Downer EDI Mining Pty Ltd
ABN 49 004 142 223

135 Coronation Drive
Milton QLD 4064

1800 DOWNER
www.downergroup.com

3 December 2020

Downer EDi Mining – Blasting Services Pty Ltd
Lot 2, 8 Melva Place
Mt Thorley NSW 22330
https://www.epa.nsw.gov.au/licensing-and-regulation/public-registers

Effluent Water Quality Monitoring – Downer Blasting Services (DBS), 9 Melva Place, Mount Thorley
November 2020

Effluent Water Quality Monitoring was carried out at Downer Blasting Facility, EPL Licence 12325. The sampling was conducted by independent consultancy Environmental Resources Management (ERM) on behalf of DBS.

Sampling was carried out in accordance with the Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales (DEC, 2004, Approved Methods), with reference to the following standards:

• AS/NZS 5667.1:1998(R2016) Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples; and
• AS/NZS 5667.4:1998(R2016) Guidance on sampling from lakes, natural and manmade.

Effluent is required to be sampled on a quarterly basis from the site Waste Water Treatment Plant (WWTP) as per the requirements of EPL Licence 12325.

The sample point utilised to undertake the sample was (please choose)

☐ *Effluent discharge outlet hose located at Monitoring at co-ordinates 322450 6389500 (Easting Northing)*

Or

☒ *If insufficient treated effluent is available to enable sampling from discharge outlet, sampling is take from the final effluent holding tank*

The sample was transported to the Eurofins laboratory, a NATA accredited laboratory, on the same day for pH and faecal coliforms analysis.

Results Summary

The analytical results from this event and previous monitoring events are displayed in **Table 1** below.

Table 1 Table 1 Effluent Water Quality Monitoring Results

Event	Purge Date	pH	Faecal coliforms (MPN or CFU/100mL)
Q2 2018	Jun-18	4.00	<2
Q3 2018	Sep-18	7.49	62.0
Q4 2018	Dec-18	7.58	~400*
Q1 2019	Mar-19	7.55	~91*
Q2 2019	Jun-19	7.96	130.0
Q3 2019	Sep-19	4.26	<9
Q4 2019	Dec-19	5.05	<17
Q1 2020	Feb-20	3.28	<9
Q2 2020*	Jun-20	7.90	>24000**
Q2 2020	July-20	6.4	840
Q3 2020	Sept-20	7.2	20
Q4 2020	Sept-20	4.6	44

* Q2 2020 sampling was undertaken twice following an anomalous result for faecal coliforms reported during the June sampling event.

Discussion

There are no limits set in EPL Licence 12325 for the WWTP Effluent sample for pH or faecal coliforms.

The next sample is due to be completed in 3months

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Appendix A - Certificate of Analysis

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Certificate of Analysis

ERM Hunter Valley
Level 1 / 45 Watt Street
Newcastle
NSW 2300

NATA Accredited
Accreditation Number 1261
Site Number 1254 & 14271

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Matthew Colthorpe**

Report **756166-W**
Project name DBS MT THORLEY SW
Project ID 555801
Received Date Nov 11, 2020

Client Sample ID			**EFF_01**
Sample Matrix			**Water**
Eurofins Sample No.			**M20-No17781**
Date Sampled			**Nov 09, 2020**
Test/Reference	LOR	Unit	
pH (at 25 °C)	0.1	pH Units	4.6
Pathogens			
Thermotolerant Coliforms	1	MPN/100mL	44

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Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
pH (at 25 °C)	Melbourne	Nov 11, 2020	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Thermotolerant Coliforms	WaterTestingVic	Nov 13, 2020	24 Hours
- Method: LTM-MIC-6623 Thermotolerant Coliforms by MPN			

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ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448

New Zealand

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name:	ERM Hunter Valley	**Order No.:**	
Address:	Level 1 / 45 Watt Street Newcastle NSW 2300	**Report #:** **Phone:** **Fax:**	756166 (02) 4964 2150 (02) 4964 2152
Project Name:	DBS MT THORLEY SW		
Project ID:	555801		

Received:	Nov 11, 2020 8:00 AM
Due:	Nov 18, 2020
Priority:	5 Day
Contact Name:	- ALL INVOICES

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						pH (at 25 °C)	Thermotolerant Coliforms
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
Mayfield Laboratory							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	EFF_01	Nov 09, 2020		Water	M20-No17781	X	X
Test Counts						1	1

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**NOTE: pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ug/L:** micrograms per litre
ppm: Parts per million	**ppb:** Parts per billion	**%:** Percentage
org/100mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100mL:** Most Probable Number of organisms per 100 millilitr

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was effected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

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Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
pH (at 25 °C)	S20-No14732	NCP	pH Units	8.0	8.0	pass	30%	Pass	

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Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Andrew Black	Analytical Services Manager
Nandhini Uthayakumaran	Senior Analyst-Microbiology (WTV)
Scott Beddoes	Senior Analyst-Inorganic (VIC)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.