

The EPA and NSW Workcover undertook independent testing of the Port Kembla Copper Stack in September for asbestos and a wide range of metals and other analytes. This sampling was used to independently verify the sampling undertaken by PKC. Samples were collected from a number of different locations within the stack of the concrete, brick and mortar used to construct the stack. All samples were analysed by NATA accredited NSW Government and independent laboratories.

Five certificates of analysis are included. The table below provides a description of where the different samples were collected from.

No asbestos was detected in any samples.

The certificates of analysis show the metals concentrations are highly variable depending on the sampling location. In general, the highest concentrations of metals are present on the inner wall of the inner stack that was exposed to previous smelting emissions. These metals include but are not limited to copper, lead, arsenic and chromium. These emissions have formed a residue on the surface of the bricks of the inner stack. The residue is strongly adhered to the brick and the quantity of material is very small compared to the total mass of the stack.

The results from this sampling are being used by the EPA to ensure adequate dust (including metals) management measures are in place. These include:

- the design and operation of dust suppression devices including specialised water sprays & cannons
- air quality monitoring and reporting programs
- community notification protocols

The NSW Department of Planning and Infrastructure is the Consent authority for demolition of the Port Kembla Copper Stack. NSW Department of Planning and Infrastructure has advised the community that no demolition will occur until the Department is satisfied the work is safe, the methods are appropriate and all relevant concerns and issues have been fully addressed.

The following table provides Sample ID, lab description and Description of where samples were collected:

Sample ID	Lab Description	General Description
201302496	Level 3 - 1 Inner	Level 3 brick - Inner Stack (Double brick stack)
201302497	Level 3 - 1 Outer	Level 3 brick - Outer Stack (Double brick stack)
201302498	Level 2 - 1 North Inner	Level 2 brick - Inner Stack (Double brick stack)
201302499	Level 2 - 1 North Outer	Level 2 brick - Outer Stack (Double brick stack)
201302500	Level 4 - 1	Level 4 brick - Single brick stack
201302501	Level 3 - 2 Inner South	Level 3 brick - Inner Stack (Double brick stack)
201302547	2496a - Exposed	Level 3 brick - Inner Stack - Surface Scraping - Face exposed to emissions
201302548	2496b - Unexposed	Level 3 brick - Inner Stack - Surface Scraping - Face not exposed to emissions
201302549	2496c - Cement	Level 3 brick - Inner Stack – Mortar
201302550	2498a - Exposed	Level 2 brick - Inner Stack - Surface Scraping - Face exposed to emissions

201302551	2498b - Unexposed	Level 2 brick - Inner Stack - Surface Scraping - Face not exposed to emissions
201302552	2499a - Exposed	Level 2 brick - Outer Stack - Surface Scraping - Inner brick face
201302553	2499b - Cement	Level 2 brick - Outer Stack – Mortar
201302554	2500a - Exposed	Level 4 brick - Surface Scraping - Face exposed to emissions
201302555	2500b - Unexposed	Level 4 brick - Surface Scraping - Face not exposed to emissions
201302556	2500c - 1cm depth	Level 4 brick - Internal Surface Scraping - 1cm from face exposed to emissions
201302557	2501a - Exposed	Level 3 brick - Inner Stack - Surface Scraping - Face exposed to emissions
201302558	2501b - Unexposed	Level 3 brick - Inner Stack - Surface Scraping - Face not exposed to emissions

Replacement Report of Analysis

Report 201300304 v2

01 November 2013

Sample source: **Port Kembla Copper Stack**

Submitted by: **Craig Patterson**
Environment Protection Authority
Lvl 3, 84 Crown Street
Wollongong NSW 2500

Date received: **26-Sep-2013**

This report supersedes Report 201300304 dated, 18/10/2013.

