MSM MILLING – Q4 BOILER COMPLIANCE EMISSIONS TESTING REPORT

Project ID: 16008

22/11/2024

Release: R_0

MSM MILLING - MANILDRA

DOCUMENT CONTROL PAGE

Project Title: MSM MILLING – Q4 BOILER COMPLIANCE EMISSIONS TESTING REPORT

Project Reference ID: 16008

Report Prepared by:
Assured Environmental
Unit 7, 142 Tennyson Memorial Avenue
Tennyson, QLD, 4105
ABN: 87 604 851 073

Report Prepared for:
MSM Milling- Manildra
Dederang Street
Manildra NSW 2865

Author: Curtis Profke

Reviewer: David Arbuckle

Table 1: History of Revisions

Revision	Date	Issued to	Changes
R_0	22/11/2024	Kaushal Pathirana	Initial release

ACCREDITED FOR COMPLIANCE TO ISO/IEC 17025 (TESTING)

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EXECUTIVE SUMMARY

The objective of this project was to measure stack emissions from the MSM Milling boiler located at the Manildra facility in New South Wales. Measurements were performed on the boiler stack release point, identified as EPA identification number 3 (biomass boiler stack) in EPL number 13228. The plant was operating under normal conditions at the time of sampling – further operation details are shown in section 2.3 of this report.

All results are presented at normalised conditions – dry, 273K and 101.325 kPa with applicable corrections for oxygen reference conditions where stated.

Table 2: Summary of emissions – Biomass boiler stack

Release Point Parameter	Unit of Measure		Average	License Limit	Compliance Status
Date of testing	dd-mm-yyyy		31/10/2024	-	-
Average stack temperature	°C		128	-	-
Absolute stack pressure	mbar		827	-	-
Average stack gas water vapour content	%-vol		11.6	-	-
Average carbon dioxide content	%-vol		10.5	-	-
Average oxygen content	%-vol		9.59	-	-
Exhaust Velocity	m/sec		7.23	-	-
Actual stack volume flow	m^3/min		88.4	-	-
Dry standard stack flow rate	Nm^3/min		50.7	-	-
PM Concentration at 7 % O2	mg/Nm^3	<	3.07	50	**Pass**
SO2 Concentration at 7 % O2	mg/Nm^3	<	3.38	-	-
NOx Concentration at 7 % O2	mg/Nm^3		200	500	**Pass**
Cadmium (Cd) Concentration at 7 % O2	mg/Nm^3		0.0002	0.2	**Pass**
Mercury (Hg) Concentration at 7 % O2	mg/Nm^3		0.0003	0.2	**Pass**
Type 1 & 2 substances combined at 7 % O2	mg/Nm^3		0.012	1	**Pass**
HF Concentration at 7 % O2	mg/Nm^3	<	0.141	-	-
HCl Concentration at 7 % O2	mg/Nm^3	<	1.41	100	**Pass**
F Concentration at 7 % O2	mg/Nm^3	<	1.02	50	**Pass**
Cl2 Concentration at 7 % O2	mg/Nm^3	<	1.04	200	**Pass**
H2S Concentration at 7 % O2	mg/Nm^3	<	2.53	5	**Pass**
SO2 Concentration at 7 % O2	mg/Nm^3	<	1.48	-	**Pass**
SO3 (as H2SO4) at 7 % O2 Concentration at 7 % O2	mg/Nm^3	<	1.00	100	**Pass**
TVOC Concentration at 7 % O2	mg/Nm^3	<	0.560	40	**Pass**

a) *Where more than one measurement is performed for the one parameter, the result presented is the average of all measurements. Individual sample results are presented in the calculation of results section at the end of this report.*

Based on the comparison presented, the results of the monitoring undertaken has demonstrated compliance with the release limits provided in the site EA for all parameters tested. *The decision rule used is based on values obtained during testing without regard to uncertainty limits.*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

