

Oberon Quarries Pty Limited

OBERON QUARRY

Annual Review
1 January 2016 - 31 December 2016



OBERON

Annual Review

1 January 2016 - 31 December 2016

OBERON QUARRY

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

Oberon Quarries Pty Limited

Project Director: Luke Bettridge
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Report No. 1296/R60/V1
Date: March 2017



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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
1	Emma Mudford (Umwelt (Australia) Pty Limited)	March 2017	Luke Bettridge (Umwelt (Australia) Pty Limited)	March 2017

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Annual Review Title Block

Name of operation:	Oberon Quarry
Name of operator:	Oberon Quarries Pty Limited
Development consent:	Oberon Quarry Continuation Project Development Consent (SSD_6333)
Name of holder of development consent:	Oberon Quarries Pty Limited
Mining Lease:	N/A
Water licence:	Water Access Licence (WAL 34279)
Name of holder of water licence:	Oberon Quarries
MOP or RMP start/end date:	N/A
Annual Review start date:	1 January 2016
Annual Review end date:	31 December 2016
I, Neil Hargraves, certify that this audit report is a true and accurate record of the compliance status of Oberon Quarry for the period 1 January to 31 December 2016, and that I am authorised to make this statement on behalf of Oberon Quarries Pty Limited. Note. a) The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000. b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).	
Name of authorised reporting officer:	Neil Hargraves 
Title of authorised reporting officer:	Quarry Manager
Signature of authorised reporting officer:	
Date:	31.03.17

1.0 Statement of Compliance

Oberon Quarries Pty Ltd operates Oberon Quarry, an existing hard rock quarry located approximately 5 kilometres south of Oberon, New South Wales (NSW) (refer to **Section 2.1**). Oberon Quarries Pty Ltd was granted the original Oberon Quarries Pty Ltd Development Consent (DA92/164) on 1 October 1993 by the NSW Minister for Planning to establish and operate a hard rock quarry at 'Langley Heights', Oberon, New South Wales. The Oberon Quarries Pty Ltd Development Consent (DA92/164) was relinquished on 2 December 2015. The Oberon Quarry Continuation Project Development Consent (SSD_6333) was granted on 14 September 2015 and provides for the continued operations of Oberon Quarry. This Annual Review has been developed to detail the operations undertaken at Oberon Quarry during the report period (1 January 2016 to 31 December 2016) in accordance with Development Consent (SSD_6333).

The following section provides a statement of compliance in regards to the operations undertaken at Oberon Quarry. There were five non-compliances with the statutory approvals identified in **Table 3.1** during the report period. These non-compliances are summarised in **Table 1.3** below and are discussed in further detail in **Section 11**. It is noted that during the report period an Independent Environmental Audit was required to be undertaken with the audit undertaken in January 2017. The outcomes of the Audit will be included in the 2017 Annual Review, refer to **Section 11**. **Table 1.1** below provides a statement of compliance for Oberon Quarry for the report period.

Table 1.1 Statement of compliance

Were all conditions of the relevant approvals(s) complied with?	
Development Consent SSD_6333	No*
Environment Protection Licence 4442	No*

*Administrative non-compliance.

Table 1.2 Compliance Status Key for Table 1.3

Risk Level	Colour Code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium	Non-compliant	Non-compliance with: - Potential for serious environmental consequences, but is unlikely to occur; or - Potential for moderate environmental consequences, but is likely to occur
Low	Non-compliant	Non-compliance with: - Potential for moderate environmental consequences, but is unlikely to occur; or - Potential for low environmental consequences, but is likely to occur

Risk Level	Colour Code	Description
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

Source: Annual Review Guideline (NSW Government, 2015).

Table 1.3 Non-compliances recorded during the 2016 report period

Relevant Approval	Condition No.	Condition Description (Summary)	Compliance Status/Risk Level	Comment	Where addressed in Annual Review
SSD_6333	Administrative Conditions Schedule 2, Condition 9	The Applicant shall not transport more than 3,000 tonnes of quarry products from the site on any day.	Non - compliant	In February 2016 the Quarry exceeded the daily limit on one occasion transporting more than 3,000 tonnes of quarry products to a major road Upgrade Project.	Section 4.1
SSD_6333	Noise – Operating Conditions Schedule 3, Condition 4	The Applicant shall: (c) carry out noise monitoring (at least every 3 months, unless otherwise approved by the Secretary) to determine whether the development is complying with the relevant conditions of this consent.	Non - compliant	The summer noise monitoring round was not undertaken. Oberon Quarries Pty Ltd has established an agreement with relevant landowners to exceed the noise criteria in the Development Consent. Oberon Quarries Pty Ltd notified the Secretary of these agreements on 25 January 2017. Oberon Quarries Pty Ltd has since obtained approval from the Secretary on 2 February 2017 to discontinue noise monitoring.	Section 6.1

Relevant Approval	Condition No.	Condition Description (Summary)	Compliance Status/Risk Level	Comment	Where addressed in Annual Review
SSD_6333	Water Management Plan Schedule 3, Condition 16	The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Secretary. This plan must: (c) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agreed by the Secretary.	Non - compliant	The Water Management Plan (WMP) was not submitted by 31 May 2016 within the timeframe required by DP&E. The WMP was submitted on 2 June 2016.	Section 7.1
SSD_6333	Rehabilitation Bond Schedule 3, Condition 25	Within 6 months of the approval of the Landscape and Rehabilitation Management Plan, the Applicant shall lodge a Rehabilitation Bond with the Department.	Non - compliant	The Rehabilitation Bond was not submitted within 6 months as required by the Development Consent. The Bond will be submitted to the DP&E in 2017.	Section 8.0

Relevant Approval	Condition No.	Condition Description (Summary)	Compliance Status/Risk Level	Comment	Where addressed in Annual Review
SSD_6333	Independent Environmental Audit Schedule 5, Condition 10	Within a year of the date of this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development.	Non - compliant	The Independent Environmental Audit was not commissioned within a year of the Development Consent being approved. Contact was made with the Auditor in November 2016 to organise a date for the Audit. Following identification of the non-compliance, the DP&E was notified and the Independent Environmental Audit was undertaken in January 2017.	Section 11
EPL 4442	M2.2	Particulates – deposited matter to be sampled monthly at EPL Point 1.	Non-compliant	The dust monitoring result for D1 (EPL Point 1) could not be obtained for the month of June 2016 as the bottle was found broken upon sampling. The non-compliance was captured during the submission of the 2016-2017 Annual Return to the EPA.	Section 6.2

2.0 Introduction

Oberon Quarries Pty Ltd operates Oberon Quarry, an existing hard rock quarry located approximately 5 kilometres south of Oberon, New South Wales (NSW) (refer to **Figure 2.1**). Oberon Quarries Pty Ltd was granted the original Oberon Quarries Pty Ltd Development Consent (DA92/164) on 1 October 1993 by the NSW Minister for Planning to establish and operate a hard rock quarry at 'Langley Heights', Oberon, New South Wales. The approved development includes Portions 92, 94, 102, 107-111 inclusive, 211 and 213; Crown Road Reserve and Lot A DP 386067 Parish of Norway, Oberon Local Government Area. Subsequent modifications of DA 92/164 were approved in 1999, 2004, 2007 and September 2013. The original Oberon Quarries Pty Ltd Development Consent (DA92/164) was surrendered on 2 December 2015.