Environmental Forensics

Replacement Report of Analysis

Report number: 201300304

Report date: 1-Nov-2013

Date received: 26-Sep-2013 16:00

Sample source: Port Kembla Copper Stack

Sample details

Lab number	Client reference	Sample type	Date sampled	Sample description
201302496	Level 3 - 1 Inner	SOLID	26-Sep-2013 12:25	
201302497	Level 3 - 1 Outer	SOLID	26-Sep-2013 12:25	
201302498	Level 2 - 1 North Inner	SOLID	26-Sep-2013 13:50	
201302499	Level 2 - 1 North Outer	SOLID	26-Sep-2013 13:50	
201302500	Level 4 - 1	SOLID	26-Sep-2013 12:08	
201302501	Level 3 - 2 Inner South	SOLID	26-Sep-2013	
201302547	2496a - Exposed	SOLID	27-Sep-2013	
201302548	2496b - Unexposed	SOLID	27-Sep-2013	
201302549	2496c - Cement	SOLID	11-Oct-2013	
201302550	2498a - Exposed	SOLID	27-Sep-2013	
201302551	2498b - Unexposed	SOLID	27-Sep-2013	
201302552	2499a - Exposed	SOLID	27-Sep-2013	
201302553	2499b - Cement	SOLID	27-Sep-2013	
201302554	2500a - Exposed	SOLID	27-Sep-2013	
201302555	2500b - Unexposed	SOLID	27-Sep-2013	
201302556	2500c - 1cm Depth	SOLID	04-Oct-2013	
201302557	2501a - Exposed	SOLID	27-Sep-2013	
201302558	2501b - Unexposed	SOLID	27-Sep-2013	

Report comments: THIS IS A REISSUED REPORT AND CONTAINS RESULTS FOR ADDITIONAL ELEMENTS . THIS REPORT REPLACES THE ONE DATED 18 OCTOBER 2013.

Samples 201302496, 201302499, 2013002501 and 201302549 were sent to Envirolab Services Pty Limited (NATA Accreditation no: 2901) for asbestos analysis. Please see the attached Certificate of Analysis No: 98927, dated 16 October 2013.

Samples 201302497, 201302498 and 201302500 were sent to Envirolab Services Pty Limited (NATA Accreditation no: 2901) for asbestos analysis. Please see the attached Certificates of Analyses No's: 98239 & 98239-A, dated 3 October 2013 and 18 October 2013 respectively.

Samples 201302497, 201302498 and 201302500 were sent to AEC Environmental for mineral identification. Please see the attached report no: 74751, dated 17 October 2013.