GLOSSARY

Table 3: Abbreviations & Definitions

Abbreviation	Definition
%v/v	percent volume to volume ratio
<	The analytes tested for was not detected; the value stated is the reportable limit of detection
AE	Assured Environmental
Am^3	Gas volume in cubic metres at measured conditions
AS	Australian Standard
BH	Back half of sample train (filter holder and impingers) (referred to during sample recovery)
CARB	California Air Resources Board methods
CEMS	Continuous Emission Monitoring System
CO	Carbon monoxide
CO_2	Carbon dioxide
COC	Chain of custody
CSA	Cross sectional area
dd/mm/yy	day / month / year
DECC	Department of Environment & Climate Change
DP	Discharge point
dscm	dry standard cubic meters
ELS	Envirolab Services
EPA	Environmental Protection Agency
EPL	Environmental Protection Licence
EWP	Elevated work platform
FH	Front half of sample train (probe and filter holder) (referred to during sample recovery)
g	Grams
g/g mole	gram per gram - mole
H_2O	Water
H_2S	Hydrogen sulphide
H_2SO_3	Sulphuric acid
hh:mm	hours: minutes
ISO17025	ISO for the General requirements for the competence of testing and calibration laboratories
kg	Kilograms
m	Metres
m/sec	metres per second
m^3	actual gas volume in cubic metres as measured
mbar	Millibars
MDL	Method detection limit
mg	Milligrams (10^{-3} grams)
min	Minute
mL	Millilitres
mm	Millimetres
mmH_2O	Millimetres of water
Mole	SI unit that measures the amount of substance
MRU	Gas analyser brand
N/A	Not applicable
NATA	National Association of Testing Authorities
NATO	North Atlantic Treaty Organisation
ng	Nanograms (10^{-9} grams)
NH_3	Ammonia
NM	Non-methane
Nm^3	Gas volume in dry cubic metres at standard temperature and pressure (0°C and 101.3 kPa)
NO	Nitrogen monoxide
NO_2	Nitrogen dioxide
NR	Not required on this occasion
NSW	New South Wales
O_2	Oxygen

Abbreviation	Definition
°C	Degrees Celsius
OH&S	Occupational Health & Safety
OM	Other Method
OSHA	Occupational Safety and Health Act
ou	Odour unit
PAH	Polycyclic Aromatic Hydrocarbon
PM	Particulate matter (total)
PM_{10}	Particles with a diameter of 10 micrometres or less
$PM_{2.5}$	Particles with a diameter of 2.5 micrometres or less
ppb	Parts per billion
ppm	Parts per million
PQL	Practical quantitation limit
PSD	Particle size distribution
Q1	Quarter 1
Q2	Quarter 2
Q3	Quarter 3
Q4	Quarter 4
QA	Quality assurance
QC	Quality control
RMS	Root mean square
SCAQMD	South Coast Air Quality Management District
sec	Second
SI	Standards international
Sm^3	Gas volume in dry cubic metres at standard temperature and pressure (0°C and 101.3 kPa) and corrected to a standardised value.
SO_2	Sulphur dioxide
SO_3	Sulphur trioxide
SSI	State Significant Infrastructure
STP	Standard temperature and pressure (0°C and 101.3 kPa)
TM	Test Method
TO	USEPA air toxics method
TWA	Time weighted average
USEPA	United States Environmental Protection Authority
UOM	Unit of measurement
UTM	Universal Transverse Mercator
VOC	Volatile organic compound

1 INTRODUCTION

1.1 Scope of Assessment

Assured Environmental (AE) was appointed by MSM Milling Pty Ltd to sample and analyse source emissions from biomass boiler in Manildra, New South Wales. Sampling was conducted by AE on the 31st of October 2024.

AE was responsible for the collection and analysis of all samples unless otherwise indicated. The samples were recovered and stored in the appropriate manner until their return to the laboratory where the samples were prepared and analysed according to the appropriate methodology.

2 METHODOLOGY

2.1 Sampling methodology

All sampling and analysis were carried out in accordance with the listed requirements in Table 4. Any sampling-specific comments have been documented where required.

Table 4: Test methods

Parameter		NSW Test Method	UOM	Reference Conditions	Oxygen correction
Selection of sample location	AS4323.1	TM-1	N/A	N/A	N/A
Temperature & velocity	USEPA Method 2	TM-2	°C & m/s	stack	N/A
Stack gas density (O_2 & CO_2)	USEPA Method 3A	TM-23	kg/m_3	dry, 273K, 1 atm	N/A
Stack gas moisture content	USEPA Method 4	TM-22	%v/v	dry, 273K, 1 atm	N/A
Solid particles (Total)	AS 4323.2	TM-15	mg/m^3	dry, 273K, 1 atm	7%
Nitrogen oxides (NOx)	USEPA Method 7E	TM-11	mg/m^3	dry, 273K, 1 atm	7%
Sulfuric acid mist & sulfur trioxide (as SO_3)	USEPA Method 8	TM-3	mg/m^3	dry, 273K, 1 atm	7%
Hydrogen sulfide (H_2S)	USEPA Method 11	TM-5	mg/m^3	dry, 273K, 1 atm	7%
Fluorine (F_2)	USEPA Method 13	TM-9	mg/m^3	dry, 273K, 1 atm	7%
Chlorine (Cl_2)	USEPA Method 26A	TM-7	mg/m^3	dry, 273K, 1 atm	7%
Hydrogen chloride (HCl)	USEPA Method 26A	TM-8	mg/m^3	dry, 273K, 1 atm	7%
Type 1 & Type 2 substances in aggregate	USEPA Method 29	TM-12, 13, 14	mg/m^3	dry, 273K, 1 atm	7%
Cadmium (Cd)	USEPA Method 29	TM-12, 13, 14	mg/m^3	dry, 273K, 1 atm	7%
Mercury (Hg)	USEPA Method 29	TM-12, 13, 14	mg/m^3	dry, 273K, 1 atm	7%
TVOCs[b]	USEPA Method 18[c]	TM-34	mg/m^3	dry, 273K, 1 atm	7%

b) a Total volatile organic compounds (TVOCs), such as n-propane.
c) a USEPA Method 18 tube method.
d) a Special Frequency 1 – Once in a year. Preferably in Q2

