Environment Report

Hope Valley Asphalt Plant

Licence Number: L8853/2014/2

1st January 2024 – 31th December 2025

Downer

Relationships creating success

Document Details

Submission information

Division:	Downer Group (Registered Business Name Downer EDI Works Pty Ltd)
Contact:	[redacted]
Address:	[redacted]
Phone:	[redacted]
Fax:	
Email:	[redacted]

Approval

[redacted]

Environmental Reports must be approved, this is indicated by signatures in the approval table above.

Company Details

Business Name:	Downer Group (Registered Business Name – Downer Edi Works Pty Ltd)
ABN:	66 008 709 608
Company Address:	5 Marion Rd, Maddington WA 6109
Company Phone Number:	08 9365 9999

Contents

Introduction

This Biennial Environmental Report has been prepared for submission to the Department of Water and Environmental Regulation (DWER) to fulfil Downer's (Registered Business Name Downer EDI Works Pty Ltd) reporting requirements in accordance with condition 16 of Operating Licence L8853/2014/2.

The information provided within this report includes:

- A brief background on the operation and an overview of the project and its processes.
- Point source air emissions monitoring results.
- Assessment of air emissions monitoring results against targets and previous monitoring results.
- Summary of any failure or malfunction of any pollution control equipment and any incidents that have occurred during the annual period and any action taken.
- Complaints summary during the annual period.
- Annual Audit Compliance Report (AACR) Form (Appendix 2)

Background

The asphalt plant is located at 8 Hoyle Rd, Kwinana, approximately 28km south of Perth. The plant is located within the Latitude 32 development area.

The main activity undertaken at the Hope Valley Asphalt Plant is the manufacture of hot mix and cold mix asphalt.

The design capacity of the plant is 320 tonnes per hour. The production of hot mix asphalt involves the drying/heating of aggregate in a drum by burning natural gas. The heated aggregate is then mixed in a pug mill with a combination of liquid bitumen and oxides to create asphalt usually at temperatures of around 170^{O}C. The production of cold mix asphalt involves mixing the dry aggregate with a combination of liquid bitumen and additives at temperatures of around 120^{O}C.

Report requirements

Point Source Air Emissions Monitoring

Within the biennial period, stack emissions monitoring was completed by Ektimo on August 2024 to test the asphalt plants compliance with licence conditions 2 and 4. Monitoring was conducted in accordance with condition 11 requirements, see appendix 1 for *Stack Air Emission Testing Report*.

Please note that a second stack test has not been completed yet due to maintenance requirements on the Hope Valley asphalt plant with testing due to be completed by February 2026.

Air Emissions Monitoring

As per condition 2 of the licence, testing is targeted point source emissions to air at or below the levels specific in Table 2 below. The stack emissions test results recorded the total particulate matter as 9.2 mg/m^3 which is below the 30 mg/m^3 licence limit. See appendix 1 for *Stack Air Emission Testing Report*.

Please note that a second stack test has not been completed yet due to maintenance requirements on the Hope Valley asphalt plant with testing due to be completed by February 2026.

Emission point Reference	Parameter	Operational Emissions (including units)	Averaging period	Results
A1 as shown in Schedule 1	PM	30 mg/m^3	Minimum 60 minute average (Stack Test)	9.2 mg/m^3

Table 1: Total Particulate Matter stack test results at emission point A1. Test date: 8th of August 2024.

Previous Air Emission Results

Date	Stack Velocity (m/s)	Particulate Concentration (mg/m^3)
August 2024	15	9.2
November 2022	14	3.5

November 2021	15	3.3
September 2020	13	<2
December 2019	13	<1
October 2018	15	<2
April 2017	12.99	3.1

Table 2: Historic Stack Testing Results at Hope Valley Asphalt Plant

Summary of pollution control failure or environmental incidents.