Metals by ICP-AES

Laboratory number	201302547	201302548	201302550	201302551
Client sample ID	2496a - Exposed	2496b - Unexposed	2498a - Exposed	2498b - Unexposed
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	27/09/2013	27/09/2013	27/09/2013	27/09/2013
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Aluminium (acid extractable)	4200 mg/kg	1600 mg/kg	3500 mg/kg	1400 mg/kg
Antimony (acid extractable)	54 mg/kg	<3.0 mg/kg	82 mg/kg	<3.0 mg/kg
Arsenic (acid extractable)	4000 mg/kg	22 mg/kg	9400 mg/kg	<2.0 mg/kg
Barium (acid extractable)	570 mg/kg	58 mg/kg	740 mg/kg	34 mg/kg
Beryllium (acid extractable)	<0.37 mg/kg	<0.1 mg/kg	<0.89 mg/kg	<0.1 mg/kg
Boron (acid extractable)	<40 mg/kg	<11 mg/kg	<98 mg/kg	<11 mg/kg
Cadmium (acid extractable)	120 mg/kg	3.7 mg/kg	160 mg/kg	1.3 mg/kg
Calcium (acid extractable)	6000 mg/kg	810 mg/kg	6600 mg/kg	990 mg/kg
Chromium (acid extractable)	2200 mg/kg	4.1 mg/kg	1600 mg/kg	3.2 mg/kg
Cobalt (acid extractable)	10 mg/kg	3.4 mg/kg	11 mg/kg	2.6 mg/kg
Copper (acid extractable)	3000 mg/kg	300 mg/kg	3200 mg/kg	12 mg/kg
Iron (acid extractable)	2.9 % w/w	1.1 % w/w	3.0 % w/w	5200 mg/kg
Lead (acid extractable)	2.3 % w/w	3.6 mg/kg	1.1 % w/w	<2.0 mg/kg
Lithium (acid extractable)	14 mg/kg	3.9 mg/kg	<18 mg/kg	2.2 mg/kg
Magnesium (acid extractable)	600 mg/kg	380 mg/kg	580 mg/kg	270 mg/kg
Manganese (acid extractable)	270 mg/kg	370 mg/kg	410 mg/kg	240 mg/kg
Mercury (acid extractable)	4.5 mg/kg	<0.40 mg/kg	<4.0 mg/kg	<0.40 mg/kg
Molybdenum (acid extractable)	34 mg/kg	<2.0 mg/kg	<18 mg/kg	<2.0 mg/kg
Nickel (acid extractable)	60 mg/kg	4.2 mg/kg	39 mg/kg	3.0 mg/kg
Phosphorus (acid extractable)	120 mg/kg	92 mg/kg	140 mg/kg	32 mg/kg
Selenium (acid extractable)	4.5 % w/w	10 mg/kg	3.4 % w/w	<3.0 mg/kg
Silver (acid extractable)	22 mg/kg	<0.5 mg/kg	20 mg/kg	<0.5 mg/kg
Strontium (acid extractable)	<55 mg/kg	<15 mg/kg	<130 mg/kg	<15 mg/kg
Sulfur (acid extractable)	3 % w/w	2700 mg/kg	2 % w/w	770 mg/kg
Thallium (acid extractable)	<3.7 mg/kg	<1.0 mg/kg	<8.9 mg/kg	<1.0 mg/kg
Tin (acid extractable)	230 mg/kg	<3.0 mg/kg	760 mg/kg	<3.0 mg/kg
Titanium (acid extractable)	600 mg/kg	110 mg/kg	1800 mg/kg	74 mg/kg
Vanadium (acid extractable)	29 mg/kg	7.9 mg/kg	21 mg/kg	7.1 mg/kg
Zinc (acid extractable)	4000 mg/kg	290 mg/kg	3400 mg/kg	36 mg/kg
Laboratory number	201302552	201302553	201302554	201302555
Client sample ID	2499a - Exposed	2499b - Cement	2500a - Exposed	2500b - Unexposed
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	27/09/2013	27/09/2013	27/09/2013	27/09/2013
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Aluminium (acid extractable)	740 mg/kg	820 mg/kg	6500 mg/kg	1500 mg/kg
Antimony (acid extractable)	<3.0 mg/kg	<3.0 mg/kg	55 mg/kg	<3.0 mg/kg
Arsenic (acid extractable)	2.7 mg/kg	8.9 mg/kg	1.3 % w/w	29 mg/kg
Barium (acid extractable)	18 mg/kg	<13 mg/kg	920 mg/kg	35 mg/kg
Beryllium (acid extractable)	<0.1 mg/kg	<0.1 mg/kg	<0.49 mg/kg	<0.1 mg/kg
Boron (acid extractable)	<11 mg/kg	18 mg/kg	<54 mg/kg	<11 mg/kg
Cadmium (acid extractable)	17 mg/kg	6.2 mg/kg	380 mg/kg	18 mg/kg
Calcium (acid extractable)	220 mg/kg	630 mg/kg	2.6 % w/w	700 mg/kg
Chromium (acid extractable)	2.8 mg/kg	2.3 mg/kg	1600 mg/kg	5.2 mg/kg
Cobalt (acid extractable)	2.1 mg/kg	1.8 mg/kg	14 mg/kg	3.2 mg/kg
Copper (acid extractable)	95 mg/kg	360 mg/kg	6900 mg/kg	1100 mg/kg
Iron (acid extractable)	5300 mg/kg	1400 mg/kg	2.6 % w/w	8900 mg/kg
Lead (acid extractable)	7.2 mg/kg	8.8 mg/kg	1.4 % w/w	5.4 mg/kg
Lithium (acid extractable)	3.0 mg/kg	6.0 mg/kg	21 mg/kg	5.4 mg/kg
Magnesium (acid extractable)	210 mg/kg	580 mg/kg	940 mg/kg	390 mg/kg