On 14 September 2015, Oberon Quarries Pty Ltd was granted approval of the Oberon Quarry Continuation Project Development Consent (SSD_6333) by the NSW Minister for Planning to extend the life of the quarry for an additional 30 years. The Development Consent (SSD_6333) allows for continued operations of the Oberon Quarry across a broader area which will enable the extraction of additional basalt resources. The Development Consent (SSD_6333) retains the current maximum production level of 400,000 tonnes per annum (tpa) and removed the requirement for production to not to exceed an annual average of 200,000 tpa over a 10 year period. The statutory approvals held by Oberon Quarries Pty Ltd are detailed in **Section 3.0**.

In accordance with Condition 10 of Schedule 5 of the Development Consent, the first Independent Environmental Audit was undertaken in January 2017. The outcomes of this Audit will be included in the 2017 Annual Review, refer to **Section 10.1** for further discussion of the Independent Environmental Audit.

Condition 9 of Schedule 5 of the Oberon Quarry Continuation Project Development Consent requires an Annual Review (AR) to be prepared and submitted to the Department of Planning and Environment (DP&E) by the end of March each year. This AR is submitted for the period 1 January to 31 December 2016 and addresses the conditions listed under Condition 16 of Schedule 2, Condition 28 of Schedule 3 and Condition 9 of Schedule 5 of the Development Consent. In addition to being prepared in accordance with the Development Consent, this AR has been produced in accordance with the *Annual Review Guideline: Post-approval requirements for State significant mining developments* (NSW Government, 2015). Development Consent requirements along with an explanation of where each requirement is addressed within this document are provided in **Table 2.1**.

Table 2.1 Development Consent (SSD_6333) Conditions for the Annual Review

Conditions		Addressed in Section
Schedule 2 – Administrative Conditions		
Production Data		
16.	(a) provide annual quarry production data to DRE using the standard form for that purpose; and	Section 4.1
	(b) include a copy of this data in the Annual Review (see condition 9 of Schedule 5).	
Schedule 3 – Environmental Performance Conditions		
Waste		
28.	(d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.	Section 6.7
Schedule 5 – Environmental Management, Reporting and Auditing		
Revision of Strategies, Plans & Programs		
5.	Within 3 months of the submission of an: (a) incident report under condition 7 below; (b) annual review under condition 9 below; (c) audit report under condition 10 below; and (d) any modifications to this consent, the Applicant shall review the strategies, plans and programs required under this consent, to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Secretary.	Section 10
Schedule 5 – Environmental Management, Reporting and Auditing		
Annual Review		
9.	By the end of March each year, or other timing as may be agreed by the Secretary, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary. This review must:	This document
	(a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year	Section 6.0 and 8.0

Conditions	Addressed in Section
(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria • requirements of any plan or program required under this consent • monitoring results of previous years • relevant predictions in the EIS	Section 6.0 - 9.0
(c) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance	Section 1.0, 6.0 and 12.0
(d) identify any trends in the monitoring data over the life of the development	Section 6.0
(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies	Section 6.0
(f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the development.	Section 6.0 and 13.0



FIGURE 2.1
Locality Plan

2.1 Quarry Contacts

The Quarry Manager is responsible to the regulatory authorities for all aspects of environmental compliance at the site and supervises the day-to-day site environmental management and reporting, including monitoring and supervision of environmental works. The Quarry Manager's contact details are summarised in **Table 2.2**.

Table 2.2 Key personnel responsible for environmental management of Oberon Quarry

Name	Title	Company	Contact No.
Neil Hargraves	Quarry Manager	Oberon Quarries Pty Ltd	(02) 6336 0259
Deborah Murray	Work, Health, Safety, Environment, Quality Representative	Oberon Quarries Pty Ltd	(02) 6336 0312

3.0 Approvals

The operations at Oberon Quarry are subject to a range of standards and performance measures. All approvals currently held by Oberon Quarry are listed in **Table 3.1**. The original Oberon Quarries Pty Ltd Development Consent (DA92/164) was surrendered on 2 December 2015. Operations undertaken during the report period were in accordance with Development Consent (SSD_6333) approved on 14 September 2015.

In accordance with the Development Consent (SSD_6333), Oberon Quarries Pty Ltd is required to implement a range of environmental management plans as part of the Oberon Quarry Environmental Management Strategy (EMS). The following management plans were approved by the DP&E in 2016 and include:

- Environmental Management Strategy (EMS)
- Noise Management Plan (NMP)
- Blast Management Plan (BMP)
- Air Quality Management Plan (AQMP)
- Water Management Plan (WMP)
- Transport Management Plan (TMP) and
- Landscape and Rehabilitation Management Plan (L&RMP).

Oberon Quarry also operates under Environment Protection Licence (EPL) No. 4442, which was first issued by the Environment Protection Authority (EPA) in January 1994. The monitoring and recording conditions of the EPL require:

- monthly monitoring of dust deposition at four locations (dust deposition gauges)
- monthly monitoring of surface water quality at two locations upstream and downstream of Oberon Quarry on Racecourse Creek
- monitoring of all blasts conducted by the quarry
- compliance with noise limits
- implementation of a Pollution Incident Response Management Plan (PIRMP) and
- maintenance of a complaints register and publishing of environmental results on Oberon Quarries Pty Ltd website (<http://oberonquarries.com.au/>).

Oberon Quarries Pty Ltd currently holds a Part 2 surface water licence under the *Water Act 1912* (80SL051088, WAL 34279) for the extraction of water from Racecourse Creek which forms part of the Fish River Water Source. Water is pumped when needed from Racecourse Creek to the Quarry at a rate of 2 litres / second.

Table 3.1 Development Consent History for Oberon Quarry

Approval No.	Development	Granted	Expiry	Status
Development Consent (DA92/164)	Original Consent	01.10.1993	01.10.2013	Surrendered 02.12.2015
	1999 Modification	13.04.2000		
	2004 Modification	17.11.2004		
	2007 Modification	28.05.2007		
	2013 Modification	27.09.2013	13.05.2016	
Development Consent (SSD_6333)	Oberon Quarry Continuation Project	14.09.2015	14.09.2045	Current
Environment Protection Licence 4442	Oberon Quarries Pty Ltd	January 1994	NA	Current
Water Access Licence 34279 (80SL051088)	Part 2 surface water licence under the Water Act 1912 for the extraction of water from Racecourse Creek	03.10.2012	Perpetuity	Current

4.0 Operations Summary

A summary of the operations undertaken at Oberon Quarry during the report period are included in the following sections.

4.1 Quarrying Operations

The approved extraction area is approximately 21 hectares. During the report period, basalt was extracted from the operation. In accordance with the Development Consent, Oberon Quarries Pty Ltd shall not transport more than 400,000 tonnes of quarry products from the site in any calendar year. A production summary is included in **Table 4.1**. Detail of quarry operating hours and truck movements during the report period are detailed in **Table 4.3**. In accordance with Condition 9 of Schedule 2 of the Development Consent, Oberon Quarries Pty Ltd shall not transport more than 3,000 tonnes of quarry products from the site on any day. In February 2016, the Quarry provided products for a major road Upgrade Project in Bathurst. Both Oberon Quarry and Oberon Council trucks transported products to the Upgrade Project. The site exceeded the daily limit on one occasion where Oberon Council trucks transported more than 3,000 tonnes from the site. No complaints were received in relation to this matter and there have been no further occasions where the limit has been exceeded.