Table 5: Analysis notes

Note	Company	Work performed	NATA ID	Report Number
1	Assured Environmental Pty Ltd	Sampling & analysis	19703	16008
2	Enviro Lab Services	Analysis	2901	365662

Table 6: Method specific notes

Note	Comment
A	Total heavy metals are reported as sum of all metal's species (type 1 and type 2 substances) found above the limit of detection (positive result), otherwise referred to as the lower bound result. Those metals found below the detection limit are not included in the total figure. Individual metals are presented in the results summary section.

Table 7: Heavy metals classification (as per NSW Air Sampling Manual)

Type 1 substances	Type 2 substances
Antimony, Arsenic, Cadmium, Lead & Mercury	Beryllium, Chromium, Cobalt, Manganese, Nickel, Selenium, Tin & Vanadium

2.2 Sampling Locations

Stack emissions monitoring was conducted from EPA identification point number 3 in EPL number 13228. This is a biomass boiler stack release point for the new boilers onsite.

Table 8: Stack sample location summary

AS4323.1	Sample location	Boiler stack
	Description	Biomass Boiler Stack
	Stack coordinates	UTM:56s 657841.75 m E / 6326567.19 m S
	Stack Exit point from ground (m)	18
	Stack Shape	CIRCULAR
	Ideal Sampling Plane Assessment	
	Stack Diameter (m)	0.55
	Stack Cross Section Area (m^2)	0.24
	Distance to upstream disturbance (m) (from disturbance)	15.0
	Upstream Diameters (D)	27.3
	Distance to downstream disturbance (m) (from disturbance)	3.5
	Downstream diameters (D)	6.4
4.2.2 Table 1	Meets Requirements AS4323.1 Table 1	Yes
	Non-deal Sampling Plane Assessment	
	Assessment required?	Yes
	Total traverse point factors	1.0
	Non-conforming Sampling Plane Assessment	
4.2.2(a)	Gas flow in same direction	Yes
4.2.2(b)	Gas flow steady & evenly distributed (cyclonic or swirl <15º)	Yes
4.2.2(c)	Temperature difference between points <10%, and each point <10% of average	Yes
4.2.2(d)	Ratio of highest to lowest differential pressure & ratio highest to lowest velocity	1.2
		1.1
4.2.2(e)	Minimum differential pressure	21.09
	Gas temperature above dewpoint	Yes
	Samling Plane Type	
4.2.2, 4.2.3, 4.2.4	Samling plane type	Ideal
	Alternative sampling plane available?	No
	Number of Sample Points Adopted	
	Port size (mm)	100
	Port Thread Type	Threaded plug
	Number of traverses	1
	Number of points per traverse	6
	Total number of traverse points	12
	Flow & temperature compliance check	Yes