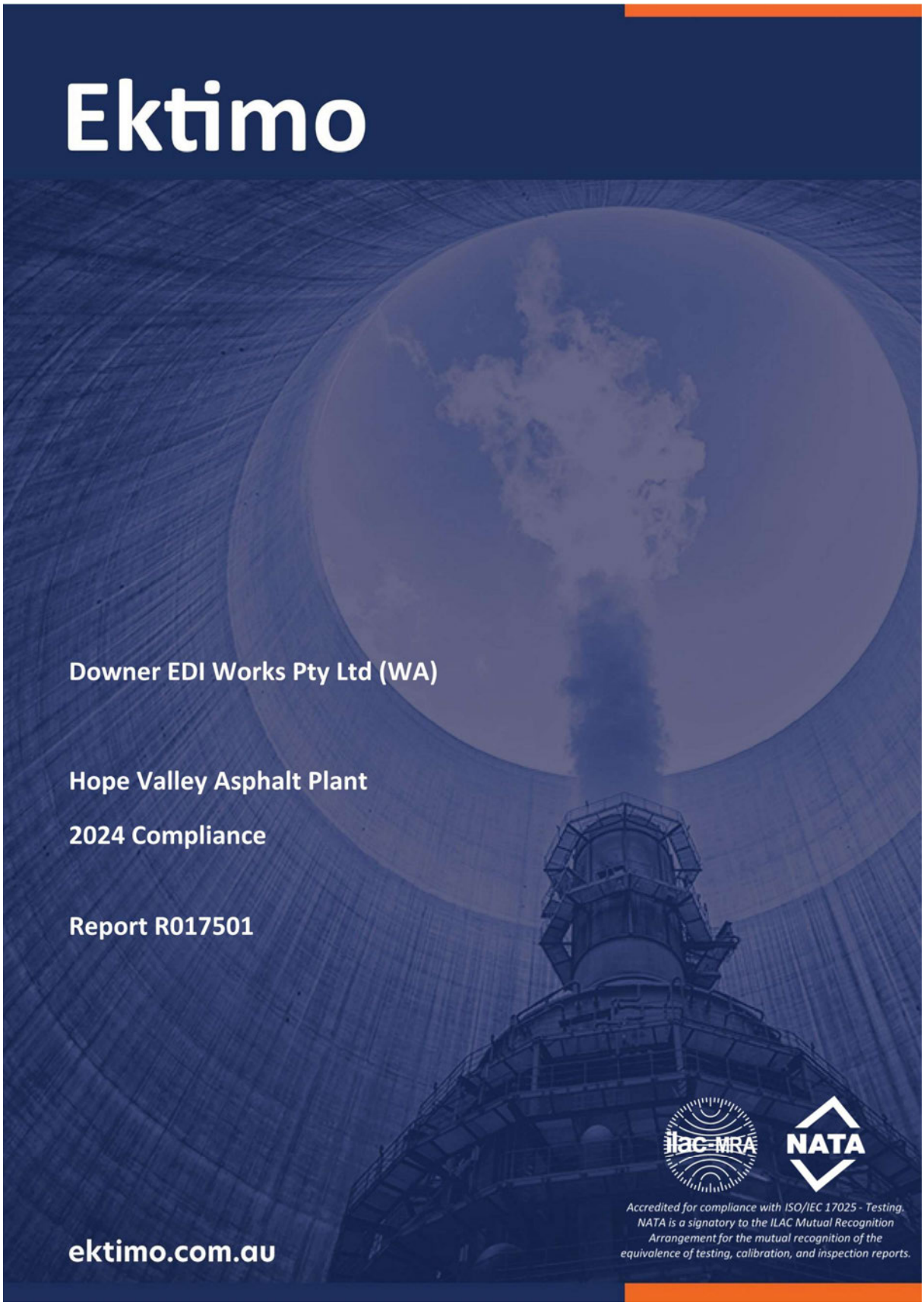
From the biennial period, there was no pollution control failures or notifiable environmental incidents that occurred on the Hope Valley Asphalt Plant.

Complaints Summary

In summary from the biennial period there has been no complaints received. Any complaints that are received are recorded in Downer's event management system INX.