In accordance with Condition 16 of Schedule 2 of the Development Consent, a copy of the annual production data provided to the Department of Industry – Division of Resources and Energy (DRE) for the year ended 30 June 2016 is included in **Table 4.2**. The Extractive Materials Return was lodged on 29 November 2016.

Table 4.1 Production Summary

Material	Approved limit (SSD_6333)	2015 reporting period (actual)	2016 reporting period (actual)	2017 reporting period (forecast)
Saleable Product	400,000 tonnes from the site in any calendar year.	234,349 tonnes	376,952 tonnes	300,000 tonnes

Table 4.2 DRE Return for Extractive Materials: Year Ended 30 June 2016

Product	Quantity Tonnes
Virgin Materials – Crushed Coarse Aggregates	
Over 75mm (Large rock, rip rap)	3077.92
Over 30mm to 75mm	2103.05
5mm to 30mm	209451.78
Under 5mm	54989.19
Manufactured sand	14.50
Prepared road base & sub base	71208.51

Product	Quantity Tonnes
Virgin Materials – Crushed Coarse Aggregates	
Other unprocessed materials (Overburden)	596.44

4.1.1 Hours of Operations

Oberon Quarry operates in accordance with the operating hours specified by Condition 1 of Schedule 3 of the Development Consent, refer to **Table 4.3**. Oberon Quarry continued to operate within the operating hours specified by the Development Consent throughout the report period.

Table 4.3 Operating Hours Summary

Activity	Operating Hours	This reporting period
Extraction operations	7am to 6pm Monday to Friday 7am to 5pm Saturday	Oberon Quarry undertook extraction operations within the specified operating hours.
Loading and dispatch	6am to 10pm Monday to Friday 6am to 5pm Saturday	Oberon Quarry completed all loading and dispatch activities within the specified operating hours.
Construction and maintenance activities	7am to 6pm Monday to Friday 7am to 4pm Saturday	Oberon Quarry completed all construction and maintenance activities within the specified operating hours.
Blasting	9am to 5pm Monday to Saturday	Oberon Quarry undertook all blasting activities within the specified operating hours.

4.1.2 Transport Management

In accordance with Condition 21 of Schedule 3 of the Development Consent, Oberon Quarries Pty Ltd have prepared and implemented a TMP and Driver's Code of Conduct (Umwelt, 2016) for its operations. The TMP was approved by the DP&E during 2016.

4.1.3 Vehicle Movements

Vehicle movements at Oberon Quarry are required to meet the operating conditions specified by Condition 18 of Schedule 3 of the Development Consent, refer to **Table 4.4**. Oberon Quarry continued to operate in accordance with the Development Consent throughout the report period.

Table 4.4 Transport Summary

Activity	Operating Condition	This reporting period
Laden Vehicles leaving the site	6am to 7am – maximum of 4 6pm to 10pm – maximum of 4	Oberon Quarries Pty Ltd complied with all transport operating conditions during the report period.

4.2 Construction Activities

Modification of the crushing and screening plant was undertaken in January 2016 and consisted of replacing the 3 inch JTY crusher with a Giro crusher and modifications to the conveyor and screen layouts. The equipment installed is more energy efficient than the existing plant and resulted in reduced environmental impacts such as air quality due to production of less fines (a by-product of the crushing process).

4.3 2017 Extraction Operations

On 14 September 2015, Oberon Quarries Pty Ltd was granted Development Consent (SSD_6333) for Oberon Quarry Continuation Project by the NSW Minister for Planning, to extend the life of the quarry for an additional 30 years. The Development Consent allows for continued operations of the Oberon Quarry including increasing the extraction area by approximately 1 hectare to avoid sterilisation of a small section of additional high quality basalt resources (refer to **Figure 4.1**).

Extraction is confined to the basalt plateau on top of Racecourse Hill. The Quarry floor is located below the skyline and is bounded on all sides by natural topography, except for a narrow cutting on the eastern hillside above the processing area, which provides haul road access to the Quarry floor. Extraction of the second bench commenced in 2016. Raw product is proposed to be extracted from level 2 and level 3 of the Quarry during 2017. The Quarry floor at present is approximately 8 to 10 metres below the top of Racecourse Hill. The final Quarry floor will be approximately 20 metres below the top surface of the hill, when the two benches have been extracted.



Image Source: Google Earth (2012)
Data Source: Oberon Quarries Pty Limited (2014)

Legend

- Project Area
- Crown Road Reserve
- Approved Extraction Area
- Right of Carriageway (12m wide)
- Proposed Duplication of Internal Haul Road

FIGURE 4.1

Approved Extraction Area

5.0 Actions Required from Previous Annual Review

This is the second Annual Review for Oberon Quarry as required under the current Development Consent (SSD_6333). The DP&E did not provide any feedback in regards to the Oberon Quarry 2015 Annual Review which was submitted to DP&E in accordance with Condition 9 of Schedule 5 of the Development Consent.

6.0 Environmental Performance

The following sections provide a summary of environmental monitoring and management undertaken during the report period. In accordance with the *Annual Review Guideline* (NSW Government, 2015) this AR contains a summary of environmental monitoring data where it is required to explain trends or environmental performance during the report period.

In accordance with the Development Consent, Oberon Quarries Pty Ltd has prepared a number of management plans in consultation with relevant stakeholders. The management plans have been prepared for a number of environmental management aspects. The management plans prepared for Oberon Quarry were approved by the DP&E in 2016 and are detailed below:

- Environmental Management Strategy (Umwelt, 2016a)
- Noise Management Plan (Umwelt, 2016b)
- Blast Management Plan (Umwelt, 2016c)
- Air Quality Management Plan (Umwelt, 2016d)
- Water Management Plan (Umwelt, 2016e)
- Transport Management Plan (Umwelt, 2016f) and
- Landscape and Rehabilitation Management Plan (Umwelt, 2016g).

Please refer to **Figure 6.1** for the location of monitoring points for Oberon Quarry.

Environmental monitoring data and a copy of the management plans have been published on the Oberon Quarries Pty Ltd website (www.oberonquarries.com.au/) in accordance with Condition 12 of Schedule 5 of the Development Consent.

A summary of the environmental performance of Oberon Quarry is included in **Table 6.1** below with further contextual information included within the following **Sections 6.1 – 6.3**.



Image Source: Google Maps (2015)
Data Source: Oberon Quarries Pty Ltd (2014)

0 250 500 750m
1:15 000

Legend

- ▨ Project Area
- ▭ Processing Plant
- Right of Carriageway (12m Wide)
- Private Residence
- Residence Owned by Oberon Quarries/Associated with Oberon Quarry

- Groundwater Monitoring
- Surface Water Monitoring
- Depositional Dust Gauge
- Blast Monitor
- Noise Monitoring

File Name (A4): R60/1296_217.dgn
20170329 12.57

FIGURE 6.1

Environmental Monitoring Locations

Table 6.1 Summary of Environmental Performance during the Report Period

Aspect	Approval Criteria / EIS Prediction	Performance during the reporting period	Trend / key management implications	Implemented / proposed management actions
Noise (Refer to Section 6.1)	Schedule 3, Conditions 1 - 5 of the Development Consent and L3 of EPL 4442.	Administrative non-compliance.	Non-compliance related to Summer monitoring round not undertaken.	Oberon Quarries Pty Ltd has since obtained approval from the Secretary on 2 February 2017 to discontinue noise monitoring. As per the Secretary's requirements, noise monitoring will be undertaken if a noise complaint relating to quarry operations is unable to be resolved by Oberon Quarries Pty Ltd or a landowner requests the DP&E to reinstate more frequent monitoring to assess compliance with relevant criteria. The Noise Management Plan has been amended to reflect monitoring changes and was approved by the Secretary in March 2017. A copy of the amended management plan has been placed on Oberon Quarries Pty Ltd website (http://oberonquarries.com.au/management-plans-and-programs/).