Figure 1: Boiler Stack

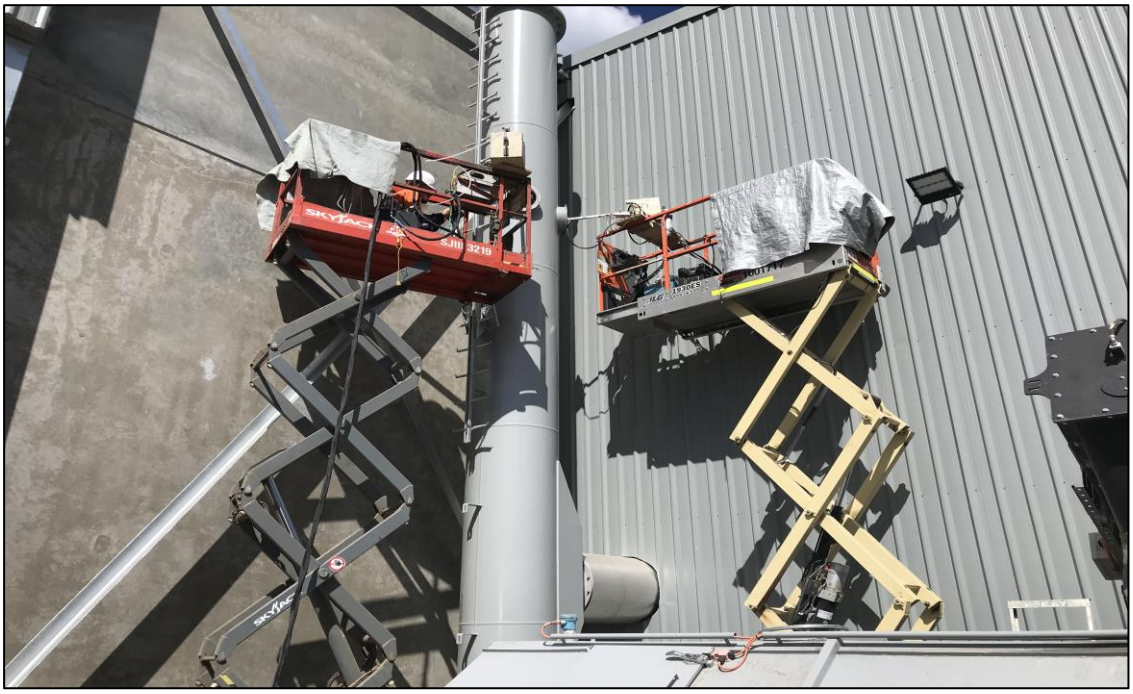

Figure 2: Sampling location

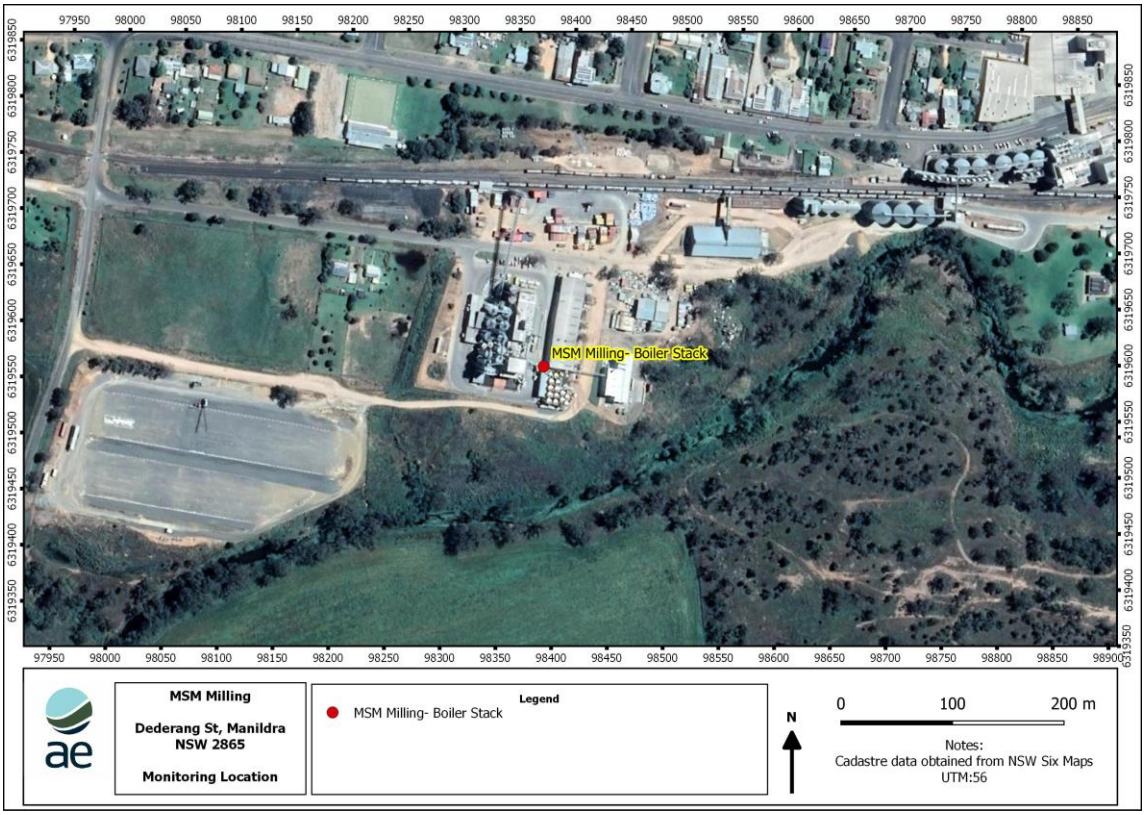

Figure 3: Site location

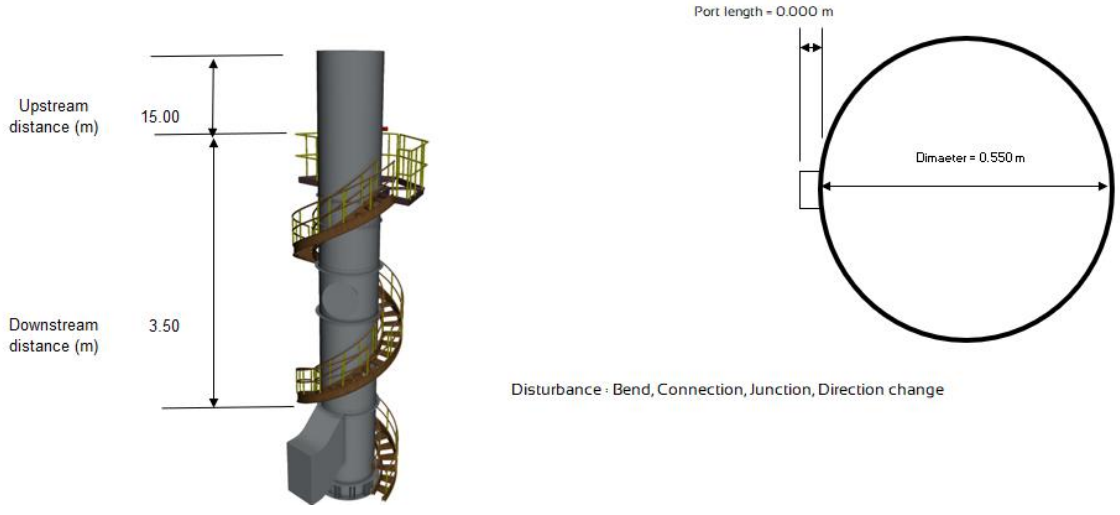

Figure 4: Sample Location Schematic

2.3 Test equipment

All equipment used during the testing meets or exceeds all relevant performance standards as required by all jurisdictions. Our isokinetic equipment used for this project was from Apex Instruments. Combustion gases were monitored using an MRU Optima 7 flue gas analyser.

Figure 5: Isokinetic sample train

Figure 6: Testo 350XL gas analyser

Table 9: Sample uncertainty

Compound	Range	Lower Detection Limit	Linearity
O_2	1 to 25%	0.01%	+/- 0.8% selected range
SO_2	1 to 5000ppm	1 ppm	+/- 5% selected range
CO	1 to 10,000ppm	1 ppm	+/- 5% selected range
CO_2	1 to 50%	0.01%	+/- 1.3% selected range
NO	1 to 3,000ppm	1 ppm	+/- 5% selected range
NO_2	1 to 500ppm	1 ppm	+/- 5% selected range
Lower Detection Limit	2X Noise at 60sec averaging		
Precision (% of point)	+/- 0.1%, measured with single gases at the span concentration		
Flow Rate	~ 1 litre per minute		
Accuracy	5% of span		
Span Drift	Less than 2% per week (operation time)		
Zero Noise	0.5 ppm RMS (60sec averaging time)		
Response Time	~40 seconds		

2.4 Test equipment

The sampling equipment was transported to site using AE's mobile lab and freight contractors. Prior to commencement of sampling, the mobile laboratory was set up at the base of the stack and used as a temporary site office and laboratory whilst on site. Sampling consoles, analysers, calibration gases and sample recovery equipment were set up with umbilical's connecting these sampling consoles to the probes and impingers in accordance with the methods.

All equipment used in the sampling program was calibrated in accordance with AE's NATA accredited procedures. **Error! Reference source not found.** presents a summary of the calibration status of each of the key equipment used in the sampling program.

Table 10: Calibration Records

Equipment	Equipment ID	Calibration Due Date	Calibration Information
Console/ Gas meter	SN936	13/11/2024	(Y)=0.960; (DH@) =47.50
Pitot	PN28	23/02/2025	