Appendix 1

STACK AIR EMISSION TESTING REPORT


Ektimo
Downer EDI Works Pty Ltd (WA)
Hope Valley Asphalt Plant
2024 Compliance
Report R017501
ilac-MRA
NATA
Accredited for compliance with ISO/IEC 17025 - Testing.
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, calibration, and inspection reports.
ektimo.com.au

Document Information

Client Name:	Downer EDI Works Pty Ltd (WA)
Report Number:	R017501
Date of Issue:	23 August 2024
Attention:	
Address:	[redacted]
Testing Laboratory:	Ektimo Pty Ltd, ABN 86 600 381 413

Report Authorisation

[redacted]

NATA Accredited Laboratory
No. 14601

[redacted]

Please note that only numerical results pertaining to measurements conducted directly by Ektimo are covered by Ektimo terms of NATA accreditation as described in the Test Methods table. This does not include calculations that use data supplied by third-parties, comments, conclusions, or recommendations based upon the results. Refer to Test Methods section for full details of testing covered by NATA accreditation.

Table of Contents

1 Executive Summary

1.1 Background

Ektimo was engaged by Downer EDI Works Pty Ltd (WA) to perform emission testing at their Hope Valley plant. Testing was carried out in accordance with Environmental Licence L8853/2014/2.

1.2 Project Objective & Overview

The objective of the project was to quantify emissions from one discharge point to determine compliance with Downer EDI Works Pty Ltd (WA)'s Environmental Licence.

Monitoring was performed as follows:

Location	Test Date	Test Parameters*
A1 – Baghouse Stack	8 August 2024	Total particulate matter Total volatile organic compounds Oxides of nitrogen Carbon monoxide Carbon dioxide Oxygen

* Flow rate, velocity, temperature, and moisture were also determined.

All results are reported on a dry basis at STP.

Plant operating conditions have been noted in this report.

1.3 Licence Comparison

The following licence comparison table shows any analytes highlighted in orange are outside the licence target set by the WA Department of Water and Environmental Regulation (DWER) as per licence L8853/2014/2.

EPA No.	Location Description	Pollutant	Units	Licence Target	Detected Values
A1	Asphalt Plant Stack	Particulate matter	mg/m^3 at 17% O_2 STP dry	30	**9.2**
		Exit velocity of gases from stack	m/s	>9	**15**

Please note that the measurement uncertainty associated with the test results was not considered when determining whether the results were compliant or non-compliant.

2 Results

2.1 A1 – Baghouse Stack

Date	8/08/2024	**Client**	Downer
Report	R017501	**Stack ID**	A1 - Baghouse Stack
Licence No.	L8853/2014/2	**Location**	Hope Valley
Ektimo Staff	Paul Cimbaly / Tim Blankley	**State**	WA
Process Conditions	100 TPH, 10mm mix, No RAP		240729

Stack Parameters		
Moisture content, %v/v	12	
Gas molecular weight, g/g mole	27.9 (wet)	29.2 (dry)
Gas density at STP, kg/m³	1.24 (wet)	1.30 (dry)
Gas density at discharge conditions, kg/m³	0.94	
% Oxygen correction & Factor	17 %	0.74
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	0720	
Temperature, °C	91	
Velocity at sampling plane, m/s	15	
Volumetric flow rate, actual, m³/min	1200	
Volumetric flow rate (wet STP), m³/min	880	
Volumetric flow rate (dry STP), m³/min	770	
Mass flow rate (wet basis), kg/h	66000	

Gas Analyser Results	Average
Sampling time	0720 - 0820
	Concentration mg/m³ / Corrected to 17% O2 mg/m³ / Mass Rate g/s
Combustion Gases	
Nitrogen oxides (as NO_2)	39 / 29 / 0.5
Sulfur dioxide	29 / 21 / 0.37
Carbon monoxide	150 / 110 / 1.9
	Concentration %v/v
Carbon dioxide	3.1
Oxygen	15.6

Isokinetic Results	Average			Test 1			Test 2		
Sampling time				0720-0821			0720-0821		
	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s
Total particulate matter	12	9.2	0.16	15	11	0.19	10	7.4	0.13
Isokinetic Sampling Parameters									
Sampling time, min				60			60		
Isokinetic rate, %				100			105		
Gravimetric analysis date (total particulate)					09-08-2024			09-08-2024	

Total Speciated VOCs	Average			Test 1			Test 2		
	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s
Total	1.6	1.2	0.021	0.93	0.69	0.012	2.3	1.7	0.03