Aspect	Approval Criteria / EIS Prediction	Performance during the reporting period	Trend / key management implications	Implemented / proposed management actions
Air Quality (Refer to Section 6.2)	Schedule 3, Condition 10 – 12 of the Development Consent and M2.1 of EPL 4442.	Administrative non-compliance.	Dust monitoring results across the four monitoring locations remained generally consistent with previous results. The dust monitoring result for D1 (EPL Point 1) could not be obtained for the month of June 2016 as the bottle was found broken upon sampling. The non-compliance was captured during the submission of the 2016-2017 Annual Return to the EPA.	The broken bottle was replaced upon detection. There were no other instances during the report period where the sample bottle was broken. Site personnel will notify the Quarry Manager if any dust gauges are found broken. The broken bottle will be replaced as soon as possible upon detection. Continue to undertake monthly dust deposition monitoring in accordance with regulatory requirements.
Blast (Refer to Section 6.3)	Schedule 3, Conditions 6 - 9 of the Development Consent and L4 of EPL 4442.	Compliant.	Blast monitoring results recorded at the nearest resident remained within compliance limits or below detection.	Blast monitoring will continue during 2017.
Meteorological (Refer to Section 6.4)	Schedule 3, Condition 13 of the Development Consent.	Compliant.	Meteorological data obtained from a company operating in close proximity to the site.	Oberon Quarries Pty Ltd will install a weather station within the vicinity of the site during 2017.
Ecology (Refer to Section 6.5)	Schedule 3, Conditions 22 – 25 of the Development Consent.	Administrative non-compliance.	The Rehabilitation Bond was not lodged within 6 months of the approval of the L&RMP.	The Rehabilitation Bond will be lodged with the DP&E in 2017.

Aspect	Approval Criteria / EIS Prediction	Performance during the reporting period	Trend / key management implications	Implemented / proposed management actions
Waste (Refer to Section 6.5)	Schedule 3, Condition 28 of the Development Consent and L2 of EPL 4442.	Compliant.	Waste was managed in accordance with regulatory requirements.	Continue to manage waste in accordance with regulatory requirements.
Surface Water (refer to Section 7.1)	Schedule 3, Condition 16 of the Development Consent and P1.3 and M2.3 of EPL 4442.	Administrative non-compliance.	Surface water monitoring results across the two monitoring locations remained generally consistent with previous results. The Water Management Plan was not submitted within the timeframe required by DP&E.	Routine surface water sampling will continue during 2017. Oberon Quarries Pty Ltd will seek to modify EPL 4442 during the 2017 report period to change monthly monitoring at W1 and W2 to 'monthly during discharge'.
Rehabilitation (refer to Section 8)	Schedule 3, Conditions 22 – 25 of the Development Consent.	Compliant.	As there is limited area available for rehabilitation due to the configuration of the quarry, it is estimated that it will be approximately 10 years before any significant rehabilitation will be undertaken at the quarry. Therefore, as planned, Oberon Quarry did not undertake any maintenance of rehabilitated lands during the report period.	Rehabilitation to be undertaken where land is available for rehabilitation.

6.1 Operational Noise

In accordance with Condition 5 of Schedule 3 of the Development Consent, Oberon Quarries Pty Ltd have prepared and implemented a NMP (Umwelt, 2016b) for its operations. The NMP was approved by DP&E during 2016. The Development Consent and EPL 4442 define noise impact assessment criteria for residences on privately owned land (refer to **Section 6.1.1** and **Section 6.1.2**).

During the report period, noise monitoring was undertaken at four private residences located within 1 kilometre and 1.3 kilometres of the processing area (refer to **Figure 6.1**). A description of the monitoring locations is provided in **Table 6.3**. Attended noise monitoring was undertaken during March (Autumn round), August (Winter round – delayed due to the presence of prolonged adverse weather conditions e.g. high winds) and October (Spring round) in 2016. As noted previously, attended monitoring was not undertaken for the Summer monitoring round.

In accordance with Schedule 3, Condition 3 of the Development Consent, Oberon Quarries Pty Ltd has established an agreement with relevant landowners to exceed the noise criteria in the Development Consent. Oberon Quarries Pty Ltd notified the Secretary of these agreements on 25 January 2017. Oberon Quarries Pty Ltd has since obtained approval from the Secretary on 2 February 2017 to discontinue noise monitoring. As per the Secretary's requirements, noise monitoring will be undertaken if a noise complaint relating to quarry operations is unable to be resolved by Oberon Quarries Pty Ltd or a landowner requests the DP&E to reinstate more frequent monitoring to assess compliance with relevant criteria. The Noise Management Plan has been amended to reflect monitoring changes and was approved by the Secretary in March 2017. A copy of the amended management plan has been placed on Oberon Quarries Pty Ltd website (www.oberonquarries.com.au/management-plans-and-programs/).

Results from the compliance monitoring are discussed in **Section 6.1.3**. Noise monitoring reports can be found on Oberon Quarries Pty Ltd website (www.oberonquarries.com.au/environmental-monitoring-results/).

6.1.1 Development Consent Noise Impact Assessment Criteria

Table 6.2 Noise Criteria dB(A)

Receiver	Day / Evening	Night	
	L _{Aeq} (15 min)	L _{Aeq} (15 min)	L _{A1} (max)
All privately-owned residences	35	35	45

6.1.2 EPL 4442 Noise Limits

Noise from the premises must not exceed:

- 36 dB(A) L_{Aeq}(15 minute) during the day (7am to 6pm) Monday to Friday and 7.00am to 5.00pm Saturday ; and
- 35 dB(A) L_{Aeq}(15 minute) during the evening (6pm to 10pm) Monday to Friday; and
- at all other times 35 dB(A) L_{Aeq} (15 minute) , except as expressly provided by this licence.

Where L_{Aeq} means the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

Table 6.3 Noise Monitoring Locations at Oberon Quarry

Monitoring Location	Description
NM1	Private residence – 174 Shooters Hill Road, Oberon
NM2	Private residence – 167 Harveys Road, Oberon
NM3	Private residence – 167 Harveys Road (Tourist Cabin), Oberon
NM4	Near access gate to 167 Harveys Road, Oberon

6.1.3 Noise Monitoring Data

The results of the attended noise monitoring program undertaken in March - Autumn round (Umwelt, 2016h), August – Winter round (Umwelt, 2016i) and October – Spring round (Umwelt, 2016j) were compliant with the Development Consent and EPL conditions. Noise monitoring reports can be found on Oberon Quarries Pty Ltd website (www.oberonquarries.com.au/environmental-monitoring-results/).

During the day time monitoring period for the August - Winter and October - Spring monitoring round, westerly wind conditions enhanced propagation of noise from the quarry to monitoring location NM1. Noise levels at the time of monitoring due to quarry operations were estimated to be 40 dB(A) at NM1. The elevated results due to westerly winds up to 3 m/s are consistent with the findings of the Noise Impact Assessment in the 2015 EIS (Umwelt, 2015). Oberon Quarries Pty Ltd has a private agreement with the resident associated with NM1 in relation to noise generated by the quarry.