Nozzle	SN224	11/06/2024	
Thermocouple	TN03	03/07/2026	

3 QUALITY ASSURANCE & QUALITY CONTROL (QA/QC)

Assured Environmental operates within a quality system based upon the requirements of ISO17025.Our quality system defines specific procedures and methodologies to ensure any project undertaken by Assured Environmental is conducted with the highest level of quality given the specific confines of each project. The overall objective of our QA/QC procedures is to representatively sample and accurately analyse components in the gas streams and therefore report valid measurements of emission concentrations.

To ensure representativeness of field work, our quality procedures target:

1. Correct sampling locations
2. Sample time
3. Frequency of samples and
4. Method selection & adherence

To ensure representativeness of lab work, our quality procedures target:

1. Sample preservation
2. Chain of custody (COC)
3. Sample preparation and
4. Analytical techniques

Assured Environmental maintains strict quality assurance throughout all its sampling programs, covering on-site 'field work' and the analytical phase of our projects. Our QA program covers the calibration of all sampling and analytical apparatus where applicable and the use of spikes, replicate sample and reference standards. The test methodologies used for this project are outlined in the methods section of this document. Field test data has been recorded and calculated using direct entry into Microsoft Excel spreadsheets following the procedures of the appropriate test methods. Determination of emission concentrations has been performed using the same Microsoft Excel spreadsheets which are partially supplied as an attachment to this report. More detailed information can be supplied upon request.

QA/QC checks for this project will use validation techniques and criteria appropriate to the type of data and the purpose of the measurement to approve the test report. Records of all data will

be maintained. Complete chain of custody (COC) procedures has been followed to document the entire custodial history of each sample. The COC forms also served as a laboratory sheet detailing sample ID and analysis requirements.