VOC's C5-C20	Average			Test 1			Test 2		
Sampling time				0720-0750			0750-0820		
	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s	Concentration mg/m³	Corrected to 17% O2 mg/m³	Mass Rate g/s
Detection limit[1]	<0.3	<0.2	<0.003	<0.3	<0.2	<0.003	<0.3	<0.2	<0.003
Pentane	0.62	0.46	0.008	0.51	0.38	0.0066	0.73	0.54	0.0094
Residuals as Toluene	0.99	0.74	0.013	0.42	0.31	0.0054	1.6	1.2	0.02

(1) Unless otherwise reported, the following target compounds were found to be below detection:
Ethanol, Acetone, Isopropanol, 1,1-Dichloroethene, Acrylonitrile, Dichloromethane, trans-1,2-Dichloroethene, Methyl ethyl ketone, n-Hexane, cis-1,2-Dichloroethene, Ethyl acetate, Chloroform, 1,1,1-Trichloroethane, 1,2-Dichloroethane, Cyclohexane, Benzene, Carbon tetrachloride, Butanol, Isopropyl acetate, 2-Methylhexane, 2,3-Dimethylpentane, 1-Methoxy-2-propanol, 3-Methylhexane, Heptane, Trichloroethylene, Ethyl acrylate, Methyl methacrylate, Propyl acetate, Methylcyclohexane, Methyl Isobutyl Ketone, Toluene, 1,1,2-Trichloroethane, 2-Hexanone, Octane, Tetrachloroethene, Butyl acetate, Chlorobenzene, Ethylbenzene, m +p-Xylene, 1-Methoxy-2-propyl acetate, Styrene, o-Xylene, Butyl acrylate, Nonane, 2-Butoxyethanol, Cellosolve acetate, 1,1,2,2-Tetrachloroethane, Isopropylbenzene, alpha-Pinene, Propylbenzene, 1,3,5-Trimethylbenzene, beta-Pinene, tert-Butylbenzene, 1,2,4-Trimethylbenzene, Decane, 3-Carene, 1,2,3-Trimethylbenzene, D-Limonene, Undecane, Dodecane, Tridecane, Tetradecane

3 Sample Plane Compliance

Sampling Plane Details	
Sampling plane dimensions	1300 mm
Sampling plane area	1.33 m²
Sampling port size, number & depth	4" Flange (x2), 50 mm
Duct orientation & shape	Vertical Circular
Downstream disturbance	Exit 4 D
Upstream disturbance	Bend 10 D
No. traverses & points sampled	2 12
Sample plane conformance to AS 4323.1	Ideal sampling plane

4 Plant Operating Conditions

The below plant operating conditions have been supplied by Downer EDI Works Pty Ltd (WA) personnel.

Location Description	Date	Product	Load Rate (t/h)
A1 – Baghouse Stack	8 August 2024	10mm No RAP	100

5 Test Methods

All sampling and analysis was performed by Ektimo unless otherwise specified. Specific details of the methods are available upon request.

Parameter	Sampling method	Analysis method	Uncertainty*	NATA accredited Sampling	NATA accredited Analysis
Sampling points - Selection	AS 4323.1	NA	NA	✓	NA
Flow rate, temperature & velocity	USEPA Method 2	USEPA Method 2	8%, 2%, 7%	NA	✓
Moisture	USEPA Method 4	USEPA Method 4	8%	✓	✓
Carbon dioxide & oxygen	USEPA Method 3A	USEPA Method 3A	13%	✓	✓
Carbon monoxide	USEPA Method 10	USEPA Method 10	12%	✓	✓
Nitrogen oxides	USEPA Method 7E	USEPA Method 7E	12%	✓	✓
Sulfur dioxide	USEPA Method 6C	USEPA Method 6C	12%	✓	✓
Speciated volatile organic compounds	USEPA Method 18[d]	Ektimo 344	19%	✓	✓[†]
Total particulate matter	USEPA Method 17	USEPA Method 17	7%	✓	✓[††]

160724

[*] Uncertainties cited in this table are estimated using typical values and are calculated at the 95% confidence level (coverage factor = 2).
[†] Analysis performed by Ektimo. Results were reported to Ektimo on 14 August 2024 in report LV-006188
[††] Gravimetric analysis conducted at the Ektimo WA laboratory.
[d] Excludes recovery study as specified in section 8.4.3 of USEPA Test Method 18.