6.2 Air Quality

In accordance with Condition 12 of Schedule 3 of the Development Consent, Oberon Quarries Pty Ltd have prepared and implemented an AQMP (Umwelt, 2016d) for its operations. The AQMP was approved by the DP&E during 2016. The Development Consent defines air quality impact assessment criteria which are used to assess the potential impacts of operations at nearby residential receivers (refer to **Section 6.2.1**). Oberon Quarry has operated since 1995 without any significant complaints in regard to TSP or PM10. It is proposed that TSP and PM10 concentrations set out in **Table 6.4** will be assumed to be complied with and not be monitored unless complaints in regard to TSP or PM10 concentrations are received.

In accordance with the approved Oberon Quarry AQMP (Umwelt, 2016d) deposited dust monitoring is required to be undertaken monthly. Four dust deposition gauges were established in the vicinity of Oberon Quarry in 1996, as illustrated on **Figure 6.1**. Monitoring of dust deposition rates has been conducted by Oberon Quarries Pty Ltd since March 1996. Deposited dust monitoring was undertaken monthly in 2016. Recorded dust deposition levels for 2016 are provided in **Table 6.5** and displayed graphically in **Figure 6.2**.

The dust monitoring result for D1 (EPL Point 1) could not be obtained for the month of June 2016 as the bottle was found broken upon sampling. The non-compliance was captured during the submission of the 2016-2017 Annual Return to the EPA.

Results from the compliance monitoring are discussed in **Section 6.2.2**. Dust monitoring results can be found on Oberon Quarries Pty Ltd website (<http://oberonquarries.com.au/environmental-monitoring-results/>).

6.2.1 Development Consent Air Quality Impact Assessment Criteria

Table 6.4 Air Quality Criteria

Pollutant	Averaging Period	Criterion	
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a,d} 30 µg/m ³	
Particulate matter < 10 µm (PM ₁₀)	24 hour	^b 50 µg/m ³	
Total suspended particles (TSP)	Annual	^{a,d} 90 µg/m ³	
^c Deposited dust	Annual	^b 2 g/m ² /month	^{a,d} 4 g/m ² /month

Notes to Table 4:

a Cumulative impact (i.e. increase in concentrations due to the development plus background concentrations due to all other sources).

b Incremental impact (i.e. increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development).

c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

e "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 11 and 12 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

6.2.2 Air Quality Monitoring Data

The annual average for dust deposition was below the specified limit of 4 g/m²/month for rural residential areas during 2016 for all dust gauges. There were no significant changes to operations during 2016. Samples received indicate that operations are complying with an increase of less than 2 g/m²/month annual average and total dust deposition of less than 4 g/m²/month, refer to **Figure 6.2** and **Table 6.5**.

Oberon Quarries Pty Ltd will continue dust deposition monitoring. Dust control measures also continue to be implemented which include dust suppression sprays on the receive hopper, jaw crusher, cone crusher, conveyors and screens. A water cart is also available on site for haul roads and other unsealed areas.

Table 6.5 Total Particulates – Deposited Matter at Oberon Quarry

Sample Date	D1	D2	D3	D4
	g/m ² /month	g/m ² /month	g/m ² /month	g/m ² /month
30/01/2015	3.74	3.95	2.12	3.25
27/02/2015	3.60	0.97	1.04	1.56
30/03/2015	3.85	1.94	1.84	3.12
30/04/2015	3.45	2.71	3.86	3.67
28/05/2015	19.8*	2.42	1.91	3.63

Sample Date	D1	D2	D3	D4
	g/m ² /month	g/m ² /month	g/m ² /month	g/m ² /month
30/06/2015	3.70	2.15	1.91	3.57
22/07/2015	3.72	1.62	0.90	3.06
31/08/2015	2.21	3.66	0.74	3.76
30/09/2015	26.3*	0.85	1.11	2.02
29/10/2015	2.14	1.82	1.92	1.83
27/11/2015	3.54	1.15	0.60	2.11
18/12/2015	2.57	4.71	3.75	4.64
2015 Average	3.25*	2.33	1.81	3.02
14/01/2016	0.31	3.86	0.45	1.33
18/02/2016	0.93	1.38	0.91	1.14
15/03/2016	1.01	1.02	0.13	2.33
29/04/2016	1.79	1.8	0.83	1.92
31/05/2016	2.3	0.52	0.94	1.75
30/06/2016	Broken bottle	1.83	0.61	1.17
28/07/2016	2.22	0.33	0.41	2.33
30/08/2016	0.12	0.47	0.41	0.86
22/09/2016	1.38	1.31	0.96	0.77
26/10/2016	1.78	0.42	0.88	0.47
17/11/2016	2.13	1.65	0.75	0.95
20/12/2016	1.8	0.60	0.91	0.47
2016 Average	1.43	1.27	0.68	1.29

**Note: the elevated reading in May and September 2015 is believed to be attributed to activities not undertaken by Oberon Quarries Pty Ltd adjacent to the dust gauge and therefore this reading has been excluded from the calculation of the 2015 average.*