Table 11: Sampling data QA/QC checklist

Sampling Data QA/QC Checklist	Comment
Use of appropriate test methods	Yes
'Normal' operation of the process being tested	Yes – as instructed by client
Use of properly operating and calibrated test equipment	Yes
Use of high purity reagents	Yes
Performance of leak checks post sample (at least)	Yes

Table 12: Laboratory data QA/QC checklist

Laboratory Data QA/QC Checklist	Comment
Use of appropriate analytical methods	Yes
Use of properly operating and calibrated analytical equipment	Yes
Precision and accuracy comparable to that achieved in similar projects	Yes
Accurate reporting	Yes

3.1 Measurement uncertainty

There is an inherent uncertainty associated with any scientific measurement, including stack emissions monitoring. The measurement uncertainty can be controlled with strict adherence to the reference methodology along with utilising appropriate calibration standards with corresponding acceptable uncertainty reports.

Many source sampling methods do not outline exact procedures for establishing direct measurement uncertainty. In the absence of a defined procedure, the uncertainty budgets presented are based on estimations using ISO-GUM method.

Each individual source and test may have a unique associated uncertainty assigned, due to factors such as the stack sample location in relation to the positioning requirements of AS4323.1, stack temperature, water vapour content and sample analysis.

The table below outlines the estimated uncertainties associate with reports presented within this report.

Table 13: Sample uncertainty

Parameter	Reference method	Uncertainty ± %	Coverage factor	Confidence coefficient %
Velocity	USEPA Method 2	3.0	2	95
Temperature	USEPA Method 2	3.0	2	95
Moisture content	USEPA Method 4	4.0	2	95
Oxygen	USEPA Method 3A	7.0	2	95
Particulate matter	AS 4323.2	8.0	2	95
Combustion gases	USEPA Method 6C, 7E & 10	7.0	2	95
VOCs	USEPA Method 18	39.0	2	95
Metals	USEPA Method 29	26.0	2	95
Hydrogen Chloride	USEPA Method 26A	21.0	2	95
Fluorine	USEPA Method 13	20.0	2	95
Chlorine	USEPA Method 26A	20.0	2	95
SO_3 (as H_2SO_4 mist)	USEPA Method 8	31.0	2	95
H_2S	USEPA Method 11	30.0	2	95

4 RESULTS SUMMARY

The results of the measurements are presented below along with other pertinent data associated with the tests. Refer to the accompanying spreadsheet for more detail.

