NSJ EnviroSciences Pty Ltd t/a MouldLab

ABN 27 143 789 995

PO Box 306
WICKHAM NSW 2293

Phone: 02 4968 8448
Fax: 02 8004 3576
Mobile: 0410 239 848
Email: [redacted]

ANALYTICAL REPORT

CLIENT:	Airconstruct HVAC Pty Ltd 37 Carlyle Street Mackay QLD 4740
PROPERTY:	Withheld
PURPOSE OF THIS REPORT:	To detect mould and bacteria present and determine mould and bacterial counts and predominant mould genera in the samples taken from within the premises pre remediation.
DATE OF SAMPLING:	Withheld
SAMPLED BY:	Withheld
DATE SAMPLE/S RECEIVED:	Withheld
DATE OF REPORT:	Withheld
PREPARED BY:	Withheld
REPORTED AND	Withheld
RELEASED BY:	Withheld
OUR REFERENCE:	Withheld

AIHA Environmental Microbiology Proficiency Program
EMPAT Participant Lab. No:

ANALYTICAL REPORT

1 INSTRUCTIONS

1.1 Samples collected at the property were submitted by Airconstruct HVAC Pty Ltd.

1.2 The purpose of the samples submitted for analysis was to detect and report on mould and bacteria present.

2 COMMENTARY

2.1 The samples collected were referred under chain of custody to our laboratory for analysis and reporting.

2.2 The samples received were labelled and in an intact condition.

2.3 This is an Analytical Report only and may not be in a format acceptable for litigation purposes because different Jurisdictions have differing requirements. Please contact MouldLab for further assistance.

2.4 Unless MouldLab has either performed the assessment from which these samples emanate or has been provided with the requisite certification from the sampler as per Reference 8, the results contained in this report should not be relied upon as the sole criteria for granting "clearance" or post remediation verification by any party.

2.5 In accordance with our Terms & Conditions this document and its contents are intended for the Addressee only and contains opinions held by the Author who prepared this report based on material available at the time of preparation and expressed for the purposes of consideration by the Addressee and is not for general publication without written consent.

2.6 Copyright of this report is retained by the Author and the Addressee is granted an exclusive licence to its contents and use only when payment for this report is received in full, in accordance with Clause 10 of MouldLab's Terms & Conditions.

2.7 Extraction or copying of this document, except in full, without the written consent of MouldLab is unauthorised.

3 RESULTS

3.1 BIOTAPE SURFACE LIFTOFFS

The results of the surface mould detected in the samples collected from the property were tabulated as follows:

Sample	Saraji Mine Dysart QLD 4745 Our Ref: 131724	Mould/cm^2	Slide Area Counted %	Fungal Hyphae	Un-id Fungal Spores	Pollen	Gen Dirt & debris	*Acremonium spp.*	*Alternaria spp.*	*Ascomycetes*	*Aspergillus/Penicillium*	*Basidospores*	*Bipolaris/Dreschlera*	*Chaetomium spp.*	*Cladosporium spp.*	*Curvularia spp.*	*Epicoccum spp.*	*Fusarium spp.*	*Ulocladium spp.*	*Stemphylium spp.*	*Trichoderma spp.*	*Stachybotryis spp.*	*Zygomycetes*	*Torula spp.*
1	Evaporator Left Side	>61496	5	>5000	>100	-	VVVH							>1000	>5000									
2	Evaporator Right Side	>56510	5	>5000	>100	-	VVVH							>100	>5000									
	Lower limit of detection = BDL 1 mould/cm2 @ 50%	<50		<500		500 - 1000		1000 - 5000			>5000													
	Rating	Low		Normal Mould Ecology		Elevated		High			Very High													

Elevated
Further investigation is warranted when mould spores + hyphae were detected on surfaces at concentrations greater than 500/cm^2 .

High
Where the total surface spore and hyphal concentration was above 1000/cm^2 active mould may have been present or cross contamination may have ocurred. The cause and source of the mould should be determined and redressed.

Very High
When the surface mould spore & hyphal concentrations exceed 5,000/cm^2 active mould was present on these surfaces and remediation to remove the mould growth is required.

The above results are discussed in the conclusions.