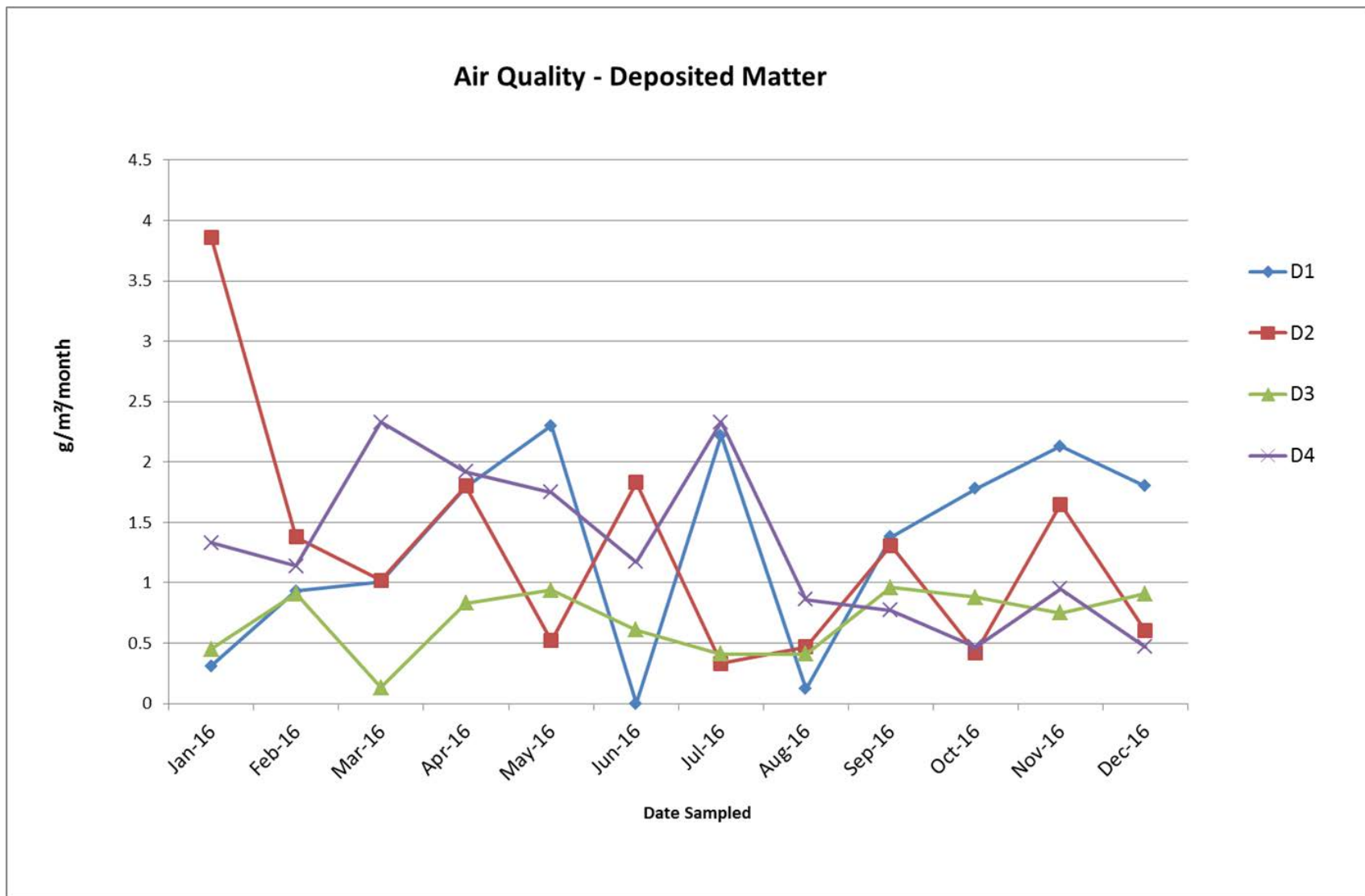


Figure 6.2 Deposition dust 2015 –2016

6.3 Blast

In accordance with Condition 9 of Schedule 3 of the Development Consent, Oberon Quarries Pty Ltd have prepared and implemented a BMP (Umwelt, 2016c) for its operations. The BMP was approved by the DP&E during 2016. The Development Consent and EPL 4442 define blast impact assessment criteria for residences on privately owned land (refer to **Section 6.3.1** and **Section 6.3.2**).

In accordance with the approved Oberon Quarry BMP (Umwelt, 2016c) airblast overpressure and ground vibration monitoring is required to be undertaken for every blast. Blast monitoring is conducted at the nearest residence to the quarry, which is a house located due north of the quarry on Lot 401 DP 1004011 (refer to **Figure 6.1**).

Results from the compliance monitoring are discussed in **Section 6.3.3**. Blast monitoring results can be found on Oberon Quarries Pty Ltd website (<http://oberonquarries.com.au/environmental-monitoring-results/>).

6.3.1 Development Consent Blasting Impact Assessment Criteria

Table 6.6 Blasting Criteria

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Any residence on privately-owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months

6.3.2 EPL 4442 Blasting Limits

EPL 4442 requires monitoring of all blasts conducted at Oberon Quarry from December 2002. Blast monitoring is required to verify that the limits for air blast overpressure levels and ground vibration peak particle velocity are not exceeded at any point within 1 metre of any affected residential boundary or other noise sensitive area.

The air blast overpressure level from blasting operations must not exceed:

- 115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period.
- 120 dB (Lin Peak) at any time.

The ground vibration peak particle velocity from blasting operations must not exceed:

- 5 mm/s for more than 5% of the total number of blasts carried out on the premises during each reporting period.
- 10 mm/s at any time.

6.3.3 Blasting Monitoring Data

Blasts recorded during the report period were below the air blast limit of 115 dB (Linear Peak) and ground vibration of 5 mm/s. No blast results recorded during the report period were in excess of the air blast overpressure level or the ground vibration peak particle velocity limits applicable for the quarry. Oberon Quarries Pty Ltd will continue blast monitoring.

Table 6.7 Blast Monitoring Results for Oberon Quarry

Date	Monitoring Point	Air Blast Overpressure (dB (Linear Peak))	Ground Vibration (mm/s)
6/01/2015	Nearest residence	100*	0.51*
16/02/2015	Nearest residence	100*	0.51*
30/04/2015	Nearest residence	100*	0.51*
1/06/2015	Nearest residence	100*	0.51*
31/07/2015	Nearest residence	100*	0.51*

Date	Monitoring Point	Air Blast Overpressure (dB (Linear Peak))	Ground Vibration (mm/s)
7/09/2015	Nearest residence	109.5	0.69
1/10/2015	Nearest residence	108.4	0.933
7/12/2015	Nearest residence	106.0	0.635
20/01/2016	Nearest residence	100*	0.51*
14/03/2016	Nearest residence	112.6	0.12
20/04/2016	Nearest residence	100*	0.51*
25/05/2016	Nearest residence	110.4	0.12
23/08/2016	Nearest residence	100*	0.51*
5/10/2016	Nearest residence	100*	0.51*
7/11/2016	Nearest residence	100*	0.51*
19/12/2016	Nearest residence	100*	0.51*

* denotes monitoring results are below detection limit.

6.4 Meteorological Monitoring

In accordance with Condition 13 of Schedule 3 of the Development Consent, meteorological data was obtained from a company operating in close proximity to the site. Oberon Quarries Pty Ltd will install a weather station within the vicinity of the site during 2017.

6.5 Ecology

Long term ecological monitoring was not undertaken during 2016. Ecological and rehabilitation monitoring will be undertaken in accordance with the approved L&RMP.

6.6 Heritage (Aboriginal and non-Aboriginal)

No actions or impacts in relation to Aboriginal and non-Aboriginal heritage occurred during the report period.

6.7 Waste Management

Waste management principles implemented at Oberon Quarry include:

- waste avoidance and reduction at the source
- waste re-use
- waste recycling and
- waste removal and disposal (all waste that cannot be re-used or recycled).

The underpinning strategies for management of waste are focused on minimisation through cleaner production and the aforementioned principles as well as the appropriate segregation, storage and disposal of waste generated.

Waste currently generated at the site, and methods of management, consist of the following:

- office waste – negligible amounts consistent with that generated by 2 to 3 equivalent people. Waste is removed from site and disposed of in a licensed landfill facility (estimated to be less than 10 tonnes/year)
- small amounts of oil waste – collected and taken off site to a recycling facility (estimated to be less than 1000 L/year)
- approximately 0.5 tonnes/year of batteries disposed of to a recycling facility
- approximately 10 tonne/year of scrap metal is sold to a recycling facility and
- approximately 20 tonnes of chrome iron per year used as part of the crushing process is returned to manufacturers for recycling.

Oberon Quarries Pty Ltd also has a Council approved pump out sewage system which is regularly pumped out by a licensed contractor who disposes of the sewage according to Council requirements.

7.0 Water Management

7.1 Surface Water

In accordance with Condition 16 of Schedule 3 of the Development Consent, Oberon Quarries Pty Ltd has prepared and implemented a WMP (Umwelt, 2016e) for its operations. The WMP was approved by the DP&E during 2016.

In accordance with the approved Oberon Quarry WMP (Umwelt, 2016e) and EPL 4442 surface water monitoring is required to be undertaken monthly. During the report period, surface water monitoring was undertaken monthly at two sites upstream (W1) and downstream (W2) of Racecourse Creek (refer to **Figure 6.1**). The samples collected were analysed for pH, conductivity, turbidity, non-filterable residue (NFR), total nitrogen (TKN), total phosphorus (TP) and total petroleum hydrocarbons (TPH). A summary of monitoring results since monitoring began in 1996 is presented in **Table 7.1**. It has been assumed that TPH is a suitable measurement for Oil and Grease.