Codes: NR = Not Required
SN = Sample Note

IS = Insufficient Sample
RN = Result Note

E = Estimated Result
RC = Report Comment

	201302552 2499a - Exposed SOLID 27/09/2013 ICPAES	201302553 2499b - Cement SOLID 27/09/2013 ICPAES	201302554 2500a - Exposed SOLID 27/09/2013 ICPAES	201302555 2500b - Unexposed SOLID 27/09/2013 ICPAES
Manganese (acid extractable)	150 mg/kg	65 mg/kg	460 mg/kg	300 mg/kg
Mercury (acid extractable)	<0.40 mg/kg	<0.40 mg/kg	4.1 mg/kg	<0.40 mg/kg
Molybdenum (acid extractable)	<2.0 mg/kg	<2.0 mg/kg	29 mg/kg	<2.0 mg/kg
Nickel (acid extractable)	3.7 mg/kg	<3.0 mg/kg	49 mg/kg	5.7 mg/kg
Phosphorus (acid extractable)	17 mg/kg	30 mg/kg	<20 mg/kg	31 mg/kg
Selenium (acid extractable)	3.9 mg/kg	3.1 mg/kg	8.6 % w/w	18 mg/kg
Silver (acid extractable)	<0.5 mg/kg	<0.5 mg/kg	41 mg/kg	<0.5 mg/kg
Strontium (acid extractable)	<15 mg/kg	<15 mg/kg	77 mg/kg	<15 mg/kg
Sulfur (acid extractable)	1800 mg/kg	1400 mg/kg	5 % w/w	4500 mg/kg
Thallium (acid extractable)	<1.0 mg/kg	<1.0 mg/kg	<4.9 mg/kg	<1.0 mg/kg
Tin (acid extractable)	<3.0 mg/kg	<3.0 mg/kg	520 mg/kg	<3.0 mg/kg
Titanium (acid extractable)	59 mg/kg	380 mg/kg	2600 mg/kg	120 mg/kg
Vanadium (acid extractable)	5.7 mg/kg	8.6 mg/kg	29 mg/kg	9.3 mg/kg
Zinc (acid extractable)	350 mg/kg	980 mg/kg	7500 mg/kg	1000 mg/kg
Laboratory number	201302556	201302557	201302558	
Client sample ID	2500c - 1cm Depth	2501a - Exposed	2501b - Unexposed	
Sample type	SOLID	SOLID	SOLID	
Date started	27/09/2013	27/09/2013	27/09/2013	
Method used	ICPAES	ICPAES	ICPAES	
Aluminium (acid extractable)	2400 mg/kg	7300 mg/kg	1400 mg/kg	
Antimony (acid extractable)	<3.0 mg/kg	<30 mg/kg	<3.0 mg/kg	
Arsenic (acid extractable)	12 mg/kg	1700 mg/kg	7.9 mg/kg	
Barium (acid extractable)	28 mg/kg	240 mg/kg	41 mg/kg	
Beryllium (acid extractable)	<0.1 mg/kg	<1.0 mg/kg	<0.1 mg/kg	
Boron (acid extractable)	<11 mg/kg	<110 mg/kg	<11 mg/kg	
Cadmium (acid extractable)	41 mg/kg	140 mg/kg	5.0 mg/kg	
Calcium (acid extractable)	510 mg/kg	2300 mg/kg	510 mg/kg	
Chromium (acid extractable)	6.8 mg/kg	1200 mg/kg	6.7 mg/kg	
Cobalt (acid extractable)	3.9 mg/kg	7.4 mg/kg	2.9 mg/kg	
Copper (acid extractable)	22 mg/kg	1200 mg/kg	140 mg/kg	
Iron (acid extractable)	1.1 % w/w	1.6 % w/w	5800 mg/kg	
Lead (acid extractable)	2.9 mg/kg	1500 mg/kg	2.4 mg/kg	
Lithium (acid extractable)	7.4 mg/kg	22 mg/kg	4.4 mg/kg	
Magnesium (acid extractable)	520 mg/kg	660 mg/kg	400 mg/kg	
Manganese (acid extractable)	310 mg/kg	400 mg/kg	220 mg/kg	
Mercury (acid extractable)	<0.40 mg/kg	<4.0 mg/kg	<0.40 mg/kg	
Molybdenum (acid extractable)	<2.0 mg/kg	<20 mg/kg	<2.0 mg/kg	
Nickel (acid extractable)	4.9 mg/kg	55 mg/kg	6.6 mg/kg	
Phosphorus (acid extractable)	37 mg/kg	75 mg/kg	25 mg/kg	
Selenium (acid extractable)	<3.0 mg/kg	7800 mg/kg	7.4 mg/kg	
Silver (acid extractable)	<0.5 mg/kg	<5.0 mg/kg	<0.5 mg/kg	
Strontium (acid extractable)	<15 mg/kg	<150 mg/kg	<15 mg/kg	
Sulfur (acid extractable)	5700 mg/kg	2 % w/w	1900 mg/kg	
Thallium (acid extractable)	<1.0 mg/kg	<10 mg/kg	<1.0 mg/kg	
Tin (acid extractable)	<3.0 mg/kg	34 mg/kg	<3.0 mg/kg	
Titanium (acid extractable)	160 mg/kg	270 mg/kg	85 mg/kg	
Vanadium (acid extractable)	12 mg/kg	12 mg/kg	7.2 mg/kg	
Zinc (acid extractable)	79 mg/kg	4300 mg/kg	340 mg/kg	