6 Quality Assurance/Quality Control Information

Ektimo is accredited by the National Association of Testing Authorities (NATA) for the sampling and analysis of air pollutants from industrial sources. Unless otherwise stated test methods used are accredited with the National Association of Testing Authorities. For full details, search for Ektimo at NATA's website www.nata.com.au.

Ektimo is accredited by NATA to ISO/IEC 17025 - Testing. ISO/IEC 17025 - Testing requires that a laboratory have adequate equipment to perform the testing, as well as laboratory personnel with the competence to perform the testing. This quality assurance system is administered and maintained by the Quality Director.

NATA is a member of APAC (Asia Pacific Accreditation Co-operation) and of ILAC (International Laboratory Accreditation Co-operation). Through mutual recognition arrangements with these organisations, NATA accreditation is recognised worldwide.

Unless specifically noted, all samples were collected and handled in accordance with Ektimo's QA/QC standards.

7 Definitions

The following symbols and abbreviations may be used in this test report:

% v/v	Volume to volume ratio
~	Approximately
<	Less than
>	Greater than
≥	Greater than or equal to
APHA	American Public Health Association, Standard Methods for the Examination of Water and Waste Water
AS	Australian Standard
BaP-TEQ	Benzo(a)pyrene toxic equivalents
BSP	British standard pipe
CEM/CEMS	Continuous emission monitoring/Continuous emission monitoring system
CTM	Conditional test method
D	Duct diameter or equivalent duct diameter for rectangular ducts
D_{50}	'Cut size' of a cyclone is defined as the particle diameter at which the cyclone achieves a 50% collection efficiency i.e. half of the particles are retained by the cyclone and half pass through it. The D_{50} method simplifies the capture efficiency distribution by assuming that a given cyclone stage captures all of the particles with a diameter equal to or greater than the D_{50} of that cyclone and less than the D_{50} of the preceding cyclone.
DECC	Department of Environment & Climate Change (NSW)
Disturbance	A flow obstruction or instability in the direction of the flow which may impede accurate flow determination. This includes centrifugal fans, axial fans, partially closed or closed dampers, louvres, bends, connections, junctions, direction changes or changes in pipe diameter.
DWER	Department of Water and Environmental Regulation (WA)
DEHP	Department of Environment and Heritage Protection (QLD)
EPA	Environment Protection Authority
FTIR	Fourier transform infra-red
ISC	Intersociety Committee, Methods of Air Sampling and Analysis
ISO	International Organisation for Standardisation
ITE	Individual threshold estimate
I-TEQ	International toxic equivalents
Lower bound	When an analyte is not present above the detection limit, the result is assumed to be equal to zero.
Medium bound	When an analyte is not present above the detection limit, the result is assumed to be equal to half of the detection limit.
NA	Not applicable
NATA	National Association of Testing Authorities
NIOSH	National Institute of Occupational Safety and Health
NT	Not tested or results not required
OM	Other approved method
OU	Odour unit. One OU is that concentration of odorant(s) at standard conditions that elicits a physiological response from a panel equivalent to that elicited by one Reference Odour Mass (ROM), evaporated in one cubic metre of neutral gas at standard conditions.
PM_{10}	Particulate matter having an equivalent aerodynamic diameter less than or equal to 10 microns (µm).
$PM_{2.5}$	Particulate matter having an equivalent aerodynamic diameter less than or equal to 2.5 microns (µm).
PSA	Particle size analysis. PSA provides a distribution of geometric diameters, for a given sample, determined using laser diffraction.
RATA	Relative accuracy test audit
Semi-quantified VOCs	Unknown VOCs (those for which an analytical standard is not available), are identified by matching the mass spectrum of the chromatographic peak to the NIST Standard Reference Database (version 14.0), with a match quality exceeding 70%. An estimated concentration is determined by matching the area of the peak with the nearest suitable compound in the analytical calibration standard mixture.
STP	Standard temperature and pressure. Gas volumes and concentrations are expressed on a dry basis at 0 °C, at discharge oxygen concentration and an absolute pressure of 101.325 kPa.
TM	Test method
TOC	Total organic carbon. This is the sum of all compounds of carbon which contain at least one carbon-to-carbon bond, plus methane and its derivatives.
USEPA	United States Environmental Protection Agency
VDI	Verein Deutscher Ingenieure (Association of German Engineers)
Velocity difference	The percentage difference between the average of initial flows and after flows.
Vic EPA	Victorian Environment Protection Authority
VOC	Volatile organic compound. A carbon-based chemical compound with a vapour pressure of at least 0.010 kPa at 25°C or having a corresponding volatility under the given conditions of use. VOCs may contain oxygen, nitrogen and other elements. VOCs do not include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonate salts.
WHO05-TEQ	World Health Organisation toxic equivalents
XRD	X-ray diffractometry
Upper bound	When an analyte is not present above the detection limit, the result is assumed to be equal to the detection limit.
95% confidence interval	Range of values that contains the true result with 95% certainty. This means there is a 5% risk that the true result is outside this range.


