                                     | Units   |                            |                  |
|-------------------------------------|---------|----------------------------|------------------|
| ALS Sydney Report No.               |         | <b>ES1622738</b>           |                  |
| 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/<br>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 <sub>4</sub> ) | mg/L    | 111                        | 91               |
| <b>Dissolved Metals by ICP-MS</b>   |         |                            |                  |
| 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<br>Accreditation #11436 |
| Dust<br>(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<br>Accreditation #11436 | ALS Sydney NATA<br>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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