Water quality monitoring results can be found on Oberon Quarries Pty Ltd website (<http://oberonquarries.com.au/environmental-monitoring-results/>).

7.1.1 Surface Water Monitoring Data

Water quality in Racecourse Creek remained within the normal range of values since monitoring began in 1996. Water quality at W2, downstream from the quarry, shows no deterioration compared with water quality at W1, upstream of the quarry. These results indicate that the quarry operations are not having a measurable impact on the quality of water in Racecourse Creek. No waters were discharged from the site in 2016.

Table 7.1 Summary of Water Quality Monitoring in Racecourse Creek 1996 - 2016

Analyte		1996 – 2009		2010		2011		2012		2013		2014		2015		2016	
		W1	W2	W1	W2	W1	W2	W1	W2	W1	W2	W1	W2	W1	W2	W1	W2
pH	Min	5.2	6.2	6.5	6.5	6.7	6.8	6.6	6.6	6.1	6.2	6.8	6.9	6.8	6.4	6.7	6.6
	Max	8.4	8.3	7.7	7.6	8.2	8.2	8.2	8.2	7.3	7.3	7.2	7.2	7.3	7.3	7.3	7.3
Conductivity (µS/cm)	Min	54	60	75	70	70	70	73	71	13	80	90	90	70	70	70	70
	Max	280	280	230	240	100	100	120	120	125	130	180	180	150	150	145	120
Turbidity (NTU)	Min	2	1.1	3.9	4	3.4	3.2	3.4	3.2	5	5.1	2.2	4.4	6.9	6.4	6.7	5.9
	Max	45	50	15 (310)	24 (170)	60 (450)	60 (450)	30 (110)	26 (120)	110	55	55	60	220	270	26	33
NFR (mg/L)	Min	<2	<2	<2	<2	<2	<2	<2	<2	3	4	2	2	2	2	5	3
	Max	44	25	14 (470)	25 (230)	25 (230)	28 (270)	34 (93)	31 (96)	420	40	35	29	260	320	26	66
TKN (mg/L)	Min	<0.4	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.1
	Max	2.7	2.1	0.8 (4.5)	1.5	1.5	1.7	1.3	1.3	2.8	<0.1	1.3	1	3.8	4.3	0.9	1.0
Total P (mg/L)	Min	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Max	0.3	0.4	0.7	0.6	0.6	0.5	0.2	0.2	0.5	0.3	0.4	0.2	0.8	0.7	0.1	0.2
TPH (mg/L)	Min	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Max	<0.1	1	<0.5 (2.8)	<0.5 (1.5)	<0.5 (4.8)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Note: Turbidity and NFR results for January and March 2010, March and May 2011, as well as September and November 2013 were well outside the normal range of results. It was confirmed with the monitoring contractor that the increase in Turbidity and NFR were due to storms, the creek being stirred by livestock, or other non-quarry related occurrences. Recorded TPH was confirmed with monitoring contractor to not be caused by quarrying operations.

7.1.2 Water Take

The quarry is located within the Fish River Water Source and is within the catchment of Lake Oberon. Oberon Quarries Pty Ltd currently holds a Part 2 surface water licence under the *Water Act 1912* (80SL051088, WAL 34279) for the extraction of water from Racecourse Creek. Water, if required, is pumped from Racecourse Creek at a flow rate of approximately 2 L/s. No water was extracted from Racecourse Creek during 2016.

Due to volume of runoff from the quarry area being in excess of quarry usage and the low pumping rate when water is required, ongoing quarry operations are not likely to significantly impact on flows in Racecourse Creek.

7.2 Groundwater

In accordance with Condition 16 of Schedule 3 of the Development Consent, Oberon Quarries Pty Ltd has prepared and implemented a WMP (Umwelt, 2016e) for its operations. The WMP was approved by DP&E during 2016.

In accordance with the approved Oberon Quarry WMP (Umwelt, 2016e) groundwater water monitoring is required to be undertaken monthly. During the report period, groundwater monitoring was undertaken monthly at a spring-fed dam (Gw1) at 'Langley Heights', downslope of the quarry on Racecourse Hill (refer to **Figure 6.1**). The samples collected were analysed for pH and conductivity. A summary of monitoring results since monitoring began in 1996 is presented in **Table 7.2**.

Water quality monitoring results can be found on Oberon Quarries Pty Ltd website (www.oberonquarries.com.au/environmental-monitoring-results/).

7.2.1 Groundwater Monitoring Data

Monitoring results show that the range of values for pH and conductivity has been consistent over the period 1996 to 2016, indicating that operation of the quarry is not adversely impacting on groundwater quality at the monitoring point. Groundwater quantity has been monitored via observations of the presence of water in the quarry and the water level in the dam (i.e. the quantity of groundwater has not been directly monitored).

Table 7.2 Summary of Oberon Quarry Groundwater Monitoring 1996 - 2016

Year	pH Range	Conductivity Range (µS/cm)
1996	6.8 – 7.5	130 – 270
1997	6.8 – 7.2	180 – 290
1998	6.8 – 9.1	72 – 280
1999	6.6 – 8.9	210 – 450
2000	6.9 – 8.0	110 – 270
2001	6.7 – 8.1	140 – 260
2003	6.4 – 7.2	140 – 300

Year	pH Range	Conductivity Range (µS/cm)
2004	6.8 – 8.9	150 – 200
2005	6.7 – 7.2	130 – 205
2006	6.9 – 7.5	140 – 300
2007	6.1 – 7.1	105 – 250
2008	6.8 – 7.3	225 – 270
2009	6.3 – 7.4	100 – 270
2010	6.4 – 7.3	88 – 270
2011	6.8 – 8.2	80 – 270
2012	6.6 – 8.2	90 – 310
2013	6.1 – 9.0	95 – 345
2014	6.8 – 8.7	170 – 315
2015	6.9 – 8.2	155 – 310
2016	6.7 – 8.7	125 – 320

8.0 Rehabilitation

In accordance with Condition 24 of Schedule 3 of the Development Consent, Oberon Quarries Pty Ltd has prepared and implemented an L&RMP (Umwelt, 2016g) for its operations. The L&RMP was approved by the DP&E during 2016.

Whilst every opportunity will be taken to rehabilitate areas not required for future operational use, rehabilitation opportunities were limited during the report period. As the works undertaken during the report period focussed on continued quarrying activities, no active rehabilitation was undertaken.

Ongoing opportunities for rehabilitation are likely to be limited to the rehabilitation of interburden /overburden stockpiles following their emplacement. Where appropriate, temporary land shaping, seeding and other revegetation works may be undertaken in disturbed areas to minimise the potential for offsite impacts associated with the migration of windblown dust, particularly in regard to stockpiles and stripped soil surfaces not required for operational use. Topsoil stockpiles are seeded to minimise the potential for loss of soil through wind or rainfall erosion.

The status of rehabilitation at Oberon Quarries Pty Ltd during the report period is detailed in **Table 8.1**. As there is limited area available for rehabilitation due to the configuration of the quarry, it is estimated that it will be approximately 10 years before any significant rehabilitation will be undertaken at the quarry. Therefore, as planned, Oberon Quarry did not undertake any maintenance of rehabilitated lands during the report period, refer to **Table 8.2**.