Miscellaneous

Laboratory number	201302496	201302497	201302498	201302499
Client reference	Level 3 - 1 Inner	Level 3 - 1 Outer	Level 2 - 1 North	Level 2 - 1 North
Sample type	SOLID	SOLID	SOLID	SOLID
Method	External Methods	External Methods	External Methods	External Methods
Asbestos	RC	RC	RC	RC

Laboratory number	201302500	201302501	201302549
Client reference	Level 4 - 1	Level 3 - 2 Inner	2496c - Cement
Sample type	SOLID	SOLID	SOLID
Method	External Methods	External Methods	External Methods
Asbestos	RC	RC	RC

Result Note:

	Method	Date started
	Sub-Sampling	27-Sep-2013
201302496	Sub-sample	<i>The exposed surface of sample 201302496 was scraped using a scalpel blade and the removed material was given sample number 201302547. The unexposed surface was scraped using another scalpel blade and the removed material was given sample number 201302548. The cement attached to the sample was removed and given sample number 201302549.</i>
	Sub-Sampling	27-Sep-2013
201302498	Sub-sample	<i>The exposed surface of sample 201302498 was scraped using a scalpel blade and the removed material was given sample number 201302550. The unexposed surface was scraped using another scalpel blade and the removed material was given sample number 201302551.</i>
	Sub-Sampling	27-Sep-2013
201302499	Sub-sample	<i>The exposed surface of sample 201302499 was scraped using a scalpel blade and the removed material was given sample number 201302552. The cement attached to the sample was removed and given sample number 201302553.</i>
	Sub-Sampling	27-Sep-2013
201302500	Sub-sample	<i>The exposed surface of sample 201302500 was scraped using a scalpel blade and the removed material was given sample number 201302554. The unexposed surface was scraped using another scalpel blade and the removed material was given sample number 201302555. A piece of brick (0.5 g) was taken from 1 cm deep inside the exposed side and given sample number 201302556.</i>
	Sub-Sampling	27-Sep-2013
201302501	Sub-sample	<i>The exposed surface of sample 201302501 was scraped using a scalpel blade and the removed material was given sample number 201302557. The unexposed surface was scraped using a scalpel blade and the removed material was given sample number 201302558.</i>