Ektimo
ektimo.com.au
1300 364 005
MELBOURNE (Head Office)
26 Redland Drive
Mitcham
VIC 3132
AUSTRALIA
SYDNEY
6/78 Reserve Road
Artarmon
NSW 2064
AUSTRALIA
WOLLONGONG
1/251 Princes Highway
Unanderra
NSW 2526
AUSTRALIA
PERTH
52 Cooper Road
Cockburn Central
WA 6164
AUSTRALIA
BRISBANE
3/109 Riverside Place
Morningside
QLD 4170
AUSTRALIA

Appendix 2

Annual Audit Compliance Report (AACR) Form

Annual Audit Compliance Report Form

Environmental Protection Act 1986, Part V Division 3

Once completed, please submit this form either via email to info@dwer.wa.gov.au, or to the below postal address:

Department of Water and Environmental Regulation
Locked Bag 10
Joondalup DC WA 6919

Section A – Licence details			
Licence number:	L8853/2014/2	Licence file number:	
Licence holder name:	Downer EDI Works Pty Ltd		
Trading as:	Downer EDI Works Pty Ltd		
ACN:	008 709 608		
Registered business address:	39 Delhi Road NORTH RYDE NSW 2113		
Reporting period:	01 / 01 / 2024 **to** 31 / 12 / 2025		

Section B – Statement of compliance with licence conditions

Did you comply with all of your licence conditions during the reporting period?
(please tick the appropriate box)

☐ Yes – please complete:
- section C;
- section D (if required); and
- sign the declaration in Section F.

☒ No – please complete:
- section C;
- section D (if required);
- section E; and
- sign the declaration in Section F.

Section C – Statement of actual production

Provide the actual production quantity for this reporting period. Supporting documentation is to be attached.

Prescribed premises category	Actual production quantity
Category 35 Asphalt manufacturing: premises on which hot or cold mix asphalt is produced using crushed or ground rock aggregates mixed with bituminous or asphaltic materials for use at places or premises other than those premises.	225,498.7 T

Section D – Statement of actual Part 2 waste discharge quantity	
Provide the actual Part 2 waste discharge quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed premises category	**Actual Part 2 waste discharge quantity**
NA	NA

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	11	Date(s) of non-compliance:	2025
Details of non-compliance:			
Annual stack emissions test not undertaken within 12 months of previous test.			
What was the actual (or suspected) environmental impact of the non-compliance? **NOTE** – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No environmental impact identified.			
Cause (or suspected cause) of non-compliance:			
Safety risks associated with baghouse maintenance halted BAU maintenance. Representative testing could not be undertaken.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Maintenance planned early February 2026 with stack test to occur immediately following rectification.			

Section E – Details of non-compliance with licence condition	
Was this non-compliance previously reported to DWER?	
☐ Yes, and	
☐ Reported to DWER verbally	Date: / /
☐ Reported to DWER in writing	Date: / /

Section F – Declaration

I / We declare that the information in this Annual Audit Compliance Report is true and correct and is not false or misleading in a material particular[i].

I / We consent to the Annual Audit Compliance Report being published on the Department of Water and Environmental Regulation's (DWER) website.

[redacted]

Date:	27/01/2026	Date:	27/01/2026
Seal (if signing under seal):			

[i] It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular.

[ii] AACRs can only be signed by the licence holder or an authorised person with the legal authority to sign on behalf of the licence holder.