Table 14: Sample Data Summary

Source Data		Stack SDS version - 3.5							
Client			MSM Milling	MSM Milling	MSM Milling	MSM Milling	MSM Milling	MSM Milling	
Site			Manildra	Manildra	Manildra	Manildra	Manildra	Manildra	
Sample Point			Boiler stack	Boiler stack	Boiler stack	Boiler stack	Boiler stack	Boiler stack	
Reference Method			USEPA M29 - ISOKINETIC	USEPA M8 - ISOKINETIC	USEPA M26A - ISOKINETIC	USEPA M13B - ISOKINETIC	USEPA M11- CONSTANT FLOW	USEPA M18 - CONSTANT FLOW	
Test Parameters			PM & Heavy metals	SO2 & SO3	HCl,HF,HBr,(NH3)/ Br2,Cl2	Fluoride	H2S	TVOC	
Historical Data & Hardware Information - Manual Sample									
Run Start Date		dd-mm-yyyy	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	
Project ID			16008	16008	16008	16008	16008	16008	
Run ID			-6	-1	-5	-3	-2	-4	
Run Start Time	Ti	hh:mm	10:40	09:24	07:09	08:16	09:28	07:12	
Run Stop Time	Tf	hh:mm	11:45	10:29	08:14	09:21	10:28	08:12	
Positioning compliance check with AS4323.1			Ideal	Ideal	Ideal	Ideal	Ideal	Ideal	
Flow & temperature compliance check with AS4323.1			Yes	Yes	Yes	Yes	Yes	Yes	
Traverse pt factors; up, down, total & trav pts			1, 1, 1, 8	1, 1, 1, 8	1, 1, 1, 8	1, 1, 1, 8	1, 1, 1, 1	1, 1, 1, 1	
Console Serial Number			SN936	SN936	SN936	SN936	NA	NA	
Meter Calibration Factor	(Y)		0.960	0.960	0.960	0.960	1022	1022	
Orifice Coefficient		(DH@)	47.50	47.50	47.50	47.50	N/A	N/A	
Pitot Tube Coefficient	(Cp)		0.84	0.84	0.84	0.84	0.84	0.84	
Actual Nozzle Diameter	(Dna)	mm	9.69	9.69	9.69	9.69	N/A	N/A	
Stack Test Data									
Initial Meter Volume	(Vm)i	m^3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Final Meter Volume	(Vm)f	m^3	14240	13540	13480	13750	0.0611	0.0622	
Actual Sampling Time	(O)	minutes	64	64	64	64	60	60	
Average Meter Temperature	(tm)avg	°C	27.88	23.75	15.63	19.00	22.00	16.00	
Average Stack Temperature	(ts)avg	°C	127	128	128	128	128	128	
Barometric Pressure	(Pb)	mb	964	964	965	964	964	968	
Stack Static Pressure	(Pstatic)	mm H2O	-130	-140	-130	-150	-140	-130	
Absolute Stack Pressure	(Ps)	mb	964	964	964	964	964	968	
Sample Volumes									
Actual Meter Volume	(Vm)	m^3	13670	12998	12941	13200	0.0625	0.0636	
Standard Meter Volume	(Vm)std	Nm^3	11860	11433	11705	11799	0.0550	0.0574	
Moisture Content Data									
Water vapour concentration	(Bws(calc))	%	12.66	11.00	10.95	11.14	12.00	12.00	
Stack Gas Density Analysis Data									
Carbon Dioxide Percentage	(%CO2)	%	11.11	11.68	10.39	10.65	9.50	9.50	
Oxygen Percentage	(%O2)	%	8.99	8.71	9.52	9.34	10.50	10.50	
Carbon Monoxide Percentage	(%CO)	%	0.00	0.00	0.00	0.00	0.00	0.00	
Nitrogen Percentage	(%N2)	%	79.91	79.61	80.09	80.02	80.00	80.00	
Dry Gas Molecular Weight	(Md)	kg/Nm^3	135	135	134	134	134	134	
Dry Gas Molecular Weight	(Md)	g/g-mole	30.14	30.22	30.04	30.08	29.94	29.94	
Wet Stack Gas Molecular Weight	(Ms)	g/g-mole	28.60	28.87	28.72	28.73	28.51	28.51	
Volumetric Flow Rate Data (at Sample Plane)									
Average Stack Gas Velocity	(vs)	m/sec	7.26	7.09	7.33	7.24	7.14	7.35	
Stack Diameter	Ds	m	0.55	0.55	0.55	0.55	0.55	0.55	
Stack Cross-Sectional Area	(As)	m^2	0.238	0.238	0.238	0.238	0.238	0.238	
Upstream distance (from disturbance)	B	m	15.00	15.00	15.00	15.00	15.00	15.00	
Downstream distance (from disturbance)	A	m	3.50	3.50	3.50	3.50	3.50	3.50	
Actual Stack Flow Rate	(Qaw)	m^3/min	10.3	10.1	10.4	10.3	10.2	10.5	
Wet Standard Stack Flow Rate	(Qsw)	Nm^3/min-wet	67	66	68	67	66	68	
Dry Standard Stack Flow Rate	(Qsd)	Nm^3/min-dry	58.8	58.3	60.2	59.4	58.1	59.9	
Percent of Isokinetic Rate	(I)	%	101.6	98.7	97.8	100.0	N/A	N/A	
Particulate Matter (PM) Concentration									
Total Mass of Particulates	(mn)	g	0.0052	0.0020	< 0.0020	-	-	-	
Stack PM Concentration	(cs)	mg/Nm^3	4.38	1749.4	< 1.71	-	-	-	
Stack PM Concentration at 7 %O2	(cs)	mg/Nm^3	5.12	1994.5	< 2.09	-	-	-	
Particulate Emission Rate	(E)	g/min	0.258	0.1020	< 0.103	-	-	-	
Instrumental Analyser Raw Data Averages									
Sulphur Dioxide	(SO2)	ppm	< 10.0	< 10.0	< 10.0	< 10.0	-	-	
Oxides of Nitrogen	(NOx)	ppm	81.3	84.5	82.7	81.8	-	-	
Carbon Monoxide	(CO)	ppm	6.4	5.2	11.1	12.5	-	-	
Average Sulphur Dioxide (USEPA Method 6C - instrumental analyser)									
Sulphur Dioxide (SO2)	(Conc)	mg/Nm^3	< 2.86	< 2.86	< 2.86	< 2.86	-	-	
Sulphur Dioxide at 7 %O2	(Conc)	mg/Nm^3	< 3.33	< 3.26	< 3.49	< 3.43	-	-	
Sulphur Dioxide (SO2)	(E)	g/min	< 0.17	< 0.17	< 0.17	< 0.17	-	-	
Average Oxides of Nitrogen (USEPA Method 7E - instrumental analyser)									
Nitrogen Oxides (NOx as NO2)	(Conc)	mg/Nm^3	167	173	170	168	-	-	
Nitrogen Oxides at 7 %O2	(Conc)	mg/Nm^3	195	198	207	202	-	-	
Nitrogen Oxides (NOx as NO2)	(E)	g/min	9.8	10.1	10.2	10.0	-	-	
Average Carbon Monoxide (USEPA Method 10 - instrumental analyser)									
Carbon Monoxide (CO)	(Conc)	mg/Nm^3	8.0	6.5	13.9	15.6	-	-	
Carbon Monoxide at 7 %O2	(Conc)	mg/Nm^3	9.3	7.4	16.9	18.7	-	-	
Carbon Monoxide (CO)	(E)	g/min	0.47	0.38	0.84	0.93	-	-	
CORRECTED VALUES BELOW THIS LINE			0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Metals (USEPA Method 29)			Heavy Metals at 7 %O2	Heavy Metals at 7 %O2	Heavy Metals at 7 %O2	Heavy Metals at 7 %O2	Heavy Metals at 7 %O2	Heavy Metals at 7 %O2	
Cadmium (Cd)	0	$\mu g/Nm^3$	0.197	-	-	-	-	-	
Mercury (Hg)	0	$\mu g/Nm^3$	0.295	-					
OTHER ANALYTES (HCL,F,Cl,H2S,SO2&SO3,TVOC)									
HF at 7 %O2	(Conc)	mg/Nm^3	-	-	< 0.104	-	-	-	
HF emission rate	(E)	g/min	-	-	< 0.005	-	-	-	
HCl at 7 %O2	(Conc)	mg/Nm^3	-	-	< 1.04	-	-	-	
HCl emission rate	(E)	g/min	-	-	< 0.051	-	-	-	
Flouride at 7 %O2	(Conc)	mg/Nm^3	-	-	-	< 1.02	-	-	
Flouride emission rate	(E)	g/min	-	-	-	< 0.050	-	-	
Cl at 7 %O2	(Conc)	mg/Nm^3	-	-	< 1.04	-	-	-	
Cl emission rate	(E)	g/min	-	-	< 0.051	-	-	-	
H2S at 7 %O2	(Conc)	mg/Nm^3	-	-	-	-	< 2.43	-	
H2S emission rate	(E)	g/min	-	-	-	-	< 0.106	-	
SO2 at 7 %O2	(Conc)	mg/Nm^3	-	< 1.43	-	-	-	-	
SO2 emission rate	(E)	g/min	-	< 0.073	-	-	-	-	
SO3 (as H2SO4) at 7 %O2	(Conc)	mg/Nm^3	-	< 0.03	-	-	-	-	
SO3 (as H2SO4 mist) emission rate	(E)	g/min	-	< 0.002	-	-	-	-	
TVOC at 7 %O2	(Conc)	mg/Nm^3	-	-	-	-	-	< 0.512	
TVOC emission rate	(E)	g/min	-	-	-	-	-	< 0.0230	
Heavy Metals (USEPA Method 29) - TOTAL									
Type 1Substances	(Conc)	$\mu g/Nm^3$	5.48	-	-	-	-	-	
Type 2 Substances	(Conc)	$\mu g/Nm^3$	6.24	-	-	-	-	-	
Type 1&2 substances combined	(Conc)	**$\mu g/Nm^3$**	**11.7**	**-**	**-**	**-**	**-**	**-**	