Released by:

Codes: NR = Not Required
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RN = Result Note

E = Estimated Result
RC = Report Comment

Anil Gautam - Senior Scientist

Date: 1/11/2013

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Samples analysed as received and non-legal samples will be discarded one month from report date.

Soil samples are reported on a dry weight basis, except when analysed in accordance with the NSW EPA Waste Guidelines.

MINERAL IDENTIFICATION REPORT No. 74751**1. INTRODUCTION**

Samples of brick (porcelain) were received from Paul Ching of Envirolab Services with a request for determination of their mineralogies. Of particular interest was the presence of minerals that exhibit a needle-like (“acicular”) form that may resemble asbestos fibres. The samples were from Job No 98239

2. PROCEDURE

A representative portion of each sample was pulverized then analyzed by X-ray diffraction to identify the minerals present.

3. RESULTS

The semi-quantitative mineralogies of the samples follow. Amorphous substance(s) are not detectable by XRD because they lack a crystal structure, but their presence is inferred because the crystalline components appear to be less than 100%.

Mineral	Composition	Relative abundance		
		98239-1	98239-2	98239-3
Amorphous	Silicate	D	D	D
Mullite	$\text{Al}_6\text{Si}_2\text{O}_{13}$	SD	SD	SD
Quartz	SiO_2	A	A	A
Hematite	Fe_2O_3	Tr	Tr	Tr
Cristobalite	SiO_2	Tr	Tr	Tr-A

4. COMMENT

Amphibole or serpentine minerals were not detected – these are the common asbestos-forming minerals in rocks. The crystalline substance “mullite” is commonly found in high-temperature ceramics. High-quality mullite occurs as slender elongated (acicular) crystals and is found in high-quality porcelains such as those used in spark plugs. Mullite is also found in ordinary porcelain as minute crystals. It is suggested that mullite in these samples is generally too small to be identified microscopically but in localized parts of the brick there are conditions that favour the formation of acicular crystals. Note that mullite is not an asbestos-forming mineral.

Semiquantitative Abbreviations

- D = Dominant. Used for the component apparently most abundant, regardless of its probable percentage level.
 SD = Sub-dominant. The next most abundant component(s) providing its percentage level is judged above about 20%.
 A = Accessory. Components judged to be present between the levels of roughly 5 and 20%.
 Tr = Trace. Components judged to be below about 5%.

TESTING OFFICER: Michael Till (Senior Mineralogist)



REPORT DATE: 17 October 2013

Please note that the results contained in this report relate only to the sample(s) submitted for testing

CERTIFICATE OF ANALYSIS 98239

Client:

Dept. of Environment, Climate Change & Water

PO Box 29

LIDCOMBE

NSW 1825

Attention: Vilma Silva

Sample log in details:

Your Reference:	201300304
No. of samples:	3 Materials
Date samples received:	30/09/2013
Date completed instructions received:	30/09/2013

Analysis Details:

Please refer to the following pages for results and methodology summary.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Note, even after disintegration it can be difficult to detect the presence of asbestos in some asbestos containing bulk materials using PLM and dispersion staining. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Note: Even after disintegration it can be difficult to detect the presence of asbestos in some asbestos containing bulk materials using PLM and dispersion staining. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Samples 98239- 2 & 3; Mineral fibres of unknown type detected; difficult to identify due to small length and diameter, and sparsity of the fibres. Confirmation by another independent analytical technique may be required.

