

JBS&G (43017-59482)

14 October 2014

Doug Wu
Project Manager
Boulderstone Pty Ltd
Via email: Doug.Wu@lendlease.com

**AMR218 - Daily Airborne Asbestos Fibre Monitoring
Randwick Barracks, 373a Avoca Street, Randwick NSW**

Dear Doug,

Please find as **Attachment 1** the daily airborne asbestos fibre monitoring report for works completed at the Randwick Barracks Project site on **14 October 2014**.

All air monitoring was completed in strict accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003(2005)], with NATA certification applying to all sample collection, handling and analytical procedures.

All reported results were satisfactory and below the minimum action levels for control monitoring as outlined in:

- Work, Health and Safety (2011) Regulation; and
- WorkCover Authority of NSW (2011) Code of Practice – *How to Safely Remove Asbestos*.

If you have any questions regarding these results, please feel free to contact the undersigned on 02 8245 0300 or by email msamuel@jbsg.com.au.

Yours sincerely



Michael Samuel
Licensed Asbestos Assessor (LAA 000157)
JBS&G Australia Pty Ltd

Attachment 1 – Daily Airborne Asbestos Fibre Monitoring Report

Certificate of Analysis



NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G (NSW & WA) Pty Ltd
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: Michael Samuel
Report: 435279-A
Client Reference: **RANDWICK 43017**
Received Date: 14 October 2014
Date Reported: 14 October 2014

METHODOLOGY:

Asbestos Sampling	Sampling as per the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2 nd Edition [NOHSC:3003(2005)]
Pump Calibration	Mini Buck Model M-5: Calibrated against National Institute of Standards & Technology (NIST) SOP 13 Standard Operating Procedure for Calibration of Volumetric Ware, Gravimetric Method utilising a 1000 mL burette with a digital stop watch.
Asbestos Counting	Conducted in accordance with the National Occupational Health & Safety Commission - Guidance Note on The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2 nd Edition [NOHSC:3003(2005)] and in-house Method LTM-ASB-8010.

Site Reference: **RANDWICK 43017**
Date Sampled: **14 October 2014**
Report: **435279-A**

Eurofins mgt Sample No.	Client Sample ID	Pump ID	Location	Start (time)	End (time)	Start Flow Rate (L/min)	End Flow Rate (L/min)	Average Flow Rate (L/min)	Fibres/100 fields	Result (Fibres/mL)
14-Oc09352	51284	SKC002	NORTH PORTION OF SITE WALKWAY ADJ SITE SHEDS	06:45	13:10	1.5	1.5	1.5	0.0	< 0.01
14-Oc09353	51309	SKC003	SOUTH PORTION SOUTH BOUNDARY – HOUSES	06:48	13:13	1.5	1.5	1.5	0.0	< 0.01
14-Oc09354	51497	SKC007117	SOUTH PORTION WEST BOUNDARY – AVOCA ST	06:51	13:16	1.5	1.5	1.5	1.0	< 0.01
14-Oc09355	48479	SKC132	SOUTH PORTION NORTH BOUNDARY – SITE ACCESS	06:54	13:19	1.5	1.5	1.5	0.0	< 0.01
14-Oc09356	48143	SKC143	SOUTH PORTION CENTRAL AREA OF CONSTRUCTION	06:57	13:21	1.5	1.5	1.5	0.0	< 0.01
14-Oc09357	51283	SKC146	SOUTH PORTION WEST FACE OF CONSTRUCTION	07:00	13:24	1.5	1.5	1.5	0.0	< 0.01
14-Oc09358	48503	BLANK	BLANK						0.0	

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 (regarding both quality and NATA accreditation).

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	14 October 2014	Indefinite

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters is performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis.
7. 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 Sample Receipt Advice.

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.

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

UNITS

mg/kg: milligrams per kilogram

mg/l: milligrams per litre

µg/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 millilitres

TERMS

Dry	Where 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. 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.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the client's batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
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
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed on fireproofing, troweled on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain

greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.

AF

Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)

AC

asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios)

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 50-150% - Phenols 20-130%.

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 its 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.
7. Analysis will begin as soon as possible after sample receipt.
8. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
9. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS's.
10. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
11. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Comments

Volume Measurement: Matt O'Brien, JBS&G has been trained by Eurofins | mgt and he 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 were calibrated by Eurofins | mgt and therefore volume measurements contained in this report are traceable back to Eurofins | mgt. Eurofins | mgt are responsible for all data contained in this report.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Organic samples had Teflon liners	N/A
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within Holding Time	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Authorised by

Jean Heng	Client Services
Nibha Vaidya	Approved Counter/Identifier
Alex Tam	Approved Counter/Identifier



Glenn Jackson
National Laboratory Manager

Final Report – this report replaces any previously issued Report.

- Indicates Not Requested
 - * Indicates NATA accreditation does not cover the performance of this service
- Uncertainty data is available on request

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