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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention:	Jasmin Porter
Report	844310-AFC
Project Name	HEFFRON PARK
Project ID	61733
Received Date	Nov 25, 2021
Date Reported	Nov 25, 2021

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission – Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)] and the NATA Specific Accreditation Criteria, ISO/IEC 17025 Application Document Life Sciences – Annex, Asbestos sampling and testing, Issued: March 2021.
Pump Calibration	Air sampling pump performance has been assessed in accordance with Australian Institute of Occupational Hygiene (AIOH) Technical Paper Air Sampling Pumps: Equipment Calibration Requirements. Pump flow rate measurement equipment (e.g. Field Rotameter) has been calibrated in accordance with AIOH Technical Paper Flow Measurement Equipment: Calibration Requirements.
Asbestos Counting	Fibre counting is conducted in accordance with the National Occupational Health & Safety Commission Guidance Note on the Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition , [NOHSC:3003(2005)] (MFM) and supplementary work instruction in-house LTM-ASB-8010. Unless specifically noted, analysis is undertaken by approved analysts at the base facility. Fibre counts (Fibres/fields) are covered by the facility's NATA scope of accreditation. The requirements of the NATA Specific Accreditation Criteria, ISO/IEC 17025 Application Document Life Sciences – Annex, Asbestos sampling and testing, Issued: March 2021 are realised.

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Project Name HEFFRON PARK
Project ID 61733
Date Sampled Nov 25, 2021
Report 844310-AFC

Eurofins Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Result (Fibres/Fields)	Result (Fibres/mL)
21-No62068	CZ950470	AC167	DECON UNIT AREA	6:50	13:30	1.3	1.3	0/100	< 0.01
21-No62069	CZ950907	AC208	EAST BOUNDARY OF SITE- WALKWAY	6:52	13:32	1.3	1.3	0/100	< 0.01
21-No62070	CZ950919	AC183	NORTH BOUNDARY-PUBLIC CAR PARK	6:54	13:34	1.3	1.3	0/100	< 0.01
21-No62071	CZ950744	AC173	NE BOUNDARY- TENNIS COURT	6:56	13:36	1.3	1.3	0/100	< 0.01
21-No62072	CZ950431	AC202	WEST BBY67- BUNNERONG RD	6:58	13:38	1.3	1.3	0/100	< 0.01
21-No62073	CZ950697	AC210	SOUTH BOUNDARY- PLAYING FIELDS	7:00	13:40	1.3	1.3	0/100	< 0.01
21-No62074	CZ950730	AC214	SE BOUNDARY- PLAYING FIELDS	7:02	13:42	1.3	1.3	0/100	< 0.01
21-No62075	CZ950914	BLANK	BLANK	--	--	--	--	0/100	--

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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
Asbestos - LTM-ASB-8010	Sydney	Nov 25, 2021	Indefinite

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
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NSW 2000

Project Name: HEFFRON PARK
Project ID: 61733

Order No.:
Report #: 844310
Phone: 02 8245 0300
Fax:

Received: Nov 25, 2021 4:50 PM
Due: Nov 25, 2021
Priority: Same day
Contact Name: Jasmin Porter

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos Fibre Count & Concentration
Melbourne Laboratory - NATA # 1261 Site # 1254						
Sydney Laboratory - NATA # 1261 Site # 18217						X
Brisbane Laboratory - NATA # 1261 Site # 20794						
Mayfield Laboratory - NATA # 1261 Site # 25079						
Perth Laboratory - NATA # 2377 Site # 2370						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	CZ950470	Nov 25, 2021	1:30PM	Air	S21-No62068	X
2	CZ950907	Nov 25, 2021	1:32PM	Air	S21-No62069	X
3	CZ950919	Nov 25, 2021	1:34PM	Air	S21-No62070	X
4	CZ950744	Nov 25, 2021	1:36PM	Air	S21-No62071	X
5	CZ950431	Nov 25, 2021	1:38PM	Air	S21-No62072	X
6	CZ950697	Nov 25, 2021	1:40PM	Air	S21-No62073	X
7	CZ950730	Nov 25, 2021	1:42PM	Air	S21-No62074	X
8	CZ950914	Nov 25, 2021		Air	S21-No62075	X
Test Counts						8

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
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.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V = r x t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \frac{}{a} \times \frac{}{n} \times \frac{}{r} \times \frac{}{t} = K \times \frac{}{n} \times \frac{}{V}$

Asbestos Content (as asbestos): $\% w/w = \frac{(m \times PA)}{M}$

Weighted Average (of asbestos): $\%_W = \sum \frac{(m \times P_A)_X}{X}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Compliant	Indicates the item has been assessed against the relevant criteria, e.g. NATA SAC_07.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
N/A	Not Applicable. Indicates a result or assessment is not required or applicable to that item.
NATA	National Association of Testing Authorities, Australia.
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SAC_07	Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Life Sciences – Annex, Asbestos sampling and testing.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Volume Measurement : Mark Hunter, JBS & G Australia (NSW) P/L, has been trained by Eurofins and they conducted the sampling in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003(2005)]methodology. Sampling pumps used by JBS & G Australia (NSW) P/L were calibrated by Eurofins Environment Testing and therefore volume measurements contained in this report are traceable back to Eurofins Environment Testing. Eurofins Environment Testing are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
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

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Authorised by:

Chamath JHM Annakkage	Senior Analyst-Asbestos (NSW)

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.

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