Report Details:

Date results requested by:	2/10/13
Date of Preliminary Report:	Not Issued
Issue Date:	3/10/13

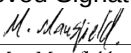
NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Asbestos was analysed by Approved Identifier: Matt Mansfield

Asbestos was authorised by Approved Signatory: Matt Mansfield


Matt Mansfield
Approved Signatory

Envirolab Ref:	Sample ID:	Date analysed	Mass / Dimension of Sample	Sample Description	Asbestos ID in materials
-	-	-	-	-	-
98239-1	201302498	3/10/2013	74x73x72mm	Camel compressed brick-like material	No asbestos detected
98239-2	201302500	3/10/2013	105x71x51mm	Camel compressed brick-like material	Unknown mineral fibre detected
98239-3	201302497	3/10/2013	95x40x28mm	Camel compressed brick-like material	Unknown mineral fibre detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

CERTIFICATE OF ANALYSIS 98239-A

Client:

Dept. of Environment, Climate Change & Water
PO Box 29
LIDCOMBE
NSW 1825

Attention: Vilma Silva / Brad Lewis

Sample log in details:

Your Reference:	201300304
No. of samples:	3 Materials
Date samples received:	30/09/2013
Date completed instructions received:	04/10/13

Analysis Details:

Please refer to the following pages for results and methodology summary.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Note, even after disintegration it can be difficult to detect the presence of asbestos in some asbestos containing bulk materials using PLM and dispersion staining. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Note: See attached AEC report 74571 for the details of the confirmation test of suspected UMF identified in the samples 98239-1, 2 & 3.

Report Details:

Date results requested by:	15/10/13
Date of Preliminary Report:	Not Issued
Issue Date:	18/10/13

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Envirolab Ref:	Sample ID:	Date analysed	Mass / Dimension of Sample	Sample Description	Asbestos ID in materials
-	-	-	-	-	-
98239-A/1	201302498	17/10/2013	74x73x72mm	Camel compressed brick-like material	No asbestos detected
98239-A/2	201302500	17/10/2013	105x71x51mm	Camel compressed brick-like material	No asbestos detected
98239-A/3	201302497	17/10/2013	95x40x28mm	Camel compressed brick-like material	No asbestos detected

MethodID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
External data	Field data provided by client

CERTIFICATE OF ANALYSIS 98927

Client:

Dept. of Environment, Climate Change & Water

PO Box 29

LIDCOMBE

NSW 1825

Attention: Vilma Silva

Sample log in details:

Your Reference:	201300304
No. of samples:	4 Materials
Date samples received:	14/10/13
Date completed instructions received:	14/10/13

Analysis Details:

Please refer to the following pages for results and methodology summary.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Note, even after disintegration it can be difficult to detect the presence of asbestos in some asbestos containing bulk materials using PLM and dispersion staining. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Report Details:

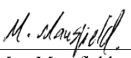
Date results requested by:	16/10/13
Date of Preliminary Report:	Not Issued
Issue Date:	16/10/13

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Results Approved By:

Asbestos was analysed by Approved Identifier:	Paul Ching
Asbestos was authorised by Approved Signatory:	Matt Mansfield


Matt Mansfield
Approved Signatory

Envirolab Ref:	Sample ID:	Date analysed	Mass / Dimension of Sample	Sample Description	Asbestos ID in materials
-	-	-	-	-	-
98927-1	201302496	16/10/2013	45x41x30mm	Camel compressed brick-like material	No asbestos detected
98927-2	201302549	16/10/2013	50x40x3mm	Grey powdery cement material	No asbestos detected
98927-3	201302499	16/10/2013	65x30x15mm	Camel compressed brick-like material	No asbestos detected
98927-4	201302501	16/10/2013	55x40x20mm	Camel compressed brick-like material	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.