In accordance with Condition 25 of Schedule 3 of the Development Consent, within 6 months of the approval of the L&RMP, the Applicant shall lodge a Rehabilitation Bond with the Department. The DP&E was notified that the Rehabilitation Bond is overdue and will be submitted to the DP&E in 2017.

Table 8.1 Summary of Rehabilitation Status at Oberon Quarry

Mine Area Type	2015 reporting period (actual)	2016 reporting period (actual)	2017 reporting period (forecast)
Total mine Footprint	Approximately 21 ha	Approximately 21 ha	Approximately 21 ha
Total active disturbance	Approximately 20 ha	Approximately 20 ha	Approximately 20 ha
Land being prepared for rehabilitation	N/A	N/A	N/A
Land under active rehabilitation	N/A	N/A	N/A
Completed Rehabilitation	N/A	N/A	N/A

Table 8.2 Maintenance Activities on Rehabilitated Land at Oberon Quarry

Nature of Treatment	Area (hectares) 2017 Period	Comment/Control Strategies/Treatment Detail
Additional erosion control works (drains re-contouring, rock protection)	0	Oberon Quarries Pty Ltd will implement erosion control works on an as needed basis.
Re-covering (further topsoil, subsoil sealing etc.)	0	N/A
Soil treatment (fertiliser, lime, gypsum etc.)	0	N/A
Treatment/management (grazing, cropping, slashing etc.)	0	N/A
Re-seeding/replanting (species density, season etc.)	0	N/A
Adversely affected by weeds (type and treatment)	0	Oberon Quarries Pty Ltd will implement weed control works on an as needed basis.
Feral animal control (additional fencing, trapping, baiting etc.)	0	Oberon Quarries Pty Ltd will implement feral animal control works on an as needed basis.

8.1 Final Landform

The Environmental Impact Statement (EIS) for the Oberon Quarry (Umwelt, 2015) states the rehabilitation for the final landform will be undertaken once the first and second benches have been completed within the sections of the quarry pit and also as space in the pit floor allows. The final landform will be created by placing the interburden material from the extraction area against the wall of the quarry and on the quarry floor and then by pushing the overburden bund located around the edge of the extraction area on to the quarry floor. Benches will also be covered with overburden material. The rehabilitated quarry floor will be then seeded with improved pasture. Benches will be planted with native trees, and additional woodlots of native trees will be established to provide shelter for stock and habitat for native fauna. The final landform will be refined and discussed annually within the AR.

9.0 Community

In accordance with Condition 1 of Schedule 5 of the Development Consent, Oberon Quarries Pty Ltd has prepared and implemented an EMS (Umwelt, 2016a) for its operations which details complaints handling and dispute resolution. The EMS was approved by the DP&E during 2016 and details the complaints handling procedure.

Oberon Quarries Pty Ltd has been operating for the last 20 years with negligible environmental impact and no community complaints have been received by Oberon Quarries Pty Ltd since 2010. No complaints were received in 2016. Management plans, strategies, monitoring results and reports are published on Oberon Quarries Pty Ltd website (www.oberonquarries.com.au).

In accordance with Condition M5 of EPL 4442, a community complaints line is operated by Oberon Quarry during the hours of operation. The complaints line is (02) 6336 0259 which is also displayed on the Oberon Quarries Pty Ltd website. This contact point provides the community with a mechanism by which to raise any concerns that they have with operations at Oberon Quarry. The Oberon Quarry Manager is responsible for the implementation of the complaints management process and will ensure a timely initial response to any complaints received and then, as appropriate, will provide a more detailed response outlining any complaint investigation findings and corrective actions implemented.

Records of complaints will be kept for a minimum of four years in a register maintained by the Quarry Manager. The Complaints Management Policy and Procedure and complaints register is available on Oberon Quarries Pty Ltd website (www.oberonquarries.com.au).

10.0 Revision of Strategies, Plans and Programs

In accordance with the Development Consent conditions, the Oberon Quarry management plans were prepared in 2016 and approved by the DP&E by May 2016. The initial WMP (Umwelt, 2016e) was approved by DP&E in August 2016. The EMS (Umwelt, 2016a) was updated in December 2016 to include reference to Oberon Quarry Emergency Management Plan and was approved by the DP&E in December 2016.

As discussed in **Section 6.1**, the NMP (Umwelt, 2017) was updated in March 2017 to reflect the changes in monitoring requirements and was approved by the DP&E in March 2017.

In accordance with Condition 5 of Schedule 5 of Development Consent, the management plans will be reviewed and revised (if required) within 3 months of the submission of this Annual Review and the Independent Environmental Audit (refer to **Section 11**).

11.0 Independent Audit

Condition 10 of Schedule 5 of the Development Consent requires an Independent Environmental Audit to be undertaken within a year of the date of the consent and every three years thereafter, unless the Secretary directs otherwise. The DP&E was notified in December 2016 that the first Independent Environmental Audit was overdue and scheduled to be undertaken in January 2017. The IEA was undertaken in January 2017 with the results of the Audit to be discussed in the 2017 Annual Review. The Independent Environmental Audit of Oberon Quarry was undertaken by AQUAS consulting on 12 January 2017. The Audit results will be discussed in the 2017 Annual Review and report made available on Oberon Quarries Pty Ltd website (www.oberonquarries.com.au).

12.0 Incidents and Non-compliances during the Report Period

There were six non-compliances at Oberon Quarry during the reporting period and these are listed in **Table 1.3**. There were no environmental incidents at Oberon Quarry during the report period.

13.0 Activities to be completed in the Next Period

All activities within the 2017 report period will be undertaken in accordance with the Development Consent (SSD_6333).

Oberon Quarry Pty Ltd proposes to undertake the following activities during the next report period:

- Undertake quarrying operations as detailed in **Section 4**
- Continued liaison with the EPA regarding an EPL variation to replace the current upstream and downstream surface water monitoring with a 'monitoring during discharge point'
- Review and revise (if required) Oberon Quarry management plans following the submission of this Annual Review and the Independent Environmental Audit in accordance with Condition 5 of Schedule 5 of the Development Consent
- Installation of a meteorological station in accordance with Condition 13 of Schedule 3 of the Development Consent
- Address non-compliances identified in the Independent Environmental Audit and
- Lodge the Rehabilitation Bond in accordance with Condition 25 of Schedule 3 of the Development Consent.

14.0 References

Department of Planning and Environment (2014). Guidelines - Independent Environmental Audits of Mining Projects.

NSW Government (2015). Annual Review Guideline.

Umwelt (Australia) Pty Limited (2017). Oberon Quarry Noise Management Plan. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016a). Oberon Quarry Environmental Management Strategy. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016b). Oberon Quarry Noise Management Plan. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016c). Oberon Quarry Blast Management Plan. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016d). Oberon Quarry Air Quality Management Plan. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016e). Oberon Quarry Water Management Plan. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016f). Oberon Quarry Transport Management Plan. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016g). Oberon Quarry Landscape and Rehabilitation Management Plan. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016h). Autumn Noise Monitoring. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016i). Winter Noise Monitoring. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2016j). Spring Noise Monitoring. Prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited (2015). Environmental Impact Statement (EIS) – Proposed Extended Life of Operations. Prepared for Oberon Quarries Pty Limited.



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