3.2 SURFACE (SWAB) MOULD AND BACTERIA

The result of the surface mould and bacteria detected in the sample collected from the property was tabulated as follows:

Sample		Bacteria cfu/plate	*Acremonium spp.*	*Alternaria spp.*	*Aspergillus spp.*	*Aspergillus niger*	*Aureobasidium spp.*	*Bipolaris/Dreschlera*	*Chaetomium spp.*	*Cladosporium spp.*	*Curvularia spp.*	*Fusarium spp.*	*Epicoccum spp.*	*Paecilomyces spp.*	*Penicillium spp.*	*Pithomyces spp.*	*Stemphylium spp.*	*Trichodermaspp.*	*Stachybotrys spp.*	*Zygomycetes*	*Yeasts*	Mould cfu/plate
3	Evaporator - LHS	>100			>500				>100	>1000					>500			>100		>100	>100	>2300
PREDOMINANT GENERA ONLY - CONFLUENT GROWTH																						
		<50		50 - 100		100 - 250		>250														
	Rating	Normal Mould Ecology		Elevated		High		Very High														

Elevated
Further investigation is warranted when viable mould were detected on surfaces at concentrations between 50-100 cfu/plate or more than 25 cfu/plate if potentially pathogenic genera (in **red**) were detected.

High
Above 100 cfu/plate active mould contamination may have been present on the surface. The cause and source of the mould should be determined and redressed.

Very High
If surface mould concentrations exceed 250 cfu/plate, very high mould contamination was present on these surfaces and remediation to remove the mould growth or cross contamination is required.

The above result is discussed in the conclusions.

4 CONCLUSIONS

4.1 The levels of surface mould detected in the samples collected from within the premises were rated as **Very High** on microscopy.

4.2 The level of surface mould (swab) detected in the sample collected from within the premises was rated as **Very High** on culture.

4.3 Very high levels of fungal hyphae were detected – the presence of fungal hyphae is indicative of active mould growth and therefore constitutes a potential health hazard.

4.4 A high level of bacteria was detected in sample 3 submitted for analysis.

4.5 With reference to the types and levels of mould detected in the samples submitted from the above site, genera of mould were detected which include species which are known[1,7] to be either:

- Immunocompromising; and/or
- Allergenic; and/or
- Mycotoxin producers.

4.6 Additional assessment is recommended to determine the scope of the mould contamination and mould amplification within the premises.

4.7 Therefore, on the basis of the results from the samples provided, both the HVAC System and the premises require remediation by an accredited remediator, employing methods as set out in the HVAC Hygiene Guidelines[6] and the ANSI Standard s520 (2008), published by the IICRC[2] or equivalent.

4.8 Following remediation, retesting of the premises to confirm post remediation validation should be performed.

For and on behalf of
NSJ EnviroSciences Pty Ltd
ABN 27 143 789 995
t/a MouldLab

DAVID LARK
Mycologist

MouldLab

REFERENCES:

1. "Microorganisms in home and indoor work environments. Diversity, health impacts, investigation & control." Flannigan, B, Samson, R. A & Miller, J. D. 2nd Edn. 2011. CRC Press, Boco Raton, London & New York.

2. "Standard & Reference Guide for Professional Mold Remediation" IICRC s520 – Aug. 2008, 2nd Ed. Institute of Inspection, Cleaning & Restoration Certification, Vancouver, Washington 98661 USA.

3. "WHO Guidelines for Indoor Air Quality – Dampness and Mould", 2009 World Health Organisation, Copenhagen, Denmark, ISBN 978 92 890 4168 3.

4. "Australian Mould Guideline (AMG 2010)". Kemp, P.C et al. 2nd Edn. 2010 Messenger Publishing.

5. "Worldwide Exposure Standards for Mold & Bacteria - Assessment Guidelines for Air, Water, Dust Ductwork, Carpet & Insulation", 8th Ed., 2010 – Robert C. & Gail M. Brandys, OEHCS, Inc. IL. ISBN 0-9774785-0-5

6. "HVAC Hygiene Guidelines, 2009" Australian Institute of Refrigeration, Air Conditioning & Heating.

7. "Food & Indoor Fungi" Samson, R.A et al CBS-KNAW Fungal Biodiversity Centre, Utrecht, The Netherlands ISBN 978 90 70351 82 3.

8. "Post-Remediation Testing and Verification for Mold and Bacteria" 4th Ed., 2011-Robert C. & Gail M. Brandys, OEHCS, Inc. IL. ISBN 978-0-9774785-1-4.