5 NSW EPA VARIATION OF LICENCE NO.13228

L2 Concentration limits

L2.1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.

L2.4 Air Concentration Limits

POINT 3

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Solid Particles	milligrams per cubic metre	50	dry, 273K, 101.3kPa	7%	1 hour
Nitrogen Oxides	milligrams per cubic metre	500	dry, 273K, 101.3kPa	7%	1 hour block
Sulfuric acid mist and sulfur trioxide (as SO3)	milligrams per cubic metre	100	dry, 273K, 101.3kPa	7%	1 hour

Environment Protection Authority - NSW
Licence version date: 18-Dec-2020

Page 8 of 24

Section 55 Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 13228

Hydrogen Sulfide	milligrams per cubic metre	5	dry, 273K, 101.3kPa	7%	1 hour block
Fluorine	milligrams per cubic metre	50	dry, 273K, 101.3kPa	7%	1 hour
Chlorine	milligrams per cubic metre	200	dry, 273K, 101.3kPa	7%	1 hour block
Hydrogen chloride	milligrams per cubic metre	100	dry, 273K, 101.3kPa	7%	1 hour
Type 1 and Type 2 substances in aggregate	milligrams per cubic metre	1	dry, 273K, 101.3kPa	7%	1 hour
Cadmium	milligrams per cubic metre	0.2	dry, 273K, 101.3kPa	7%	1 hour
Mercury	milligrams per cubic metre	0.2	dry, 273K, 101.3kPa	7%	1 hour
Dioxins & Furans	nanograms per cubic metre	0.1	dry, 273K, 101.3kPa	11%	1 hour
Volatile organic compounds	milligrams per cubic metre	40	dry, 273K, 101.3kPa	7%	1 hour rolling

Figure 7: Permit extract